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Economic Review of the Financial Regulation Agenda

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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

A reformed financial sector for Europe

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EXECUTIVE SUMMARY

Key messages

- The financial crisis showed that a fundamental overhaul of the regulatory framework in the financial sector was necessary.
- The reforms will deliver greater financial stability. The financial system has already changed and improved in key aspects, and this will continue as the reforms take effect.
- Greater financial stability is being achieved without sacrificing the other key public policy objectives of efficiency, market integrity (including consumer protection), and financial integration. On the contrary, the reforms support these objectives.
- Many of the costs of the reforms are private costs to financial intermediaries that arise in the transition to a more stable financial system and are offset by wider economic and societal benefits. The reform agenda has been mindful of the need to minimise costs, allowing longer phasing-in and observation periods and adjusting rules where required.
- As a result, the financial reform agenda will help build a financial system that serves the economy and facilitates sustainable economic growth.
- There is a need for ongoing monitoring and review to assess the effectiveness and market impacts of the reforms and to identify new risks and vulnerabilities that may require policy action.

In response to the financial crisis, the EU has pursued an ambitious regulatory reform agenda that has been coordinated with international partners in the G20. The aim has been to restore financial stability on a global scale and build a financial system that serves the economy and can play its part in putting the EU back on a path of sustainable growth.

The Commission has followed a detailed roadmap in reforming the financial system. In 2009, the Commission set out the way forward for improving the regulation and supervision of EU financial markets and institutions.¹ Building on this roadmap, in 2010, the Commission announced further measures to bring about a safe and responsible financial sector which is conducive to economic growth and delivers enhanced transparency, effective supervision, greater resilience and stability as well as strengthened responsibility and consumer protection.² The subsequent emergence of specific risks which threatened financial stability in the euro area and the EU as a whole called for deeper integration to put the banking sector on a more solid footing and restore confidence in the euro. This led to the development of the Banking Union.³

¹ Communication on 'Driving European recovery'; COM(2009) 114 final. This followed the recommendations of a group of high-level experts, set up by the Commission and chaired by Mr de Larosière (Report of the High-level Group of Financial Supervision in the EU, 25 February 2009).

² Communication on 'Regulating financial services for sustainable growth'; COM(2010) 301 final

³ Communication on 'A roadmap towards a Banking Union' COM(2012) 510 final. Communication on 'A blueprint for a deep and genuine economic and monetary union – Launching a European debate'; COM(2012) 777 final/2.

As this Commission approaches the end of its mandate, this study provides an economic review of the EU financial regulation agenda.⁴ Building on the individual impact assessments that have accompanied each reform proposal adopted by the Commission, the study examines the overall coherence of the reform agenda and the expected or actual economic impact, including the interactions and synergies between different reforms.

The full impact of the financial reform agenda can in principle only be assessed in the years to come, but even then it will be difficult to isolate regulatory impacts from other factors, such as the direct consequences of the crisis (e.g. increased risk aversion, uncertain market conditions, monetary policy interventions and low interest rates) and wider macroeconomic, technological and demographic changes. Pre-crisis market conditions cannot serve as the relevant benchmark, as it is precisely the boom-bust experience which much of the financial reform agenda aims to avoid being repeated.

In addition, there are severe data limitations that impede the quantitative assessment of many reform measures. For this reason, it would not be possible to come up with a reliable and comprehensive quantitative estimate of the total costs and benefits of regulation. Moreover, the available models simply do not allow the inclusion of key expected impacts, in particular certain categories of benefits. Therefore, the approach taken in this study is largely qualitative in nature, using quantitative evidence where available, relevant and appropriate.

The EU financial regulation agenda is gradually strengthening regulation and supervision to improve the stability and functioning of the financial system for the benefit of the economy. Legislative measures have only recently been adopted, and some are yet to enter into force. These measures now need to be implemented in full across the EU and systematically and effectively enforced. Many of them are subject to longer phasing-in periods and will be complemented with delegated and implementing acts. Accordingly, this study should be understood as a first step of a longer process of systematic review and evaluation of the reforms.

THE COST OF THE CRISIS AND THE NEED FOR REFORM

Financial institutions and markets play a vital role in any developed economy. They provide lending to households and businesses. They help individuals to save and invest for their future and channel savings to support the economy. They help corporations and households in better managing and insuring against risks. And they facilitate payment transactions. By performing these key functions, a well-functioning financial system contributes to economic growth and prosperity. Past experience has shown, however, that failure of the financial system can have profound negative consequences for the wider economy.

Misaligned incentives and other severe deficiencies in the financial system, combined with shortcomings in the regulatory and supervisory framework, were key contributors to the financial crisis. The multitude and severity of problems called for far-reaching financial reforms.

⁴ The review only covers financial services regulatory reform and not the other important reforms taken in response to the crisis.

In the years preceding the crisis, the global financial system had grown significantly in size and become increasingly interconnected through long and complex intermediation chains, increasing systemic risks. The total assets of monetary financial institutions in the EU increased to more than EUR 45 trillion (or more than 350 % of EU GDP), with the largest EU banks holding more than EUR 1 trillion each. Leverage strongly increased as part of the active balance sheet expansion of banks, and banks relied more on short-term wholesale funding. The rapid growth of the financial sector was also facilitated by a surge in innovative but often highly complex financial products that allowed financial institutions to expand activities on and off their balance sheets.

Policymakers, regulators and supervisors failed to assess and adequately address the risks building up in the global financial system. They failed in macro-prudential surveillance and in keeping up with financial innovations. Many activities largely escaped any regulation and oversight. Moreover, while the operations of the largest financial institutions expanded significantly across borders and markets became increasingly integrated internationally, regulatory and supervisory frameworks remained largely nationally focused.

With the start of the financial crisis, all these deficiencies unravelled. What started as a sub-prime crisis in the USA in 2007 quickly spilled over into a full-blown global financial crisis. In Europe, the financial crisis later turned into a wider sovereign debt crisis with significant implications for the economy as a whole.

The financial and economic crisis caused large costs to the EU economy:

- Between 2008 and 2012, European governments provided state aid totalling EUR 1.5 trillion to prevent the collapse of the financial system (i.e. more than 12 % of 2012 EU GDP). In addition, central banks had to provide significant liquidity support. For example, as part of its three-year long-term refinancing operations in 2011 and 2012, the ECB lent some EUR 1 trillion to banks in the euro area.
- Output declined sharply and, for some EU countries, GDP remains below pre-crisis levels. While the final costs associated with output losses are still unknown, the cumulative output losses, measured in present value terms, may amount to 50-100 % of annual pre-crisis EU GDP (about EUR 6-12.5 trillion, based on 2008 GDP).
- The crisis wiped out financial wealth, including wealth accumulated by households. The total net financial assets of households in the euro area declined by nearly 14 % between mid-2007 and mid-2009, but have since recovered. This average conceals major differences between Member States.
- Households' trust in the financial sector has been considerably damaged. More than 60 % of EU citizens surveyed in 2013 stated that they had lost confidence in the financial sector (as well as in the relevant authorities) as a consequence of the crisis. Trust can be quickly lost but is slow and difficult to restore.
- The crisis was accompanied by significant job losses in the EU and increased poverty and inequality. The EU unemployment rate increased from a pre-crisis low of 7.2 % in 2007 to 10.8 % in 2013, with unemployment rising to more

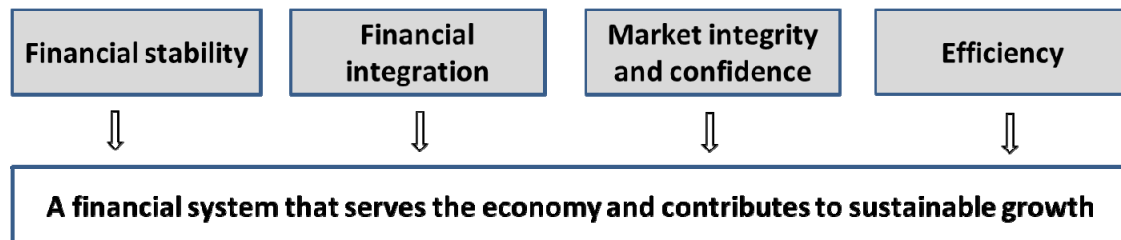
than 25 % in Greece and Spain. Compared with the end of 2007, an additional 9.3 million people are now unemployed in the EU. Youth unemployment has risen more sharply, and there is a risk of social tensions and of a lost generation in some Member States. Between 2008 and 2012, the number of people at risk of poverty and exclusion in the EU has increased by 7.4 million.

THE OBJECTIVES AND THE EXPECTED BENEFICIAL EFFECTS OF THE REFORMS

The EU financial regulation agenda has been guided by the aim of creating a safer, more transparent, and more responsible financial system, working for the economy and society as a whole, and contributing to economic growth. The reform measures deliver on these objectives by:

- enhancing financial stability and the resilience of the financial system to reduce the likelihood and impact of future financial crises in the EU;
- restoring and deepening the EU single market in financial services.
- securing market integrity and confidence in the EU financial system by protecting consumers and investors, countering market abuse and enhancing disclosure and transparency;
- improving the efficiency of the EU financial system and ensuring that transaction costs are minimised and financial services are priced correctly to reflect underlying risks.

Chart 1: Overview of the reform objectives



Financial stability

The EU took a comprehensive set of measures to strengthen the stability and resilience of the financial system. Taken together, the measures are expected to reduce the build-up and emergence of systemic risk across the financial system, thereby reducing the incidence and adverse effects of future financial crises.

In the **banking sector**, the crisis proved that existing rules were inadequate and needed to be adjusted, in order to:

- *Enhance deposit guarantees*: Only weeks after the Lehman failure in 2008, the Commission proposed to increase the coverage level of deposit guarantee schemes (DGS), which led via an interim step to a harmonised coverage of EUR 100 000 since 2010. This measure immediately increased depositor confidence and helped mitigate the risk of bank runs across the EU.⁵

⁵ Full references for the different measures are provided in the relevant sections of the study.

- *Decrease the probability of individual bank failure:* The new Capital Requirements Directive and Regulation (the CRD IV package) increase the level and quality of bank capital, thereby improving banks' capacity to absorb losses. They are also enhancing individual banks' resilience to liquidity shocks and limit the over-reliance on short-term funding. Combined with rules on better internal risk management and governance, these measures are expected to significantly reduce the probability of individual bank failure.
- *Reduce pro-cyclicality and systemic risk:* The CRD IV package requires banks to build additional capital buffers in good times that can be used in periods of stress. It also introduces additional capital requirements for systemically important banks and other measures to reduce the interconnectedness and systemic risk in the banking sector.
- *Facilitate crisis management and resolution:* a new Directive for bank recovery and resolution (BRRD) was proposed and has been agreed between the co-legislators in order to reduce the impact of bank failures on the economy and in particular to help ensure that the costs of failure are not borne by taxpayers. The BRRD entrusts national authorities with crisis management and bank resolution tools, including specific powers to impose losses on shareholders and unsecured creditors (bail-in) so as to reduce the likelihood of taxpayer-financed bail-outs.
- *Address the 'too-big-to-fail' problem:* The BRRD ensures an orderly resolution of EU banks in general, reducing systemic risk and hence the need for state aid to maintain financial stability. The complex structure of certain heavily interconnected and systemically important banks makes them harder to resolve. The expectation of state support leads to an implicit subsidy for these banks. The Commission's proposal on structural measures, including the proposed prohibition of proprietary trading and eventual separation of trading from deposit-taking and commercial banking activities, would further facilitate their resolution and mitigate the distortionary effects of the implicit subsidy.

To effectively reduce systemic risks across the financial system as a whole, the banking sector reforms have to be complemented with reforms to improve the functioning of **financial markets** and increase the stability and resilience of **financial market infrastructures**.

- *More resilient securities trading:* The revised Markets in Financial Instruments Directive (MiFID II) strengthens organisational requirements and safety standards across all EU trading venues and extends trade transparency requirements to bond and derivatives markets. It also introduces regulatory safeguards to control the risks related to algorithmic and high-frequency trading.
- *Less risky and less opaque derivative markets:* Global derivatives markets had grown exponentially prior to the crisis (to more than USD 700 trillion in notional value or more than 12 times of world GDP in 2008) and were largely outside the perimeter of regulation. In coordination with the G20, EU reforms

improve the transparency of derivatives that are traded over-the-counter (OTC) and reduce counterparty risk. The European Market Infrastructure Regulation (EMIR) requires all standardised derivative contracts to be cleared by a central counterparty (CCP), and all derivatives transactions to be reported to trade repositories. MiFID II further requires those derivatives to be traded on multilateral trading venues. More risk-reflective margins and improved risk management for non-centrally cleared trades will help reduce bilateral counterparty risk. In addition, new requirements to report trades to trade repositories will allow supervisors to better monitor risks and exposures.

- *Stronger settlement systems:* By imposing common prudential, organisational and business conduct standards, the Regulation on central securities depositories (CSDR) will increase the resilience of central securities depositories (CSDs), which settled about EUR 887 trillion worth of transactions in the EU in 2012. The regulation will also enhance the safety of the settlement process, in particular for cross-border transactions, and ensure that buyers and sellers of securities receive their securities or money on time and without undue risk.

Together, MiFID II, EMIR and CSDR form a framework in which systemically important market infrastructures are subject to common rules at a European level. A regulation was also adopted to address specific concerns raised by short-selling and credit default swaps.

All financial markets, products and participants need to be adequately regulated and subject to appropriate oversight. **Shadow banking** (i.e. the system of credit intermediation that involves entities and activities outside the regular banking system) presents an important source of finance but can raise systemic risks. In the pre-crisis years, the shadow banking sector had grown significantly in size (to USD 31 trillion in total assets in the EU, according to estimates of the Financial Stability Board) and was largely unregulated. It had also become highly interconnected, with strong links to the banking sector. In coordination with the G20, the EU reform agenda therefore includes a number of key measures to reduce systemic risk associated with shadow banking, although work in this area continues.

- Requirements are imposed on regulated banks and insurance companies in their dealings with the shadow banking sector.
- A harmonised framework for alternative investment funds managers (AIFMD) has been introduced to properly supervise hedge funds and other alternative funds and particularly their leverage and counterparty risk exposures.
- The proposed regulation on money market funds (MMFs) will enhance the resilience of MMFs by requiring adequate liquidity and capital buffers.
- The proposal on transparency and reporting requirements for securities financing transactions will reduce the opacity of shadow banking activities and allow better supervision and monitoring of those activities.

Stability is also reinforced by a new regulatory framework for the **insurance sector**. Well before the crisis, it had become apparent that the prudential regime for insurers

was no longer adequate. From 2016, a new prudential framework (Solvency II) will be applied that is risk-based and market-consistent to increase the resilience and stability of the European insurance sector.

Financial integration and the EU single market in financial services

In response to the crisis, a number of Member States took action on their own and adopted regulatory reforms aimed at curbing financial stability risks at national level. National responses were however often divergent and, given the integration of markets, risked being ineffective and creating arbitrage opportunities. A key benefit of regulatory and supervisory intervention at EU level therefore derives from a **coordinated and consistent response to the crisis** across the EU and better coordination with international partners in the G20.

Previously, EU financial services legislation was largely based on minimum harmonisation, allowing Member States to exercise considerable flexibility in transposition. This sometimes led to uncertainty among market participants operating across borders, facilitated regulatory arbitrage and undermined incentives for mutually beneficial cooperation. The Commission has therefore proposed to establish a single rulebook, providing for a single set of uniform rules for the financial sector throughout the EU. The **single rulebook** will ensure a single regulatory framework and its uniform application across the EU.

The creation of the **European System of Financial Supervisors (ESFS)** — and in particular the three European supervisory authorities: the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), and the European Insurance and Occupational Pensions Authority (EIOPA). These EU agencies, operating since 1 January 2011, are important to further develop the single rulebook and ensure consistent supervision and appropriate coordination among supervisory authorities in the EU. In addition, the European Systemic Risk Board (ESRB) monitors macro-prudential risks across the EU and can issue warnings and recommendations to call for corrective action.

The reform agenda is underlined by a new horizontal approach to **sanctioning regimes** to improve enforcement through more effective and sufficiently deterrent sanctions across the whole spectrum of financial sector legislation.

Banking Union

The financial crisis revealed weaknesses in the institutional structures supporting economic and monetary union (EMU). The crisis abruptly halted financial integration, and fragmentation threatened the integrity of the single currency and the single market. While banks had diversified geographically and engaged in significant cross-border activities, they remained closely linked to the Member State in which they were headquartered, contributing to the negative sovereign-bank feedback loop that weakened banks and sovereigns in some Member States.

Building on the single rulebook, the first pillar of the Banking Union is the Single Supervisory Mechanism (SSM), which transfers key supervisory tasks for banks in the euro area and other potential participating Member States to the European Central Bank (ECB). The ECB will fully carry out its new supervisory mandate as of

November 2014. In preparation for its new supervisory role the ECB is currently conducting an asset quality review and a stress test, in coordination with the EBA, which will be vital for restoring confidence in the European banking system and ensuring a smooth transition towards the SSM.

The second pillar of the Banking Union - the Single Resolution Mechanism (SRM) – will achieve an integrated and effective resolution process at European level for all banks in participating Member States. A Single Resolution Fund, funded through bank contributions, will be set up, but recourse to the fund will only be possible after appropriate burden-sharing by shareholders and creditors.

The Banking Union is expected to ensure high and common standards for prudential supervision and resolution of banks in the euro area and other participating Member States. It will also improve financial integration and support the transmission of ECB monetary policy.

Market integrity and confidence

Integrity is about trust and confidence in the financial system, which largely depends on transparent and reliable information flows, ethical and responsible behaviour of financial intermediaries and their fair treatment of consumers. Failures in these areas were highlighted by the crisis and by more recent scandals of abusive market practices, including the manipulation of interest rate benchmarks (LIBOR and EURIBOR) and the alleged manipulations of benchmarks in foreign exchange and commodity markets. While the damage is difficult to quantify, it is likely to be large and in excess of the billions of euros of record fines that banks had to pay.

The financial regulation agenda secures greater market integrity and confidence by:

- *Countering market abuse*: the revised Market Abuse Regulation and Directive on Criminal Sanctions for Market Abuse (MAR/CSMAD) will establish tougher rules to better prevent, detect and punish market abuse. Also, the Commission's proposal for a regulation on financial benchmarks would enhance the robustness and reliability of benchmarks and counter their manipulation.
- *Improving the protection of consumers*: Several proposals seek to ensure that consumers have fair access to financial services and benefit from the required protection, irrespective of whether they consume banking, insurance or investment products and services. The measures provide for: the establishment of EU-wide responsible mortgage lending standards (Mortgage Credit Directive, MCD); better information disclosure and higher standards for financial advice and distribution (MiFID II, MCD, the Payment Accounts Directive (PAD), the revised Insurance Mediation Directive (IMD II), and new rules on packaged retail and insurance-based investment products (PRIIPs) and undertakings for collective investment in transferable securities (UCITS)); enhanced protection of the assets of consumers (DGS, rules on asset safekeeping in UCITS, AIFMD and MiFID II); a prohibition of some surcharges (regulation on multilateral interchange fees); more secure alternative payment methods (Payment Services Directive II); and more

transparency of bank account fees, easier bank account switching procedures, and access to basic bank accounts (PAD).

- *Enhancing the reliability of credit ratings and financial information:* The rules on credit rating agencies (CRAs) should increase the independence and integrity of the ratings process and enhance the overall quality of the ratings. Audit reforms aim to improve the quality of statutory audits within the EU and, combined with reforms of the international accounting standards that apply in the EU, should help enhance confidence in financial statements, in particular those of banks, insurers and large listed companies.

Efficiency

By addressing underlying market and regulatory failures, the financial reform agenda improves the efficient functioning of the financial system. The main efficiency benefits are expected to come from the following:

- *Enhancing transparency:* Improved disclosure and reporting requirements in various reform initiatives will not only provide vital information for supervisors but also reduce information asymmetries in the system for all market participants. Furthermore, various transparency and disclosure requirements in retail financial services help to better inform consumers, thereby enhancing the competitive functioning of the market.
- *Reducing distortions in the single market:* Banking Union, the establishment of a single rulebook and other measures supporting financial integration contribute to efficiency by levelling the playing-field and facilitating cross-border activities.
- *Reducing the implicit subsidy:* Systemically important banks often benefited from a credit rating uplift due to an implicit bail-out guarantee. The total implicit subsidy has been estimated by the European Commission to be in the range of EUR 72-95 billion in 2011 and EUR 59-82 billion in 2012, based on a sample of 112 EU banks. This amounts to 0.5 % to 0.8 % of annual EU GDP and between one third and one half of the banks' profits. The CRD IV package, the BRRD and proposed restrictions on the activities of large, complex and interconnected banks (i.e. structural reform) will reduce competitive distortions by reducing the implicit subsidy and help to correct mispricing of risks.
- *Ensuring that risks are properly reflected in prices:* The improved prudential framework for banks and the new risk-based capital requirements for insurers in Solvency II, combined with improved risk management standards, will encourage financial institutions to internalise the risk of their activities and contribute to more efficient, risk-adjusted pricing.
- *Enhancing competition and efficiency along the securities trading chain:* The access provisions contained in MiFID II, EMIR and the CSDR reduce access barriers to financial market infrastructures and promote competition along the whole securities trading chain. These initiatives can also increase efficiency by

improving transparency and prepare the ground for further initiatives (e.g. the Target 2 Securities project which will consolidate settlement across Europe).

- *Promoting market entry*: The revised CRA Regulation and the audit reforms aim to promote competition by facilitating market entry and increasing the visibility of new entrants.

Efforts have been made to strike a balance between strengthening requirements to ensure financial stability and allowing a sufficient and sustainable flow of finance to the economy.

The reform measures devote particular attention to small and medium-sized enterprises (SMEs), given their particular difficulties in securing external finance and their important role in EU employment and growth. The EU financial framework has been adapted considerably over the last three years, on the basis of an action plan adopted in December 2011.⁶ The measures include: reducing the administrative burden and reporting requirements for SMEs (Prospectus Directive, Transparency Directive, Accounting Directive, MAR/CSMAD); creating a dedicated trading platform to make SME capital markets more liquid and visible (MiFID II); addressing the issue of risk weights in the bank capital framework to make SME lending relatively more attractive (CRD IV package); and introducing new EU frameworks for investment in venture capital and in social entrepreneurship funds. The proposal on European long-term investment funds further aims to ensure the long-term financing of SMEs and key infrastructure investment. Additional measures to facilitate the long-term financing of the EU economy are currently being developed, as set out in the March 2014 Communication on long-term financing of the European economy.⁷

Complementarity of reforms

The large number of regulatory reforms at EU level, and their broad scope, is a reflection of the battery of underlying problems that needed to be addressed. No single reform would have been capable of achieving the four objectives of greater stability, integrity, efficiency and integration to improve the functioning of the financial system overall and facilitate sustainable economic growth.

The combination of different reform measures helps the four objectives to be achieved more effectively and at lower cost. For example, if higher capital requirements were used as the only regulatory tool to enhance stability in the banking sector, the capital levels required might need to be set so high that it would be difficult for banks to raise sufficient capital, given the size and leverage of their balance sheets. The consequent costs from disruptions to the efficient flow of financial services to the economy could then outweigh the stability benefits. Complementing the new capital requirements with further measures (in particular the BRRD and structural reform) helps to meet the stability objective while limiting disruptive effects.

⁶ Communication on 'An action plan to improve access to finance for SME's', COM(2011) 870 final

⁷ COM(2014) 168 final

Many of **the reform initiatives contribute to delivering more than one key objective of the reform agenda**. The objectives themselves interact and can only achieve a well-functioning financial system when combined. For example, financial integration needs to go hand in hand with a strong regulatory and supervisory framework to avoid cross-border capital flows becoming a source of financial instability. Reforms to the institutional framework to strengthen the single market and the functioning of EMU (ESFS, single rulebook and SSM) therefore target both financial integration and stability. Also, financial stability is of little benefit to the economy if this is achieved by unduly hindering the efficient functioning of the financial system. This is why the reform agenda focuses on correcting market failures. Measures which target information asymmetries (e.g. transparency and disclosure requirements) or which align private incentives with public interests and facilitate risk-reflective pricing in the market (e.g. the package of measures to reduce the implicit subsidy to banks) contribute to both financial stability and efficiency.

There are cross-sectoral synergies between some reforms. For example, there are synergies between the CRD IV package in banking and the EMIR reform on derivatives markets. The former imposes higher capital and collateral requirements on banks concluding derivative contracts that are not centrally cleared under EMIR. This will encourage a critical mass of contracts to be cleared through CCPs and thereby effectively enable central clearing to mitigate counterparty risk (as intended by EMIR), contributing to financial stability overall. As a second example, the CRA regulations are strengthened by measures in all EU sectoral legislation to reduce the mechanistic reliance on credit ratings. Finally, requirements for risk retention, due diligence and monitoring of securitisation positions were first introduced in the new bank capital framework and then extended in a consistent manner to Solvency II, AIFMD and UCITS. This cross-sectoral approach reduces the opportunities for circumventing the requirements by shifting exposures to less regulated sectors.

THE COSTS AND NET IMPACTS OF THE REFORMS

Financial reform imposes costs on financial intermediaries (and their shareholders and employees) as it introduces compliance costs and requires adjustments in the way business is conducted. The compliance costs have been estimated as part of the impact assessments of the various legislative initiatives and are laid out in more detail in the main body of the study. A part of these costs are temporary **adjustment costs during transition to a more stable and responsible financial system**. The recurring costs that financial intermediaries will incur on a regular basis to meet the stricter regulatory requirements after the transition period are the costs that matter more in the long-term. These costs are expected to be more than offset by the benefits of enhanced stability and integrity of the financial system.

Costs to financial intermediaries are inevitable and, to a certain extent, are a sign of the effectiveness of the reforms. For example, a reduction in the implicit subsidy for certain large, complex and interconnected banks will increase their funding cost, but this cost is matched by future taxpayer savings and wider financial stability benefits. Similarly, the reforms induce a re-pricing of risks, which again creates costs, but these costs are matched by the benefits of avoiding excessive risk-taking due to underpriced risks in the market. Thus, **costs to financial intermediaries often do not present costs from a societal perspective and are offset by wider economy benefits**.

For economic welfare, the aggregate societal costs and benefits are relevant, i.e. the impact on all stakeholders in the economy, including users of financial services (e.g. depositors, borrowers and other consumers of financial services), taxpayers and the wider economy.

The impact assessments conducted for the individual reform proposals predict (and in some cases quantify) benefits exceeding costs. Attempts have also been made to produce quantitative estimates of the macroeconomic impact of reforms.

- Based on simulations by the Commission, higher bank capital requirements (as per the CRD IV package) combined with the bail-in and resolution fund (as per the BRRD) are estimated to deliver macroeconomic benefits of around 0.6-1.1 % of EU GDP per year (or about EUR 75-140 billion per year, based on 2013 EU GDP).
- In comparison, the macroeconomic costs of the same banking reforms have been estimated in a separate model and show a long-term negative output effect of about 0.3 % of EU GDP per year.
- These results are consistent with results from other studies by public authorities. For example, the long-term economic impact assessment of bank capital and liquidity regulations prepared by the Bank for International Settlement (BIS) confirms significant net benefits.
- The 2013 study by the BIS macroeconomic assessment group on derivatives estimates that the macroeconomic costs of OTC derivatives regulatory reforms would range between 0.03 % and 0.07 % of annual global GDP. The estimated gross benefits from OTC derivatives reforms are 0.16 % of annual global GDP, exceeding the costs more than twofold.

While these estimates show net benefits, they are subject to modelling uncertainty. Also, not all dimensions of reform impact can be included in the available quantitative models. The models are usually static and do not capture the transition to a more stable financial system.

The transition to a more stable financial system is particularly challenging and needs to be managed carefully. The reform process has been mindful of the potential costs of regulation and in particular the interaction of the new rules with the current difficult conditions in financial markets and the wider economy:

- **Longer phasing-in periods** have been granted in the transition phase to minimise costs and potential disruptions during the transition (although the market itself often requires tighter standards ahead of regulatory deadlines).
- Where significant adverse effects were anticipated, the **rules have been adjusted** (e.g. trade finance in the CRD IV package or the long-term guarantee package in Solvency II) or, under certain circumstances, **exemptions have been granted** (e.g. for pension funds and non-financial corporates in EMIR and for SME growth markets in CSDR).

- Where rules entered uncharted waters, **observation periods** have been applied (e.g. with regard to the leverage ratio and liquidity regulation of banks).
- **Review clauses** have been introduced in all major pieces of legislation.

There are areas of concern where the reforms may contribute to creating new risks or have unintended consequences if left unaddressed. These include, in particular, the risk of increases in the cost of financial intermediation, in particular for long-term finance, disorderly deleveraging, regulatory arbitrage, the complexity of regulation, a concentration of risks at the level of CCPs, potential collateral scarcity and increased asset encumbrance of bank balance sheets. These risk areas are either the subject of ongoing work and addressed through careful implementation or are not considered, at this stage, to require immediate policy action, but they will nonetheless be subject to continual monitoring. Ongoing monitoring and review of all reforms is required to ensure that they deliver their intended benefits while avoiding the undesired effects.

OVERALL ASSESSMENT

The EU financial regulation agenda addresses the regulatory shortcomings and market failures that contributed to the crisis. The reforms should reduce the likelihood and impact of financial crises occurring in the future. In addition to enhancing financial stability, the reform measures will help meet the other key public policy objectives of market integrity (including consumer protection), efficiency and financial integration.

The total benefits of the financial regulation agenda, if fully implemented, are expected to outweigh the costs. Individual impact assessments showed net benefits, and many of the rules create considerable positive synergies when combined. The reforms are expected to improve the functioning of the financial system and make it more stable, responsible and efficient, to the benefit of the EU economy.

Some important reforms still need to be adopted (e.g. on bank structural reform, shadow banking, financial benchmarks). Also, work in a few remaining areas is still under preparation. In particular, work on a resolution framework for non-banks and to address concerns in shadow banking is ongoing at EU and international level.

In addition to full implementation of the reforms, regulatory attention is focusing on tackling long-term financing and developing a more diversified financial system with more direct capital market financing and greater involvement of institutional investors and alternative financial markets. As set out in the March 2014 Communication on long-term financing, addressing these issues is a priority to reinforce the competitiveness of Europe's economy and industry.⁸

While the reforms address the problems revealed by the recent crisis, the risk of future crises cannot be regulated away. The Commission will remain vigilant and proactive, monitoring financial innovations and identifying new risks and vulnerabilities as they emerge.

⁸ COM(2014) 168 final

CHAPTER 1: INTRODUCTION

In response to the financial crisis, the EU has pursued an ambitious regulatory reform agenda, coordinated and linked with the G20 reforms. The aim has been to strengthen regulation and supervision of the financial sector to restore and safeguard financial stability and to ensure that the financial sector can play an effective part in putting the EU back on a path of smart, sustainable and inclusive growth, creating jobs and enhancing competitiveness.

The Commission has followed a detailed roadmap in reforming the financial system. In 2009, building on the recommendations of a group of high-level experts, chaired by Mr de Larosière,⁹ the Commission laid down the way forward for improving the regulation and supervision of EU financial markets and institutions.¹⁰ Building on this roadmap, in 2010 the Commission further developed its vision of a safe and responsible financial sector which is conducive to economic growth and delivers enhanced transparency, effective supervision, greater resilience and stability as well as strengthened responsibility and consumer protection.¹¹ The emergence of specific risks which threatened financial stability in the euro area and the EU as a whole called for deeper integration to put the banking sector on a more solid footing and restore confidence in the Euro. This led to the development of the Banking Union.¹²

As this Commission approaches the end of its mandate, this study provides an economic review of the EU financial regulation agenda, with a view to assessing its overall coherence and the ongoing and expected economic impacts.

Each Commission reform proposal has been accompanied by a thorough impact assessment that evaluates in detail the associated costs and benefits.¹³ This staff working document does not replace or supersede the individual impact assessments. Rather, the study seeks to evaluate the overall coherence and consistency of the reform package and to review whether the different reform measures have delivered (or can be expected to deliver) their objectives and intended benefits. It also considers the potential interaction between different rules, including any synergies between rules that may reinforce the positive effects but also unintended consequences. The document examines the potential costs and adverse impacts of the rules, including concerns expressed by the financial services industry that the new regulations may be going too far and reducing the ability of the financial sector to channel finance to the real economy and thereby hinder recovery, growth and employment in the EU economy.

No study has yet attempted to assess comprehensively the total impact of the full set of the newly adopted EU financial services legislations. The available studies often

⁹ High-level Group of Financial Supervision in the EU (2009).

¹⁰ Communication on 'Driving European recovery'; COM(2009) 114 final

¹¹ Communication on 'Regulating financial services for sustainable growth'; COM(2010) 301 final

¹² Communication on 'A roadmap towards a Banking Union' COM(2012) 510 final. Communication on 'A blueprint for a deep and genuine economic and monetary union – Launching a European debate'; COM(2012) 777 final/2.

¹³ Additional impact studies were prepared by international bodies, as well as by industry associations and other bodies. See also annex 1.

focus on the costs of (a subset of) the regulations.¹⁴ Often, these studies focus mainly on the direct costs of regulation to financial intermediaries, whilst ignoring the benefits and wider economic effects. From the public policy point of view the focus should be on the benefits and costs for society, including the impact on consumers, investors, SMEs and the economy as a whole.

Regulatory reform is driven by a number of key objectives, but the resulting benefits are very hard to quantify. For example, the monetary benefit of increased market confidence or the creation of a level-playing field can be very hard to correctly quantify. Any quantitative assessment risks overemphasising the costs of regulation to the extent that they are more easily quantifiable than the benefits.¹⁵

Many of the legislative measures taken as part of the financial reform agenda only recently entered into force. Moreover, several key measures are subject to phasing-in periods. EU Directives also need to be transposed into national law, and a large number of delegated and implementing acts need to be developed.¹⁶ Thus, the implementation phase over the next few years will be critical.

Implementing the financial reform agenda is not a one-off exercise but a gradual process to restore financial stability and develop a financial system that better contributes to economic welfare and facilitates growth. In addition to phasing in the requirements over time and allowing extended observation periods before some rules are finalised, the reform package comes with explicit commitments to review legislations and allow adjustments to specific rules when this is deemed necessary.¹⁷ In many ways, this study is therefore only the start of a longer process of systematic review of the reforms.

The full impact of the financial reform agenda can, in principle, only be assessed ex-post, but even then it will be difficult to isolate regulatory impacts from other factors, such as the direct consequences of the crisis (e.g. increased risk aversion, uncertain market conditions, monetary policy interventions and low interest rates) and wider macroeconomic, technological and demographic changes. Pre-crisis market conditions cannot serve as the relevant benchmark, as it is precisely the boom-bust experience which much of the financial reform agenda aims to avoid being repeated.

In addition, there are severe data limitations that impede the quantitative assessment of many reform measures. For this reason, it would not be possible to come up with a reliable and comprehensive quantitative estimate of the total costs and benefits of regulation. Moreover, the available models simply do not allow the inclusion of key expected effects, in particular certain categories of benefit. Instead, the approach taken in this study is largely qualitative in nature, using quantitative evidence where available, relevant and appropriate.

¹⁴ See annex 1 for a review of quantitative studies in the banking sector.

¹⁵ Indirect costs or unintended consequences of regulation are also difficult to quantify.

¹⁶ More than 400 delegated and implementing acts, binding technical standards or empowerments for such acts are required, including about 100 for the Capital Requirements Regulation and Directive IV, about 100 for the revised Markets in Financial Instruments Directive, about 40 for the Bank Recovery and Resolution Directive, and about 60 for Solvency II.

¹⁷ See annex 3.

The study takes an EU-wide perspective. However, it is likely that the impacts of the reforms will differ across Member States, partly due to differences in economic conditions and market structures but also due to differences in national implementation of EU legislation. While the aim is to move to a single rulebook for EU financial services, there remains flexibility in transposition and scope for going beyond EU requirements.

The financial regulation agenda was only part of the EU response to the financial and economic crisis in Europe. Important wider measures were taken, but are not considered in the study. These include, for example, the control of state aid provided to the financial sector, monetary policy, taxation (including the proposed financial transaction tax), structural measures and changes in the economic governance frameworks.

Given the wide-ranging nature of the regulatory reforms of financial services, this study is necessarily selective. While annex 2 provides an overview of all the measures taken, the main part of the study focuses on the key impacts of the EU financial regulation agenda, in particular the important elements of the policy response to the crisis. The study covers Commission proposals adopted by April 2014.

The study is structured as follows:

- Chapter 2 reviews the main functions of the financial system and the required characteristics for the financial system to serve the real economy and contribute to sustainable economic growth.
- Chapter 3 summarises the problems that characterised the financial systems in the years leading up to the financial and economic crisis and that called for wide-ranging reforms of financial regulation.
- Chapter 4 looks at the intended benefits of the financial reform agenda. It presents the main objectives of the reforms and how the different measures help to meet these objectives.
- Chapter 5 discusses the overall coherence and complementarity of the financial reform agenda.
- Chapter 6 considers the potential costs of the reforms, focusing in particular on potential adverse impacts on the provision of finance to the economy.
- Chapter 7 highlights a number of potential new risks and unintended consequences arising from the financial reforms, including those that arise from potential inconsistencies between the reforms. This emphasises the need for ongoing monitoring and review to minimise undesired consequences.
- Annex 1 provides a review of existing studies that seek to examine the costs and benefits of the reforms, focusing mainly on the studies that cover more than one set of rules.

- Annex 2 contains an overview of the legislative measures adopted or proposed as part of the financial regulation agenda since 2009. Annex 3 lists upcoming review reports required in these legislations.
- Annexes 4 and 5 presents estimates obtained from quantitative models of the benefits and costs of certain rules affecting the banking sector.

CHAPTER 2: TOWARDS A FINANCIAL SYSTEM THAT DELIVERS SUSTAINABLE ECONOMIC GROWTH

The financial system enables welfare-enhancing allocation of resources over time. Households save money for future use (e.g. retirement savings) and pay for large expenditures by borrowing money (e.g. home purchase). Companies fund new investment projects and hedge against future risks. Among other things, governments raise money for infrastructure investment and social programs. A well-organised, efficient, and smoothly functioning financial system is hence an important component of a modern economy.

As a result of financial innovation, deregulation and globalisation, the scale of the financial system has increased over the last decades in the EU and across the world both in absolute size and relative to the real economy. This important phenomenon, characterised by significantly increased leverage and interconnectedness, financial innovation, complexity, and higher trading volumes, is referred to as the financial deepening or financialisation of the economy.¹⁸

However, there does not appear to be a straight-forward causal relationship between the financial intensity of an economy and the annual rate of economic growth in advanced economies.¹⁹ As discussed in chapter 3, the strong financial system growth contributed to imbalances that culminated in an unprecedented and global financial crisis, the consequences of which will be felt for several years to come.

This raises important questions about the financial system. What is the contribution or value added of the financial system towards greater economic well-being? How does the financial system improve capital allocation, economic growth and consumer welfare? What are the characteristics of a well-functioning financial system? Will the financial system, if left to itself, select the levels of debt, leverage and maturity transformation that are optimal from society's point of view, or will it give rise to systemic risk? What should and can be done about it through government intervention (taxation, regulation, institution building) and what can be done when government intervention fails?

The overriding objective of the EU financial reform agenda is to create a financial system that serves the economy and enables sustainable economic growth. This chapter presents a short overview of the key functions of the financial system and its desirable characteristics. This shapes the framework for the analysis presented in subsequent chapters, since the overall effectiveness of the reforms needs to be assessed with respect to achieving a better functioning EU financial system that is capable of performing its desired role in the economy.

¹⁸ See for example Turner (2010).

¹⁹ See box 6.1.1 for references to the academic literature.

2.1 THE ROLE AND BENEFITS OF THE FINANCIAL SYSTEM

The financial system is critically important for the economic well-being of households and corporates, as it fulfils different functions through which it serves the economy and facilitates sustainable economic growth.²⁰

First, the financial system performs the important function of "**financial intermediation**". The financial system intermediates between ultimate providers of funds and ultimate users of funds. Ultimate providers of funds are lenders, savers, or investors (households, firms, or governments), whereas ultimate users of funds are borrowers, entrepreneurs, or spenders (again households, firms and governments). There are reasons why this bridge function is important and welfare-enhancing for the real economy. Financial intermediation, or the channelling of funds between ultimate lenders and borrowers, facilitates *productive investment and efficient capital allocation* in the economy. The entrepreneur needs control over the funds for some time to realise ideas, but cannot issue a safe promise. The retired person could release control over such funds, but wants them back later and is not in the position to monitor and control the borrower. The financial system brings them together, making both of them better off, but also benefiting the wider economy through higher economic growth by allocating capital to its most productive uses. In addition, the channelling of funds enables *life-cycle consumption smoothing and inter-generational resource transfers*. Consumers can time their purchases better, by making use of the financial system, which is welfare-increasing. Without the financial system that allows people to transform some of their future human capital in available cash today, they would not be able to buy a house until late in their lifetime. This objective yields welfare benefits to users and providers of funds, but does not necessarily give rise to greater investment and economic growth.

Second, the financial system performs **risk transformation** and **provides insurance services** to risk-averse households and firms, enabling the latter to achieve superior risk-reward outcomes compared to a situation without a financial system. Insurance companies play an important role in managing risks as they allow households and corporates to share their liability by pooling the individual risks and providing coverage in the event of loss. In addition, risks can be tranced, packaged and traded on financial markets. Derivative instruments allow hedging against different risks.

Third, the financial system **organises the payment system** and **provides payment and transaction services** (retail and wholesale) and thereby eases the exchange of goods and services. Consumers want to obtain simple and reliable payment services, such as storage and withdrawal of money, money transfers, ATMs, internet payments, and card services. These services are considered "essential-utility services" and billions of electronic payments are processed each day. The processing of electronic payments requires robust and reliable hardware, software, communication links and communication networks. The payment system provides convenience, trust and reliability to households and firms, which in turn support economic growth. If these services broke down and customers were no longer able to withdraw money from banks, a systemic crisis would arise instantaneously.

²⁰ See for example OECD (2010).

Fourth and finally, the financial system **creates markets** (e.g. for derivatives, asset-backed securities) thereby **allowing the trading and pricing of financial instruments and their risks**. The availability of prices facilitates the allocation of scarce resources and risks, whilst secondary markets allow individuals to reverse investment decisions, thereby enhancing economic welfare. Some welfare-increasing markets would not exist without a vibrant financial system (e.g. the market for safe, simple and robust securitisations, covered bonds, derivatives for hedging against interest, foreign exchange and other risks).

2.2 DIRECT VERSUS INDIRECT FINANCIAL INTERMEDIATION CHANNELS

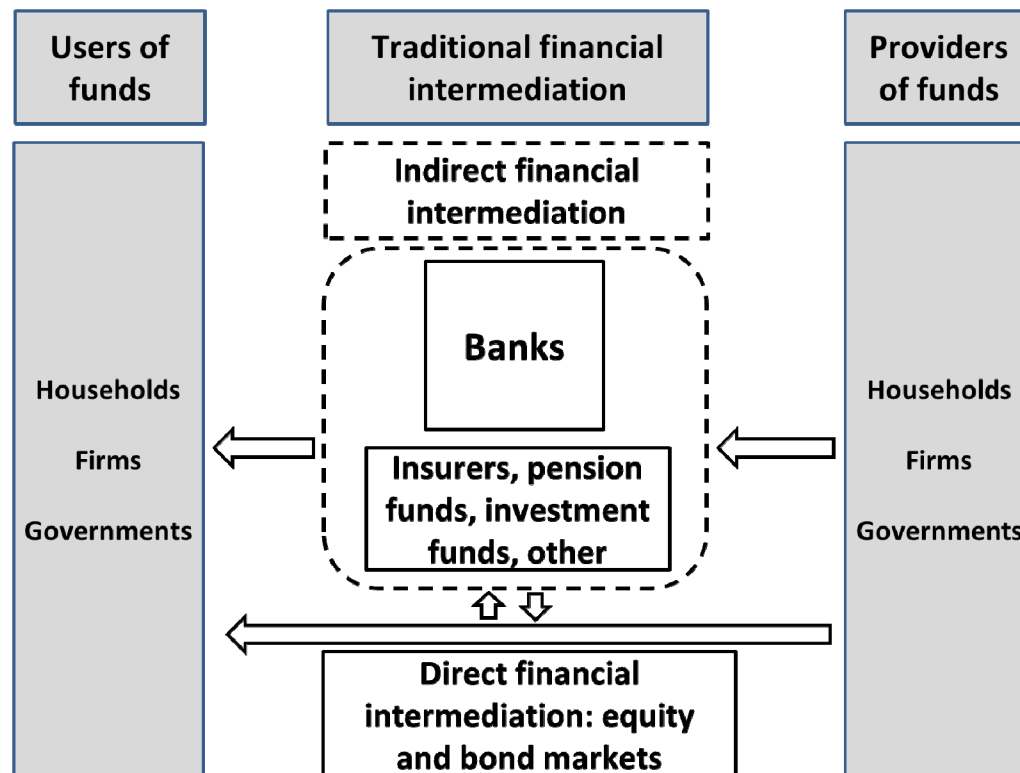
Focusing more on the key function of financial intermediation, there are two distinct approaches to channelling funds from savers as the ultimate providers of funds to entrepreneurs or other ultimate users of funds.

Direct intermediation is the channelling of funds *through financial markets without an intermediary*, notably when savers purchase the debt or equity directly from the borrower that has issued these financial securities (in capital markets: equity markets, corporate debt markets, government debt markets). **Indirect intermediation** is the channelling of funds *through financial intermediaries*, notably banks, but also insurers, pension funds, hedge funds, mutual funds²¹. A highly simplified presentation of financial intermediation is depicted in chart 2.2.1.²²

²¹ The distinction is not always straightforward as intermediation via financial markets also tends to be very intermediated, with issuers and investors relying on advisers, investment managers, brokers and so on. Also, there are significant links between the direct and indirect intermediation channels, since banks, insurers, etc. are themselves heavy financial market users (as equity and debt issuers and investors).

²² "Modern" financial intermediation using shadow banking is presented in chapter 4.4.

Chart 2.2.1: Stylised illustration of financial intermediation channels



Source: Commission Services

Direct and indirect intermediation differ in their relative importance, strengths and weaknesses. It turns out that in the EU **significantly more funds are being channelled from ultimate savers to ultimate borrowers through indirect finance, i.e. through financial intermediaries**. A significant part of the funding of non-financial corporates in the EU takes the form of bank loans (see section 4.2).

It is useful to recall why intermediaries are used and what the economic advantages are of indirect finance over direct finance.

- **Cost savings:** pooling savings by using intermediaries allows the realisation of economies of scale and scope and lowers transaction, contracting, and search costs for savers. Without intermediaries the latter costs would prevent otherwise mutually beneficial transactions taking place;
- **Risk diversification and liquidity insurance:** pooling savings by using intermediaries allows investing in more illiquid, but more profitable securities, while preserving desired liquidity. It also allows households to smooth their intertemporal consumption pattern and is hence welfare enhancing;
- **Information production:** intermediaries act as specialist delegated monitor for lenders and ensure that borrowers use the funds effectively and efficiently. Without intermediaries it would be prohibitively costly to monitor borrowers;

- **Asymmetric information:** intermediaries actively reduce information problems by creating long-term customer relationships, requiring collateral, screening ex ante, and monitoring ex post. Asymmetric information between relatively unknowledgeable savers and knowledgeable borrowers may otherwise give rise to market collapses or missing markets.

2.3 NECESSARY REQUIREMENTS FOR A WELL-FUNCTIONING EU FINANCIAL SYSTEM

In order to adequately perform effectively its main functions, the EU financial system should fulfil a number of requirements that define the characteristics of an “ideal” benchmark:

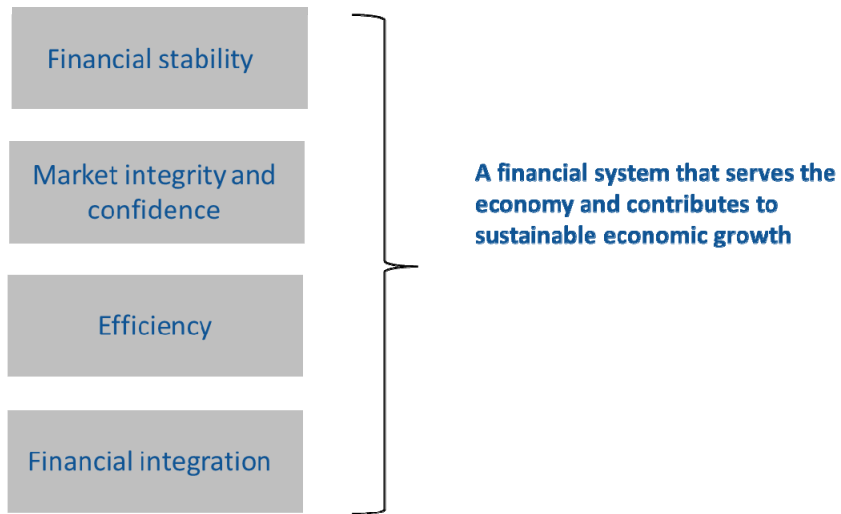
- **Financial stability:** The EU financial system needs to be resilient against external shocks and should not be prone to systemic risk and contagion. The probability of another financial crisis occurring and the resulting costs must be reduced;
- **Market integrity and confidence:** The EU financial system needs to operate in a fair and transparent manner, in the absence of fraud and market abuse. Disclosure should be fair, adequate, accurate and timely. There should be adequate consumer and investor protection to ensure trust and confidence in the financial system;
- **Efficiency:** Financial services should be priced adequately such that their true costs are reflected, and the expected returns on financial securities and instruments should adequately reflect their (systemic) riskiness. When the market fails and underprovides or overprovides certain goods or services, regulatory intervention is justified (see also section 3.2);
- **Financial integration:** The EU financial system should ensure that rules or market conditions for similar services and products do not vary significantly across countries or markets. The EU economy benefits from a single market where financial services and transactions are not constrained to the domestic market but can be undertaken across borders.

These characteristics link back to the earlier Communications setting out the Commission’s objectives and roadmap for the regulatory response in the crisis aftermath (see chapter 1). They are discussed further as part of the detailed review of the individual EU legislative initiatives and their complementarities in the subsequent chapters of this study.

As illustrated in chart 2.4.2, the EU financial system will only be functioning well, if it is stable and efficient, displays integrity, and fosters financial integration. Then will it be able to perform its critically important role and functions, such as financial intermediation, organising risk transfer, providing payment services, and adequately pricing risk.

Chart 2.4.2: **The desirable characteristics and key functions of the financial system**

**Characteristics of a well-functioning
EU financial system**



Source: Commission Services

CHAPTER 3: LESSONS FROM THE CRISIS: THE NEED FOR REFORM

In the years leading up to the financial and economic crisis, the financial system had moved further away from the "ideal" benchmark set out in chapter 2 – i.e. a system that provides what is needed for the economy to function efficiently and deliver sustainable growth. The financial system was characterised by a number of fundamental problems that have become visible since the eruption of the crisis more than six years ago and that called for fundamental reform of financial regulation.

This chapter provides a short reminder of the causes and consequences of the crisis so as to provide the context in which much of the financial regulation agenda was shaped. It summarises the main underlying problems – both the directly crisis-related ones and others – that justified the regulatory measures taken, as analysed in more detail in the following chapters.

3.1 A DYSFUNCTIONAL FINANCIAL SYSTEM AND THE CAUSES OF THE GLOBAL FINANCIAL CRISIS

Until 2007, financial markets in Europe had been booming and financial institutions thriving, risk was not properly appreciated and underpriced in the market, funding and market liquidity was abundant, and credit was available at low interest rates. However, these conditions turned out to be unsustainable and contributed to significant and rapidly growing imbalances. The crisis triggered massive state aid intervention, a severe economic recession and enormous costs to public finances, economies and citizens. Its legacy continues to pose financial stability risks and is delaying economic recovery.

The crisis had a number of intertwined causes, which have been analysed in numerous studies.²³ While other factors have played an important role, including global macro-imbances and accommodating monetary policy, **the deficiencies in the financial system and shortcomings in the supervisory and regulatory framework are generally considered key contributors to the crisis.** Many of these problems were global in nature, rather than specifically European.

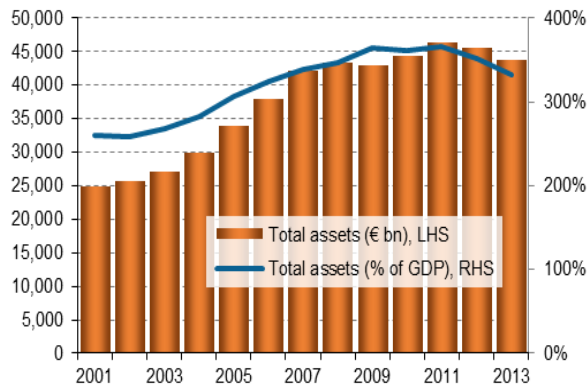
In the years preceding the crisis, the financial system had undergone major changes. There had been significant asset growth (on and off balance sheets) of financial institutions, far outpacing the growth of the economy (see chart 3.1.1). Global banking groups – including those with EU headquarters – had grown ever bigger in size and scope (see chart 3.1.2).²⁴ They had become increasingly interconnected through long intermediation chains of claims and correlated risk exposures arising from increasingly similar investment strategies. Leverage had strongly increased as

²³ For example, see: European Commission (2009). Economic crisis in Europe: causes, consequences, and responses, European Economy No.7, September 2009; High-level Group on Financial Supervision in the EU (2009); Claessens et al (2014); Reinhart and Rogoff (2009); Acharya and Richardson (2009); Acharya et al (2009); Roubini and Mihm (2010); Lo (2012); Gorton (2010); and Gorton and Metrick (2012).

²⁴ This growth had also been partly fuelled by the introduction of the Euro, partly by the enlargement of the EU, but also by the boom of the US financial markets and other factors (e.g. the rapid inclusion of China to the global economy).

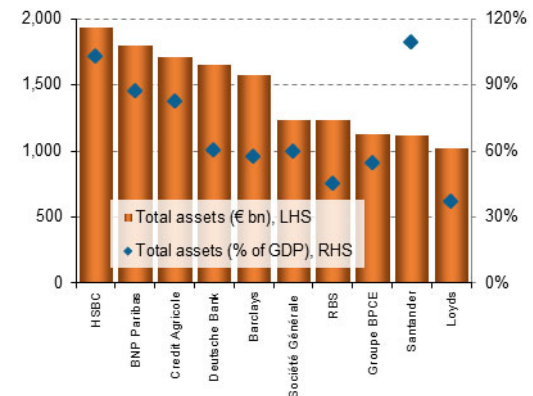
part of an active balance sheet expansion, and bank reliance on short-term wholesale funding had significantly increased. Thus, solvency and liquidity shock absorbers of the large banking groups had declined, despite their growing systemic importance.

Chart 3.1.1: Growth in total assets of EU monetary financial institutions



Source: ECB

Chart 3.1.2: Total assets of a sample of large EU banks, 2013



Source: SNL Financial, ECB.

New savings alternatives to bank deposits, such as money market funds, proliferated and new opportunities for borrowing, in addition to bank loans, emerged. An entire "shadow banking" sector developed, partly with the intention to circumvent prevailing rules, comprising a chain of non-bank institutions which were able to provide similar financial intermediary services as traditional banks.

Trading activities of the large banks increased, contributing significantly to the growth in balance sheets as the banks built up large asset inventories to conduct these activities. In addition, commercial banking moved increasingly away from customer relationship-based banking, where loans are granted and then held to maturity, towards the "originate and distribute" model (or transaction- and fee-oriented model), where granted loans are pooled, then securitised and sold to investors. This shift increased traditional banks' connections to the shadow banking sector and made them become part of the long intermediation chains that are characteristic of shadow banking. Shadow banking activities such as securitisation allowed banks to tap wholesale markets and institutional investors to grow more quickly than was possible by merely relying on relatively slowly growing insured deposits. Banks were increasingly funded by money market funds and other sources of short-term wholesale funding. Previously illiquid loans were being liquefied through securitisation.

The increasing influence of an investment banking-oriented management culture also spurred a focus on short-term profits in commercial banking, which was reinforced by shareholder pressure and short-term performance-based managerial compensation schemes.

The rapid growth of the financial sector was facilitated by the low interest rate environment and a surge in innovative, but often highly complex financial products that allowed financial institutions to expand their activities on and off their balance sheets. This was also **helped by the general underpricing of risk** in financial markets. Inadequate regulation, including undue reliance on self-regulation,

and inadequate supervision failed to stop and in some ways even reinforced adverse developments in the market.

The excessive asset growth in the financial sector during the pre-crisis boom was accompanied by asset price bubbles in many markets, such as the housing markets in some EU Member States (see chart 3.4.3). It was also accompanied by the accumulation of excessive levels of debt – not just among financial institutions but also in the wider economy (see charts 3.3.3 and 3.3.4). As further discussed below, there was unbalanced growth in some Member States, which was based on accumulating debt (fuelled by low interest rates and strong capital inflows) but often associated with disappointing productivity developments and competitiveness issues.

The financial system had become much more complex, concentrated, interconnected, and large, i.e. much **more prone to systemic risk**. Systemic risk can be measured by the financial sector’s complexity, its interconnectedness and exposure to common shocks, its cross-border activity, and the lack of readily available substitutes for the services or infrastructure provided. The larger the financial sector, the larger the impact of systemic risk on the rest of the economy. Other network industries also have the capacity to create systemic risk and face similar challenges. However, exposure to rare events with a devastating impact (in statistical terms called “tail risk”) is particularly pronounced in the financial system, because it can be created and amplified within the system itself (i.e. it can be endogenous). Moreover, financial companies benefit from public safety nets (e.g. deposit guarantee schemes, implicit bail-outs, lender of last resort facilities), unlike most non-financial sectors.

The following provides a short summary of the main problems that were revealed by the pre-crisis financial boom and subsequent bust, focusing only on those that relate to deficiencies in the financial system and can be addressed by financial regulation reform.²⁵

Inadequate (micro- and macro-prudential) supervision and regulation— Policymakers, regulators and supervisors did not adequately appreciate and address the risks building up in the financial system. Among other shortcomings, there was a lack of macro-prudential surveillance which allowed uncontrolled and excessive asset growth in the financial sector and the emergence of asset bubbles. Financial regulation was inadequate, often relying on self-regulation, and it did not provide an adequate level of consumer and investor protection. Regulation worked procyclically, i.e. allowing banks to expand their balance sheets during the boom period when there are less capital constraints but then to contract in the recession when capital requirements rise and insufficient capital buffers have been accumulated during the good years. Moreover, while the operations of the largest financial institutions expanded significantly across borders and markets became increasingly integrated internationally, regulatory and supervisory frameworks remained largely national and could not adequately deal with these market developments.

Leverage and limited ability to absorb losses—the expansion of the financial sector and bank balance sheets in particular was accompanied by an increase in

²⁵ While other studies highlight or prioritise different problems, the ones listed are generally agreed to be among the main problems contributing to the crisis.

leverage. Banks' capital base shrank compared to the level of risk taken, and by the time the crisis hit, a number of important institutions had an equity capital base that amounted to less than 3 % of their balance sheets (see chapter 4.2 for data on bank capitalisation). This allowed banks to record high rates of return on equity, but the increased leverage led to a lower resilience and reduced banks' ability to absorb shocks and losses, as evidenced when the crisis hit. It also turned out that a large part of banks' capital stock (including so-called hybrid capital) was of poor quality and could not absorb losses.

Limited ability to absorb liquidity shocks—Banks increasingly relied on short-term funding to finance their balance sheets, tapping in particular the interbank and wholesale markets in repurchase agreements (repo). The increased reliance on unstable short-term wholesale funding (and the resulting increased maturity mismatch between these short-term liabilities and longer-term loans or other assets) made banks vulnerable to liquidity shocks, in particular when combined with increasingly small buffers of liquid assets. When the crisis hit (in particular after the Lehman failure in September 2008) and liquidity evaporated from bank funding markets, large-scale liquidity injections by central banks around the globe became necessary. For many banks, these were not sufficient, because the banks had run out of collateral for central bank operations. In fact, liquidity problems masked imminent solvency problems of many banks. The direct consequence was unprecedented state aid, including public capital injections to strengthen banks' capital base, guarantees on newly issued bank debt to help banks retain access to wholesale funding, and purchases or guarantees of impaired assets to help reduce the exposure of banks to large losses.

Absence of frameworks to facilitate orderly winding-down of financial institutions—EU Member States did not have an adequate crisis management mechanism for the resolution and winding down of financial institutions, and there was no common framework at EU level to deal with failures of cross-border financial institutions. When the crisis hit, many banks were considered to be too big (or too important and interconnected) to be allowed to fail. They therefore had to be rescued with large-scale taxpayer-funded bailouts to prevent a worsening of the systemic crisis and to cushion adverse effects on the economy. Due to the absence of adequate resolution tools, even relatively small financial institutions were deemed too big or too important to fail and hence bailed out.

Too big to fail—Banks effectively benefit from an (implicit or explicit) public subsidy to their funding costs. This in turn results in numerous distortions (over and above the costs to public finances). In particular, public safety nets and an expectation of being bailed out incentivises banks to expand and take excessive risks beyond what would be possible if risks were properly priced in the banks' funding costs, giving rise to a "**moral hazard**" problem. The subsidies also distort competition and raise entry barriers to the extent that: (i) small and medium-sized banks are less likely to benefit from such subsidies than the large ones; and (ii) banks in Member States with significant financial problems are less likely to enjoy subsidies than banks in Member States that are perceived to be in a better position to stand behind their banks.

Weak governance and risk management—Weak governance structures and poor risk management frameworks reinforced the problems, as financial

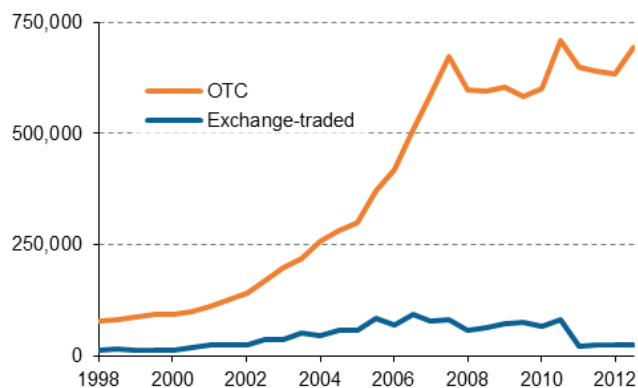
institutions were taking risks that were insufficiently monitored in the market and inadequately controlled internally. Moreover, remuneration policies rewarded management and other staff for maximising returns to shareholders without due consideration of risk, and in some cases they incentivised excessive risk-taking.

Deficiencies in derivatives markets

Derivatives markets had grown exponentially in the pre-crisis years, in particular those traded over-the-counter (OTC) as opposed to those traded on exchanges (see chart 3.1.3). The former remained largely outside the scope of regulation. A specific derivative market, namely

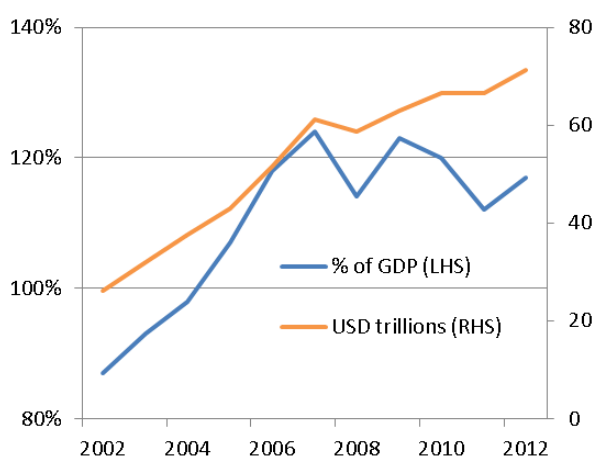
that for credit default swaps (CDS), contributed significantly to the spreading of the financial crisis through a complex web of interconnections. Their inherent opaqueness made it difficult to detect the risks building up at individual institutions and in the system as a whole, and to assess the consequences of a default of a market participant (as was the case in the Lehman failure, for example). The opaqueness fuelled suspicion and uncertainty during the crisis, contributing further to the spreading of risk. Given the limited use of central counterparties for clearing derivative trades and inadequate collateralisation, the counterparty credit risk associated with OTC derivatives turned out to be much higher than both market participants and regulators previously thought. The financial crisis also revealed specific problems in OTC commodity derivatives markets, which were reinforced by more recent scandals linked to speculation in both physical and financial markets for commodities.

Chart 3.1.3: Growth in international derivatives markets



Source: BIS.

Chart 3.1.4: Growth of assets of non-bank intermediaries



Notes: Shows assets of non-bank financial intermediaries as a proxy for global shadow banking activities, in % of GDP (left-hand scale, LHS) and in USD trillion (right-hand scale, RHS).

Systemic risk stemming from shadow banking Source: FSB (2013)

—Alongside the growth of derivatives markets, there was a rapid growth of the shadow banking system at global level – i.e. credit intermediation outside the scope of bank regulation and public safety nets (chart 3.1.4). Many banks shifted from making loans and keeping them on their books to selling loan portfolios and shifted the risks off balance sheet via securitisations.²⁶ Thus, many types of asset-backed securities (ABS) contributed to the intermediation of non-bank credit, ranging from asset-backed commercial paper to credit default obligations (CDOs). Unlike traditional bank lending, the non-bank credit activities were not funded by deposits but relied on wholesale funding (e.g. money market funds and securities financing transactions). Given the short maturity of the funding, the difficulty to assess their value and the absence of an explicit public safety net, this made them prone to the liquidity runs experienced during the crisis.

Inadequate regulation of credit rating agencies and audit firms—CRAs played a negative role in the crisis by failing to properly assess the risk characteristics of complex financial products. For example, many ABS tranches originally had triple-A ratings, which many investors in these products relied on as meaning 'risk-free'. Ratings for complex securities, which were issuer-paid and very profitable for the rating agencies, often relied on inaccurate models and assumptions, leading to unreasonable analyses of the underlying securities. Moreover, the evaluations frequently lagged behind material market developments. Investors relied on those evaluations without carrying out their own due diligence. Regulation failed not only in providing adequate oversight of CRAs but also in overly relying on credit ratings for prudential regulatory purposes. Concerns about the value of audit reports and their quality, independence and consistency were already present before the crisis, but these were amplified in the crisis when a number of financial institutions failed only months after they had been given clean audit reports.

These deficiencies unravelled with the start of the financial crisis. What started as a sub-prime crisis in the USA quickly spread into a full-blown global financial and economic crisis, with serious consequences for the European economy and detrimental impacts for consumers and investors, as summarised below in section 3.4.

3.2 THE UNDERLYING MARKET AND REGULATORY FAILURES

The deficiencies revealed by the financial crisis stem from fundamental underlying problems, or so-called "market failures" in standard economic theory, which upset the operation of the financial system. **Market failures explain why the market, if unregulated or poorly regulated, delivers outcomes that may be profit-maximising for financial intermediaries but detrimental from a societal point of view.**

Market failures, coupled with regulatory failures, explain why the financial system had moved far from the ideal benchmark discussed in chapter 2 and why, without

²⁶ While the main issuers of asset-back securities were US-based, many EU financial institutions had built sizeable positions in these markets.

regulatory intervention, the system would always be prone to instability, inefficiencies and abusive practices. Indeed, leaving the financial crisis aside, there are **many examples to illustrate how unregulated or poorly regulated markets and market participants fail to behave in an efficient and responsible manner**. This includes recent scandals such as the rate-rigging of the LIBOR/EURIBOR interest benchmark rates and the manipulation in foreign exchange markets, cases of fraud or large scale losses of individual traders, and mis-selling of financial products to consumers.

While market failures are present in all markets, nowhere are they more pervasive, or have as profound consequences for the broader economy,²⁷ than in the financial sector. The main market failures can be summarised as follows:

- **Asymmetric information:** The financial system has significant imbalances of information, between those who buy financial services and products and those who sell them, between those who invest in financial intermediaries and the intermediaries which seek that investment, and between financial intermediaries and their management or other staff. Indeed, the complexity of financial information, of financial products, services and transactions, and of the operations of financial institutions reinforces the opacity. Asymmetric information explains some key risks and provides the basis for undesirable incentive effects, such as moral hazard, resulting in excessive risk-taking. Excessive risk-taking was a key contributing factor in this crisis and was exacerbated by a general underestimation of risk and an expectation of public safety nets (bail-outs), which limited down-side risks. Information asymmetries also give scope to conflicts of interest, which is another key risk in the financial system given the nature of the financial intermediation process – the entrusting of one's savings and investments to banks and other financial institutions. They also result in insufficient monitoring of market participants and explain the observed lack of market discipline.
- **Externalities:** Negative externalities or spillovers arise when the costs of individual actions do not incorporate potential broader social costs that may be imposed on others as a result of those actions. For example, individual financial institutions, when deciding on how leveraged and interconnected to become and what financial risks to take, may not consider the systemic implications of their actions. In fact, they may even wish to maximise the externality and create systemic risk problems because that increases the likelihood of a bailout. Externalities explain the potential instability of financial systems and markets, whereby confidence can quickly evaporate and lead to a panic and runs for exit, amplifying the costs for all concerned. These systemic risks became highly visible in this financial crisis. Without the massive state aid and liquidity support that was provided (see Box 3.4.1), a much more severe systemic crisis could have materialised.
- **Market power:** As with other economic sectors, imperfect competition may lead to market power abuses, including excessive pricing, inappropriate products being sold, or agreements being made on unfair contractual terms. The abuses are reinforced given the asymmetric information problem in

²⁷ Based on OECD (2010).

financial services, which places financial institutions at an informational advantage compared to customers.

- **Market abuse:** There is a risk of abusive market practices, whereby customers may be taken advantage of and deprived of savings and investments or find themselves with grossly unfair and abusive contractual terms. This could occur for example through deceptive marketing practices, the inappropriate use of customer funds by the financial institution and unfair pricing. Abusive market practices also include the manipulation of share prices or other prices, as was the case in the recent scandals around the manipulation of LIBOR/EURIBOR and other benchmark rates (see chapter 4.3). Such abuses create particular problems for the financial sector since the system relies fundamentally on trust and confidence. Market abuse can, if sufficiently problematic and uncorrected, cause widespread reputational damage and undermine the functioning of the financial system.

A combination of different market failures, coupled with **regulatory failures**, was at work in the run-up to the crisis and the events that followed. These have been widely examined in the literature²⁸. The role of regulation is to correct market failures or reduce their impacts in the market. Regulation may, however, create or exacerbate problems. The crisis has been a painful reminder of the fact that the cost can be huge when regulators and supervisors get it wrong.

The financial reform agenda is to a large extent a direct response to the financial crisis and the deficiencies it revealed in the financial system. However, more generally, the reforms of the last few years must be understood as part of a wider agenda to move the financial system closer to a system that is capable of conducting its key functions in a stable, efficient and responsible manner, and for the benefit of the economy. The reforms aim to correct market failures as well as previous regulatory failures.

3.3 ADDITIONAL PROBLEMS REVEALED BY THE ECONOMIC AND SOVEREIGN DEBT CRISIS IN EUROPE

In addition to the deficiencies in the financial system, which were largely global in nature and not specifically European, a number of additional problems were specific to Europe. They turned the financial crisis into a wider economic and sovereign debt crisis, in particular in the countries of the euro area periphery.²⁹ Adverse developments in the economy and poor public finances had repercussions for the banking sector and increased banking risks. This in turn reinforced stresses in sovereign debt markets and spilled over to the economy. **A negative feedback loop**

²⁸ For example, Acharya et al (2011) highlight four key aspects: excessive risk-taking in the financial sector due to implicit government guarantees; regulatory focus on individual institution risk rather than systemic risk; opacity of positions in financial derivatives that produced externalities from individual firm failures; and runs on the unregulated (shadow) banking sector that eventually threatened to bring down the entire financial sector. Other studies highlight also regulatory failures, such as: the absence of appropriate resolution and crisis management tools; inappropriately defined regulatory boundaries and unregulated shadow banking activities; and capital requirements that contributed to the procyclicality of the financial system.

²⁹ For a narrative of the crisis unfolding in Europe, see High-level Expert Group on reforming the structure of the EU banking sector (2012).

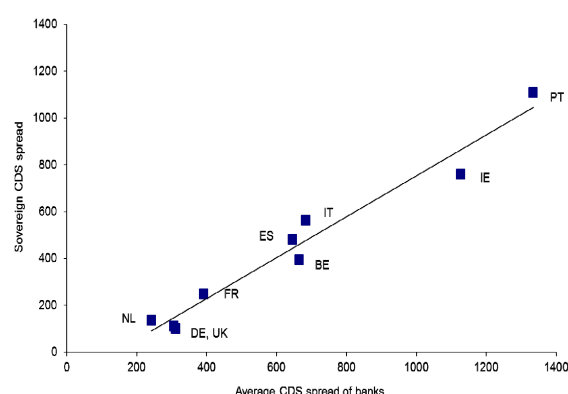
due to intertwined relationships between the banking sector, sovereign debt markets and the economy arose, which required policy action on different fronts.

The loss of substantial tax income, massive amounts of state aid measures required to support banks, as well as the cost of automatic stabilisers (such as unemployment benefits) and fiscal stimulus spending, had a significant impact on the level of public debt (see chart 3.4.6 below), but helped stabilise the economy in the early phase of the crisis.

When the Greek government revealed the true size of the country's deficit and debt in November 2009, sovereign risks in the euro area grabbed the headlines. Subsequently, Greece and a number of other countries in the euro area (Ireland, Portugal, Spain, Cyprus) required financial assistance. The growing sovereign risks spilled back over to the banking sector, since European banks were heavily exposed to sovereign debt holdings, in particular to debt issued by the domestic sovereign. The high public debt burdens also called into question the sovereigns' ability to continue standing behind their domestic banks, further linking the risks of banks to that of the sovereign (see chart 3.3.1 illustrating the close correlation between bank and sovereign risks, based on CDS spreads).

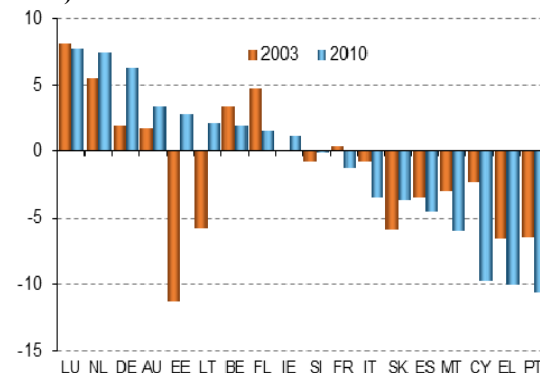
In addition to the weaknesses in the banking sector and poor public finances, **the crisis exposed a number of structural problems that had been building up in the euro area for some time**. The competitiveness of the vulnerable countries in the euro area had eroded over time, and large current account imbalances had built up (see chart 3.3.2). These were financed (and indeed fuelled) by free capital flows that had expanded massively given the absence of exchange rate risks since the introduction of the euro. The strong cross-border capital flows often went into the non-tradable sector (e.g. real estate) and financed demand rather than supply (and imports rather than exports), leading to macroeconomic imbalances that turned out to be unsustainable. As current account deficits in the vulnerable countries of the euro area widened, these countries became increasingly dependent on foreign capital inflows. With the start of the crisis, private capital flows to the countries reversed and financing constraints became more apparent.

Chart 3.3.1: Correlation of bank and sovereign debt risks, based on 5-year CDS spreads (basis points)



Notes: 5-year CDS spreads, showing the average for a small sample of banks per country and the sovereign. High CDS spreads for Greece are omitted. Measured as of end-November 2011.
Source: Bloomberg

Chart 3.3.2: Current account balance (in % of GDP)



Source: Eurostat

In the pre-crisis boom years, there was also a sharp increase in private sector debt. Low interest rates and easy access to credit allowed households (chart 3.3.3) and non-financial corporates (chart 3.3.4) to accumulate high debt levels.³⁰ The crisis revealed debt levels to be unsustainable with respect to income prospects and assets in a number of EU Member States. In the euro area periphery, but also in other parts of the EU, a significant part of the credit growth was being financed with capital inflows from abroad, in particular via cross-border lending between banks.

Chart 3.3.3: Household debt in % of GDP

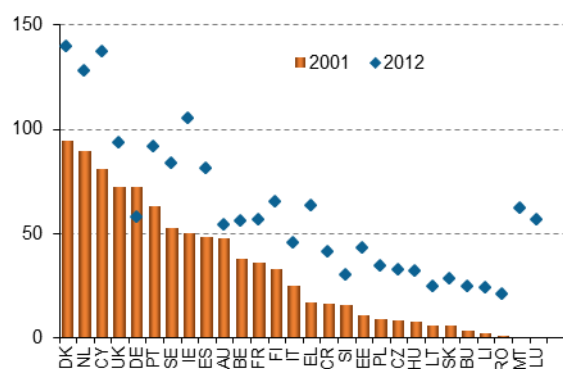
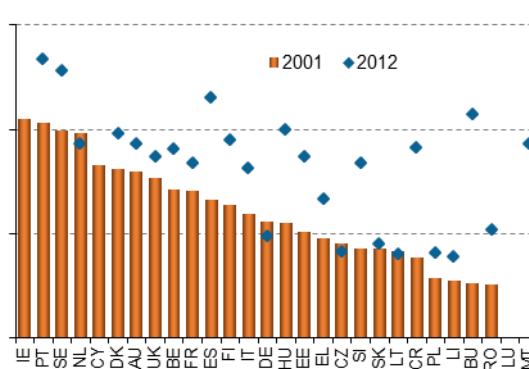


Chart 3.3.4: Non-financial corporate debt in % of GDP



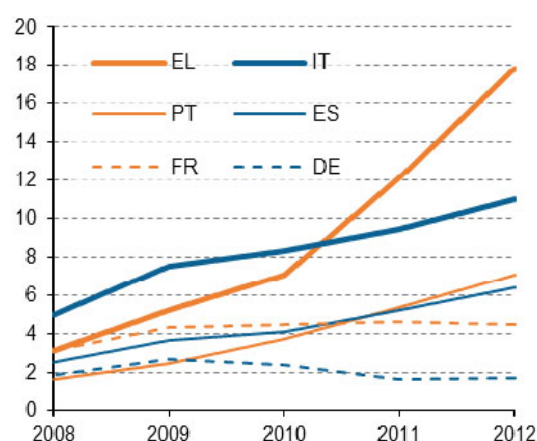
Notes: Consolidated data. Debt includes loans for households (HH) and loans and securities other than shares for non-financial corporates (NFC). 2001 data missing for Luxembourg and Malta. Vertical axis cut at 150% of GDP, not showing the higher levels of debt in 2012 for NFCs in Ireland and Cyprus. Source: Eurostat.

The high debt levels in the private (and public) sector that built up in the pre-crisis years are hindering economic recovery in the stressed countries. They have also reinforced problems for the banking sectors in those countries, because debt-servicing problems – along with a weak economic environment – led to an increase in nonperforming loans (chart 3.3.5), worsening the quality of the assets on bank balance sheets. In turn, weak banks have been reinforcing problems for the economy in stressed countries by tightening credit supply and increasing interest rates on new loans (chart 3.3.6). At the same time, the restructuring frameworks of many EU Member States are still inflexible, costly, and value destructive and thus inadequate in addressing the debt overhang problems.³¹

³⁰ This created in particular a problem where, prior to the introduction of the euro, nominal interest rates had been high (e.g. Spain and Ireland).

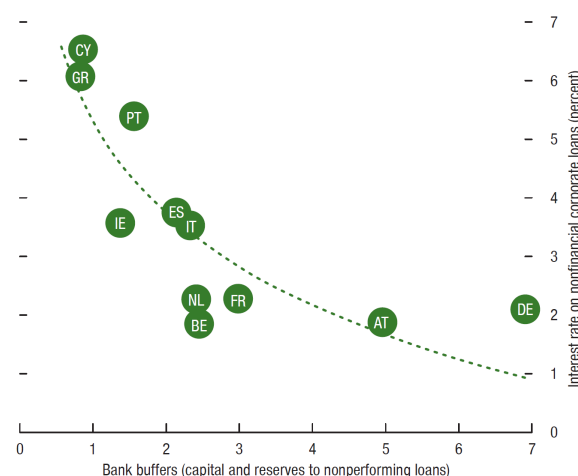
³¹ This is why the European Commission put forward a Recommendation for a new approach to business failure and insolvency (which is outside the scope of this report). See C(2014) 1500 final.

Chart 3.3.5: Growth in non-performing loans (% of total loans)



Source: ECB

Chart 3.3.6: Bank buffers and interest rates on corporate loans



Source: IMF Global Stability Report 2013.

Financial integration in Europe had progressed significantly in the years prior to the crisis, in particular in wholesale markets. The adoption of the euro and, shortly afterwards, the Financial Services Action Plan were major milestones in the integration process. Financial integration brought significant benefits, contributing to the convergence and decline in financing costs and the opening up of investment and diversification opportunities across Europe.³²

However, the crisis has shown that financial integration - if not backed by the appropriate institutional framework and economic policy coordination - can also carry financial stability risks, especially in a single currency area. Free credit and other capital flows contributed to the build-up of imbalances in the euro area and helped fuel the boom-and-bust cycles observed in several Member States. Many cross-border capital flows turned out in hindsight to be excessive and ultimately unsustainable.

Moreover, the integration process was incomplete and uneven. Debt markets and in particular interbank markets had become most integrated (also reflecting the pre-crisis excesses in credit growth), while cross-border flows in foreign direct investment and equity portfolio investment remained more limited. Table 3.3.1 shows the relative magnitude of different types of incoming capital flows for EU and euro area Member States and, for comparison, emerging and developing markets. It highlights the significant share of debt in capital inflows in European countries, especially prior to the crisis. Whilst the share of debt has since come down, it is still significantly above the share it represented, for example, in emerging market economies prior to the crisis.

³² See ECB (2012).

Table 3.3.1: Gross capital inflows expressed as a percentage of its total by type of capital flows.

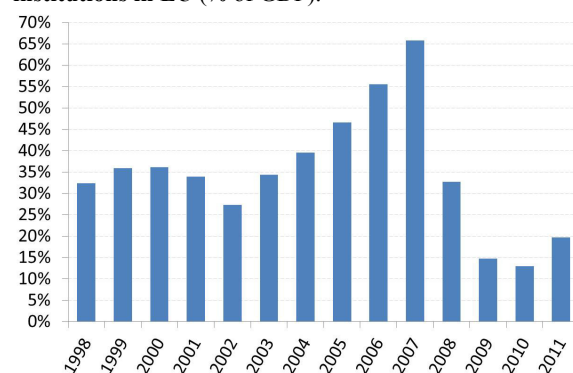
<i>Share of:</i>	<i>Debt</i>	<i>FDI</i>	<i>Equity</i>
2000-04			
Emerging markets	39.3%	48.6%	12.1%
Other developing	55.4%	44.2%	0.4%
EU Member States	69.7%	17.3%	13.0%
Euro area MS	62.3%	20.2%	17.5%
2005-09			
EU Member States	75.3%	17.1%	7.6%
Euro area MS	75.9%	12.7%	11.4%
2010-12			
EU Member States	59.9%	27.2%	12.9%
Euro area MS	44.6%	29.6%	25.8%

Source: Kose, Prasad, Rogoff and Wei (2009) and Commission Services.

Charts 3.3.7 and 3.3.8 further illustrate the point. They show the net issuance of liabilities by the whole EU financial sector as a percentage of GDP. The charts display the significant increase in the liabilities issued by EU financial institutions, in particular following the introduction of EMU. However, chart 3.3.8 provides the breakdown by type of financial instrument and shows how the amount of loans and shares issued remained roughly stable in terms of GDP throughout the period. Instead, the sharp increase prior to the crisis was driven by 'currency and deposits' led by wholesale interbank deposits and 'fixed income securities'.

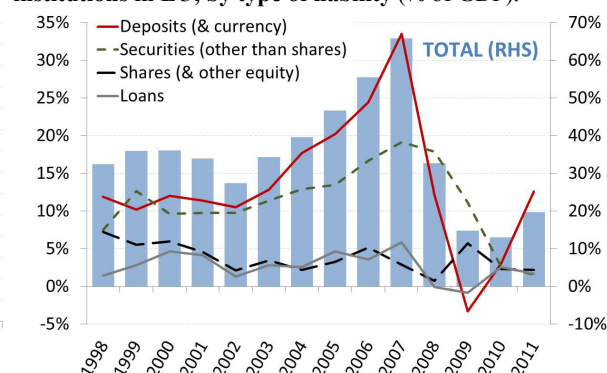
With capital flows in the boom years largely taking the form of interbank lending and debt, this exposed the recipient countries in the euro area periphery to significant rollover risk; when the crisis hit, the capital flows stopped or reversed, resulting in significant economic and financial disruption.

Chart 3.3.7: Net issuance of liabilities of financial institutions in EU (% of GDP).



Source: Eurostat

Chart 3.3.8: Net issuance of liabilities of financial institutions in EU, by type of liability (% of GDP).



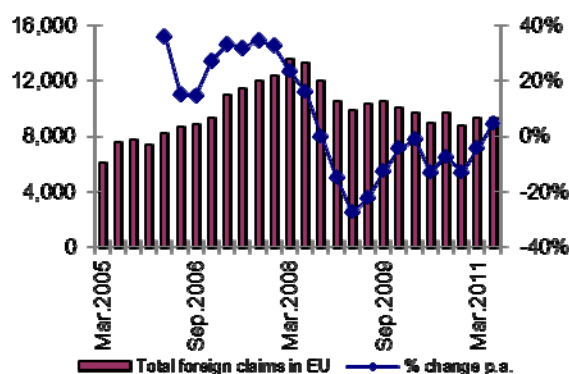
Source: Eurostat

There were significant shortcomings in the institutional frameworks. **Financial integration was not accompanied by adequate regulatory and supervisory**

oversight and the required governance frameworks. For example, there were no appropriate tools to monitor cross-border capital flows and related risks, to control credit supply and to prevent the build-up of debt-driven imbalances. The decentralised system of supervision prior to the crisis, based on loose cooperation between national supervisors, did not allow this. Furthermore, tools did not exist to coordinate crisis management and resolution.

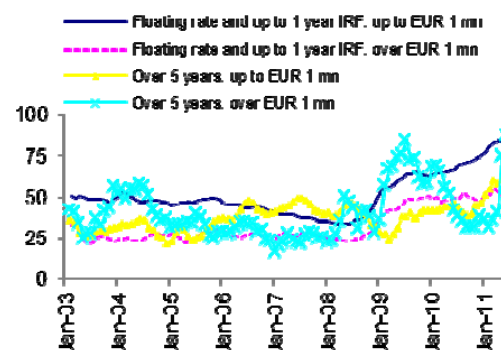
The crisis halted to the integration process. In particular, there has been a decline and in some cases a reversal of cross-border credit flows; banks have increasingly focused on their home markets and on meeting domestic lending commitments; and wholesale financing costs and retail interest rates differ between countries in the euro area. Chart 3.3.9 shows the decline in the total foreign exposures of European banks to other parts of the EU; and chart 3.3.10 shows the increased dispersion of interest rates on loans to non-financial corporations in the euro area. Moreover, partly because of the absence of a meaningful ability to resolve cross-border banking institutions to date, there is evidence that national supervisors have increased firewalls to trap capital and liquidity at a national level. Banks and other financial institutions have also been encouraged to invest in domestic debt.

Chart 3.3.9: EU bank exposures to other parts of the EU (USD billion and annual change in %)



Source: BIS

Chart 3.3.10: Dispersion in lending rates to non-financial corporations (basis points)



Notes: Dispersion is measured by the standard deviation in lending rates across euro area.
Source: ECB

Market fragmentation is economically inefficient. In particular, it has reinforced the adverse feedback loops between weak banks, sovereigns and the economy in the stressed euro area countries. It has also entrenched significant differences in the financial and economic conditions within the single currency area. **Reforms in the governance and institutional frameworks were therefore needed to restore and preserve financial integration and stability**, especially in the euro area.

Many of the more fundamental problems touched upon in this section cannot be tackled by financial reform alone. Rather, they demand a wide range of fiscal, monetary and structural measures, which are not within the scope of this study. The blueprint for a deep and genuine EMU emphasised the importance of the different measures.³³ The main point here is that the financial regulation agenda in Europe was shaped and enacted in a difficult economic environment. Alongside restoring financial stability, policymakers face the challenge of correcting macroeconomic imbalances,

³³ COM(2012) 777 final/2

dealing with high private and public sector debt levels, addressing financial fragmentation and ultimately facilitating growth and jobs.

3.4 THE COSTS AND CONSEQUENCES OF THE FINANCIAL AND ECONOMIC CRISIS IN EUROPE

The financial and economic crisis was (and continues to be) associated with significant costs. While not all of the adverse consequences since the onset of the crisis can be attributed to failures of the financial sector (and the way it was regulated and supervised), the financial sector had a key role to play. Enhancing financial stability and thereby reducing the expected costs of similar crises occurring in the future is therefore a key objective of the financial reforms. This is further discussed in chapter 4.

The effects of the crisis have been wide-ranging, and it is beyond the scope of this study to provide a comprehensive review of all of the negative economic consequences. The below highlights some of the consequences known to date: output losses, reductions in household income and wealth, unemployment and related effects, and huge costs to public finances.

3.4.1 Losses in GDP

The crisis triggered a steep decline in output and a severe economic downturn in the EU (and globally), with weak growth expected to continue into 2014 and possibly beyond (chart 3.4.1).

Chart 3.4.1: Real GDP growth rate in the EU (in %)



Notes: Shows the annual real GDP growth rate (right-hand scale) and the corresponding index starting at 100 in 2001 (left-hand scale, LHS).

Source: Eurostat data.

While the observed decline in GDP reflects some of the losses associated with the crisis, it does not capture the cumulative losses from the crisis. This requires an estimation of the cumulative shortfall between actual GDP over time and estimates of GDP had the crisis not occurred.

Experience from previous systemic crises suggests that the overall output losses can be significant, even if the estimation is inherently difficult and dependent on assumptions, such as those of the path of future GDP and about the counterfactual GDP in the absence of the crisis. In a 2010 study, a working group of the Basel Committee on Banking Supervision (BCBS) reviewed the literature estimating output

losses; the median estimate across all studies reviewed is 63 % of pre-crisis GDP (measured cumulatively in present value terms and as the deviation from trend GDP). Considering only the studies that assume a permanent level change in output, the median is 158 %. Laeven and Valencia (2013) estimate that the output loss of a crisis amounts to about 32 % of GDP on average in advanced economies, measured cumulatively but only over the first four years since the start of the crisis. Atkinson et al (2013) examine the costs of the 2007-09 financial crisis in the USA and conclude that a conservative estimate suggests cumulative output losses of 40-90 % of pre-crisis GDP. Haldane (2010) suggests that the output loss resulting from this crisis could amount to anything between 100 % to 500 % of GDP, depending on assumptions about how permanent the drops in output will be.

ESRB (2014) calculates the EU output loss to amount to about 50 % of one year's GDP, if measured as the deviation of actual from trend GDP from mid-2008 to the third quarter of 2013.³⁴ Looking beyond 2013, estimates prepared for this study suggest that output losses in the EU may end up as high as 100 % of EU GDP, measured cumulatively in present value terms going forward (see annex 4). This assumes that about two third of the initial GDP reduction due to the crisis will be recovered in 5 years, while the remaining third is assumed to be a permanent loss. Thus, depending on output losses going forward, the total cumulative losses are at least 50 % of annual GDP but may well be as much as 100 % of annual EU GDP (or EUR 6-12.5 trillion) or indeed more, according to other estimates.

Reinhart and Rogoff (2014) report that, based on a sample of 100 banking crises across the globe in the period 1857-2013, it took about 6.5-8 years on average to return to pre-crisis output levels. Almost six years into the crisis, most EU countries have returned to pre-crisis levels in real per capita GDP, but some continued to contract in 2013. Reinhart and Rogoff argue that, unless measures are taken, this crisis may ultimately surpass the depression of the 1930s in a large number of countries.

The ultimate costs of output losses in the EU as a result of the crisis are still unknown. However, based on the above discussion, **the present value of cumulative output losses across the EU may amount to 50-100 % of annual pre-crisis EU GDP (about EUR 6-12.5 trillion)**³⁵ or indeed more according to some estimates.

GDP is of course an imperfect proxy of overall social welfare. Moreover, these estimates mask the significant variations in output losses between EU Member States. They also do not reveal the distributional impacts of the crisis, and the fact that the costs fall disproportionately on certain social groups.

3.4.2 Losses in household wealth and income

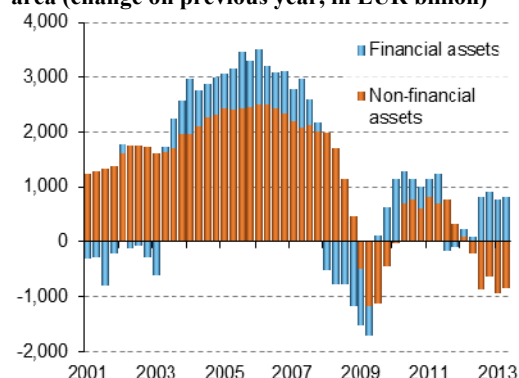
The crisis wiped out an enormous amount of financial wealth, including wealth accumulated by EU households (chart 3.4.2). In some EU Member States, a lot of this was driven by broad collapses in house prices (chart 3.4.3) that involved some homeowners losing substantial equity because home values declined faster than

³⁴ Trend GDP is calculated over a long time period to filter out any artificial growth in the pre-crisis boom years.

³⁵ This is based on the total EU GDP in 2008 (Source: Eurostat).

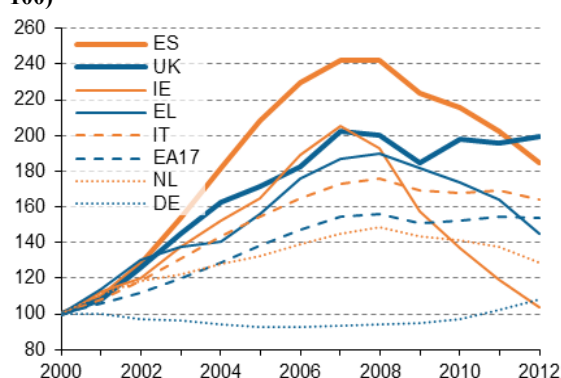
mortgage debt. Declines in the value of household financial assets also contributed to the reduction in wealth.

Chart 3.4.2: Evolution of household wealth in euro area (change on previous year, in EUR billion)



Source: ECB

Chart 3.4.3: Evolution of house prices (index, 2000 = 100)

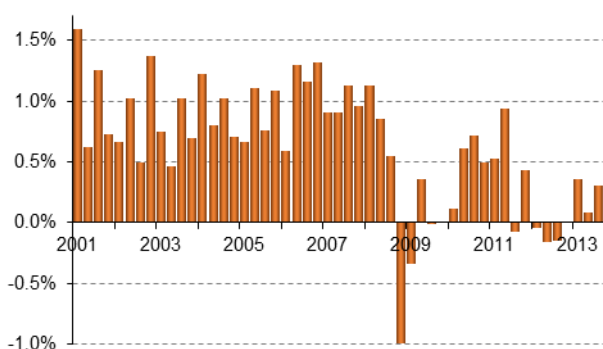


Source: OECD

As with trends in output losses, it is difficult to determine how much of the changes in household wealth can be attributed to the financial crisis rather than to other factors. In particular, many valuations before the crisis were inflated and unsustainable, so it may not be appropriate to judge the full amount of the overall decline as crisis driven.

Nonetheless, sharp declines in household wealth, combined with an uncertain economic outlooks and less secure jobs and income stream, can cause consumers to reduce their consumption, which – all else being equal – in turn reduces aggregate demand and real GDP.

Chart 3.4.4: Gross disposable income of households in the euro area (% change on previous quarter, seasonally adjusted)



Source: ECB

The household income levels (measured by gross disposable income, chart 3.4.4) fell for many households. Moreover, as is evident from the increase in the number of arrears, repossessions and non-performing loans, the crisis affected households' capacity to service existing loans, at least in some EU Member States.³⁶ This is particularly problematic given the high levels of household indebtedness in many countries (see chart 3.3.3 above).

During the crisis, income inequality in the EU as measured by the GINI index and the S80/S20 quintile ratio did not rise significantly overall (0.1 percentage points in EU-27 between 2008 and 2011), but there were sizeable increases in a number of Member States, particularly in Southern Europe. In the euro area, income inequality increased by 0.3 points. Significant variations in the inequality trends were observed between different Member States with changes in the GINI coefficient between 2008 and 2011 ranging

³⁶ See also EFSIR (2012) for an overview of the impact of the crisis on households.

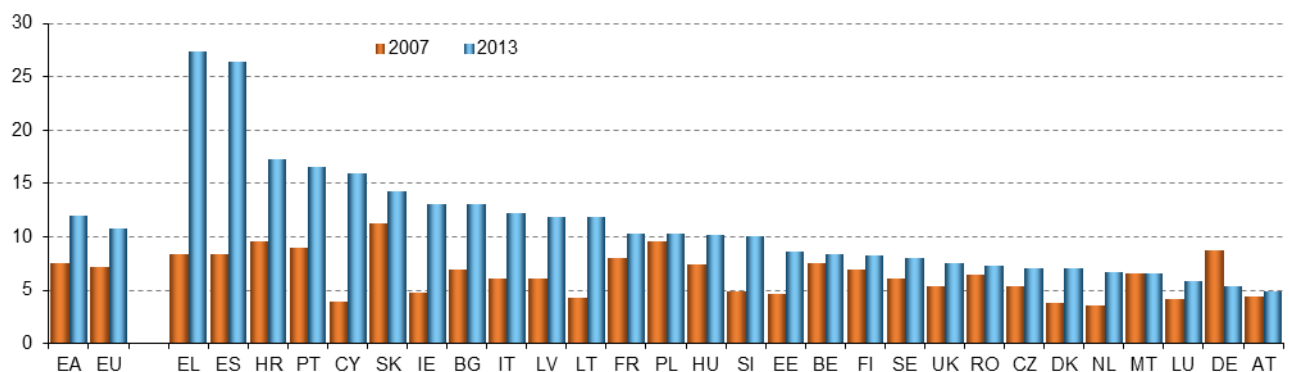
from decreases of over 2 percentage points for Romania, Latvia, and Netherlands to increases of 2.7 percentage points for Denmark and Spain.³⁷

The crisis damaged households' trust in the financial sector and in those charged with forming policies, supervising and regulating the sector. **More than 60 % of EU citizens surveyed in 2013 stated that they had lost confidence in the financial sector (as well as in the relevant authorities) as a result of the crisis.**³⁸ In addition to the declines in their wealth and income, trust was negatively affected by the public perception that, in the years leading up to the crisis, financial intermediaries lacked discipline and accountability, generated high profits and paid huge staff bonuses in the years before the crisis, but then proved largely immune to the downside of the excessive risks that they took when they were subsequently bailed out by taxpayer funds.

3.4.3 Unemployment

The crisis was accompanied by significant job losses in the EU. **The unemployment rate increased from a pre-crisis low of 7.5 % in 2007 to 12 % in 2013 in the euro area, and from 7.2 % to 10.8 % in the EU.** Compared with the end of 2007, 9.3 million more people are now unemployed in the EU.³⁹ These averages and the total conceal sharp differences across Member States, with the unemployment rate falling over the period in Germany but rising to more than 25 % in Greece and Spain (chart 3.4.5).

Chart 3.4.5: Increase in unemployment rate in the euro area, EU and the Member States (in %)



Source: Eurostat

Structural unemployment and labour market mismatches have been growing. Net job destruction has been coinciding with an increase in precarious jobs even though, compared to before the crisis, the share of temporary contracts has fallen in the EU. Part-time, especially involuntary part-time, jobs have been increasing.

Young people have been hit particularly hard by the crisis, and the threat to the future of many young people remains acute given the high levels of youth unemployment.⁴⁰

³⁷ European Commission (2014), "Employment and Social Developments in Europe (*ESDE*) 2013 Annual Review, January 2014, pp. 18-19 - <http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7684>

³⁸ http://ec.europa.eu/public_opinion/archives/ebs/ebs_398_en.pdf

³⁹ Source: Eurostat

⁴⁰ European Commission (2014), *ESDE* 2013, p. 60; and European Commission (2014), 'EU Employment and Social Situation Quarterly Review' (*ESSQR*), March 2014,

In 2013, nearly 6 million people in Europe under the age of 25 were unemployed and a total of 7.5 million were not in employment, education or training.⁴¹ Youth unemployment rates in Europe stood at 23.4 % at the end of 2013, more than twice the (already very high) rate for the EU population as a whole.⁴² In Greece and Spain, more than half of the young people in the youth labour force are unemployed.

Persistent, **high unemployment has a range of negative consequences for the individuals affected and the economy as a whole.** For example, displaced workers often suffer declines in their earnings potential. Spells of unemployment (and the stigma attached to it) reduces employment and earnings prospects. Skills erode as individuals lose familiarity with technical aspects of their occupation. Moreover, unemployed people tend to be physically and psychologically worse off than their employed counterparts, and their children tend to have worse educational opportunities. The high levels of youth unemployment are particularly damaging, as they affect the longer-term employment prospects for young people, with serious implications for future growth and social cohesion. For example, studies show that young people who graduate in a severe recession have lower life-time earnings, on average, than those who graduate in normal economic conditions.⁴³ Moreover, spells of unemployment deteriorate the capacity of households to service the mortgages and other debt they had previously taken out.

Poor labour market conditions affect not just the underemployed and unemployed, but also the employed. For example, a higher unemployment rate decreases job security and diminishes the belief that another job could be found if a layoff occurred. Thus, high unemployment has wider psychological effects, with consequences for social welfare that are difficult to quantify.⁴⁴

Finally, persistent high unemployment also increase budgetary pressures as expenditures on social welfare programs increase and individuals with reduced earnings pay less taxes. Nearly a quarter of the EU population is at risk of poverty or exclusion. In absolute terms, in 2012 this amounted to almost 125 million people in the EU, an increase of 7.4 million compared to the onset of the crisis in 2008.⁴⁵ In-work poverty has also risen, partly reflecting the fact that those who remain in work have tended to work fewer hours and/or for lower wages. Children in such households are also exposed to increased poverty. Growing social distress in employment and poverty are the result of the crisis and the lack of resilience of the labour market and

<http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=2054&furtherNews=yes>

⁴¹ http://ec.europa.eu/europe2020/pdf/youth_en.pdf

⁴² European Commission (2014), ESSQR 2014, p. 25

⁴³ See for example Kahn (2010).

⁴⁴ For example, Helliwel and Huang (2011) confirm, using US data, that the costs of unemployment go well beyond income losses for the unemployed but significantly affect well-being of both unemployed and employed people. For the unemployed, the non-pecuniary costs of unemployment are found to be several times as large as those due to lower incomes, while the indirect effect at the population level is fifteen times as large. For those who are still employed, a one percentage point increase in local unemployment has an impact on well-being roughly equivalent to a four percent decline in household income. The authors also find evidence that job security is an important channel for the indirect effects of unemployment.

⁴⁵ European Commission (2014), ESDE 2013, p. 55

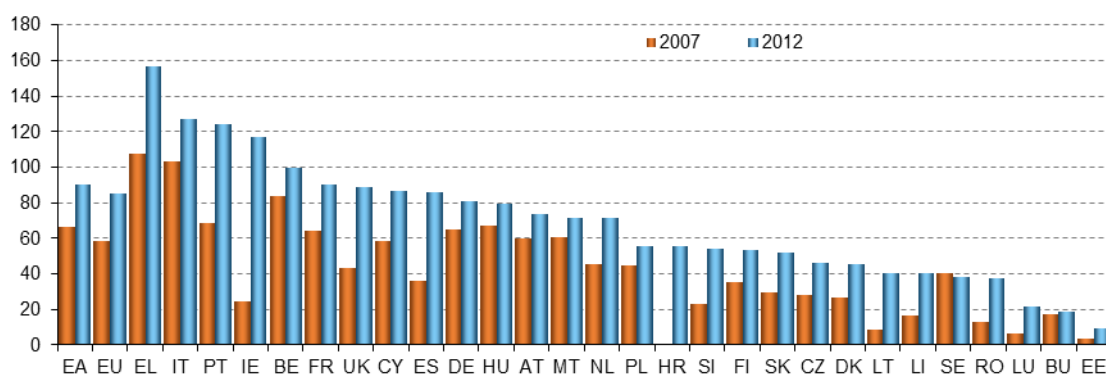
social institutions.⁴⁶ As discussed in the next section, these problems further strain public finances.

3.4.4 Costs to public finances

Since the onset of the crisis, **European governments have used a total of EUR 1.5 trillion of state aid to support the financial system during 2008 and 2012 (which amounts to 12.3 % of 2012 EU GDP)**, in the form of guarantee and liquidity support, recapitalisation and asset relief measures (see Box 3.4.1). This response was deemed necessary because, without such intervention, a systemic crisis with more serious consequences for the economy would have materialised.

Notwithstanding the cases where such state aid has been fully or partly repaid, these state aid payments have generally contributed to the increased public deficit and debt levels in the EU. Other crisis-related contributing factors included reduced tax revenues (in part driven by declines in taxable income for consumers and companies), increased spending on unemployment benefits and other social assistance provided to individuals affected by the recession, and fiscal stimulus spending provided to prevent economies sliding into depression.⁴⁷

Chart 3.4.6: General government debt levels (% of GDP)



Notes: Shows government consolidated gross debt in relation to GDP.

Source: Eurostat

Chart 3.4.6 reports the significant increase in public debt levels across Europe. On average, **general government debt in the EU increased by 26 % of EU GDP between the end of 2007 and 2012**. Because the impact of the crisis continues to be felt across Europe, the total impact on public debt cannot yet be evaluated. Past financial crises have generally been very costly. When analysing a subset of 49 crisis episodes from the 122 systemic financial crises that occurred since 1970 around the world, one finds that net direct fiscal outlays to rehabilitate the banking system averaged 13 % of GDP, including the values recovered from assets acquired by the public sector. However, increases in public debt ratios – the most comprehensive measure to capture fiscal implications from financial crises – went far beyond the direct costs attributable to tackling the financial sector problems and amounted to 20 % of GDP, on average⁴⁸. Given the adverse feedback loops between the banking crisis

⁴⁶ European Commission (2014), ESDE 2013, p. 13

⁴⁷ Social expenditure trends were negatively affected in this crisis, in particular from 2012, neutralising the economic stabilisation function of social protection systems in many Member States.

⁴⁸ See European Commission (2009).

and the sovereign debt crisis in Europe, the total costs to public finances may well be higher this time round.

As witnessed recently in the euro area, public debt levels can rise to a point where investors lose confidence in the ability of the government to repay debt and sovereigns themselves may then become vulnerable to crises. Because of the sharp increases in borrowing costs for both the sovereign and private businesses and households, the costs of such sovereign debt crises are massive, and this in turn reduces the chances to grow out from the problems.

More generally, while deficits during and after a recession can support economic recovery, **higher public debt levels have negative effects on economic growth**. For example, public debt can "crowd out" private investment in productive capital as the portion of savings that is used to buy government securities is not available to fund private investment. Also, higher debt results in higher interest payments, which must subsequently be funded by future generations.

As noted above, clearly not all of the cost to public finances can be explained by the crisis, and even less should be attributed to failings in the financial system. Nonetheless, taxpayer funds would not have been required to address the crisis and bail out financial institutions had there not been the crisis and failures in the financial system.

Going forward, if debt levels remain high, there will be much less room for manoeuvre to respond to another crisis or economic contraction with fiscal measures. Equally, because the near-zero interest rates attributable to the crisis may hinder the effectiveness of conventional monetary policy, there may be less scope for effective monetary policy. Box 3.4.1 also summarises the central bank support provided to the financial sector during the crisis.

While the large-scale interventions were deemed necessary to restore confidence in the financial system and avert a more severe crisis, the unintended consequences and related costs of these interventions cannot be discarded. From a financial regulation perspective, one key concern is that the support measures may have encouraged market participants to expect similar emergency actions in the future (i.e. moral hazard may have increased). Thus, while considered necessary at the time in order to fight the crisis, an ongoing dependency of the financial sector on public support – beyond explicitly agreed backstop measures – would clearly be undesirable. Thus, exit from public support measures is needed to restore normal market conditions.

Box 3.4.1: State aid measures and central bank support

Between 1 October 2008 and 1 October 2013, the Commission took more than 400 decisions authorising State aid measures to the financial sector. In the period 2008-2012, the overall volume of state aid used for capital support measures alone (recapitalisation and asset relief measures) amounted to EUR 591.9 billion, which equals 4.6 % of 2012 EU GDP (Table 1).

Table 1: Total amounts granted for recapitalisation and asset relief measures

Aid Instrument	In € billion	As % of 2012 GDP
Recapitalisation	413.2	3.2%
Asset relief	178.7	1.4%
Total	591.9	4.6%

Source: European Commission state aid scoreboard as of end 2013.

Significant aid was also granted in the form of guarantees and other form of liquidity support (Table 2). These reached their peak in 2009 with an outstanding amount of EUR 906 billion (7.7 % of EU 2012 GDP). The crisis intensity has gradually weakened in many EU countries since then, so the outstanding amount of liquidity support has dropped to EUR 534.5 billion in 2012 (4.14 % of 2012 EU GDP). However, during the first five years since the guarantee on liabilities programs were introduced, only EUR 2 billion of the total guarantees provided have actually been called.

In return for their financial support, the governments have received a total of EUR 125 billion (0.97% of 2012 EU GDP) in revenue in exchange for their support to banks, e.g. comprising fees received from guarantees.

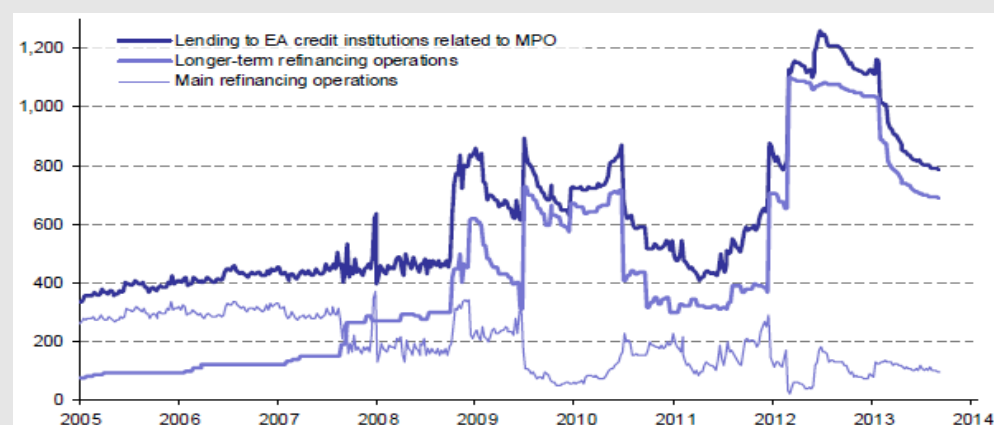
Table 2: Total aid outstanding amounts for guarantees and asset relief measures

Aid Instrument	Peak amount outstanding		2012 amount outstanding	
	In € billion	As % of 2012 GDP	In € billion	As % of 2012 GDP
Guarantees	835.8	7.1%	492.3	3.8%
Other liquidity measures	70.1	0.6%	42.2	0.3%
Total	906.0	7.7%	534.5	4.1%

Source: state aid scoreboard as of end 2013.

The ECB and other European central banks provided significant amounts of liquidity support to banks. Eurosystem lending to euro-area credit institutions related to monetary policy operations (MPOs) surged as a result of the large take-up in the 3-year longer-term refinancing operations (LTROs) in December 2011 and February 2012, when some EUR 1 trillion was allotted (although the net liquidity added amounted to about EUR 520 billion). Total Eurosystem lending related to MPOs has since declined again, mainly due to voluntary early repayment of the 3-year LTROs.

Chart 1: Liquidity providing operations of the Eurosystem (EUR billion)



Source: ECB data

CHAPTER 4: THE OBJECTIVES AND INTENDED BENEFICIAL EFFECTS OF THE REFORMS

In response to the financial and economic crisis, the European Commission and the EU co-legislators pursued a far-reaching financial reform agenda to strengthen the regulation and supervision of the financial sector. This includes the reform measures agreed at international level as part of the G20 commitments that present a direct response to the financial crisis and will be implemented throughout the world. It also includes the wider set of measures taken at European level to create a stable, efficient and sound financial system and a single market in EU financial services. This chapter revisits the objectives of the reform programme and reviews the expected benefits.

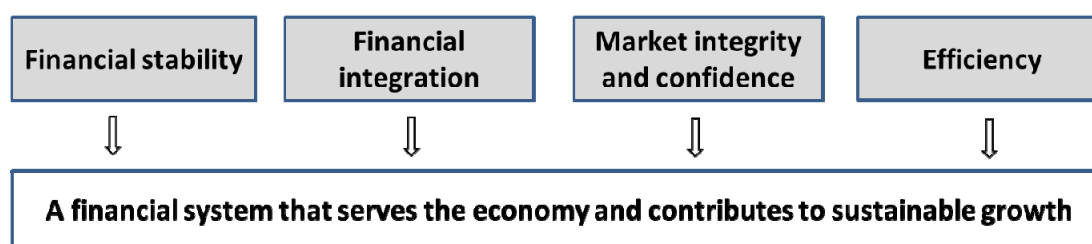
4.1 OVERVIEW OF REGULATIONS AND OBJECTIVES

The reform measures have a number of key objectives, and the overall benefits of the reforms can be evaluated with respect to their appropriateness and effectiveness in achieving these objectives collectively. **To allow a comprehensive review, the objectives are consolidated into the following four general categories:**

- Enhancing financial stability and the resilience of financial intermediaries, markets and infrastructures to reduce the probability and impact of future financial crises in the EU;
- Restoring and deepening the EU single market in financial services;
- Securing market integrity and confidence in the EU financial system, by enhancing disclosure and transparency, countering market abuse and protecting consumers and investors;
- Improving the efficiency of the EU financial system to ensure that capital is allocated to its most productive uses, financial services are priced to reflect risks, transaction costs are minimised and the competitiveness of the EU economy is enhanced.

These objectives relate back to the desirable characteristics of a financial system, as set out in chapter 2—i.e. financial stability, financial integration, integrity and efficiency. Put differently, **the overriding objective of the reforms is therefore to create a financial system that serves the economy and facilitates sustainable economic growth** (chart 4.1.1).

Chart 4.1.1: Objectives of the EU financial regulation agenda



Source: Commission Services

As set out in chapter 3, in the years leading up to the financial crisis, much of the financial system had become self-serving. The financial sector grew faster than the economy as a whole, and profits and salaries ballooned in that sector compared to other parts of the economy. The excessive risks taken in the sector endangered financial stability and ultimately imposed large costs on taxpayers and contributed to the deep recession.

Much of the focus in this chapter is on the financial stability objectives of the financial reform agenda. As evidenced in the crisis, financial stability is a precondition for sustainable economic growth. Based on the range of available estimates, the total cumulative output loss of this crisis may amount to 50-100 % of pre-crisis annual EU GDP (about EUR 6-12.5 trillion) or more according to some studies, with potential permanent effects on the growth rate (especially if unemployment remains high, labour is underutilised and skills are lost). One of the key goals of the financial reform agenda is to reduce the probability of future crises occurring, and to minimise the impact on society if they do. Only a one percentage point reduction in the probability of a systemic crisis occurring could deliver significant benefits amounting to 0.5-1 % of annual GDP, based on the above range of output losses.

If this is achieved, **regulation which promotes financial stability helps increase economic activity and growth over the cycle.** Sustainable economic growth is what counts, not temporarily boosted artificial growth that results in booms and subsequent busts. Moreover, as further discussed below, the financial stability measures contain a number of rules that improve incentives and reduce excessive risk-taking activities in the financial sector.

Table 4.1.1 presents the overview of this chapter, which is organised by objective (and in the case of financial stability also by sector). It maps different reform measures against the objectives and also indicates the relevant chapter section. The table illustrates that no single rule achieves all the objectives by itself. Even the regulations which appear to pursue the same objective are needed if they are complementary and jointly required to achieve that objective.

The remainder of this chapter reviews the financial regulation agenda against the different objectives. The overall coherence and synergies between the different reform measures in achieving those objectives are also reviewed in further detail in chapter 5.

Table 4.1.1: Overview of chapter by objective and reform

Objectives	Main reforms	Section
FINANCIAL STABILITY		4.2 – 4.5
Banking sector		4.2
Increasing loss absorbency	Capital Requirements Regulation and Directive IV (CRD IV package), Bank Resolution and Restructuring Directive (BRRD)	4.2.1
More adequate liquidity and maturity matching	CRD IV package	4.2.2
Reducing pro-cyclicality and systemic risk	CRD IV package, European System of Financial Supervisors (ESFS), structural reform	4.2.3
Improving risk management and governance	CRD III, CRD IV package, structural reform	4.2.4
Improving crisis management, recovery and resolution	BRRD, Single Resolution Mechanism (SRM), structural reform	4.2.5
Correcting "too big to fail"	Structural reform, BRRD, CRD IV package	4.2.6
Financial markets and infrastructures	Markets in Financial Instruments Directive II (MiFID II), European Market Infrastructure Regulation (EMIR), Central Securities Depositories Regulation (CSDR), Short-selling and CDS regulation, regulations on credit rating agencies (CRAs), Prospectus Directive, accounting reforms, audit market reforms, benchmark regulation, regulation on securities financing transactions (SFTs)	4.3
Shadow banking	Alternative Investment Fund Managers Directive (AIFMD), Money Market Fund (MMF) regulation, SFT regulation (and other measures)	4.4
Stability and resilience of the insurance sector	Solvency II, Omnibus II	4.5
FINANCIAL INTEGRATION		4.6
Enhancing the single market	All reforms, in particular the single rulebook, ESFS, European venture capital funds (EuVECAs), European social entrepreneurship funds (EuSEFs), European Long-term investment funds (EuLTIFs)	4.6.1, 4.6.2, 4.6.4
Banking Union to improve the functioning of EMU	Single Supervisory Mechanism (SSM), SRM	4.6.3
MARKET INTEGRITY AND CONFIDENCE		4.7

Countering market abuse	Market Abuse Regulation and Directive on Criminal Sanctions for Market Abuse (MAR/CSMAD), benchmark regulation	4.7.1
Consumer and investor protection	Deposit Guarantee Scheme (DGS) Directive, Mortgage Credit Directive (MCD), Packaged Retail and Insurance-based Investments Products (PRIIPS), Insurance mediation Directive (IMD), Undertakings for Collective Investment in Transferable Securities (UCITS) Directive V, MiFID II, Payment Services Directive (PSD) II, Payment Account Directive (PAD)	4.7.2
Improving the reliability of ratings and financial information	CRA regulations, accounting and transparency rules, audit market reforms	4.7.3 – 4.7.5
EFFICIENCY	Single rulebook, CRD IV package, BRRD, structural reform, Banking Union, Solvency II, MiFID II, EMIR, CSDR, CRA regulations	4.8

Notes: See the glossary for the list of abbreviations. Not all reforms taken are listed in this table. For a full list of the different financial regulatory measures proposed by the Commission during 2009 and 2014 (up to April), see annex 2. Detailed descriptions and references to the legislative initiatives are provided in the relevant sections.

4.2 STABILITY AND RESILIENCE OF THE BANKING SECTOR

Banks are at the core of the EU financial system. Households, non-financial corporates and governments rely significantly on banks to fulfil their funding needs (see Box 4.2.1). The fact that more than half of the assets of the financial system in the euro area are held by banks illustrates their key role in the financial system (Table 4.2.1).

Table 4.2.1: **Relative size of banks and other financial institutions in the euro area**

	EUR trillion	% of total
Regulated banks	28.0	51.5
Insurance corporations and pension funds	6.8	12.6
Regulated investment funds other than MMFs	5.6	10.3
Other intermediaries	10.8	19.9
Eurosystem	3.1	5.8
Total assets of euro area financial institutions	54.4	100.0

Source: Bakk-Simon et al. (2012), showing data for end 2011.

Unlike most non-banks, banks are characterised by a **high risk of instability and fragility** due to the maturity mismatch and liquidity mismatch between their assets (often long term and illiquid, such as loans) and their liabilities (often short term and liquid, such as deposits). They are hence **vulnerable to confidence crises** as their predominantly short term creditors may decide to withdraw their funds or stop rolling over their short-term debt paper. To avoid disruptive runs and confidence crises, banks **benefit from explicit and implicit public safety net coverage**, including deposit guarantee schemes, lender of last resort support by central banks, but also

implicit subsidies. Safety nets have important benefits for financial market stability, preventing bank runs, self-fulfilling prophecies and various forms of contagion. Thereby, safety nets prevent wide-scale collapse of the intermediation services of the banking sector. However, due to the presence of these public safety nets, banks also have **incentives to take excessive risks ("moral hazard"), expand their balance sheet and leverage up** (i.e. fund their activities with more debt rather than equity). Given the artificially low and risk-insensitive funding costs that result from the public safety nets and given the limited liability status of shareholders and bank managers, it is rational for banks to leverage up and take more risks by issuing more debt.⁴⁹ The banking sector is indeed more highly leveraged than any other sector in the economy, and the presence of public safety nets is a key driving factor.⁵⁰ Whereas the percentage of equity finance of non-banks often exceeds 40 % of the balance sheet for many sectors in the economy, it is often less than 5 % for the banking sector.

To control and curtail risk-taking and excessive leverage incentives, banks have long been **heavily regulated and supervised**. However, the financial crisis showed that the regulatory and supervisory framework of banks was inadequate. **Banks were at the heart of the crisis**. Whereas several large EU banking groups have weathered the crisis well, the EU financial system as a whole would have likely imploded due to a system-wide cascade of banking failures without the extraordinary and ongoing government and central bank support.

When the financial crisis started, the EU acted quickly and increased already in 2009 the protection levels of deposit guarantee schemes (DGS) from a minimum of EUR 20 000 to EUR 50 000 and, in 2010, to a harmonised level of EUR 100 000 per depositor per bank. This reinforced depositor confidence in public safety nets and thereby averted the risk of runs on banks across the EU. The DGS measures are further discussed in section 4.7.2, as they are critical also for consumer protection.

In order to enhance the stability and resilience of the banking sector and reduce the likelihood and costs of future banking failures (including calls on the deposit guarantee scheme and wider taxpayer support), the financial regulation agenda includes a number of important bank reforms which:

- increase the ability of banks to absorb losses by increasing the level and the quality of bank capital (section 4.2.1);

⁴⁹ Roughly speaking, the return on equity (RoE) equals leverage multiplied by the return on assets (RoA). For a given ROA, say 1 %, the RoE will approximately be the multiplication of the ROA with the leverage. If banks have a leverage of 20, the RoE will amount to 20 %, whereas it would be 10 % with a leverage of 10.

⁵⁰ Note that tax distortions in favour of debt issuance cannot explain the high leverage of banks compared to non-banks. Debt tends to receive a more favourable tax treatment than equity, but this argument also holds true for non-financials. The argument that banks are prone to greater agency problems compared to non-banks in the sense that bank managers are able to expand the bank balance sheet aggressively and to take on tail risk is valid, but does not explain the preference for greater (short term) debt funding by banks. Academic papers such as Calomiris and Kahn (1991) claim that short-term debt has a disciplinary effect on bank managers, but the crisis experience has illustrated that short-term debt issuance would need to be taxed, if anything, rather than being considered as a tool to control bank risk-taking. The Miller-Modigliani theorem states that the capital structure is irrelevant, except in the presence of important and real frictions (see also chapter 6.4). Admati and Hellwig (2012) and several others argue that the presence of the (mis-priced) public safety nets is the sole explanation behind the relatively high leverage of banks over non-banks.

- improve the ability of banks to absorb liquidity shocks (outflows) and ensure adequate asset-liability matching (section 4.2.2):
- reduce the pro-cyclicality in the regulatory framework ((section 4.2.3):
- improve banks' risk management and governance (section 4.2.4);
- facilitate crisis management and bank resolution (section 4.2.5);
- correct the "too big to fail" problem (4.2.6).

Results of quantitative models estimating the potential (net) benefits of bank reforms are presented in section 4.2.7.

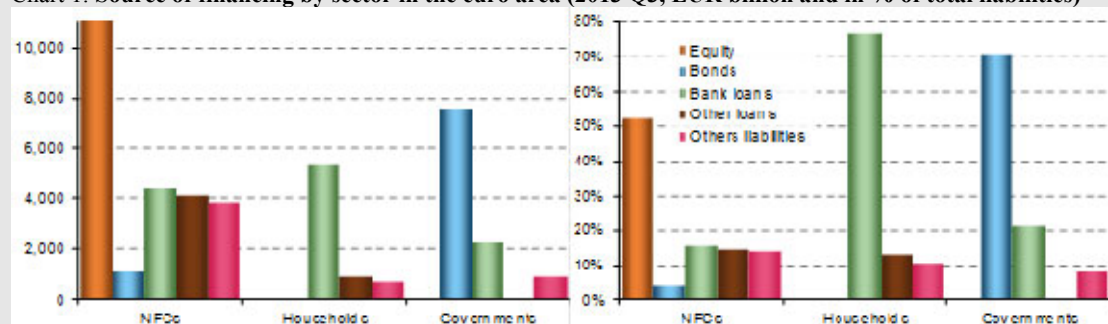
Over and above the reforms listed above, the EU took decisive steps towards establishing a Banking Union. This reform strand is discussed separately in section 4.6.3.

Box 4.2.1: The importance of banks in financing the economy

Businesses, governments and households finance their activities from different sources, including bank loans. Data from national accounts shows how financial liabilities (or the funding mix) differ widely from one economic sector to the other (Chart 1).⁵¹ Households finance almost exclusively through bank loans (almost 80 % of liabilities), while NFCs also use a variety of other sources. With EUR 10.4 trillion or almost 40 % of financial liabilities, unquoted shares and other equity is the main source of funding used by NFCs. Bank loans represent almost 16 % of NFCs source of funding (EUR 5.3 trillion) and securities issued in the markets, about 19 % (EUR 1.1 trillion of debt securities and EUR 4.2 trillion of quoted shares).

Besides the collection of taxes, governments finance their activities mainly through the issuance of bonds (70 % of financial liabilities or EUR 7.6 trillion), but loans are also significant (21 % or EUR 2.3 trillion).

Chart 1: Source of financing by sector in the euro area (2013 Q3, EUR billion and in % of total liabilities)



Note: Equity of NFCs: EUR 14.6 trillion includes quoted shares (EUR 4.2 trillion) and other equity (EUR 10.4 trillion). The chart omits the net worth of households (EUR 43.0 trillion). For government, bank loans include also other loans.

Source: ECB euro area accounts and own calculations.

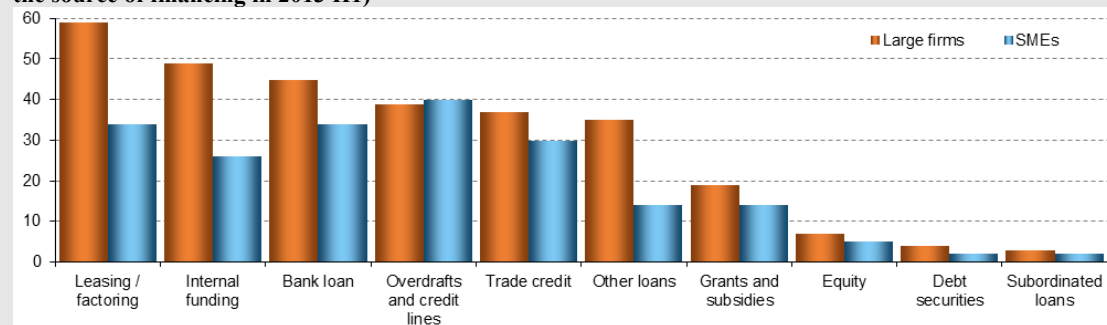
⁵¹ Data in this box correspond to the euro area aggregate. In broad terms, the distribution of financing sources is similar both for the EU28 as a whole and for individual countries.

Overall, banks provide up to EUR 12.0 trillion financing in the form of loans to these three sectors (households, NFCs and governments), accounting to more than 25 % of their financing sources.

As shown in chart 1, on top of equity, bank loans and securities, other sources are also relevant. For instance, they represent almost 30 % of all funding for NFCs (EUR 8.0 trillion).

Chart 2 provides a more granular breakdown of financing sources of corporates, showing the percentage of small versus large corporates that have used the relevant source of financing (rather than actual volumes).

Chart 2: Source of financing for euro area non-financial corporations (percentage of companies having used the source of financing in 2013 H1)



Source: ECB Survey on the access to finance of SMEs in the euro area.

4.2.1 Increasing bank capital and loss absorbency

As explained below, the financial crisis demonstrated that existing bank capital regulation was inadequate. Following calls from the G20 and the Financial Stability Board (FSB), the global standard setter for the prudential regulation of banks – the Basel Committee on Banking Supervision (BCBS) – agreed in 2010/11 on new rules requiring banks to hold more and better quality capital. At EU level, the new global standards are reflected in the Capital Requirements Directive (CRD)⁵² and Regulation⁵³ (jointly, the CRD IV package) that entered into force in July 2013.

The role of bank capital

The first (**ex post**) **purpose** of bank capital is to **deal with “unexpected” losses**. Expected losses should be covered by provisions and the income generated by the institution. Bank capital is the guarantee of a bank’s financial soundness. It ensures that the bank can absorb higher than expected losses. Thus, bank capital protects the taxpayer from losses and minimises negative consequences of bank failures.

A second (**ex ante**) **purpose** of bank capital is to **ensure that the bank takes less risk because shareholders** have more “skin in the game”.

Important market failures (negative externalities) arise when bank capital reaches low levels. First, externalities may arise from fire-sales. When a bank under stress needs to

⁵² Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

⁵³ Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012.

liquidate its assets rapidly, it will be ready to do so at below market prices to expedite the process. This will also affect negatively the value of similar assets held by other banks. Thus, a sell-off by banks under stress impose costs on other market participants, putting pressure on their capital position and forcing them to liquidate their assets, too, which pushes the asset prices further down. This process might end in a vicious cycle where market participants are forced to liquidate (fire-sales). The fire-sale problem is exacerbated when a bank faces liquidity problems (short-term funding) in addition to capital constraints (see below section 4.2.2). Second, credit supply may be constrained. In a stress situation, banks prefer to reduce illiquid assets, because they require more capital to hold for the associated risks. Banks cut therefore the supply in new loans to non-financial firms or adjust the risk premium on existing loans, hampering in this way investments and economic activity.

Given these market failures, regulators need to establish minimum levels of capital for banks to absorb potential losses, preventing banking problems spilling over to the economy. However, a regime with flat, non-risk based capital requirements brings inevitably potential for distortion, because it incentivises banks to invest in high-risk assets, which has a negative impact for the sector and the economy (in extremis this could crowd safe borrowers out of the credit market). To avoid these distortions, the regulatory framework has to take the riskiness of assets into account when setting minimum capital requirements.

The benefits of a well-capitalised banking system in terms of lower probability and cost of financial crises and the resulting lower macroeconomic volatility are well recognised and have been analysed in a number of studies (see also section 4.2.7 below).

Changes in bank capital requirements – towards the CRD IV package

The financial crisis highlighted the problems with the existing EU framework for bank capital regulation, which was embedded in the Basel agreements at international level (see box 4.2.2 for a short overview). In particular, it proved unable to ensure that adequate levels of sufficient quality capital were put in place to deal with solvency shocks. It became clear when the crisis struck that what is needed in the banking system is more and better capital and less leverage. Also, the regulatory capital ratios had not always been able to signal individual bank distress⁵⁴. The risk weighting system inherent in capital regulation was allowed to become highly complex and turned out to be a poor proxy for the actual risk of an institution. Moreover, regulation was unable to account for the impact of financial innovation. At times, the latter has also been motivated by the simple wish to circumvent prudential rules and minimise the applicable capital requirements.

The regulatory framework had a number of other shortcomings, which are separately discussed in the subsequent sections. It was funding liquidity problems that triggered the crisis, but liquidity was largely left outside of the regulatory framework (see section 4.2.2). Moreover, the risk weighting system turned out to fuel the natural procyclicality of banking, amplifying the boom and the bust when it eventually

⁵⁴ Lehman Brothers, Northern Rock, RBS, Fortis and Dexia enjoyed excellent regulatory capital marks, while being unsustainably leveraged and vulnerable to funding liquidity risk.

occurred. Also, its microprudential focus was ill-suited to take account of the increasing systemic risk (see section 4.2.3).

Box 4.2.2: Changes in bank capital regulation

In 1988, the Basel I international accord was signed. It was a landmark agreement: “International Convergence of Capital Measurement and Capital Standard”, as it was the first-ever genuinely international prudential regulatory agreement. More than 100 countries adopted the recommendation. The goals of the agreement were to (i) improve the resilience and stability of the financial system and to (ii) ensure a competitive level playing field internationally (between Japanese, US, European and other banks). The accord consisted of merely 30 pages and defined “capital adequacy rules” for banks at a global level. It specified the calculation of the total minimum capital requirements for assuming credit risk (later also market risk, see amendment below). The regulatory capital requirements are expressed as a ratio and are hence composed of three elements: (i) the numerator of the ratio defines regulatory capital; (ii) the denominator of the ratio defines risk weighted assets (RWA); (iii) the ratio was expressed as a minimum level: 8 % (the so-called “Cooke ratio”), i.e. per 100 units of RWA, 8 units of capital are required. In 1996, a market risk amendment was added to Basel I, covering market risk and recognising the internal risk models used by banks (“Value-at-Risk” – VaR models).

The definition of bank regulatory capital was more conservative than the accounting definition of capital and consisted of Tier 1 and Tier 2 capital. “Tier 1” capital is going concern loss absorption capital and mainly consists of common shares and retained earnings. “Tier 2” is gone concern loss absorption and mainly consists of hybrids, subordinated debt, and undisclosed reserves. Tier 2 could not be larger than Tier 1 capital. Risk weightings (RW) and risk weighted assets ($RWA = RW \times \text{Assets}$) depend on issuer and location of issuer. There were 5 broad categories of risk weights only: 0 % for cash and OECD government debt; 10 % for loans to domestic public sector entities; 20 % for loans given to banks incorporated in an OECD country; 50 % for loans fully secured by a residential property; and 100 % non-OECD government debt, loans to the private sector, non-OECD banks, real estate investments. RWA could be considerably smaller than total assets, given the above weighting. For the same reason, regulatory capital could hence be significantly smaller than 8 % of total assets.

The Basel I framework was very successful in levelling the playing field internationally, but also displayed a number of shortcomings: risk categories were quite arbitrary (RW on sovereigns used a blunt OECD versus non-OECD country split; RW on corporates were always 100 % irrespective of the credit rating); there was ample scope for regulatory arbitrage (364-day facilities were treated significantly different from full one-year facilities, broad RW categories per issuer, etc.); there was no portfolio approach despite obvious diversification gains across asset classes and instruments; no rules for credit derivatives and securitisation existed; and risk management advances (VaR models) were not incorporated.

In response to these Basel I framework shortcomings, the Basel II agreement was reached in 2004. Greater detail characterised this fundamental overhaul of capital adequacy regulation. Internal models were extended to credit risk exposures and risk management advances were further encouraged. Basel II was a much more risk-sensitive framework. External and internal credit ratings were allowed. It was based on three pillars (i.e. two additional pillars were introduced): minimum capital requirements (“pillar 1”); supervisory review (“pillar 2”); and market discipline (“pillar 3”). It was meant to be a “total risk” approach: credit, market, and operational risk were all covered and a portfolio approach was used.

In direct response to the financial crisis, early revisions to Basel II (known as Basel 2.5) in 2009 addressed risks the exposed by the crisis that were related to trading, derivatives and securitisation activities. The Basel 2.5 agreement introduced important changes to the trading book capital requirements and the treatment of securitisation exposures, including an incremental risk capital charge to reflect the risk of large, but less frequent losses and the potential for large long-term cumulative price movements.

Following a more extensive global effort, Basel III was agreed in 2010/11. Its application was scheduled for January 2013, with the transition period to full implementation stretching out to 2019. Basel III is the attempt by the regulators to learn the full set of lessons from the financial crisis, acknowledging the shortcomings and insufficiencies of the Basel II regulatory framework. It was obvious that banks held insufficient capital and that more and better capital was needed in the system. New definitions of capital components have been introduced. A shift of focus towards higher quality

"core Tier 1" capital instruments took place. New targets for minimum capital requirements were set. The minimum regulatory capital that a bank needs to hold remains at 8 % of RWA, but the portion of capital of the highest quality that can fully absorb losses (common equity Tier 1, CET1) has been increased from 2 % to 4.5 % of RWA. Moreover, to be considered of the highest quality and therefore qualify as CET1, capital instruments now need to satisfy a number of additional, more stringent conditions. Additional capital buffers were introduced. This includes a capital conservation buffer of 2.5 % of RWA, which raises the total capital requirement to 10.5 % of RWA as well as an additional countercyclical capital buffer, a surcharge for systemically important financial institutions and a systemic risk buffer (see section 4.2.3 below for a discussion of the additional buffers). Capital charges were changed to cover derivatives counterparty risk and trading book related risks.

The BCBS is driving the international Basel framework agreements, but is not a legislator. Hence, the EU and its Member States need to reflect in EU law any recommendations agreed at Basel. Several pieces of EU legislation have given effect to the various Basel agreements in EU law, the latest being the CRD IV package.

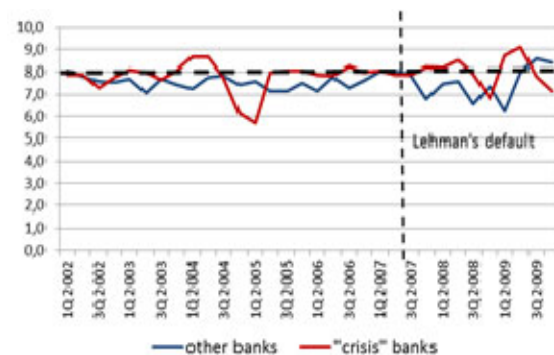
In the run up to the global financial crisis, banks' balance sheets increased significantly, but on a very thin capital base (chart 4.2.1). The trend to expand balance sheets prior to the crisis was associated by an optimisation of risk models, suggesting low risks and consequently low required minimum regulatory capital. The crisis demonstrated not only the insufficient capital to absorb losses, but also the inability of the regulatory ratios to provide timely recognition of emerging bank weakness so as to open the way to early corrective action by supervisors just before the crisis (Carmassi and Micossi, 2012). Chart 4.2.2 shows that shortly before the crisis the regulatory capital ratios (measured by Tier 1 capital in relation to risk-weighted assets) were at 8 % for most banks and did not signal any vulnerability; there was no difference in the evolution of the average capital ratios of "crisis" banks (that ultimately needed government bailout) and "non-crisis" banks. One reason for this are the shortcomings with risk weights and internal models, as discussed below.

Chart 4.2.1: Total assets and equity of euro area monetary financial institutions (EUR billion)



Source: ECB

Chart 4.2.2: Tier 1 capital ratios (%)



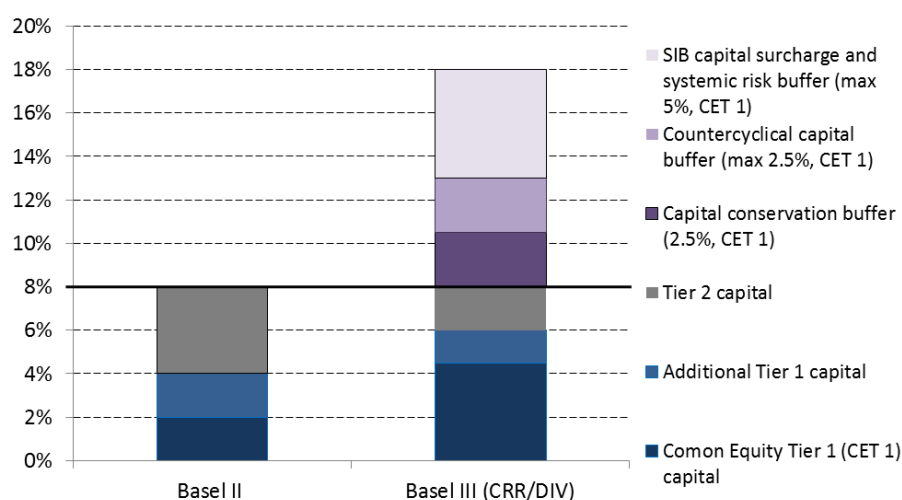
Notes: sample of the 30 biggest EU-banks; "crisis" refers to those banks that received direct state aid during the crisis.
Source: Capital IQ.

Moreover, regulatory capital ratios reported by banks did not reflect their true capacity to absorb losses. The crisis made evident how several elements of what was considered (high-quality) capital to absorb losses did not work out as they were supposed to. For example, debt securities issued by banks that, in principle, should have been able to absorb losses (so called hybrid securities) did not perform as expected. Such securities were counted as capital, because they were meant to reinforce a bank's balance sheet by stopping cash flows from exiting the bank at times

of distress. Unfortunately, the possibility to differ or cancel such payments during the crisis was not used.⁵⁵ As a result, governments had to inject massive amounts of public money into banks and provide guarantees in order to maintain essential financial services for citizens and businesses (see Box 3.4.1).

Chart 4.2.3 illustrates the changes in EU bank capital requirements brought about by the CRD IV package (reflecting the global Basel III agreement), including the new buffers (some of which are discretionary or apply to some banks only, as further described in section 4.2.3 below).

Chart 4.2.3: Overview of the new CRD IV capital requirements compared to previous standards



Notes: The new requirements only phase in over time, with full implementation from 2019. The chart illustrates maximum requirements, since some of the buffers only apply selectively (e.g. to systemically important banks) or on a discretionary or temporary basis (e.g. depending on the cycle). Note that in some cases higher buffers can be applied. See section 4.2.3 for more detail on the buffers. Source: Commission Services

Addressing trading, derivatives and securitisation risks

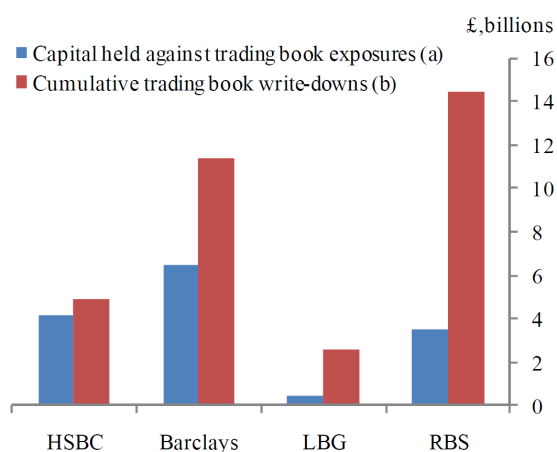
A number of EU (and non-EU) banks in the crisis incurred significant losses in relation to their trading and derivatives activities, in particular in relation to traded credit (e.g. mortgages, asset-backed securities, credit derivatives, structured credit). Substantial losses were also incurred in relation to loan origination and syndication.⁵⁶ Many of the losses related to risks carried in the banks' trading books as opposed to the banking book.

Chart 4.2.4: Cumulative losses on the trading book relative to capital requirements

⁵⁵ Banks whose capital instruments did not live up to the expectation regarding their loss absorption, permanence and flexibility of payment capacity include, amongst others, Allied Irish banks (IE), Bank of Ireland (IE), Bayern LB (DE), Bradford and Bingley (UK), Caja Sur (ES), Commerzbank (DE), KBC Group (BE), Lloyds (UK) and RBS (UK).

⁵⁶ See breakdown of write-downs on different investment banking activities in Box 3 of BCBS (2012).

The crisis demonstrated that trading book risks were not supported by appropriate levels of capital to deal with the losses that eventually materialised (see chart 4.2.4 with UK evidence). The Basel II capital framework did not adequately capture risks related to trading, derivatives and securitisation activities, allowing these activities to balloon (see chapter 3.1) without appropriate capital charges to reflect the risks.



Source: Chart 3 in Haldane (2011).

In direct response to these problems, early revisions to Basel II (known as Basel 2.5) during the crisis addressed such risks with an incremental risk capital charge to reflect the risk of large, but less frequent losses and the potential for large long-term cumulative price movements. Banks are now also required to estimate risks based on stressed market situations that may lead to significant losses ("stressed value-at-risk"). As regards securitisations, firms that repackage loans into tradable securities are required to retain some risk exposure to these securities, and investors in such securities to make their decisions only after conducting comprehensive due diligence. Banks are also required to publicly disclose more information and to hold more capital for re-securitisations. As regards derivatives, further revisions (as part of Basel III) introduced an additional capital charge for possible losses associated with the deterioration in the creditworthiness of a counterparty of a derivative (to address derivatives counterparty credit risk).⁵⁷

In May 2012 the Basel Committee launched a fundamental review of market risk and trading book capital requirements. In essence, the purpose of this review is to further strengthen capital standards regarding the trading book as well as to achieve further comparability and compatibility of required capital outcomes across banks (see below)⁵⁸.

In addition, in Europe, the Commission adopted Regulatory Technical Standards prepared by the European Banking Authority (EBA) to set out criteria for assessing when the specific risk of debt instruments in the trading book is 'material' enough to trigger an evaluation by the competent authority. After this evaluation, competent

⁵⁷ Much of the counterparty credit losses in the crisis were suffered not as a result of actual defaults of the counterparty, but because credit market volatility negatively impacted bank earnings. In response, the BCBS introduced the credit valuation adjustment (CVA) charge, aimed at improving banks' resilience against potential mark-to-market losses associated with deterioration in the creditworthiness of counterparties to non-cleared derivatives trades. The CVA charge applies to non-cleared trades as exposures toward central counterparties (see section 4.3.2) are exempt from the CVA charge.

⁵⁸ The second consultative document, published in October 2013, sets out a number of specific measures to improve trading book capital requirements. This includes a revision of the boundary between the trading and banking books, aiming to establish a better alignment between the two and reducing the risk of regulatory arbitrage between them. Moreover, it also incorporates the latest work trying to capture the risk of extreme events taking place (known in statistics as "tail risk"). Additionally, it now foresees the incorporation of illiquidity risk by introducing a "liquidity horizon" in the risk metric, as well as revisions to the standardised and internal model based approach.

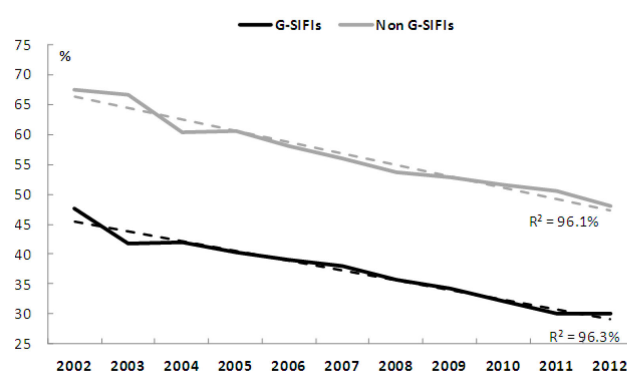
authorities will determine whether banks should incorporate specific risk in their internal models for the purpose of capital requirements.

Improving risk weights and internal models

Minimum capital requirements are calculated with respect to risk-weighted assets, which banks can calculate using their internal risk models. While this is supposed to better reflect the true risk profile of the banks, it can also lead to considerable divergences in the calculation of risk-weighted assets for institutions with similar risk profiles. Concerns have also been expressed about risk-weight optimisation of banks.⁵⁹

Chart 4.2.5 shows the ratio of RWA to total assets (TA) for a sample of banks, distinguishing between banks classified as global systemically important financial institutions (G-SIFIs and others). The chart shows that during the period under consideration (2002-2012) the ratio drastically decreased, and also that the G-SIFIs tended to have lower RWA to total assets.

Chart 4.2.5: RWA to Total Assets: G-SIFIs vs. Non G-SIFIs.



Source: Figure 1 in Blundell-Wignall, Atkinson and Roulet (2013).

Bank assets increased without a corresponding rise in risk-weighted assets and hence without a corresponding higher capital requirement. As noted above, lower risk-weights and hence lower required capital allows banks to expand their balance sheet and increase the recorded return on equity.

Dexia is a prominent example to demonstrate that high regulatory capital ratios, measured as capital in relation to risk-weighted assets, did not automatically imply that the bank is safe. As shown in Table 4.2.1, the bank recorded a core Tier 1 ratio as well as a capital

Table 4.2.1: Development of capital ratios of Dexia 2006-2010.

	2006	2007	2008	2009	2010
RWA as % of total assets	23.5%	26.4%	23.5%	24.8%	24.9%
Total equity as % of total assets	3.3%	2.7%	0.9%	2.1%	1.9%
Core Tier 1 ratio (min 4%)	8.7%	8.2%	9.6%	11.3%	12.1%
Capital adequacy ratio (min 8%)	10.3%	9.6%	11.8%	14.1%	14.7%
Leverage ratio (assets/equity)	30.7	36.9	115.9	48.2	52.8

Source: CEPS (2011).

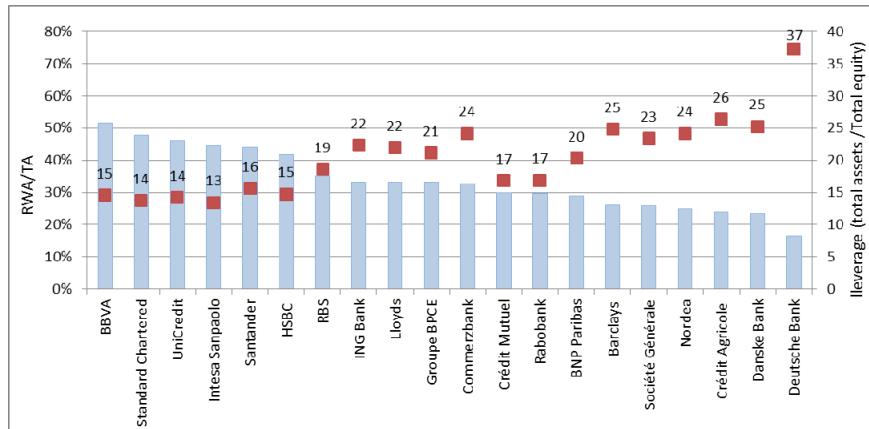
adequacy ratio that was well in excess of the minimum regulatory requirements at the time (4 % and 8 %, respectively),⁶⁰ and this although the bank needed to be bailed out in 2008 and its orderly resolution was approved in 2012. At the same time, the ratio of total equity to total unweighted assets was very low (1.9 % in 2010), indicating high leverage that was not revealed by the risk-weighted regulatory capital ratio.

⁵⁹ See for example Haldane (2009) and Blundell-Wignall et al (2013).

⁶⁰ Tier 1 capital is composed of core Tier 1 capital, which consists primarily of common equity and disclosed reserves (or retained earnings), and non-redeemable non-cumulative preferred stock. Tier 2 capital is supplementary capital (e.g. also including some hybrid instruments).

There are significant differences between banks when it comes to risk weighting of assets. This can be due to differences in the approach to risk-weighting but also reflects differences in bank business models. As illustrated in chart 4.2.6, banks with a greater focus on more traditional retail business tend to have higher-risk weighted assets in relation to total assets than banks with large wholesale banking and trading activities. The latter also tend to be more leveraged.

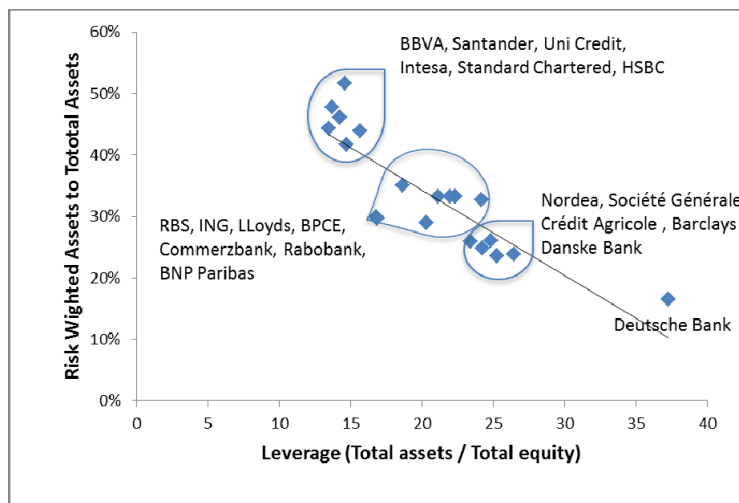
Chart 4.2.6: Risk weighted assets over total assets and Leverage. 20 large EU banks. 2012.



Source: SNL Financial, Leverage is estimated as amount of total assets to total equity

A negative relationship between risk-weighted assets (in proportion to total assets) and leverage (expressed as the ratio of total assets to total equity) is also evident in chart 4.2.7.⁶¹ In general, it tends to be the large banks with significant trading book activities that display relatively high leverage, but low risk-weighted assets.

Chart 4.2.7: Risk weights versus leverage, for the biggest 20 EU banks 2012



Source: SNL Financial, Commission Services calculations.

The CRD IV package improves the risk-weighted capital requirements along key dimensions, by raising the level and quality of the capital requirements and by better reflecting the underlying risks, in particular those linked to the trading book and derivative activities.

⁶¹ Miccossi, (2011) shows similar results for 2010.

Moreover, as part of the fundamental review of the trading book, the BCBS has put forward a revised framework that addresses concerns about the inherent modelling risks and measurement errors of risk-weighted capital requirements that are calculated by the banks using internal models. In particular, it introduces a revised internal models-based approach, which encompasses a more rigorous model-approval process and more consistent identification of material risk factors; banks' ability to reduce capital requirements by recognising hedging and diversification is also constrained and must be based on empirical evidence that such practices are effective during periods of stress. In addition, as an alternative to internal models, a revised standardised approach is put forward that is sufficiently risk-sensitive and appropriate for banks that do not require sophisticated measurement of market risk. Moreover, the revised framework establishes a closer calibration of the two approaches, requiring mandatory calculation of the standardised approach by all banks, and requiring mandatory public disclosure of standardised capital charges by all banks, on a desk-by-desk basis.⁶² More generally, the BCBS has established comprehensive review programmes to ensure the timely and consistent adoption of Basel III as well as consistency in the treatment of risk-weighted assets both in the trading book and the banking book.⁶³

At European level, EBA is also addressing such concerns.⁶⁴ In particular, following its stress test and recapitalisation exercise in 2012, questions were raised as to why there were significant differences in the denominator of the capital ratios (i.e. risk-weighted assets) and material differences in banks' regulatory parameters (probability of default – PD and loss given default – LGD). While differences in risk parameters and capital requirements between banks are not a sign of inconsistency per se, a substantial divergence between similar portfolios may signal that the methodologies used for estimating risk parameters require, in some cases, further analysis. The BCBS has also established comprehensive review programmes.

In this regard, the overall results of the review on RWAs will inform the work EBA is conducting in parallel on the validation of internal models, which will also contribute to better harmonisation of supervisory and banks' practices and to enhancing consistency. A deeper understanding of what drives differences in RWAs will allow the EBA to explore a number of options to address specific concerns. These include using existing guidelines, where appropriate, to enhance convergence in the

⁶² The BCBS is also considering the merits of introducing the standardised approach as a floor or surcharge to the models-based approach. However, it will only make a final decision on this issue following a comprehensive impact study, after assessing the impact and interactions of the revised standardised and models-based approaches.

⁶³ See BIS (2013).

⁶⁴ Risk weights have also been criticised for not reflecting the riskiness of sovereign bonds in the banking book. Within the banking book, sovereign debt is subject to a preferential treatment. Independent of that, during the crisis, banks have tended to reduce their cross-border exposure on sovereigns, increasing sovereign exposure to their own governments. The European legislators expressed the view that the Commission should, at an appropriate time, evaluate if concentrations in sovereign debt are adequately controlled. See Directive 2013/36/EU, recital 84: "The Commission should, at an appropriate time, submit a report to the European Parliament and the Council about any desirable changes to the prudential treatment of concentration risk".

computation of RWAs, and to improve Pillar 3 disclosures, as well as the validation and ongoing monitoring of internal models.⁶⁵

Leverage ratio to complement risk-based capital requirements

The leverage ratio is proposed in the CRD IV package as a new complementary tool to enhance the prudential regulatory framework. It is primarily intended to restrict the build-up of leverage in the banking sector and to complement the risk-based capital requirements with a non-risk based "backstop" measure. The leverage ratio should also present an extra layer of protection against model risk and measurement error.

Leverage ratio as proposed by Basel⁶⁶

The BCBS defines the leverage ratio as the proportion of Tier 1 capital to a so called "exposure measure". Whilst the numerator is clearly defined, the "exposure measure" that generally follows the accounting rules for the value of assets is more complex. It includes special rules for some asset classes. For example, for the on-balance sheet items, "exposure" refers to the book value of assets, except for derivatives and securities financing transactions (repos) which are measured at their market value. In addition, specific rules allow limited netting of repos and special treatment of credit derivatives. However, netting of loans and deposits is not allowed. The off-balance sheet assets are weighted according to the risk weights in the standard approach, so that the "exposure measure" is not entirely risk-free. Some opponents of the proposed leverage ratio argue that it is too complex and might give rise to creative solutions to reduce the leverage ratios and to potential for arbitrage.

In December 2013, the BCBS proposed a leverage ratio of 3 %. For many EU banks, a rate which is higher than 3 % would make the leverage ratio the primarily binding capital requirement. This might have adverse effects on asset allocation and pricing of "low risk" exposures, such as of SME loans and mortgages. While the leverage ratio is an important backstop, it should not become the major instrument for loan pricing and allocation of financial activities in the economy.

Since the leverage ratio is a new regulatory tool in the EU, there is a lack of information about the effectiveness and the consequences of implementing it as a binding measure. It is therefore important to gather more information before making the leverage ratio a binding requirement. The Commission therefore proposes a step by step approach. Banks are required to calculate a leverage ratio and disclose it starting from 2015. Data is gathered on the leverage ratio as of 1 January 2014, and a report is prepared by end of 2016 including, where appropriate, a legislative proposal to introduce the leverage ratio as a binding measure as of 2018. The observation period will allow gathering information to understand better the implications of introducing binding leverage ratio requirements and to be able to calibrate these requirements appropriately. The period will also be used to monitor possible unintended consequences and in particular risks related to disorderly deleveraging (see also chapters 6 and 7).

⁶⁵ See <http://www.eba.europa.eu/risk-analysis-and-data/review-of-consistency-of-risk-weighted-assets>.

Note also that the CRD IV package mandates at least annual benchmarking of internal models.

⁶⁶ See BCBS (2014).

Recent improvement in banks' capital ratios

The CRD IV package entered into force in summer 2013. Institutions are required to apply the new capital rules as of 1 January 2014, but there is a gradual phasing in, with full implementation on 1 January 2019. As such, it is too early to observe the full effect of the measures in the market.

However, European banks have already made progress in boosting their capital positions and thereby strengthening the overall resilience of the European banking system. The process has been uneven and some banks still need significant repair of their balance sheet.

The general improvements in bank capitalisation are in part a response to market pressures following the lessons learned in the financial crisis as well as early convergence to the new capital rules. Moreover, the EBA conducted a one-off bank recapitalisation exercise in 2011/2012 in the context of a series of coordinated policy measures to restore confidence in the EU banking sector. Against the developments in the markets and the deterioration of the sovereign debt crisis in Europe, the EBA reviewed banks' actual capital positions and sovereign exposures and requested them to set aside additional capital buffers. It called on national authorities to require banks to strengthen their capital positions by building up an exceptional and temporary capital buffer against sovereign debt exposures to reflect market prices as at the end of September 2011. In addition, banks were required to establish an exceptional and temporary buffer such that the core Tier 1 capital ratio reaches a level of 9 % by the end of June 2012. With this recapitalisation exercise and a number of other EU-driven remedial actions, more than EUR 200 billion has been injected into the European banking system.⁶⁷

Based on aggregate EU balance sheet data,⁶⁸ the level of total equity of EU banks was EUR 1 818 billion at the end of 2008 and EUR 2 310 billion at the end of 2012. Thus, the increase in the total equity of EU banks for the period 2009-2012 was EUR 492 billion, which represents a 27 % increase in total equity.

The improvements in bank capitalisation since the crisis are also visible in regulatory capital ratios. The median Tier 1 capital ratio of banks in the euro area increased from 8.7 % in 2008 to 12.7 % in 2012, as estimated by the ECB.⁶⁹ According to the ECB study, this increase has been mainly achieved through a reduction in RWA by deleveraging and decreasing exposures with higher risk weights. In other words, banks have achieved higher capital targets by downsizing regulatory capital-intensive activities and selling assets, in particular those that are non-core or those that do not meet profit targets and rely on cross-subsidisation from other parts of the business.

Chart 4.2.8 shows the Tier 1 capital ratios of a sample of the 20 largest EU banks. From 2005 to 2007, these banks had a capital base of about 8 % of RWA. Starting from 2008, the Tier 1 capital ratio gradually improved through to 2012. In 2012, all of

⁶⁷ As part of the bank recapitalisation exercise, EBA required national supervisors to ensure that banks' plans to strengthen capital led to an appropriate increase of own funds rather than higher capital ratios being achieved through excessive deleveraging and lending disruptions to the real economy.

⁶⁸ Using the ECB's consolidated banking data, including data of domestic credit institutions and branches and subsidiaries of foreign banks..

⁶⁹ See ECB banking structure report, November 2013.

these 20 EU banks had a reported Tier 1 capital ratio of more than 11 % and more than half of the banks reached capital ratios of over 13.3 %.

The EBA's monitoring exercise (with data from June 2013) shows a similar trend of increasing capital.⁷⁰ For the sample of internationally active large banks (the so-called Group 1 banks),⁷¹ the average common equity Tier 1 (CET1) ratio increased by 0.8 percentage points compared to the previous exercise (with reporting date end-December 2012). By June 2013, the reported Tier 1 and total capital ratios were on average 13.4 % and 16 %, respectively, for Group 1 banks. For the smaller banks in Group 2, the corresponding figures were 13 % and 15.8 %.

These capital ratios are the current "as reported" ratios and do not yet reflect the new Basel III definitions of capital (in the numerator) and increases in risk-weightings (in the denominator). For example, the Group 1 banks' average Tier 1 ratio would decline from 13.4 %, under the current rules, to 9.2 % under Basel III. Similarly, for Group 2 banks, the average Tier 1 ratio would decline from 13 % to 9.3 %.

While the majority of banks already meet the new capital requirements, some banks fall short and need to build more capital. For Group 1 banks, the total capital shortfalls corresponding to the regulatory ratios (including capital conservation buffer and the surcharge for global systemically important banks) amount to EUR 103.3 billion (Tier 1 capital). The CET1 shortfall as of June 2013 is EUR 36.3 billion, down from EUR 70.4 billion in December 2012. For Group 2 banks, the CET1 shortfall compared to the target level would be approximately EUR 29.1 billion. These shortfalls are calculated assuming full implementation of Basel III, which in practice only occurs from 1 January 2019.

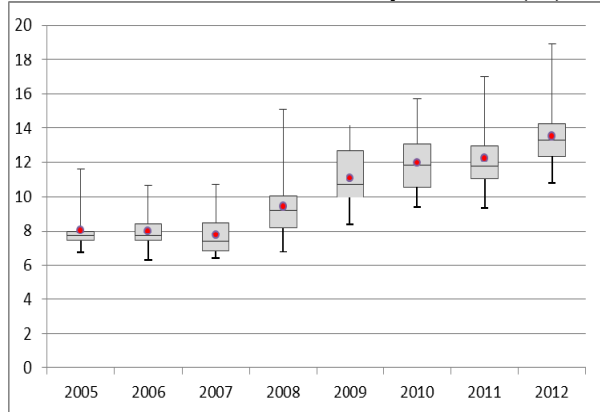
Progress has been less marked in relation to the leverage ratio. Based on EBA's monitoring exercise, chart 4.2.9 shows that the average Basel III Tier 1 leverage ratio has generally fluctuated around 3.4 % for Group 2 banks during June 2011 and June 2013. For Group 1 banks, the leverage ratio is lower on average, and while it increased until June 2012, it remained at or slightly below the 3 % target since then. It should be pointed out that 66 % of Group 1 banks and 76 % of Group 2 banks would already meet the Basel III Tier 1 leverage ratio.⁷²

⁷⁰ EBA (2014), Basel III monitoring exercise, March.

⁷¹ "Group 1" include internationally active banks that have Tier 1 capital of more than EUR 3 billion, Group 2 banks refer to the remaining banks.

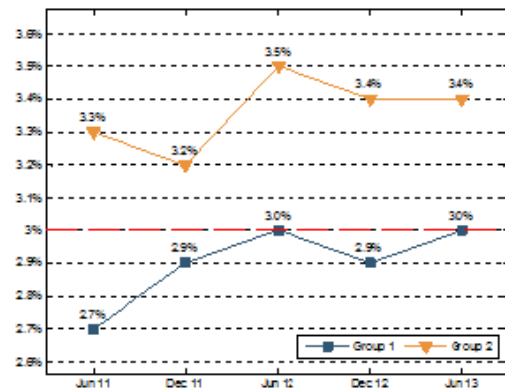
⁷² The shortfall in Tier 1 capital due to the leverage ratio would amount to about EUR 100 billion for Group 1 and about EUR 27 billion for Group 2. The shortfall falls as banks increase Tier 1 capital to meet the risk-based regulatory capital ratios.

Chart 4.2.8: Evolution of Tier 1 capital ratios (%)



Source: SNL Financial, Commission Services calculations.

Chart 4.2.9: Evolution of leverage ratios (%)



Source: EBA (2014)

4.2.2 Improving liquidity buffers and preventing excessive maturity transformation

While strong capital requirements are necessary to improve the solvency position of banks and their ability to absorb losses with capital, they are by themselves not sufficient to enhance the resilience of banks. Banks also need a strong liquidity base and to adequately manage their cash flows and liquidity position, in particular to sustain stressed market conditions.

The crisis has shown that institutions' did not hold sufficient liquid means (e.g. cash or other assets that can be quickly converted into cash with no or little loss of value). Many banks had inappropriate funding structures. When the crisis hit, they were short of liquid assets and not able to raise cash as funding markets had dried up. This would have contributed to the demise of several financial institutions if it had not been for the state aid interventions and central bank support. Liquidity stress situations have proved lasting over time. While a number of Member States already imposed some form of quantitative regulatory standard for liquidity, others did not, and there was no harmonised regulatory treatment at EU level.⁷³

There is a strong economic case for introducing bank liquidity requirements.⁷⁴ Banks play a valuable role in the economy in providing liquidity insurance (see chapter 2) and maturity transformation. The resulting maturity mismatch between short-term funding (e.g. deposits and wholesale debt funding) and longer-term investment (e.g. bank loans) is a defining characteristic of banks. As a result, banks are inherently unstable and vulnerable to confidence crises (materialized either through depositor runs in retail markets or, in the context of the recent crisis, short-term creditor or repo runs in wholesale markets).

This is costly: a fundamentally solvent and healthy bank can be forced into insolvency in the event of a depositor run on the bank, which may force the bank to liquidate illiquid assets at a loss ("fire sales"). Similarly, and more relevant in the context of this crisis, interbank lending can freeze if banks stop trusting each other. Money

⁷³ Liquidity risk was a Pillar 2 concern under Basel II.

⁷⁴ For a detailed review of the academic literature of the benefits of liquidity regulation, see EBA (2013).

market funds and other short-term creditors can lose confidence in individual banks and the entire banking sector. Thus, the wholesale funding market can dry up if confidence evaporates or risk aversion in the market increases. Raising cash at short notice through the sale of assets may be impeded if there are wider stresses in the market. Indeed, market illiquidity (i.e. inability to sell an asset at short notice with little price impact) often interacts with funding illiquidity in times of crisis. This can create a funding shortage as banks are neither able to borrow funds nor sell assets, except at prohibitive cost or loss. In times of crisis, these liquidity problems can turn instantly into a solvency problem.⁷⁵

To reduce the risk of bank runs, well-known instruments have been put in place, such as deposit guarantee schemes and lender of last resort facilities (LoLR or emergency lending assistance, ELA). The recent government guarantees on newly issued debt and the large-scale LTROs by the ECB (see Box 3.4.1) play a comparable role. However, such safety nets can give rise to excessive risk-taking behaviour by the beneficiary banks, and they risk creating competitive distortions through an artificially lowered funding cost for beneficiary banks. Averting these moral hazard risks makes a case for regulating liquidity (and for regulating banks more generally).

Regulating funding liquidity can help support market confidence in the ability of a bank to fulfil its short-term obligations without generating huge distress. The crisis presents clear evidence pointing out how the collapse of market confidence and trust (and the bursting of a liquidity “bubble” based on under-priced risks and self-fulfilling beliefs) was an important reason for the deterioration of liquidity conditions in wholesale markets. Banks which were excessively funded in the short-term money market or reliant on securitisation ran out of cash.

During this financial crisis, many of the institution which significantly relied on short-term wholesale funding needed to be bailed out. There is evidence that banks’ reliance on short-term wholesale funding resulted in increased financial fragility (Demirgüç-Kunt and Huizinga, 2009 and 2010; Ratnovski and Huang, 2009). Banks with more stable funding structures continued to lend more relative to other banks during the global financial crisis (Cornett et al., 2010) and were less likely to fail (Bologna, 2011).

Regulation of bank liquidity is necessary where there is otherwise a risk of banks engaging in excessive maturity transformation and building up excessive asset-liability mismatches (usually combined with excessive leverage). By reducing these risks, liquidity regulation can enhance the resilience and stability of banks.

The CRD IV package adopted progressive phasing in of LCR until 2018, i.e. one year earlier than Basel III (see box 4.2.3). Depending on the results of the observation period applied to the NFSR and reports prepared by the EBA, the Commission will

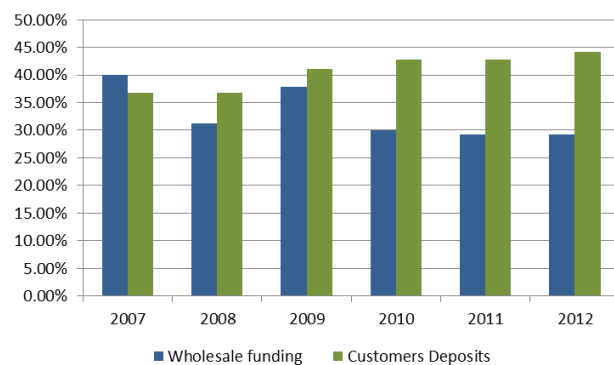
⁷⁵ A financial institution becomes insolvent when its going concern value sinks below the expected market value of its liabilities. In times of crisis, insolvency and illiquidity often get blurred and are hard to disentangle. Asset prices become disconnected from expected future cash flows and, instead, reflect only the prices that could be obtained if the assets had to be sold promptly to the few investors prepared to buy such assets in such times. Indeed, the term “illiquidity” is sometimes used to conceal solvency problems.

prepare, if appropriate, a legislative proposal by the end of 2016 to ensure that institutions use stable sources of funding⁷⁶.

Since the liquidity requirements are yet to be phased in, it is too early to observe the impact in the market. However, market pressures and the expectation of future liquidity requirements already have induced banks to improve their liquidity position.

For example, aggregate balance sheet data for EU banks suggests that banks reduced their reliance on wholesale funding and increased their use of customer deposits as a funding source over the period 2008 to 2012 (see chart 4.2.10).

Chart 4.2.10: Reduction in the reliance on wholesale funding



Source: ECB

Based on EBA's monitoring exercise, 60 % of the large banks in the sample ("Group 1 banks") already met the minimum requirement of a 100 % LCR by June 2013, compared to 69 % of the smaller Group 2 banks. In total, the LCR shortfall was EUR 262 billion, which represents about 0.8 % of total assets. Banks are less prepared for the NSFR. While more than 50 % of the banks in the sample already meet or exceed the minimum NSFR requirement, the total amount needed to fulfil the minimum requirement of stable funding is EUR 833 billion. Since the new requirements are only gradually introduced, banks that are below the requirements can still take a number of measures until 2018 to meet the standards, including lengthening the term of their funding or reducing maturity mismatches.

Box 4.2.3: Basel III global liquidity standards

Basel III introduced for the first time internationally harmonised liquidity standards. It requires banks to manage their cash flows and liquidity much more intensely than before, to predict the liquidity flows resulting from creditors' claims better than before, and to be ready for stressed market conditions by having sufficient "cash" available, both in the short term and in the longer run. More specifically, Basel III introduced two new liquidity ratios:

- **Liquidity Coverage Ratio (LCR)** to improve short-term resilience of the liquidity profile of financial institutions. The LCR requires banks to have sufficient high-quality liquid assets (HQLA) to fund projected cash outflows over a 30-day period. The standard requires that, absent a situation of financial stress, the value of the LCR is no lower than 100 % (i.e. the stock of HQLA should at least equal total net cash outflows), so that the banks have a defence against the potential onset of liquidity stress; and

- **Net Stable Funding Ratio (NSFR)** to ensure that a bank has significant levels of stable funding to support its activities over the medium term. NSFR should help limit excessive maturity transformation and over-reliance on short-term wholesale funding, taking into account the liquidity profile of a bank's assets and off-balance sheet commitments, over a one-year period.

⁷⁶ In accordance with Article 510(3) of the Capital Requirements Regulation (EU/575/2013).

4.2.3 Reducing pro-cyclicality and systemic risk

One of the most destabilising elements of the crisis has been the procyclical amplification of financial shocks throughout the banking system and wider economy – i.e. banks (and other market participants) behaved in a procyclical manner, rapidly expanding their balance sheets and leveraging up in the pre-crisis boom years, but then deleveraging when the crisis hit and liquidity dried up. When the crisis hit, financial markets forced banks to deleverage in a manner that amplified downward pressures on asset prices. The deleveraging process exacerbated the feedback loop between bank losses, falling bank capital and shrinking credit availability (see also chapter 6). Bank behaviour fuelled the bubble in the boom phase and would in any case have worsened the bust when the cycle turned abruptly if it had not been for the unprecedented state aid and central bank support.

The pre-crisis regulatory framework contributed to the procyclicality.⁷⁷ Capital rules that are risk-sensitive introduce, by construction, a degree of cyclicality in minimum capital requirements over time. However, the main pro-cyclical dynamic of the Basel II capital framework was its failure to capture key risk exposures for banks in advance of the crisis, such as complex trading activities, securitisations and exposures to off-balance sheet vehicles. Banks were able to expand their balance sheets (and off-balance sheet activities) in the pre-crisis boom years without carrying capital to protect against these risks. As described above, the CRD IV package will disincentivise the procyclical behaviour by requiring banks to hold minimum capital for these risk exposures and, as described below, by introducing additional capital buffers that swing with the business cycle.

Ensuring a minimum **leverage ratio** can further reduce procyclical dynamics. If bank capital is only 2 % of the balance sheet (i.e. leverage amounts to 50), then following a loss of EUR 2 million, the bank must either recapitalise or liquidate EUR 100 million worth of assets just to re-establish that 2 % leverage ratio.⁷⁸ For the same loss, a bank with a higher starting leverage ratio level of 3 % (4 %) would "only" need to liquidate EUR 66 million (EUR 50 million) of assets, and so on. Deleveraging puts pressure on asset markets, inducing prices to fall, with negative repercussions for other market participants which also have assets of the same class on their books. As shown with the simple numerical example, the extent of the required deleveraging following a loss depends on what the bank's capital position is. The higher the leverage ratio (i.e. the more capital the bank holds) the lower the deleveraging pressures in response to a shock.

There is empirical evidence that banks adjust their balance sheet actively, and do so in a way that leverage is high during booms and low during busts, in particular for banks engaged in investment banking activities.⁷⁹ That is, leverage itself is procyclical. A minimum leverage ratio will help ensure that banks' capital position cannot fall below

⁷⁷ A number of academic studies have examined the problem of procyclicality and called for reforms to capital regulation. For example, Brunnermeier et al (2009) and Goodhart (2008).

⁷⁸ This assumes that the EUR 100 million sale or non-renewal of loans does not give rise to further losses, as such an indirect effect would trigger a further need to sell.

⁷⁹ See Adrian and Shin (2010a).

a certain level for any given balance sheet size, thereby dampening the dynamics described above.⁸⁰

The new capital adequacy framework contains a number of other key provisions to reduce procyclicality, including inter alia:

- **the capital conservation buffer** – banks are required to conserve capital to build buffers that can be used in periods of stress. The buffer is set at 2.5 % of risk-weighted assets. Banks are allowed to draw on this buffer in periods of stress. However, the closer their common equity is to the minimum requirement, the greater the constraints they will face on the distribution of earnings (e.g. dividend, share buybacks, bonuses); and
- **the countercyclical capital buffer** – there is an additional discretionary buffer which allows national regulators to require up to another 2.5 % of capital during periods of high credit growth. In justified cases, national authorities may set even higher buffer rates. The buffer will be implemented depending on national circumstances with the ultimate goal to protect the banking system against excessive credit growth.

As regards the capital conservation buffer, at the onset of the financial crisis, a number of banks continued to make large distributions in the form of dividends, share buy backs and generous compensation payments even though their individual financial condition and the outlook for the sector were deteriorating. Much of this activity was driven by a collective action problem, where reductions in distributions were perceived as sending a signal of weakness. However, these actions made individual banks and the sector as a whole less resilient. Many banks soon returned to profitability but did not do enough to rebuild their capital buffers to support new lending activity. Taken together, this dynamic has increased the procyclicality of the system.⁸¹ The new buffer seeks to address this market failure and promote capital conservation in the banking sector.

As regards the countercyclical capital buffer, the financial crisis (just like previous banking crises) was preceded by a period of rapid credit growth in many parts of Europe (see chapter 3 for data on EU private and public sector debt levels). The losses in the banking sector and resulting deleveraging pressures exacerbated the downturn in the economy (as banks reduce their lending), which in turn further destabilised banks (as borrowers are less able to service their debt and the proportion of non-performing loans increases). If banks are required to build up additional capital in periods when credit is growing to excessive levels, this increases their ability to absorb losses. Moreover, the building up of higher capital would help moderate excessive credit growth in the first place.

Reducing systemic risk

While procyclicality amplified shocks over the time dimension, a separate problem is the excessive interconnectedness among banks (and other financial institutions), which contributes to the transmission of shocks across the financial system and

⁸⁰ See above for details on the Basel III leverage ratio.

⁸¹ See BIS (2010)

economy. In line with international Basel III requirements, the new capital adequacy framework contains a number of rules to **reduce interconnectedness and systemic risk in the banking system**, including:

- higher capital requirements for systemically important banks: the CRD IV includes a mandatory systemic risk buffer of CET1 capital for banks that are identified by the relevant authority as globally systemically important. The identification criteria and the allocation into categories of systemic importance are in conformity with the G20 agreed criteria (size, cross-border activities and interconnectedness). The mandatory surcharge will be between 1 and 3.5 % of RWAs and will apply from 1 January 2016 onwards;⁸²
- a systemic risk buffer: Member States may introduce a systemic risk buffer of CET 1 capital in order to prevent and mitigate long-term non-cyclical systemic or macro-prudential risks;⁸³
- higher capital requirements for OTC derivatives that continue to be cleared bilaterally, so as to incentivise central clearing (see section 4.3.2 below);
- higher capital requirements for trading and derivative activities, as well as complex securitisations and off-balance sheet exposures (e.g. structured investment vehicles);
- higher capital requirements for inter-financial sector exposures; and the introduction of liquidity requirements that penalise excessive reliance on short term, interbank funding to support longer dated assets.

The proposed structural reforms in the banking sector are also intended to reduce interconnectedness and systemic risk (see section 4.2.6). In addition to better regulations, the reforms seek to improve the supervision of banks by putting greater emphasis on the stability of the banking system and wider financial system as a whole (as opposed to only concentrating on the supervision of individual banks). As further discussed in section 4.6, as part of the new European System of Financial Supervision (ESFS), the European Systemic Risk Board (ESRB) is now responsible for the macro-

⁸² In addition to the mandatory buffer for globally systemically important institutions, the CRD IV package provides for a supervisory option for a buffer on “other” systemically important institutions (O-SII). This includes domestically important institutions as well as EU important institutions. In order to prevent adverse impacts on the internal market there is framing in the form of the criteria used to identify O-SIIs, a notification/ justification procedure and an upper limit to the size of the buffer (2 % of RWAs). The O-SII buffer is applicable from 2016 onwards but Member States wanting to set higher capital for certain banks earlier can use the systemic risk buffer. The optional O-SII buffer CET1 capital will be recognised for the purpose of meeting the consolidated mandatory G-SII buffer requirement.

⁸³ Until 2015, in case of buffer rates of more than 3 %, Member States will need prior approval from the European Commission, which will take into account the assessments of the European Systemic Risk Board (ESRB) and the EBA. From 2015 onwards and for buffer rates between 3 and 5 %, the Member States setting the buffer will have to notify the Commission, the EBA, and the ESRB. The Commission will provide an opinion on the measure decided and if this opinion is negative, the Member States will have to “comply or explain”. Buffer rates above 5 % will need to be authorized by the Commission through an implementing act, taking into account the opinions provided by the ESRB and by the EBA.

prudential oversight of the financial system within the EU to help prevent and mitigate systemic risks.⁸⁴

4.2.4 Improving bank governance and risk management

The financial crisis revealed fundamental failures in bank governance and risk management systems (as well as significant failures in the assessment of risks by regulators and supervisors). The banks that failed or encountered difficulties and had to be bailed out by governments were generally lacking an appropriate risk culture⁸⁵. In many cases, there was insufficient oversight by Boards on executive management. Boards were not adequately involved in strategy and gave low priority to risk issues as compared to other topics. Banks were allowed and, in some cases, even encouraged, by their Boards to take excessive risks that included unprecedented levels of leverage and high-risk business strategies. More generally, the risk management function in banks was not given the proper weight in the decision-making process, as part of a wider **lack of a risk culture** within banks. Consequently, risk issues were often not given appropriate consideration in major management decisions. Supervisors failed to exert proper monitoring and control over banks and their risk management practices. Furthermore, shareholders did not fulfil their role of "responsible owners", which should have entailed actively monitoring companies and using shareholder rights to ensure long-term value creation for companies and improve their corporate governance and strategy. This form of market discipline failed.

The impact of weak risk management and internal control systems at banks was further aggravated by improperly structured remuneration policies, including the large annual cash bonuses that make up a key variable element of remuneration in banks, in particular for investment banks. These remuneration structures failed to align employees' incentives with the long-term performance of the bank and instead provided incentives for excessive risk taking that maximised profits in the short-term. Moreover, while bankers and traders shared in any profits they generated, losses in the crisis were predominantly borne by shareholders and taxpayers.

The EU regulatory response

As part of the CRD IV package that entered into force in July 2013, the reforms undertaken by EU institutions have focused on: (i) risk management, (ii) remuneration policies, and (iii) transparency.

Under the new rules, risk management policies for banks must be established that set out effective internal processes to identify, manage, monitor and report on the risks the institutions are or might be exposed to. Also, the risk management function is empowered to be independent from operational line units and to inform senior management directly.

⁸⁴ Macro- and micro-prudential tools often operate through the same channels and can be mutually reinforcing because the safety and soundness of individual institutions helps reduce systemic risks and vice versa, i.e. the greater resilience of the system can strengthen individual firms. There can also be tensions (see chapter 6).

⁸⁵ See case studies in High-level expert group on reforming the structure of the EU banking sector (2012).

Additional rules apply regarding the choice and composition of board members. Members must possess sufficient knowledge, skills and experience and allocate sufficient time to perform their duties. This is particularly important given the complexity of many large banking groups today, which generates significant difficulties for non-executive members of management bodies to understand all dimensions of potential and actual risks taken by the financial institution. In significant institutions, a committee must be established to search for candidates and pick and nominate management. To ensure appropriate responsibility and accountability, the number of directorships held is limited. Institutions are now required to have diversity policies regarding gender, age and geographical origin, as well as with respect to the management's educational and professional background. These requirements will help limit the possibility that management becomes captured by "group-think". The measures are meant to allow and promote constructive criticism and a necessary level of scrutiny. Finally, to guarantee independence and avoid conflicts of interest, the reforms now establish that the chairman of the management body cannot hold at the same time supervisory and executive (CEO) functions. This will ensure that dominant executive members of the board can be questioned and challenged by external and non-executive members.

The reforms seek to improve remuneration policies by limiting incentives for short-term risk-taking and realigning employees' incentives with the long-term interest of the firm. The variable component of remuneration of so-called "material risk takers" is now to be based on a multi-year analysis of the performance of the individual, the respective unit and the bank as a whole. At least 40 % to 60 % of variable compensation will be deferred within a 3-5 year period and at least 50 % of variable compensation will be paid in non-cash instruments. Moreover, 100 % of variable remuneration is now subject to claw-back clauses to enable alignment with realised (ex-post) risk. Also, at institutions that supervisors consider significant enough, remuneration policies will be designed by a remuneration committee at the board level. Furthermore, to tackle excessive risk taking, the approved reforms also set a maximum ratio between the fixed and variable components of total remuneration of 1:1, with a possibility for shareholders to raise it to 1:2.⁸⁶

Transparency is enhanced by making sure it extends to the bank's risk management objectives and policies as well as with respect to its remuneration standards. In this regard, the reforms now make it imperative for institutions to disclose in an annual remuneration report how many employees earn more than EUR 1 million per year. Additionally, CRD IV also requires public disclosure – on a country-by-country basis – of company names, people employed, overall turnover, profits made, taxes paid and subsidies received.

⁸⁶ There has been some criticism that the introduction of this maximum ratio could lead to an increase in fixed remuneration and therefore to less flexibility for institutions to reduce fixed costs in a downturn. It should be borne in mind that the requirements regarding the maximum ratio only apply to a very small segment of the employee base, i.e. to material risk takers, so that the overall economic impact can be expected to remain limited. In addition, there is also a continuing legal obligation for institutions to ensure consistency between their remuneration policy and sound and effective risk management.

Taken together, the new standards for internal risk management, remuneration and transparency are expected to reduce excessive risk-taking behaviours and improve the overall risk culture in banks.

There is already evidence that the risk governance of banks has significantly improved since the financial crisis. For example, a thematic review by the Financial Stability Board (2013) of 36 banking groups across the G20, including EU banks, found improvements in some key areas, including in:

- assessing the collective skills and qualifications of the board as well as the board's effectiveness;
- instituting a stand-alone risk committee that is composed only of independent directors and having a clear definition of independence;
- establishing a group-wide chief risk officer (CRO) and risk management function that is independent from revenue-generating responsibilities and has the stature, authority and independence to challenge decisions on risk made by management and business lines; and
- integrating the discussions among the risk and audit committees through joint meetings or cross-membership.

Indeed, the review found that many of the best risk governance practices at surveyed firms are now more advanced than national guidance. The FSB interprets that this outcome may have been motivated by firms' need to regain market confidence rather than regulatory requirements. While progress has been significant, the FSB review also identified gaps in the risk governance frameworks at the surveyed banks and a need for further progress in some areas. The need for further progress in the area of risk governance has also been recognised by the industry.⁸⁷

4.2.5 Establishing crisis management and bank resolution frameworks

Failures of banks cannot be ruled out, and although the above measures reduce the probability of bank failure occurring, they explicitly are not providing a zero-failure regime. Hence, there must be tools for dealing with bank failures and mitigating their impact.

The financial crisis has shown that public authorities generally lacked adequate tools to identify and effectively deal with unsound or failing financial institutions. Among other reasons, such tools are needed to prevent insolvency or, when insolvency occurs, to minimize its impact by preserving the critically important functions of the bank concerned, and isolating its negative elements. When confronted with failing banks during the crisis, public authorities faced a trade-off to either preserve financial stability or protect taxpayers' money. While authorities were able to develop appropriate tools to ensure the former,⁸⁸ they lacked appropriate tools to safeguard the latter and deal with bank failures without compromising public finances. As noted in chapter 3.4, a total of EUR 1.5 trillion in state aid was used to bail out and support EU financial institutions (mainly banks) in the crisis.

⁸⁷ See for example KPMG (2014).

⁸⁸ For instance, central banks across the world worked well together to coordinate monetary policy decisions, developing non-standard policy measures and toolkits along the way.

Part of the problem is that standard liquidation and bankruptcy procedures are not well suited to preserve the critical functions of banks. Bankruptcy provides legal protection against creditors regarding the assets of a firm, financial or non-financial. For instance, it can imply that creditors are prohibited from seizing or selling collateral, starting or continuing litigation against the debtor or taking other action to collect what is owed. The objective of bankruptcy is to maximize the value of the firm to address the claims of creditors as a whole.

In general, bankruptcy law is designed to grant temporary protection to the insolvent firm from its creditors and to allow the firm to continue to operate and to preserve and realise maximum value. Bankruptcy applied to an insolvent bank would hence protect the bank from its "creditors", but this implies that depositors would lose the full access to their accounts and that borrowers would lose full access to their lines of credit. This is likely to give rise to financial panic and bank runs elsewhere in the financial system, given that liquidity provision and the general presumption of having guaranteed access to deposits is at the heart of the bank business model. Also, banks are at the nexus of the payments system. If bankruptcy and liquidation are initiated, this is likely to be much more disruptive to the bank's creditors, counterparties and the wider economy than is the case with a non-financial corporate.⁸⁹ Hence, liquidating a bank under normal bankruptcy proceedings is not an option often used by public authorities.

Lehman Brothers, the largest bankruptcy in US history at its time, exemplifies the time, cost and wider implications that a financial institution's bankruptcy can have for the wider economic and financial system. Strictly speaking, Lehman Brothers was not a bank: it was a bank holding company that included several banks. Once it filed for bankruptcy on September 2008, it did not emerge from it until March 2012 and as a former shadow of itself: an estate solely devoted to pay creditors⁹⁰.

Given the difficulty of taking banks into bankruptcy, some governments developed special tools to deal with failing and failed banks that have systemic significance. These include establishing, for instance, separate bankruptcy proceedings for banks. They also include developing what are known as resolution tools, which allow for an orderly intervention by authorities.

Some of these resolution tools performed relatively well during the crisis. For instance, unlike EU Member states, the US already had special resolution tools in place: The Federal Deposit Insurance Corporation (FDIC) in the US had resolution powers. While relatively few banks were allowed to fail in the EU (less than 40), approximately 500 small and medium-sized banks were resolved in the US⁹¹. Moreover, in 2010 the US upgraded its tools with the Dodd-Frank Act to also be in a position to better deal with the failure of larger banks. Referring to the failure of Lehman Brothers in particular, the FDIC made the case that recovery rates with the new tools would have allowed Lehman's general unsecured creditors to fetch 97 cents on the dollar, instead of the 25 that its estate is expected to deliver⁹².

⁸⁹ See Crockett (2012).

⁹⁰ The estate is still paying out to Lehman's former creditors <http://dm.epiq11.com/LBH/Project#>.

⁹¹ Comments raised by Andrea Enria in an interview in the Frankfurter Allgemeine Zeitung of November the 18th 2013.

⁹² See FDIC (2011).

In the EU the problems were magnified by the interaction present between increased cross-border operations of banks with legislative differences across Member States. The absence of common conditions, powers and processes for bank resolution constituted a barrier to the smooth operation of the internal market and hindered cooperation between national authorities when dealing with failing cross-border banking groups. Although special bank resolution regimes were developed at national level in response to the crisis, these were divergent and risked not being capable of dealing with failures of cross-border banks. Thus, EU level intervention was necessary to avoid the distortions caused by diverging national approaches and thereby improve the resolution of cross-border banks.

The new EU Bank Recovery and Resolution Directive (BRRD)

In June 2012, the Commission proposed a common framework of rules and powers to ensure that authorities are able to intervene early to restore the viability of a financial institution that faces financial distress and, where necessary, allow a failing financial institution to exit the market in an orderly manner while safeguarding its critical functions, avoiding disruptions to economic activity, minimising recourse to taxpayers and protecting depositors adequately.

The Bank Recovery and Resolution Directive (BRRD) covers deposit-taking banks and large investment firms. Past crises have demonstrated that banks and investment firms (hereafter both referred to as ‘banks’ and ‘institutions’ interchangeably) represent the kinds of business models most prone to experience a destabilising loss of confidence in their ability honour their obligations and to give rise to systemic concerns at the point of failure. These institutions are also those subject to harmonised prudential requirements under the Capital Requirements Regulation and Directive.

BRRD was agreed by the co-legislators in December 2014. It was subsequently approved by the European Parliament in April 2014 and is expected for a final vote in the Council in May 2014. Publication is foreseen in June 2014. The BRRD will help to:

- ensure that the supervisors and resolution authorities adequately plan and prepare for the distress banks may face and, where possible, prevent such distress through ex-ante measures;
- improve supervisors' capability and capacity to intervene at an early stage;
- provide authorities with harmonised resolution tools and powers to deal, in particular, with cross-border institutions in a coordinated manner; and
- place the burden of financing bank resolution on private resources, as opposed to taxpayers.

As regards planning, preparation and prevention, the BRRD requires banks to draw up and regularly update recovery plans which clearly set out the measures they would take to restore their financial position in the event of a significant deterioration. Resolution authorities will have to prepare resolution plans for each institution and present the actions they might take if a bank meets the conditions for resolution. Based on the plans, resolution authorities are to identify the obstacles to resolve an

institution, including a bank's holding company and subsidiaries. To address the impediments to resolution, they can ask, amongst other things, an institution to change its legal or operational structures to ensure it can be resolved with the available tools in a way that does not compromise its critical functions.

The BRRD further sets out early intervention powers. These powers are available to a supervisor when an institution does not meet or is not likely to meet the requirements set out under the CRD IV package. In this case, authorities can ask banks to implement the measures set out in its recovery plan (if not already activated), require the management body of the institution to be removed or replaced, draw up a new plan with specific timeframes, and require the institution to convene its shareholders or creditors in case urgent decisions need to be taken, including those with a material impact on the long-term viability or status of the institution. In addition, in certain cases, supervisors can appoint temporary administrators to run the bank for a limited period of time.

With the BRRD, resolution can be triggered once a bank is failing or likely to fail, there is no reasonable prospect that an alternative private sector measure, including supervisory action, would prevent failure of the institution in a timely fashion, and there is a public interest in bypassing insolvency procedures to meet the resolution objectives set out above. It also establishes the principle that no creditor should be worse off in resolution compared to if the institution had been placed in liquidation. In the event of resolution, the BRRD endows resolution authorities with the following tools:

- *Sale of business.* Power to transfer shares or other instruments of ownership and any assets, rights or liabilities to a purchaser on commercial terms;
- *Bridge institution.* Power to transfer shares or other instruments of ownership and any assets, rights or liabilities to a new bridge bank. The latter is meant to maintain the critical functions of the institution under resolution. Upon the transfer, the institution under resolution can then go into normal insolvency proceedings;
- *Asset separation.* Power to transfer any assets, rights or liabilities of an institution under resolution to an asset management vehicle with a view to maximising their value through an eventual sale or orderly wind down;
- *Bail-in.* Power to impose losses on shareholders and unsecured creditors, respecting the seniority of claims and excluded liabilities. The resolution authority can convert debt to equity or reduce the principal of the claims. This is further discussed below.

In addition, the BRRD provides for additional protection of bank depositors in the event of resolution by establishing a general preference for deposits of natural persons and SMEs, with even a higher preference to deposits covered by the deposit guarantee scheme (see below).

As explained earlier, BRRD was approved by the Parliament in April 2014, following the political agreement reached between the co-legislators. Member States are to

apply all provisions as from January 2015, apart from the bail-in provisions which must be applied from 1 January 2016 at the latest.

Once applied, the new recovery and resolution framework for the EU will provide the relevant authorities with the necessary tools to ensure that failing institutions can be wound down in a predictable and efficient way with minimum recourse to public money. In the context of the Banking Union, these new rules will be applied within the Single Resolution Mechanism (SRM), once in place. The SRM is analysed separately in section 4.6 below.

Bail-in capacity of EU banks

An effective resolution regime must minimise the costs of a failing institution to be borne by taxpayers – and as such breaking the link between the bank risks and the sovereign. It should also ensure that systemic institutions can be wound down without jeopardising financial stability. The bail-in tool provided for in the BRRD seeks to achieve that objective by ensuring that shareholders and creditors of the failing institution suffer appropriate losses and share the burden arising from the costs of resolution. In addition to protecting taxpayer funds in the event of failure, this gives investors in a bank an incentive to monitor the health of the institution ex ante, which reduces the risk of a failure occurring in the first place.

According to the BRRD, losses should first allocated to shareholders either through the cancellation or transfer of shares or through severe dilution, and to holders of other regulatory capital instruments. Where those instruments are not sufficient, subordinated debt should be converted or written down. Senior liabilities should be converted or written down if the subordinate classes have been converted or written down entirely. The BRRD foresees a minimum amount of bail-in of 8 % of total liabilities including own funds before, under exceptional circumstances, the resolution fund can be used to absorb losses.⁹³

The amount of losses that can be forced on shareholders and creditors depends on the liability structure of EU banks. Table 4.2.2 provides information on the liability structure of bank balance sheets for a sample of 45 EU banks, showing the "average" bank as well as for different stylised bank business models. The table illustrates the extent to which the bail-in tool could be potentially applied as at the end of 2012. It also illustrates the differences that arise between different bank business models and the capacity of individual banks' shareholders and creditors to absorb losses.

⁹³ Or where applicable 20 % of risk-weighted assets.

Table 4.2.2: Liability structure per type of bank, expressed as a percentage of total assets (2012YE)

	Average Bank ¹	Big Bank ²	Medium Bank ³	Big Bank-Wholesale ⁴	Big Bank-Retail ⁵
Total Assets (Source: SNL)	100,0%	100,0%	100,0%	100,0%	100,0%
Total Equity (Source: SNL)	4,5%	4,8%	5,0%	3,9%	5,9%
Subordinated Debt (Source: SNL)	1,5%	1,6%	1,5%	1,3%	2,1%
Senior debt Unsecured	8,9%	8,7%	16,8%	6,6%	9,9%
of which less than 1 Month (Source: Bloomberg)	2,0%	2,3%	0,2%	1,9%	2,8%
of which more than 1 Month	6,9%	6,4%	16,5%	4,7%	7,1%
Total Deposits	41,6%	44,7%	46,9%	35,4%	54,7%
Deposits by credit institutions (Source: SNL)	9,8%	9,7%	20,0%	10,7%	9,2%
Deposits and borrowings from the public (Source: SNL)	31,8%	35,0%	26,9%	24,7%	45,5%
Derivative Liabilities (Source: SNL)	15,7%	17,5%	5,8%	26,5%	8,2%
Repurchase agreements (Source: S&P)	5,7%	6,3%	3,3%	8,2%	4,5%
Senior debt Secured (Source: Bloomberg)	6,4%	5,8%	15,6%	5,1%	5,7%

Source: Sample of 45 EU banks data from Bloomberg, Dealogic, SNL Financial.

The table indicates that different banks would currently have to bail-in a portion of senior debt if at least 8 % of total liabilities plus own funds were to be bailed-in before, in exceptional circumstances, the resolution fund could be used to absorb the losses. Consistent with this evidence, several analysts foresee that banks will respond by raising their levels of capital and subordinated debt. The intention is to ensure that these two sources of funding should be in a position to bear full absorption capacity. The costs of bail-in on bank funding are discussed in chapter 6.

While the responsibility for covering bank losses will fall on private investors in this type of institutions, in some extreme cases there can be recourse to external resolution funding. The BRRD requires resolution funds to be financed by the banks themselves, and to be built up to a level equal to at least 1 % of covered deposits within 10 years. Recourse to the privately funded resolution fund and, if the former was exhausted, to alternative funding means would only be needed in the minority of extreme and duly justified cases.

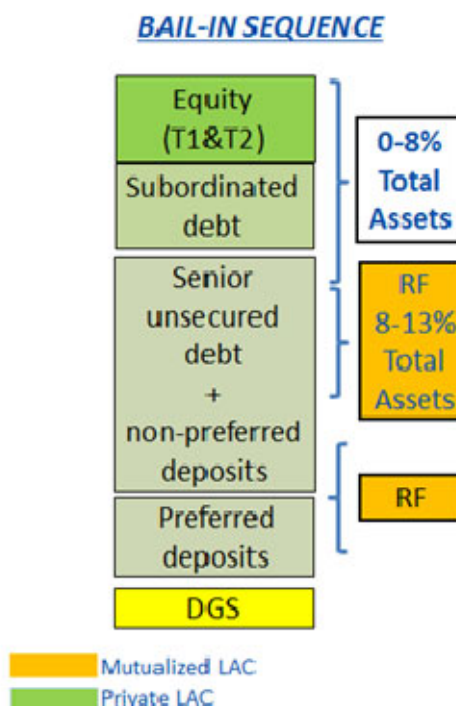
Redefining creditor claims and establishing depositor preference

The liability structure presented in Table 4.2.2 hints at a related but separate issue to the level of bail-inable debt and total loss absorbing capacity of a bank: namely, the need to establish a clear hierarchy of claims regarding which creditor gets paid first (or, conversely, takes on losses first).

In addition to establishing that losses should first be absorbed by regulatory capital and then subordinated debt, as per the bail-in requirements, the BRRD further changes the hierarchy of claims against a failing bank by introducing depositor preference. Chart 4.3.11 summarises the hierarchy of claims in the BRRD. Depositor preference will strengthen the standing of depositors in the hierarchy of claims, minimise taxpayers' losses and reinforce financial stability.

Retail depositors are generally protected from losses in resolution and in insolvency through deposit guarantee schemes (DGS) established in all Member States. As noted above, in response to the crisis, the level of guarantee was increased to EUR 100 000 for eligible depositors in a bank. Covered deposits are fully protected from losses up to this limit. Whilst other eligible deposits are potentially available for loss absorbency purposes, deposits by natural persons and SMEs have been given a higher priority ranking over the claims of ordinary unsecured, non-preferred creditors in insolvency proceedings, reducing the likelihood of them having to bear any loss. In addition, national DGS, which will replace covered deposits in loss absorption, will receive super preferential treatment and will thus contribute as the very last.

Chart 4.2.11: **BRRD: hierarchy of claims in a bank**



Note: LAC stands for loss absorption capacity; RF for resolution fund, DGS for Deposit Guarantee Schemes.

Source: Commission Services

Covered deposits are estimated to present approximately EUR 5.2 trillion in the euro area, or about 16.5 % of the average bank's balance sheet. While DGS are in the first instance industry-funded, they are implicitly backed by taxpayer support. Thus, changing the hierarchy of claims in favour of the DGS is effectively also a measure to reduce risks to public funds. Depositor preference is therefore justified on the grounds of protecting both eligible depositors and taxpayers. That is, it protects citizens both in their role as depositors and taxpayers.

While seeking to minimise the risk to taxpayers and avoid a repetition of the large-scale bailouts that were required in this crisis, the BRRD will allow for extraordinary public support to solvent banks in the form of a guarantee or precautionary recapitalisation, subject to specific qualifications⁹⁴, to remedy a serious disturbance in the economy and preserve financial stability. Such support will also have to comply with the Union State aid framework, as explained in Box 4.2.4.⁹⁵

⁹⁴ For example, only if any of the following conditions hold: (i) the institution does not infringe (or is not likely to infringe in the near future) the requirements for continued authorisation of its operations; (ii) the liabilities of the institution do not exceed (or are not likely to exceed in the near future) its assets; (iii) the institution is not unable (or is not likely to be unable in the near future) to pay its maturing debts or other liabilities; (iv) conditions for resolution as specified in BRRD have not been met; (v) there is no need to exercise any bail-in power for the institution to remain viable.

⁹⁵ State Aid is defined as an advantage in any form whatsoever conferred on a selective basis to undertakings by national public authorities. To be State aid, a measure needs to have the following features: (i) there has been an intervention by the State or through State resources which can take a variety of forms; (ii) the intervention gives the recipient an advantage on a selective basis; (iii)

Box 4.2.4: The BRRD and the State aid rules

The transposition period of BRRD will end on 31 December 2014, with the exception of provisions relating to the bail-in tool that shall apply from 1 January 2016 at the latest.

Any State support for a financial institution before 1 January 2015 will have to comply with State aid rules and especially with the new Banking Communication applicable as of 1 August 2013. The two main principles are that (i) any recapitalisation and impaired asset measures will be authorised only once a restructuring or liquidation plan has been approved by the Commission and that (ii) shareholders, hybrid capital and subordinated debt holders have to contribute to reduce the capital shortfall to the maximum extent before State aid can be granted.

As from 1 January 2015, on top of State aid rules, any state support to a financial institution will have to comply with the BRRD requirements, which means that no public recapitalisation will be possible outside resolution, except in strictly defined cases of precautionary recapitalisations (. Under precautionary recapitalisations, state aid rules will ensure a full burden sharing of shareholders and subordinated holders. Other non-precautionary public recapitalisations will be possible within resolution only after burden sharing under both BRRD and State aid rules.

As from 1 January 2016 at the latest, any public support, in the form of injection of funds by the Single Resolution Fund or by national resolution funds will be possible within resolution after a minimum bail-in equal to 8 % of liabilities, including own funds. Precautionary recapitalisations will still be possible outside resolution provided that they comply with the BRRD rules and with the State aid rules.

4.2.6 Addressing "Too-big-to-fail"

The EU financial system is characterised by the presence of relatively few large, banking groups, which are active in commercial banking (deposit taking and lending to individuals and businesses), traditional investment banking (security underwriting and advisory services), asset and wealth management services, and capital market and trading activities such as market-making, brokerage services, securitisation, proprietary trading, etc. Several of them form financial conglomerates that are also active in insurance. Prior to the crisis, these large EU banking groups have rapidly increased in size, scope and complexity. Much of the balance sheet growth volume that has taken place was driven by intra-financial business, rather than lending to the wider economy. The largest EU banking groups have total on-balance-sheet assets exceeding EUR 1 trillion (see section 3.1). Several large EU banking group balance sheets exceed the GDP of the country where they are headquartered.

Large banking groups in particular have benefited from the significant amounts of explicit aid from governments and central banks (see Box 3.4.1).

In addition, the perception of being too big to fail (TBTF) gives rise to bail out expectations and is reflected in an artificially low funding cost and hence an *implicit* subsidy for TBTF banks. The implicit subsidy is provided by taxpayers and in particular benefits the TBTF bank shareholders, management and employees, and their customers to the extent that the subsidy is passed on. Although the quantification is challenging, the implicit subsidy for TBTF banks is shown to be significant in absolute size and as a percentage of the annual profitability of banks (see Box 4.2.5).

competition has been or may be distorted; and (iv) the intervention is likely to affect trade between Member States. See: http://ec.europa.eu/competition/state_aid/overview/index_en.html

According to several studies, implicit subsidies are estimated to mainly benefit the largest banks.⁹⁶

Box 4.2.5: The implicit subsidy benefiting Too-Big-To-Fail banks

Market discipline is supposed to lead inefficient firms to fail and exit the market. However, as has been mentioned above, this is not always the case in the banking sector. The recent crisis has shown that policymakers are prone not to declare that a large or otherwise significant bank has failed, hence, typically referred to as too-big-to-fail ("TBTF"). Anticipated public support gets reflected in lower returns of bank liabilities held by bondholders and depositors. The lower funding cost that banks benefit from can stem from non-risk adjusted contributions to deposit guarantee schemes as well as from the expectation that certain bank creditors or investors would not face the (full) risk of loss (Fitch (2014) estimates that support from sovereigns has reduced the cumulative five year default rate on its fixed income portfolio approximately six-fold, from 6.95 % failure rate to 1.15 % actual default rate). Thus, while government safety nets can help prevent systemic crises, they can also have several adverse effects: (i) impose strains on public finances once called upon, and (ii) lead to several market distortions.

There has been significant interest by academics and policymakers to determine the size of the implicit government guarantee and the implicit subsidy⁹⁷. By definition, implicit subsidies are not transparent, and therefore not observable or easy to estimate. The precise estimate of their level depends on the exact methodology used, as well as on the sample period and countries under consideration. However, empirical analyses typically confirm that implicit subsidies exist and in most cases are significant, reaching several billion euros annually and representing a significant share of countries' GDP (typically more than 0.5 %) and banks' profits (more than 30 % in some studies). A summary of the methodology and results is provided in the Commission's impact assessment on bank structural reform.⁹⁸

Credit ratings of banks often involve a "stand-alone rating" and a "support rating". Whereas the former assesses the bank's creditworthiness by looking at the business model and net cash flow generation of the business activities as such, the latter in addition takes into account the extent to which the bank implicitly enjoys backing from the state when in need (in practice, abstraction is made from possible parental or cooperative support to isolate the sovereign support). Prior to the crisis, the 29 most systemically important global banks benefitted from just over one notch of uplift from the ratings agencies due to expectations of state support (for example from AA to AA+ or from A+ to AA- for S&P and Fitch ratings or from Aa3 to Aa2 for Moody's ratings). Today, those same banks benefit from around two or three notches of implied support on average, although results differ across banks, Member States, and time (see also Charts 1 and 2 below).

According to a number of researchers and regulators expectations of state support have risen substantially since the crisis began (Ueda and di Mauro (2012), Haldane (2010b, 2012)). Some of the subsidies have already declined in recent years, thanks to the introduction of effective and credible resolution regimes (e.g. UK), due to a worsening of the creditworthiness of the sovereign creditor (e.g. Spain), or following concrete proposals and government endorsement of structural reform initiatives

⁹⁶ See Noss and Sowerbutts (2012), Oxera (2011), Schich and Lindh (2012), Schich and Kim (2012), Haldane (2012), Alessandri and Haldane (2009), and Ueda and Mauro (2012). Estimation methodologies belong to two groups. First, "funding advantage" models, i.e. ratings-based approaches that focus on the difference between support and stand-alone credit ratings. Second, "contingent claim" models, i.e. option pricing approaches that focus on the resemblance of implicit subsidies to put options or look-back options and model them accordingly. Evidence for the largest 26 global banks suggests an average credit rating uplift in the 2007-2009 period of approximately 2.5 notches (i.e. support rating are 2.5 notches above stand-alone financial strength ratings). Funding cost advantages are not negligible and may exceed 100 basis points, depending on the time period and stand-alone rating. Within a given country, the majority of the subsidies are enjoyed by the largest banks. UK bank evidence for the period 2007-2009 suggests that small and medium sized banks only received 8.5 % of total estimated implicit subsidies for UK banks, compared to 91.5 % for the top 5 UK banks (Haldane, 2010b).

⁹⁷ See the Commission's impact assessment on structural reform (SWD(2014) 30 final) and chapter 3 of the April 2014 IMF Global Financial Stability Review.

⁹⁸ SWD(2014) 30 final

(e.g. UK)⁹⁹. In other Member States they have not or hardly decreased, or have in fact increased (see also Schich and Kim (2012)).

Chart 1: Average uplift in notches (difference between support rating and stand-alone rating) in March 2013

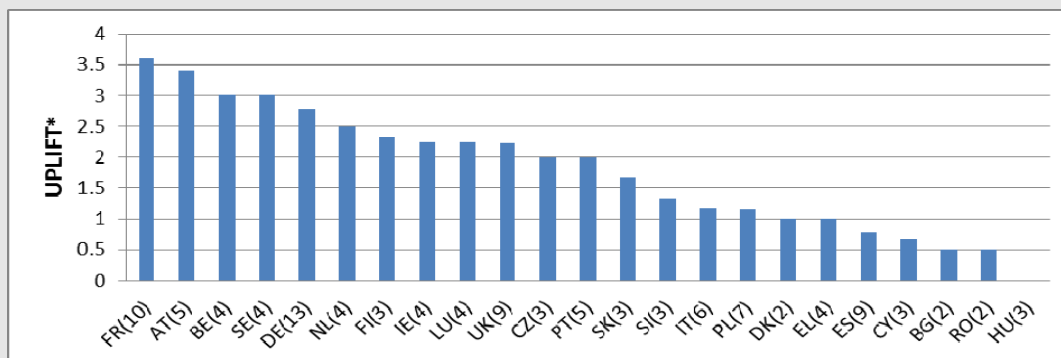
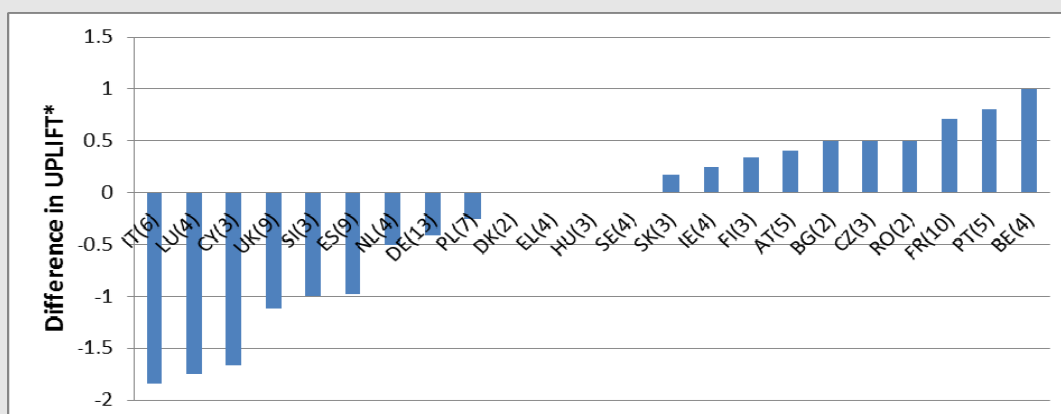


Chart 2: Change in average uplift between March 2013 and June 2011



Source: Moody's and European Commission calculations

Implicit subsidies or artificial funding cost advantages can be estimated in monetary terms by mapping the support rating and stand-alone rating into a funding cost and by multiplying the corresponding funding cost differential with the volume of outstanding rating-sensitive funding sources at a given point in time. The Commission has thus estimated the size and determinants of the implicit state guarantee and implicit subsidy enjoyed by a sample of 112 EU banks covering 60-70 % of the total bank assets in the EU over the period 2011-2013¹⁰⁰. The implicit subsidy estimated by the Commission is in the range of EUR 72-95 billion and EUR 59-82 billion in 2011 and 2012, respectively. In relative terms, this amounts to 0.5 % to 0.8 % of annual EU GDP and between one-third and one-half of the banks' profits.

Similar findings are found elsewhere in literature. Thus, there is strong evidence suggesting that there is a significant subsidy. Moreover, the evidence also points out that larger banks benefit disproportionately from government support. Government support is also higher for banks headquartered in Member States with high sovereign ratings and for banks with high levels of wholesale/interconnected activities.

⁹⁹ Moody's (2011) stated on the UK ring-fence plans that "the ring-fencing proposals would likely lead to a further reduction in our assumptions of systemic support". JP Morgan (2011) analysts stated that "ring-fencing of retail operations will be a transformational change for the UK banks and will most likely lead to the undermining of the sector ratings, particularly for the entities excluded from the retail ring-fence", and anticipate that "the ratings associated with the non-ringfenced entity should tend towards the stand-alone ratings of such institutions". HSBC (2011) reached a similar view.

¹⁰⁰ Cariboni et al (2013).

Implicit subsidies have a significant distortionary impact, as they contribute to excessive balance sheet growth and risk taking, and give rise to competition distortions between large banks, on the one hand, and small and medium-sized banks, on the other hand. These distortions in turn reinforce the initial problem and give rise to TBTF banks becoming even bigger, complex, interconnected, and systemically important over time. Moreover, the implicit support results in a relative increase in the size of the financial sector, which unduly diverts resources from other sectors of the economy (see box 6.1.1). Reducing the implicit subsidies is therefore a key objective of the financial regulatory reform agenda.

Looking forward, Fitch (2014) estimates that the BRRD is likely to further weaken the sovereign support. Extraordinary support for senior creditors, while still possible under BRRD, is becoming significantly more uncertain. As a result, Fitch revised its outlook on tens of European banking groups from stable to negative due to a weakening of sovereign support assumptions.

TBTF banks often grow - supported especially by cheaper funding compared to other banks - not necessarily because they are more efficient or provide better services, but because they enjoy greater implicit subsidies.¹⁰¹ In addition to imposing a burden on taxpayers, the implicit subsidy causes different types of distortion, among others:¹⁰²

- competitive distortions – banks that benefit from the implicit subsidy have a competitive advantage over those that do not. Beneficiary banks can benefit from artificially cheap funding to expand their business at the expense of banks that do not enjoy a similar advantage. Also, banks in Member States with a sovereign more capable of standing behind its banks are at an advantage to equally strong banks headquartered in weaker Member States.
- excessive risk-taking – the implicit subsidies allow banks to reap upside profits from risky strategies while being protected against downside losses. Since investors in banks do not need to fully price in risk-taking, bank management is incentivised to take more risk than it would if their cost of funding reflected their activities (i.e. if market discipline would be effective); and
- excessive balance sheet growth and misallocation of resources to the banking sector – guaranteed funding allows banks to grow artificially, diverting resources, such as talented human capital, from other sectors of the economy than would be the case in the absence of the subsidy.

The measures to strengthen banks' solvency (the capital and liquidity requirements as part of the CRD IV package) and measures to strengthen bank resolvability (the BRRD) reduce the probability and impact of bank failure.¹⁰³ As discussed above, under the new capital rules, systemically important banks face higher capital

¹⁰¹ See Stiglitz (2013).

¹⁰² See Noss and Sowerbutts (2012) and Schick and Lindh (2012).

¹⁰³ Other measures to address the TBTF problem include measures discussed below to better guarantee deposits (the revision of the Deposit Guarantee Schemes directive (the "DGS"); measures to improve transparency and address the risks of derivatives and to improve market infrastructures (European Market Infrastructure Regulation (the "EMIR") and related revisions to the Markets in Financial Instruments Directive ("MiFID")). Additionally, in order to break the negative feedback cycle between the sovereign and banking risks and to restore confidence in the euro and the banking system, the European Commission has called for further development of a Banking Union, building on the single rule book that will be applicable to all banks in the entire EU, as also discussed below.

requirements both in terms of quality and quantity. The reforms to bank capital requirements will reduce incentives to take excessive risks. It will also enable banks to absorb more losses before defaulting. These two effects will reduce the probability of default. The increased capital requirements on banks' trading books may also reduce banks' rapid balance sheet growth. As regards the new resolution tools, these provide a necessary framework to ensure that banks can be resolved in an orderly manner.

However, higher capital and the availability of resolution tools are not enough to eliminate the TBTF problem, in particular for the large European banking groups which are universal banks and typically combine retail/commercial banking activities and wholesale/investment banking activities in one corporate entity, or in a combination of interconnected entities.

Thus, to complement existing reforms, "structural" measures have been proposed by the European Commission in January 2014 to reduce the probability and impact of failure of TBTF banks. Such structural measures have global support, as evidenced by recent statements by G20 leaders and ministers,¹⁰⁴ and are already being adopted in a number of EU Member States.

The Commission proposal on structural bank reform

The Commission bank structural reform proposal follows the work of the High-Level Expert Group (HLEG) on bank structure reform, set up by Commissioner Barnier in November 2011 and chaired by Erkki Liikanen. In its final report of 2012, the HLEG recommended amongst others that existing and ongoing reforms need to be complemented by a structural reform in the banking sector; it recommended the mandatory separation of proprietary trading and other high-risk trading activities into a separate legal entity within the banking group for banks where such activities amounted to a significant share of the its business.¹⁰⁵ In July 2013, the European Parliament adopted an own initiative report, welcoming measures at EU level to tackle concerns related to TBTF banks.¹⁰⁶

The Commission adopted its proposals on structural reform in January 2014,¹⁰⁷ with the following **objectives**: (1) reduce excessive risk taking within the banking group; (2) remove material conflicts of interest between the different parts of the banking group; (3) avoid misallocation of resources and encourage lending to the economy;

¹⁰⁴ G20 Leaders, September 2013: "*We recognize that structural banking reforms can facilitate resolvability and call on the FSB, in collaboration with the IMF and the OECD, to assess cross-border consistencies and global financial stability implications.*" G20 Ministers, October 2013: "*We will pursue our work to build a safe and reliable financial system by implementing the financial reforms endorsed in our Leaders' Declaration, which are aimed at building upon the significant progress*

already achieved, including in creating more resilient financial institutions, ending too-big-to-fail,

increasing transparency and market integrity, filling regulatory gaps, addressing the potential systemic risks from shadow banking and closing information gaps."

¹⁰⁵ The HLEG also included other further recommendations.

¹⁰⁶ European Parliament (McCarthy 2013), Reforming the structure of the EU banking sector, 2013/2021 (INI).

¹⁰⁷ COM(2014) 43 final

(4) contribute to undistorted conditions of competition for all banks in the internal market; (5) reduce interconnectedness within the financial sector leading to systemic risk and contagion; and (6) facilitate orderly resolution and recovery of the banking group.

The proposal targets a small group of large and complex banking groups, the European banking groups identified by the Bank for International Settlements (BIS) as Global Systemically Important Banks (EU G-SIBs), as well as a number of additional banking groups that engage in significant trading activity and exceed certain balance sheet metrics.¹⁰⁸ Around 30 banking groups are expected to fall within the scope of the proposed regulation, accounting for 65 % of the EU total assets.¹⁰⁹

The proposal provides for two types of measures for the banks that fall under the scope of the regulation:

- **A prohibition of proprietary trading activities for the group of banks that fall under the scope of the regulation** (which would apply as of 2017).¹¹⁰ The rationale for the full prohibition of proprietary trading is that such an activity generates high risks and is by definition not customer-oriented. It has the ability to produce “tail risk” or systemic risk and is easily scalable (in comparison to more relationship-based activities such as lending). Proprietary trading potentially gives rise to large open positions and counterparty risk (risk that the counterparty to the investment will fail to pay), as well as interconnectedness between institutions. The potential opaqueness, complexity, and interconnectivity of proprietary trading represent important impediments to orderly and swift resolution. Proprietary trading can also be a high-frequency activity that may result in thousands of daily transactions. As a result, snapshots of the positions of these activities may have limited predictive value for future positions and understanding and monitoring the risks is difficult. Proprietary trading is particularly prone to conflicts of interests because the bank in its role of proprietary trader no longer is a service provider to its client, but becomes a potential competitor and hence faces interests that are no longer aligned with those of its clients. The bank can make improper use of client-related information to increase its own profits.
- **The potential separation of other trading activities** (which would apply as of 2018). Banks engage in a number of other trading and investment banking activities including market making, investment and sponsorship of complex securitised products and over-the-counter derivatives trading. These activities may however expose credit institutions to excessive risks if they represent a significant part of the bank's business. In such cases where large risky trading activities trigger a number of risk alerts (because of their size, complexity, opaqueness etc.), a separation of these activities within group entities that take

¹⁰⁸ These are banks that exceed the following thresholds for three consecutive years: (a) the bank's total assets exceed EUR 30 billion; and (b) the bank's total trading assets and liabilities exceed EUR 70 billion or 10 percent of their total assets. See the proposal for further detail on how trading assets and liabilities are defined.

¹⁰⁹ Changes in the systemic importance and trading activities of the EU banking groups in the next years may increase or decrease this number.

¹¹⁰ Proprietary trading activities is narrowly defined in a legal sense as desks', units', divisions' or individual traders' activities specifically dedicated to taking positions for making a profit for own account, without any connection to client activity or hedging the entity's risk.

eligible deposits might be warranted, unless the bank demonstrates to the satisfaction of the supervisors that these activities do not pose a threat to the financial stability of the deposit taking entity or to the EU financial system as a whole. If the activities remain within the banking group, they have to be transferred to an entity that is legally separate from the deposit-taking entity. The proposal also grants the supervisor powers to require separation of certain trading activities when it deems that the activity in question threatens the financial stability of the bank in question or of the EU.¹¹¹ Banks would need to demonstrate that the objectives of the structural reform are not put at risk in order to “avoid” separation of their activities into a “trading entity”.

The reform is only at proposal stage, so it is too early to measure its impact. The market response to the proposal announcement and statements from market participants in the days after the launching of the proposal suggest that the impact of the proposal may be perceived as limited, although this may be linked to the fact that the proposal was long expected and that the final outcome will depend on negotiations in the period ahead. It is difficult to foresee when the proposal will become law and whether the proposal will be strengthened or weakened following negotiations with the new European Parliament and Council in the meantime.¹¹² Other responses from market participants refer to the long timeline foreseen and corresponding uncertainty and costs. The proposal is tabled for discussion and market participants expressed a willingness to cooperate constructively in the period ahead.

The impact assessment¹¹³ that accompanies the proposal expects significant tangible and non-tangible benefits to arise from this reform, however difficult their quantification might be. These include but are not limited to: reduced risk of bank failure, thus a more resilient banking system, the facilitation of bank resolution and recovery which in times of stress will translate into lower costs of possible bank failures, easier monitoring and supervision of banks, reduced moral hazard and conflict of interest, improved capital and resource allocation for the benefit of the economy and enhanced competition among market participants.

On the other hand, the proposal would reduce the implicit subsidies that the EU TBTF banks enjoy today for some of their risky trading activities. The proposed measures may lead to higher funding costs for these trading activities within the banks concerned. The reduction of implicit public subsidies would contribute to enhancing the level-playing field in the banking sector because the gap in the funding costs between the TBTF and smaller banks would narrow. There may also be operational

¹¹¹ Separation will be accompanied by a number of legal, economic, governance and operation constraints. In particular, the separate entities need to meet prudential requirements on an individual basis; they also need to issue their own debt and operate with intra-group exposure limits; and contracts and transaction between the two entities should be on an arm's length basis. Banks would need to demonstrate that the objectives of the structural reform are not put at risk to “avoid” separation of their activities into a “trading entity”.

¹¹² The impact assessment (SWD(2014) 30 final) states that social benefits exceed social costs even for the polar case in which all EU banking groups within the scope of the regulation would be required to separate trading activities such as proprietary trading (including bank-internal hedge funds), market making, investing, sponsoring, and structuring activities related to “complex securitisation”, and structuring, arranging or execution of “complex derivative transactions” into distinct and dedicated subsidiaries.

¹¹³ SWD(2014) 30 final

costs related to the separation of some trading activities in a specific legal entity. However, banks would have time to deal with this transfer of existing trading activities as the proposal would be phased in over time.

Overall, the wider societal benefits from this reform are deemed to significantly outweigh the costs by increasing the financial stability and resilience of the EU banking and financial system as a whole. Moreover, this reform focuses on large banks only and hence would not affect the vast majority of EU banks providing traditional financing activities to retail customers, SMEs or larger companies.

4.2.7 Quantitative estimates of macroeconomic benefits of select banking reforms

The different regulatory measures work together to enhance the stability and resilience in the EU banking sector. The resulting wider economic benefits can be measured in terms of a reduction in both the probability and impact of banking failures and the corresponding reduction in the expected costs resulting from banking crisis.

Only a few studies have attempted to quantify these benefits of (a sub-set of) the banking reforms (see also annex 1 for a review of the literature). All the studies are characterized by significant model and data uncertainty, and the results can at best be taken as indicative.

The Basel Committee's Long-term Economic Impact (LEI) report (August 2010) presents estimations of the long-term net benefits of stronger capital and liquidity standards of the Basel III rules.¹¹⁴ The benefits of the regulatory measures are calculated as the reduction in the annual probability of a crisis times the costs of crisis, measured as the cumulative output losses (in present value terms). According to the LEI study, the cumulative discounted losses associated with banking crises range between 19 % (in case the crisis has no permanent effects) and 158 % (in case of permanent effects) on annual pre-crisis GDP levels (see also section 3.4). When there is a moderate permanent effect of a financial crisis, the cost of crisis is estimated to equal 63 % of pre-crisis annual output (based on the median of different studies considered in the LEI report). LEI estimates a fall by 2.7 percentage points (from 4.6 % to 1.9 %) in the annual probability of a systemic financial crisis when the ratio of capital requirements increases by 2 percentage points from 7 % to 9 %. Considering moderate permanent effects of a crisis, the benefits of the increase in required capital equals to $(2.7 \% \times 63 \%) = 1.7 \%$ of the pre-crisis GDP per year. When in addition liquidity regulation is introduced and the NSFR is met at 100 %, the annual expected benefits add to 1.82 % of pre-crisis GDP. The LEI study also examines the costs of the requirements (see chapter 6 and annex 1). Considering benefits and costs, the net benefits are estimated to equal to 1.56 % of pre-crisis annual GDP. The LEI report's estimates of net benefits of the regulatory measures remain positive even if the crisis-related output losses are assumed to be more temporary in nature. Net benefits also remain positive for a broad range of capital ratios.

For the UK, the Bank of England (2013) estimated the impact of higher capital requirements coming from the CRD IV for the period 2010 to 2021. The net benefits

¹¹⁴ See "An assessment of the long-term economic impact of stronger capital and liquidity requirements", BCBS, August 2010. The report uses bank data that are not restricted to EU Member States.

(i.e. after accounting for costs) sum up to an annual £8.25 billion, which is roughly 0.53 % of UK GDP in 2012. Reflecting the model and data uncertainty, the results vary for different confidence intervals (e.g. for the 95 % confidence interval, the net benefits lie between £-2 billion and £23 billion).¹¹⁵

New quantitative analysis has also been undertaken for the purpose of this study, as summarised in Box 4.2.6 and explained in more detail in annex 4 (for benefits) and annex 5 (for costs). The results are based on simplified models that seek to capture the macroeconomic impacts of select banking reforms, namely higher capital requirements (as per CRD IV package) and bail-in and resolution financing arrangements (as per BRRD).

Box 4.2.6: (Net) benefits of increased capital requirements, bail-in tools and resolution fund

Annex 4 sets out the details of a quantitative model (SYMBOL) that aims to assess the macroeconomic benefits of the regulatory reforms in the banking sector. Given the specification of the model, only certain types of bank reforms can be included – namely, higher capital requirements under the CRD IV package and the bail-in and resolution fund provisions of the BRRD. More specifically, the model simulates the benefits of increasing capital requirements from 8 % to 10.5 % of risk-weighted assets (RWA) (see section 4.2.1), the bail-in tools and intervention by the resolution fund (see 4.2.5). The other important reforms are not captured in the model, as they generate benefits along different dimensions and through mechanisms that are difficult to include in the model.

The benefit estimates reported below are all based on banks' 2012 capital position (allowing for potential buffers that banks hold above the regulatory requirement) and only count the impact of moving from that position to the new required level. This may underestimate the benefits, for the reasons set out in annex 4, so annex 4 also reports higher benefit estimates based on the assumption of no capital buffers (i.e. where all banks are assumed to start with capital equal to 8 % of RWA and move to 10.5 % of RWA).

The simulations show that the increased capital requirements result in a 22 % reduction in the potential public finance costs associated with bank failure. Considering also the two additional tools, i.e. bail-in and resolution fund, the costs of public finances are reduced by 92 %. This assumes that these tools are effective in preventing contagion resulting from bank failure. To further avoid losses for public finances, the BRRD allows for extra tools to be used, including for example the full bail-in of unsecured debt or the full use of the resolution fund. These tools are not included in the estimations, because supervisors have discretion in their use. The model assumes that capital requirements combined with the resolution tools in BRRD are fully effective and stop contagion in the system. As discussed in section 4.2.6 above, for the largest banks, structural reform is needed to complement higher capital requirements and resolution tools to reduce the risk and cost of bank failure. The impact of the structural reform proposal cannot directly be included in the same quantitative model, but depending on the extent to which structural reform is required to resolve the largest, systemically important banks, about a third of the estimated reduction in public finance costs as a result of effective resolution may be attributable to structural reform.¹¹⁶

The macroeconomic benefits of the reforms are measured in terms of avoided GDP losses. They arise from the fact that new regulatory requirements reduce the probability of a systemic crisis in the banking sector. The reduction in the probability of systemic crisis is then applied to the estimated costs of such crisis, which are expressed as the net present value of cumulative output losses and amount to 98.6 % of annual pre-crisis EU GDP. The results show that the avoided output losses and corresponding benefits of the reforms amount to 0.51 % of annual pre-crisis EU GDP if only higher capital requirements are considered and to 1.07 % if all three measures are combined. Assuming a

¹¹⁵ An empirical study by the former UK Financial Services Authority (2012) also concluded that there are positive net effects of prudential reforms on the macroeconomy. The study shows an overall net benefit of increased capital requirements (as per CRD III and the FSA's 98-6-4 recapitalisation regime, including Basel III proposed capital buffers and liquidity coverage ratio). The net benefits are estimated at £11.9 billion annually.

¹¹⁶ See also the impact assessment accompanying the structural reform proposal for quantitative evidence (SWD(2014) 30 final).

lower level of the cumulative costs of crisis, namely 50 % of annual EU GDP (see section 3.4), the benefits of all three measures would amount to 0.59 % of EU GDP per year. Thus, considering also this lower bound, the estimated benefits are 0.6-1.1 % of annual pre-crisis EU GDP (or about EUR 75-140 billion per year, if applied to 2008 EU GDP).

Macroeconomic costs (also in terms of GDP) are estimated separately (using the QUEST model) and presented in Box 6.4.1 and annex 5. The yearly macroeconomic costs are estimated to be around 0.3 % of annual EU GDP, based on the assumptions set out in annex 5.

Thus, on balance, the models suggest that the potential annual net benefits of the three reform measures may be between 0.3-0.8 % of annual pre-crisis EU GDP per year. This corresponds to a net benefit of about EUR 37-100 billion per year, based on 2008 EU GDP.

However, given the high degree of uncertainty, the estimates should be considered more as a tendency, rather than interpreted as exact numbers. They are sensitive to the choice of the modelling approach and the assumptions made. Both models, on costs and benefits, are highly simplistic and focus only on some mechanisms by which costs and benefits are transmitted to the economy. For example, the SYMBOL model to simulate benefits captures credit risk of banks only, and the QUEST model to estimate costs only considers the credit channel and is based on a simplified balance sheet of the EU banking sector.

4.3 STABILITY AND RESILIENCE OF FINANCIAL MARKET INFRASTRUCTURES

This section describes the reforms pursued to enhance the stability and safety of financial markets and the infrastructures that support it. Trading, clearing and settlement of financial transactions form the three fundamental activities in financial markets. Hence, the EU regulatory agenda has paid a lot of attention to these activities, including in particular the review of the Markets in Financial Instruments Directive (MiFID) as the central piece of legislation for securities markets (section 4.3.1), the new rules for the central clearing of OTC derivatives (EMIR) (4.3.2) and the regulation of central securities depositories (CSDs) (4.3.3). These three reforms together form a framework in which systemically important securities infrastructures (trading venues, central counterparties, trade repositories and CSDs) are subject to common rules on a European level.

In addition, the section covers the restrictions that have been put in place to address the risks in relation to short-selling and credit default swaps (4.3.4). While also relevant for the stability of financial markets, reforms on securities financing transactions are covered in section 4.4 as part of wider measures on shadow banking. Also, the reforms on credit rating agencies, accounting standards, the audit process and financial benchmarks are discussed separately in section 4.6 as they also have a key role in enhancing the integrity of markets by increasing the reliability of ratings and financial information.¹¹⁷

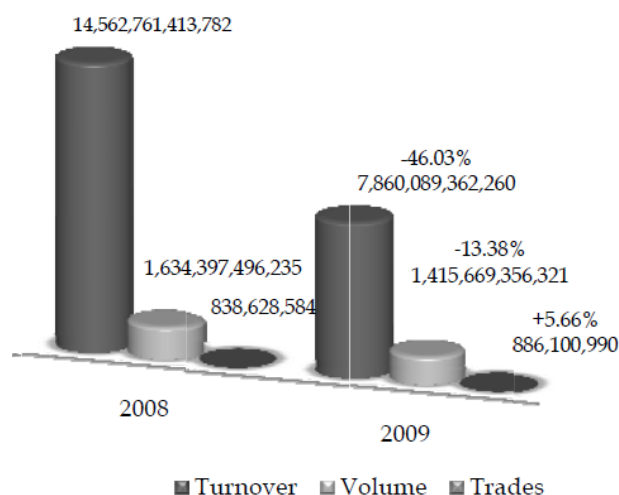
4.3.1 Improving trading in securities markets

The Markets in Financial Instruments Directive (MiFID) was transposed in November 2007 as the central piece of legislation for securities markets. It governs the operation of traditional stock exchanges and alternative trading venues as well as the provision of investment services in financial instruments by banks and investment firms. While MiFID increased competition between trading venues and brought more choice and

¹¹⁷ The review of the Prospectus Directive is also relevant for transparency and market efficiency, but is not discussed here (but it is listed in annex 2).

lower prices for investors, some shortcomings were exposed (e.g. in relation to market fragmentation, the high degree of dark trading). Furthermore, the financial crisis clearly called for a stricter framework for non-equities markets, and in particular derivatives, including commodity derivatives. This was confirmed by the commitments by the G20 leaders at the 2009 Pittsburgh summit.¹¹⁸

Chart 4.3.1: Impact of the crisis on EEA equity trading



In the years following the application of MiFID capital markets in Europe have changed in many ways.¹¹⁹ However, as the implementation of MiFID coincided with the financial crisis (which significantly affected financial markets as illustrated by the sharp decline in equity turnover and volumes in chart 4.3.1) and with rapid innovation in financial services, its effects are virtually impossible to assess in isolation.¹²⁰

Source: CEPS (2011).

Stronger competition between trading venues and investment firms, both on trading costs and execution services, together with technological innovation dramatically changed the structure of financial markets across Europe, particularly equity markets. Many new trading venues emerged, trading costs declined and the speed of trading drastically increased. This development has been particularly pronounced in cash equity markets.

At the same time, however, capital markets have become fragmented and more opaque, which can be observed by the proliferation of dark trading venues, dark pools and broker dealer crossing networks.

Dark trading is trading that is not subject to pre-trade transparency requirements¹²¹ either because it is not covered by the definitions of trading venues or because waivers from pre-trade transparency requirements apply. Dark trading allows market participants to carry out trades without exposing their orders to the public ahead of the execution ('pre-trade transparency'). Three different forms of dark trading need to be distinguished. 'Dark pools' are trading venues that fall within the categories of regulated markets or MTFs but for which waivers to pre-trade disclosure apply (e.g. for large in scale trades). Broker crossing systems are systems used by investment firms to match client orders internally. Typically such systems use algorithms to slice

¹¹⁸ G20 Leaders Statement: The Pittsburgh Summit, September 24-25, 2009, Pittsburgh, <http://www.g20.utoronto.ca/2009/2009communique0925.html>.

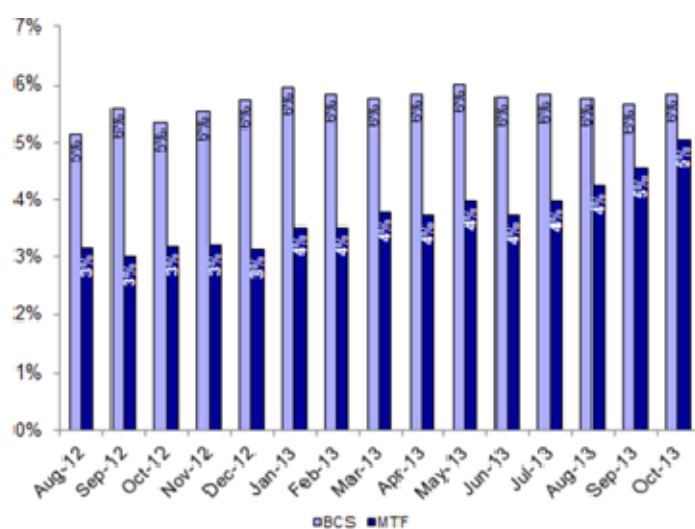
¹¹⁹ It is difficult to disentangle the regulatory impact of MiFID on capital markets from changes due to e.g. technological innovation and the impact of the financial crisis.

¹²⁰ For example, institutional investors increasingly seek to hide their trading intentions from the public. It is not possible to clearly identify one single underlying factor, but it is rather a multitude of factors contributing to this trend (e.g. uncertainty created by the crisis, technical innovations, fragmentation of trading, increased competition, available waivers from pre-trade transparency).

¹²¹ Insufficient pre-trade transparency can hinder the price formation process.

larger parent orders into smaller 'child' orders before they are sent for matching. Some systems try to match only client orders while others also provide matching between client orders and house orders (with the permission of clients). If client orders are not matched internally they are then routed on to a trading venue for execution. Crossing systems are not covered by the existing definitions of trading venues of MiFID and hence not subject to pre-trade disclosure. While the role of broker crossing systems remained still small in the overall market, these systems grew very quickly between 2008 and 2010 and nearly tripled from an average of 0.7 % of total EEA trading in 2008 to an average of 1.5 % in the first quarter of 2010.¹²² Finally, trading that takes place over the counter (OTC) is not subject to pre-trade disclosure and therefore also falls within the category of dark trading.

Chart 4.3.2: Proportion of dark trading on broker crossing systems and dark MTFs as a percentage of European executable activity



Source: TABB Group (2013), "Dark Matters: Time for facts".

In 2011, dark trading accounted for 45 % of EEA trading, of which pools and broker crossing networks accounted for approximately 7 % and OTC trading for around 38 %. Dark trading (including both broker crossing networks and dark pools) is expected to continue growing if it is not subject to requirements on transparency and investor protection comparable to those for regulated markets. Chart 4.3.2 shows that the proportion of dark

activity including Broker crossing systems and dark MTFs (but excluding dark trading on regulated markets and OTC trading) has been increasing since the second half of 2012. In particular, trading activity in dark MTFs has been rising from 3.16 % in August 2012 to 5.05 % in October 2013.¹²³

These developments have resulted in an uneven playing field between markets and market participants, as they are subject to different rules, conditions and costs whilst carrying out similar activities. Also, there is insufficient transparency for market participants to make optimal investment decisions, for the price formation mechanism to work effectively and for regulators to detect potential market concerns and threats to financial stability and to react to those.

Concerning market fragmentation, despite providing comparable services to regulated markets, multilateral trading facilities (MTFs) were subject to a less stringent regulatory and supervisory regime since they are not fully covered by the market abuse rules. In addition, crossing systems and derivative trading platforms have

¹²² This follows from a fact-finding exercise conducted by CESR, the predecessor of European Securities and Markets Authority, in 2010. See impact assessment of MiFID II: http://ec.europa.eu/internal_market/securities/docs/isd/mifid/SEC_2011_1226_en.pdf

¹²³ TABB Group (2013).

emerged that carry out similar activities to MTFs without being subject to the same regulatory requirements. As most of these requirements relate to transparency and investor protection, the lack of a level playing field may hinder the safety of financial markets as well as their efficiency. Also, the share of trading on MTFs increased to 18 % of total turnover by February 2011¹²⁴.

Another concern has been the growth of algorithmic trading and High Frequency trading (HFT) which has drastically increased the speed of trading. Data availability in this area is limited, but recent estimates by the European Securities and Markets Authority (ESMA) suggest that HFT traders make up 22 % of the total value traded for a sample of European equities in May 2013. In terms of orders, HFT activity was higher, with most orders placed by HFT traders (60 % of all orders). While HFT offers many opportunities, it is important to control systemic risks that might arise from this technological innovation. Events in recent years, e.g. the "Flash crash" of 6 May 2010 or the loss of USD 420m by Knight Capital in August 2012 have revealed that algorithmic trading can be destabilising and amplify extreme market movements. At the same time, there is still significant debate on the impact of HFT on market quality, including liquidity and price discovery, and on volatility (see box 4.3.1).

The transparency regime in the MiFID for market participants in both the equities and non-equities markets has turned out to be insufficient. The increased use of dark pools, not subject to the transparency regime under MiFID, raises regulatory concerns as it may ultimately affect the quality of the price discovery mechanism on the original markets. For example, insufficient pre-trade transparency in markets can hinder the price formation process. Market participants as well as supervisors have expressed concerns about time delays in the publication of trade reports in the equities markets. For non-equity markets, transparency requirements were not covered by the MiFID, but only regulated at national level and not always harmonised or sufficient. These issues, if not addressed, can undermine market safety and efficiency as well as investor protection. During the financial crisis, existing transaction reporting requirements failed to provide competent authorities with a full view of the market because their scope is too narrow and because they are too divergent.

The MiFID review (MiFID II)

In response to the crisis and as a result of new risks emerging, the Commission presented in October 2011 proposals to revise MiFID, consisting of a Directive and a Regulation (MiFIR). This package – commonly referred to as MiFID II – was approved by the European Parliament in April 2014, following the January 2014 political agreement with the Council. After entry into force in summer 2014, significant implementation work will continue in the course of the next two years, since many technical details need to be elaborated. It is expected that MiFID II will be applied from end 2016. To ensure a smooth transition into the new regime, longer transition periods are envisaged for some areas.

¹²⁴ See “The impact of market fragmentation on EU stock exchanges”, Consob Working Paper No. 69, July 2011 <http://www.consob.it/mainen/documenti/english/papers/qdf69en.html?symbblink=/mainen/consob/publications/papers/index.html>

The central objective of the MiFID II is to make financial markets more resilient, transparent and efficient. Another main objective of MiFID II is to ensure investor protection, which is separately discussed in section 4.7.4.

MiFID II recognises the need for the different business models, while ensuring a high level of market integrity and a level playing field among trading venues (e.g. open and non-discriminatory access rules). While MiFID II has many different elements, focus here is on the elements that can be directly linked to the financial crisis and are relevant to the financial stability objective of the reform agenda.¹²⁵

MiFID II aims to **enhance the robustness and efficiency of securities trading and trading venues**. MiFID II introduces a category of organised trading facility (OTF) as a third category of multilateral trading venue. This will ensure that organised trade execution systems that have so far not fallen under the existing MiFID trading venues (e.g. broker crossing networks) are subject to the same transparency and organisational requirements as those that already were covered by MiFID (i.e. regulated markets and MTFs). The different types of trading venues will be clearly distinguished based on their characteristics. The aim is to ensure a level playing field and avoid fragmentation without imposing a one-size-fits-all regulation.

In addition, MiFID II aims at controlling the risks stemming from algorithmic trading and HFT by various measures, ranging from requiring algorithmic traders to be properly regulated, to liquidity provision requirements and the testing of high frequency trading programs (see box 4.3.1).

The financial crisis disproved the widespread view that professional investors know what is best for themselves and the market as a whole as has been seen on numerous occasions (e.g. lack of due diligence in the area of securitisation; blind faith in judgements of rating agencies). MiFID II addresses this misplaced assumption by enhancing the regulatory framework not only for equity markets but also for non-equity markets, which are traditionally dominated by wholesale market participants and dealer markets. As further discussed in section 4.3.2, MiFID II also introduces mandatory trading of clearing-eligible and liquid derivatives on multilateral trading venues, including commodity derivatives. It thereby complements derivative markets reforms (see below) and delivers on an important G20 commitment.

MiFID II contains important measures to **enhance transparency**. Transparency is central to ensure appropriate risk monitoring by market regulators and market participants. The key rationale for transparency is to provide investors with fair access to information about current trading opportunities, to facilitate an efficient price formation process and assist firms to provide best execution to clients. Increased transparency also addresses potentially negative adverse effects of market fragmentation and liquidity and support market participants in correctly valuing their portfolios. MiFID II will improve transparency in three ways:

- 1) Introduction of a consolidated tape of post-trade data (i.e. continuous, real-time data on the trading volume and price of securities on all trading venues);
- 2) Strengthening existing trade transparency requirements for equity markets and introducing a trade transparency regime for non-equity markets; and
- 3) Strengthening transaction reporting to supervisory authorities.

¹²⁵ This section only focuses on crisis-related elements of MiFID II.

Trade transparency requirements are necessary to balance the interests of individual investors and the collective interest of having transparent and well-functioning markets. While individual investors are interested in receiving as much information about markets and prices as possible they are not inclined to disclose information about their trades so as to not lose their informational advantage. Trade transparency requirements hence help to remove information asymmetries.

Whilst increased transparency does not imply a one-size-fits-all regime to the non-equity markets, differences in market structure do not justify exempting non-equity markets completely from trade transparency requirements. The financial crisis has clearly brought to light the opacity of many non-equities markets, in particular the markets for derivatives and bonds, which hinders supervisory authorities and market participants to appropriately monitor markets and which is conducive to an environment with low competitive pressure and high trading costs. It is important to address these shortcomings while taking different market structures (e.g. lower liquidity, higher trading sizes) into account. This will be accomplished by allowing for waivers from transparency in specific circumstances to avoid detrimental impacts on market liquidity (see chapter 6).

The strengthening of the existing trade transparency regime for equities and the introduction of a trade transparency regime for non-equities markets together with the introduction of a trading obligation for derivatives and for shares and the setup of an appropriate framework for consolidated trade data are expected to enhance the price formation process and help to overcome market fragmentation. MiFID II also contains specific measures to enhance the transparency and oversight in commodity derivatives markets, but these are separately discussed in section 4.6.2.

Overall, this new transparency regime is expected to enhance price discovery in both equity and non-equity markets and provide the necessary level of transparency for investors to make optimal decisions and for regulators to detect potential stability issues and to provide adequate responses.

Box 4.3.1: **High-frequency trading and the MiFID II requirements**

There is a lack of consensus among academics, practitioners and regulators on both the definition of high-frequency trading (HFT) and its effects on the working of securities markets,¹²⁶ notably its impact on real liquidity, price volatility, market abuse possibilities and market efficiency (including price discovery). At the same time, HFT accounts for a significant part of trading activity in a large number of exchanges. Current estimates on the proportion of HFT in the EU markets range between 30-60 %.

The existing theoretical and empirical literature on HFT is vast and growing rapidly.¹²⁷ However it is inconclusive as regards the beneficial effects or otherwise of HFT. Moreover, it is mostly centred in US markets, making it difficult to extrapolate results to the EU market. Some early US studies were supportive and emphasised the benefits of HFT. This research suggested that HFT was a natural evolution due to advances in technology, quantitative finance and the securities markets. Thus, HFT was seen as contributing to greater liquidity; lower volatility; lower transaction costs; and improved speed and accuracy of the price discovery process. In sum, **high-frequency traders can be seen as market makers** providing liquidity to the market, lowering volatility and narrowing bid-offer spreads, thereby making trading and investing cheaper for other market participants.

Notwithstanding these alleged benefits, concerns emerged after several flash crashes and turbulence attributed to the presence of HFT (see also section 4.3.1).¹²⁸ Other empirical literature assessing these market episodes¹²⁹ and relying on more recent available data, has concluded that **HFT can also decrease liquidity, increase volatility and adversely impact market confidence.**

First, there are natural limits to the alleged benefits of HFT. There may exist unhealthy competition among high-frequency traders to acquire the capability to trade at ever higher speeds by investing in broadband cables, microwave technology etc. This leads to a speed or arms race, to profit from “low latency arbitrage”¹³⁰. High-frequency traders invest in speed to trade one fraction of a second faster than other traders. As a result the fastest High-frequency trader may be able to know, with near certainty, where the market will be a fraction of a second ahead of everybody else, profiting at nearly zero risk. The problem is that, beyond a certain threshold, this speed race becomes essentially a zero sum game, with a severe potential negative impact on efficiency of the markets.

A second concern is that the increase in market quality attributable to HFT is only transitory and it comes at the expense of institutional liquidity providers whose presence ensures the adequate valuation of tradable securities in the long-term. High-frequency traders can effectively take profits from rather than provide liquidity to long-term investors, particularly at times when liquidity is already low and/or the market is under stress. Thus, **HFT may push institutional investors out into dark pools** where HFT activity does not take place. There is evidence that institutional investors, at least in some instances, have chosen to execute their orders through systems that do not involve any pre-trade transparency. By using voice trading systems or dark pools they ensure that their orders cannot be picked up by high-frequency traders. While this may be in the investors’ individual interest, it is not in the interests of the market as a whole, because dark trading harms the market price formation mechanism. If, as feared, this speed race among HFT ends up shifting market quality participants away from transparent exchange markets, this **could discourage long-term investment through exchange markets.**

Technology is a key driver of innovation and growth, but it also raises risks in the marketplace. As a consequence, regulators are confronted with **a challenge to maintain the integrity of markets**, whilst at the same time not suffocating advances in their development. It is in this context that regulatory measures have been taken at the EU level, notably as part of MiFID II review to mitigate and control

¹²⁶ See Appendix II and III at Gomber et al (2011) for a comprehensive table of different definitions by academia and regulators.

¹²⁷ See Jones (2013) and Gomber et al (2011) for literature surveys.

¹²⁸ See Bowley (2010).

¹²⁹ Boehmer et al 2012, SEC report of Flash Crash, Jarrow and Protter (2011), Cartea and Penalva (2010), Zhang and Powell (2011).

¹³⁰ Low-latency trading uses computers that execute trades within microseconds, or “with extremely low latency” in the jargon of the trade. Low-latency traders profit by providing information to their algorithms, such as competing bids and offers, microseconds faster than their competitors. See, for example, Budish et al (2013).

the risk and concerns associated with HFT. Effective implementation of these measures across Europe shall ensure that HFT lives up to its promise of **improving market quality without endangering or distorting the adequate functioning of securities markets** either in normal times or in times of market stress. The targeted requirements and measures to address the specific concerns referred to above include:

1) **Obligation to provide continuous liquidity:** Flash crashes may be caused or accentuated by HFT trading systems shutting down whenever there is an unforeseen movement in the market. This has the effect of withdrawing liquidity from the market, potentially accentuating any fall. To address this problem, HFT market makers are required to provide liquidity into markets continuously and could be sanctioned for any failure to provide such liquidity.

2) **Minimum tick sizes:** Minimum tick sizes limit the minimum fractions for quotes or orders and are adopted to reduce the incentives for HFT. HFT strategies frequently exploit minor differences in prices (which is only possible where the tick size is small) to step ahead of more long-term investors who are less likely to make trading decisions based on small price differences. Imposing minimum tick sizes may therefore reduce HFT trading opportunities, whilst favouring long-term investors. This will be further calibrated by ESMA in delegated and implementing acts.

3) **Minimum order to trade ratio:** HFT trading strategies frequently involve the issuing of numerous orders to test the market, which are then rapidly withdrawn. To address this concern, a minimum ratio of unexecuted orders to executed trades is imposed on market participants. This, too, will be calibrated by ESMA in delegated and implementing acts.

4) **Restrictions on distortive fee structures:** The fee structures of trading venues may encourage distortive HFT practices. Hence, restrictions are imposed to ensure that co-location services are offered on a non-discriminatory basis and do not create incentives for disorderly trading.

5) **A requirement on algorithm testing:** This ensures that the people using such algorithms understand them both for their own risk management purposes and also to reduce risk in the system as a whole.

4.3.2 Improving derivatives markets and advancing central clearing

As already shown in chapter 3, derivatives markets grew significantly in the years leading up to the crisis. This growth concentrated on OTC derivatives markets, as opposed to derivatives traded on exchanges. The size of derivatives markets, as measured by the gross notional value of derivatives outstanding, exceeded USD 700 trillion by 2008, but has fallen somewhat since (Table 4.3.1).¹³¹ Between 1998 and 2008, the market size for OTC derivatives grew by a factor of 10. The growth in the global derivatives market far outpaced that of the global economy: the notional value of OTC derivatives outstanding exceeded global GDP in 1998 by a factor of 3, but in 2008 the market had grown to exceed global GDP by more than 12 times.

¹³¹ While notional amounts provide a measure of market size and a reference from which contractual payments are determined in derivatives markets, they do not correspond to amounts truly at risk. Gross market values provide some measure of the financial risk from OTC derivatives. At the end of 2009, the total gross market value stood at USD 21.6 trillion.

Table 4.3.1: Size of derivatives markets

	1998	2008	2012
Global size of OTC derivative markets (gross notional value in USD trillion)	70	700	633
Global size of exchange-traded derivative markets (gross notional value in USD trillion)	14.3	82.8	59.5
World GDP (in USD trillion)	30.2	61.4	71.9
Ratio of derivative markets size to global GDP	2.8	12.7	9.6

Source: Commission Services based on BIS (gross notional derivatives) and World Bank (GDP).

Size and rapid growth is not necessarily a problem. However, the financial crisis exposed significant weaknesses in the structure of derivatives markets, in particular OTC derivatives. While markets in certain OTC derivatives asset classes continued to function well, the crisis highlighted the significant contagion potential due to the interconnectedness of OTC derivatives market participants and to the limited transparency of counterparty relationships, as further set out below. Owing to the perception that OTC derivatives are reserved for professional investors and hence did not require tight regulatory intervention, OTC derivatives had generally been subject to light-handed regulation prior to the crisis, which contributed to their rapid growth.

At least three main problems in OTC derivatives were highlighted by the crisis:

The first problem relates to **the lack of transparency of OTC derivatives and exposures**. The bilateral nature of this market makes it rather opaque to parties outside a particular transaction. For regulators and supervisors, this means that they did not have complete information about the size of different segments of the markets and the breakdown of positions of the regulated entities. As a result, they were not able to monitor activities in the market and to detect the potential risks building up. The lack of transparency made detection of systemic risks generally more difficult and exacerbated the asymmetry of information faced by regulators, thus creating significant scope for moral hazard. The lack of transparency proved problematic during the financial crisis, when supervisors realised that they were no able to assess the precise exposures of firms to derivatives markets. This prevented them from being able to accurately assess the consequences of a default of a market participant and of the potential knock-on effects on other market participants, thus giving authorities no alternative but to bail-out the distressed participant.

The lack of transparency also affects market participants, who know their own exposures to their counterparties but not what the exposure of any of their counterparties is to other market participants. During the financial crisis, the lack of transparency on positions generated mistrust among market participants and contributed to the drying up of liquidity in the market.

The second problem relates to the **insufficient management of counterparty risk and lack of collateralisation**. OTC derivatives contracts involve significant counterparty risk, i.e. the risk that counterparty may not honour its obligations under

the contract when they become due.¹³² Volatility in the credit risk of market participants can lead to excess correlations between certain types of OTC derivatives contracts during times of crisis, amplifying the effects of market participants' credit risk re-pricing and leading to heightened price volatility in the entire system.¹³³ A high degree of market concentration in the OTC derivatives dealer network amplifies the effect of individual counterparty risk to a system-wide level.¹³⁴ The effect of one of these major dealers facing financial distress or defaulting altogether then ripples throughout the system, as happened in the case of the Lehman bankruptcy. Moreover, the absence of regular margin calls exacerbated pro-cyclicality: market participants reacted to the deterioration of their counterparties' credit risk by imposing on them substantial additional margin calls, triggering liquidity strain on these counterparties and the market as a whole.

A major problem with derivatives was that they provided the perception of eliminating the underlying risks, while in reality they only redistributed them—the overall volume of risks remained unchanged in the system.

The crisis revealed that the level of counterparty credit risk related to OTC derivatives was far higher than previously thought. OTC derivatives were typically collateralised bilaterally as opposed to being cleared by a central counterparty (CCP). While bilateral collateral agreements were concluded to mitigate counterparty credit risk, the level of collateral provided was inadequate and too low compared to the level of counterparty credit risk.¹³⁵ Put differently, the amount of leverage in the market was higher than should have been the case given the amount of collateral.

Bilateral collateralisation requires management of numerous clearing relationships with the individual counterparties, necessitating investments in systems and manpower. Such a complex web of bilateral networks makes it extremely challenging, if not impossible for an institution to gauge its aggregate credit risk exposure, also taking into account that the institution does not have visibility of the bilateral exposures of its counterparties that may create indirect exposures to the institution itself.

¹³² Derivative contracts bind counterparties together for the duration of the contract, which can range from a few days to several decades. Throughout the duration of a contract, counterparties build up claims against each other, as the rights and obligations contained in the contract evolve as a function of its underlying. This gives rise to counterparty credit risk, i.e. the risk that a counterparty may not honour its obligations under the contract when they become due, and that after the default of one counterparty, the other counterparty has to replace the contract by a new contract concluded at a new adverse price. (the definition did not include the concept of replacement cost).

¹³³ For example, there is empirical evidence that during the 2008 crisis, a systematic re-pricing of counterparty risk was the main factor that amplified the observed increase in correlation between credit default swap (CDS) spreads. Changes in the fundamental determinants of credit risk accounted for only a small fraction of the contagion experienced during that time. In other words, complexity of the market meant that participants were no longer able to judge properly the creditworthiness of their counterparties, which contributed towards contagion effects. See Anderson (2010).

¹³⁴ A handful of major dealers provide liquidity to the majority of the market, limiting the number of potential trading partners for each party to rebalance positions. The fact that practically all major financial institutions are participants in this market has led to a high level of interconnection and hence a high level of interdependence amongst these institutions.

¹³⁵ Also, the majority of bilateral collateral arrangements provided only for the exchange of variation margin (covering fluctuations in the value of the contract), but not of initial margin (covering the potential cost of replacing the contract in case the original counterparty defaults).

The third main problem relates to the **lack of standardisation and insufficient management of operational risk**. Many OTC derivatives contracts were non-standardised and highly complex. Such contracts require significant manual intervention at several stages at the processing, which becomes particularly problematic once the transaction volumes of a type of contract start to increase rapidly. Indeed, in the past, the rapid expansion of volumes in the OTC derivatives market has invariably led to significant processing backlogs of unconfirmed trades.¹³⁶ Low levels of standardisation of contracts and low automation of processes increases operational risk, i.e. the risk of loss resulting from inadequate or failed internal processes, people and systems. This may in turn lead to increased legal risk, limit transparency and even lead to an increase of counterparty credit risk. For example, the failure to confirm a transaction because of lack of automation may jeopardise its enforceability or the ability to net it against other transactions. Furthermore, to the extent that it allows errors in recording transactions to go undetected, an unconfirmed transaction may cause market or counterparty credit risks to be incorrectly measured and, most seriously, to be underestimated. This risk is further increased when portfolio reconciliation and dispute resolution procedures are insufficient. The low levels of standardisation also limit the level of adoption of centralised market solutions (i.e. trade repositories and CCPs).

An additional issue that concerns standardisation (or lack thereof) is its impact on liquidity. In general, the more bespoke the product, the less liquid it is (and hence the more difficult it is to sell or replace it, even more so in distressed market conditions).

EU derivative markets reform

Consistent with the international agreement at G20 level¹³⁷, the EU took action on different fronts to reduce systemic risk and increase the safety and efficiency of the OTC derivatives market, principally through the European Markets and Infrastructure Regulation (EMIR) which entered into force in August 2012:

- **Central counterparty clearing:** EMIR requires eligible (standardised) derivative contracts to be cleared through CCPs. It also promotes financial stability by establishing stringent organisational, business conduct and prudential requirements for these CCPs.
- **On-exchange trading:** standardised OTC derivatives contracts are required to be traded on exchanges and electronic trading platforms. As discussed in section 4.3.1 above, this obligation will enter into force through MiFID II, which governs the operation of trading venues.
- **Increased risk management, collateralisation and capital requirements for non-centrally cleared trades:** If a contract is not standardised and

¹³⁶ Trade confirmation implies verification of the terms of trade after execution (affirmation) and final confirmation. On-exchange, this occurs automatically within the exchange's matching system. The most standardised OTC contracts use electronic third-party services.

¹³⁷ In response to the problems revealed by the financial crisis, the Pittsburgh declaration of the G20 leaders in September 2009 stated that: (i) all standardised OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties; (ii) OTC derivative contracts should be reported to trade repositories; and (iii) non-centrally cleared contracts should be subject to increased risk management collateralisation and higher capital requirements.

eligible for CCP clearing, enhanced risk management techniques must be applied to reduce bilateral counterparty credit risk. EMIR requires financial (and certain non-financial)¹³⁸ counterparties to measure, monitor and mitigate risks, e.g. by improving operational processes (electronic confirmation of contracts), conducting regular portfolio reconciliation between counterparties,¹³⁹ and engaging in portfolio compression for large numbers of contracts with the same counterparty.¹⁴⁰ In addition, EMIR requires non-centrally cleared trades to be appropriately collateralised through the posting of initial and variation margins on a bilateral basis. Separately, under the new capital adequacy framework for banks (CRD IV package), capital requirements are higher for non-centrally cleared derivatives. These measures together will also provide incentives to move to central clearing and trading of derivatives.

- **Improved transparency:** EMIR ensures that data on all European derivatives transactions is reported to recognised trade repositories and is accessible to supervisory authorities, enabling them to monitor effectively the risk and exposures of the major market players and intervene when necessary to avoid the build-up of excessive concentration of risk that could lead to systemic failures. Combined with on-exchange trading and central clearing, this will significantly reduce the current opacity of the OTC derivatives market.

These measures are complementary and in combination will facilitate the early detection of risks building up in the financial system, reduce the counterparty credit risk related to OTC derivatives, and overall result in more stable OTC derivatives market.

Chart 4.3.3 shows a stylised comparison between the bilateral and CCP clearing models. In addition to helping mitigate systemic risk, CCP clearing is associated with benefits pertaining directly to financial institutions, including improved counterparty credit risk management, multilateral netting opportunities, lower uncertainty about counterparty exposures and greater transparency of market activity.¹⁴¹

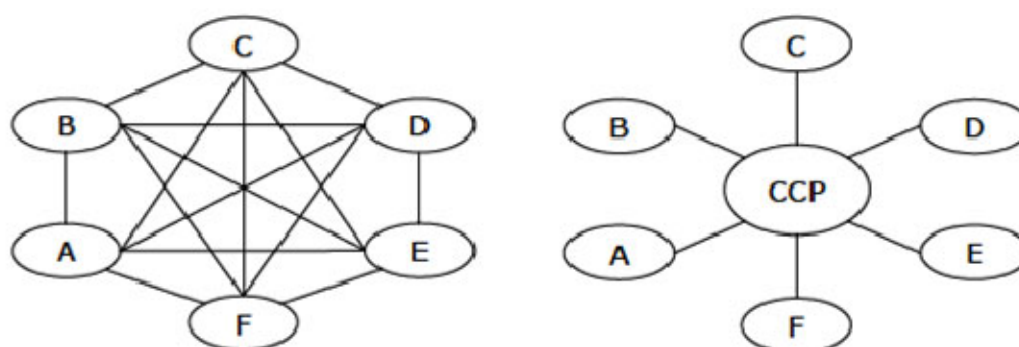
¹³⁸ Non-financial counterparties whose OTC derivatives positions are below a certain threshold are exempted from the EMIR requirements.

¹³⁹ Managing collateral with a wide variety of counterparties may be challenging. In 2008, all major dealers started portfolio reconciliation for all OTC derivatives between themselves and the major counterparties. This process involves matching the population, trade economics and mark-to-market of outstanding trades in a collateralised portfolio.

¹⁴⁰ In OTC derivatives, participants build up gross positions far exceeding their net risk position. Portfolio compression is a process, whereby mutually offsetting trades are eliminated, reducing the notional market size. Thus, portfolio compression achieves lower counterparty credit risk, operational risk and the cost of capital. The more standardised the contract, the easier it is to match eligible trades and to compress them. In principle, portfolio compression can be applied to all OTC derivatives with sufficient liquidity. In practice, it is predominantly used in interest rate and CDS markets. Portfolio compression can also be used to compress a CCP's portfolio, facilitating default management. The smaller and less complex the defaulted party's portfolio, the easier and faster it is to manage the consequences of a participant's default.

¹⁴¹ See ZEW (2011).

Chart 4.3.3 **Stylised presentation of bilateral and CCP clearing**



Source: Commission Services

Besides lowering collateral requirements, multilateral netting reduces the settlement risk on delivery date. CCP clearing is the most effective way of reducing counterparty credit risk and is broadly feasible in all market segments. Although CCP clearing can cover large parts of OTC derivatives, it cannot apply to all OTC derivatives. It is, therefore, also important to improve product and market standardisation, strengthen bilateral collateral management and to ensure central storage of contract details.

According to Pirrong (2011)¹⁴², CCPs can contribute to the stability of the financial system by reducing price volatility and the incidence of extreme price moves that can occur when a large derivatives trading firm defaults.¹⁴³ CCP rules facilitate the porting of customer positions held in accounts at a troubled CCP member to financially sound member firms. This reduces the likelihood that a defaulter's clients suffer losses and that customer margin will be encumbered by the bankruptcy process. It also facilitates the ability of customers to trade unhindered in the event of default of their clearing firm. By allocating default losses more efficiently, CCPs can mitigate the potential for cascading defaults.

Central clearing should also enable regulatory capital savings, increase operational efficiency and solve disruptive information asymmetries for market participants. The use of specific processes, such as portfolio compression, should reduce counterparty credit risk and operational risk. Although contract standardisation could lead to less flexibility for certain market participants, it would be mitigated, if not offset, by the benefits of such standardisation (e.g. easier adoption of automated processes, ability to centrally clear).

The obligation to report all derivatives contracts to a trade repository is expected to allow for full transparency of the derivatives market. This will enhance the effectiveness of supervision and also increase market efficiency. The reported data will be used by micro and macro prudential regulators, central banks and supervisory authorities. The huge amount of information will of course also provide challenges for

¹⁴² Pirrong, C., "The Economics of Central Clearing: Theory and Practice", ISDA Discussion Papers Series No.1, May 2011.

¹⁴³ CCPs can mitigate the destabilising effects of the replacement of defaulted positions by: (a) reducing (via position netting) the magnitude of positions that need to be replaced; (b) transferring customer trades to solvent CCP members; and (c) coordinating the orderly replacement of defaulted trades through auctions and orderly hedging of exposures created by defaults. These measures can reduce the knock-on price movements that result from a large default or defaults precipitated by an asset price shock.

the authorities, since the data needs to be processed to identify areas where risks are growing.

Separately, there has also been growing concern that the trading of derivatives creates instability in the underlying asset markets and the wider financial system. This concern applies in particular in relation to commodity derivatives and the related **financialisation of commodities markets**. The term "financialisation" stands for the increased presence of financial investors in commodities markets that are traditionally dominated by commercial investors, and the related concern that the presence of financial investors may contribute to excessive physical commodity price increases and volatility, e.g. for food or energy to the detriment of consumers.¹⁴⁴ MiFID II will tackle these concerns by: 1) reinforcing cooperation between regulators of physical and commodity derivatives markets, given their increasing interconnection;¹⁴⁵ 2) introducing position reporting requirements to tackle insufficient transparency in both financial and physical commodities markets; and 3) extending the scope of MiFID to commodities' traders to provide supervisors and trading venues with intervention powers to prevent disorderly markets and detrimental developments.¹⁴⁶ In particular, MiFID II introduces position limits for trading in commodity derivatives. These measures will increase the transparency and market integrity of commodity derivatives markets and allow regulators and supervisors to better assess the price formation and price volatility of these markets and their interaction with primary markets.¹⁴⁷

Evidence of improvements in the market

EMIR is already in force, but some of its key obligations will only take effect going forward. Nonetheless, operational risk mitigation techniques and reporting to trade repositories are already effective. Progress towards centralised clearing is underway. CCPs had to apply for reauthorisation or recognition by September 2013, but the clearing obligation itself will only apply later in 2014, after CCPs have been reauthorized under EMIR (to ensure that they meet the strict risk management standards set down by EMIR) and technical standards on which classes of derivatives should be subject to clearing have been proposed by the European Securities and Markets Authority and adopted by the Commission.

Some improvements can already be observed in the market. These reflect, at least in part, changes in the market in anticipation of the future requirements, although it is difficult to isolate the impact of the rules from other factors influencing the market.

¹⁴⁴ The existing body of research provides divergent outcomes about whether there is a link between speculation and commodities prices or not. In the context of the CBA for the new rule on position limits proposed by the CFTC on 5 November 2013, it received 130 studies examining the link between speculation and commodities prices. According to the CFTC analysis, "about a third of them say excessive speculation has an impact, about a third say it doesn't and about a third say they can't tell". See <http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/federalregister110513c.pdf>

¹⁴⁵ See for instance Cheng and Xiong (2013).

¹⁴⁶ IOSCO Principles for Regulation and Supervision of Commodity Derivatives Markets (2011). <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD358.pdf>

¹⁴⁷ The intervention powers will contribute to orderly and stable commodity markets and prevent market abuse. The Market Abuse Regulation (see below) complements these reform measures by extending the market abuse regime to cross-market abuses. In addition, measures have been introduced to reduce the number of non-regulated entities to make sure that all relevant actors are captured.

The outstanding notional amounts of OTC derivatives globally increased in the first half of 2013 to reach USD 693 trillion at the end of June 2013 (chart 4.3.4).¹⁴⁸ The gross market value of OTC derivatives (i.e. their replacement cost at current market prices) declined to USD 20 trillion in the first half of 2013 (chart 4.3.5), whilst the gross credit exposures (i.e. the gross market values after bilateral netting but before collateral) stood at USD 3.9 trillion.

Chart 4.3.4 Outstanding notional amount of OTC versus exchange-traded derivatives (USD trillion)

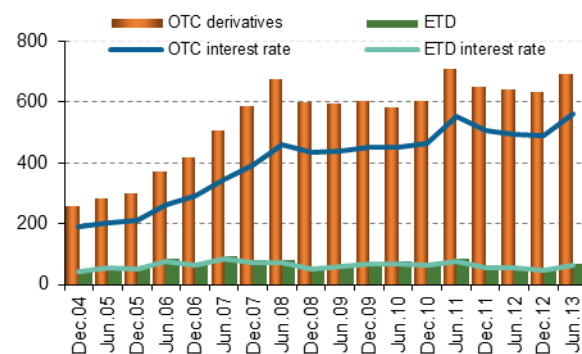
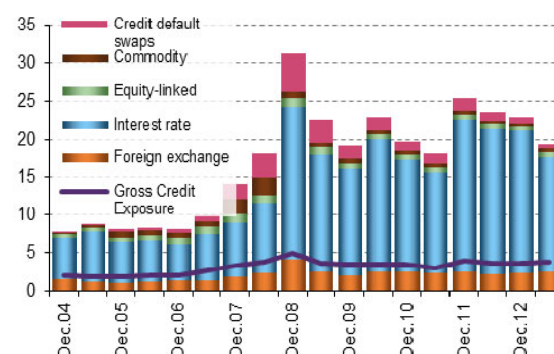


Chart 4.3.5 Gross market values of OTC derivatives (USD trillion)



Source: BIS

A shift to central clearing increases the outstanding notional amounts due to novation,¹⁴⁹ which in part explains the increase in the notional amounts observed in 2013.

The percentage of centrally cleared OTC derivatives has increased steadily (chart 4.3.6). It is expected that ultimately some 70 % of the OTC derivatives market would be centrally cleared.¹⁵⁰ It has been estimated that the volume of cleared OTC transactions (notional amounts without adjustment for double counting) at the end of 2012 totalled USD 346.4 trillion, of which USD 341.4 trillion was attributable to interest rate derivatives and USD 5 trillion to CDS.¹⁵¹

EMIR mandates portfolio compression (whereby offsetting trades are identified and eliminated) when there are a large number of trades with the same counterparty, so as to minimise related operational risk. Portfolio compression is already increasingly being used in the market, so the EMIR provision is setting minimum standards that match good market practice.

¹⁴⁸ Statistical release, OTC derivatives statistics at end-June 2013, BIS, November 2013. It combines data from both the semi-annual BIS survey with the more comprehensive Triennial Central Bank Survey, capturing more than 400 dealers in 47 countries

¹⁴⁹ Novation is the replacement of one contract with another. When a CCP steps in between the original parties to the trade, two novations takes place, leading to the creation of two new, perfectly offsetting contracts. Because the two contracts offset one another, the CCP normally bears no market risk (the latter is still borne by the original parties to the trade). However, as counterparty to every position, the CCP bears credit risk in the event that one of its counterparties fails. This risk is being managed through margin requirements. Similarly, the CCP's counterparties bear the credit risk that the CCP might fail.

¹⁵⁰ Non-Cleared OTC Derivatives: Their Importance to the Global Economy, March 2013, ISDA.

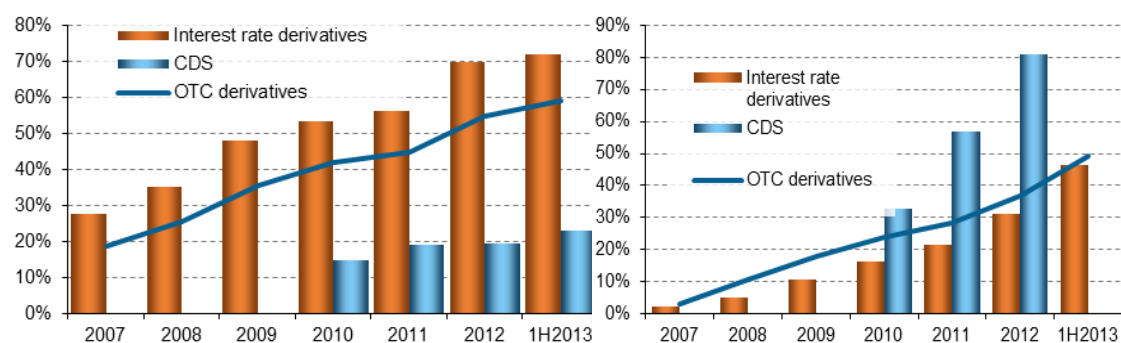
¹⁵¹ OTC Derivatives Market Analysis, Year-End 2012, June 2013 (updated August 2013), ISDA.

Chart 4.3.7 shows the increase in portfolio compression activity over time. Portfolio compression reduced the notional amounts of OTC derivatives by USD 48.7 trillion in 2012.¹⁵² Approximately USD 35.9 trillion worth of the compressed interest rate derivatives transactions was centrally cleared.

CDS are now particularly prone to efficient compression, as a large proportion of contracts were standardised during 2009 and 2010. Overall, USD 143.7 trillion of interest rate derivatives and USD 70.6 trillion of CDS have been eliminated via portfolio compression since the end of 2007.

Chart 4.3.6 Central clearing of OTC derivatives (% of outstanding notional amounts)

Chart 4.3.7 Portfolio compression of OTC derivatives (% of outstanding notional amounts)



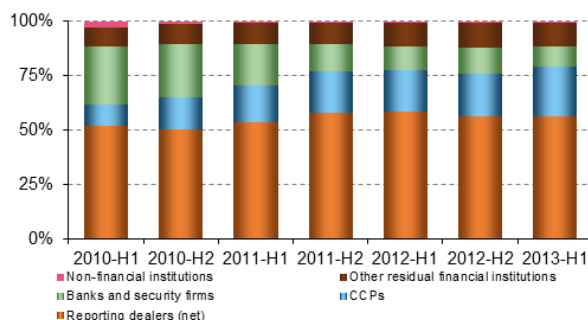
Note: Data series for CDS only starts as of 2010.

Source: BIS, ISDA

In the CDS market, CCPs were party to some 23 % of the notional amounts outstanding at the end of June 2013, based on BIS data (chart 4.3.8). Although the DTCC Global Trade Repository data slightly differs from BIS statistics, it equally confirms steady progress with the share of centrally cleared OTC derivatives (chart 4.3.9). CCPs are party to some 60 % of the notional amounts of all OTC interest rate derivatives outstanding (i.e. swaps and forward rate agreements – FRAs). The rapid rise in the central clearing of FRAs is particularly notable, since it only started in 2010.

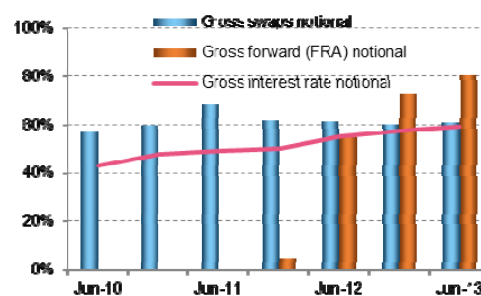
¹⁵² ISDA reports the volume of compressed trades that are centrally cleared on a net basis (as ½ of the amount) to adjust for double counting. As an illustration, gross compression of interest rate derivatives totalled USD 80.5 trillion in 2012, of which USD 71.8 trillion related to CCP portfolios. ½ of the latter figure equals the USD 35.9 trillion quoted in the main text above, whilst the difference of USD 8.7 trillion relates to bilaterally cleared trades under both net and gross reporting methodologies.

Chart 4.3.8 Central clearing of credit default swaps (% of notional amounts outstanding)



Source: BIS

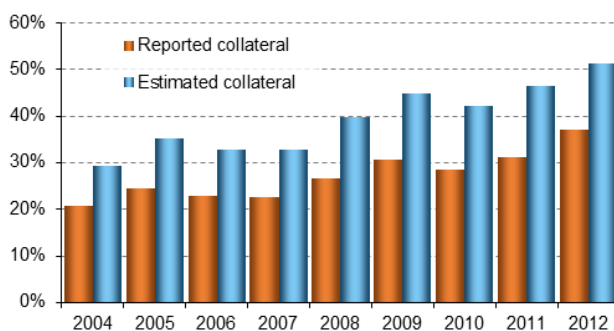
Chart 4.3.9 Central clearing of OTC interest rate derivatives (% of notional amounts outstanding)



Source: DTCC and TriOptima

The industry has also been collateralising a significant and increasing proportion of bilaterally cleared OTC derivatives trades, reducing counterparty credit risk ahead of the new margining rules.¹⁵³ Estimates suggest that the estimated collateral in circulation in the bilaterally cleared OTC derivatives market rose by 1 % in 2012.¹⁵⁴

Figure 4.3.10 Collateralisation of bilaterally cleared OTC derivatives transactions (% of gross credit exposure of all OTC derivatives)



Source: BIS, ISDA

In light of the ongoing shift towards central clearing and portfolio compression, the collateralisation level of bilaterally cleared OTC derivatives is clearly on the rise, reaching about half of gross credit exposure of all OTC derivatives. At the end of 2012, 69 % of bilaterally cleared OTC derivatives trades were subject to collateral agreements,¹⁵⁵ with the number rising to 75 % for large firms. Chart 4.3.9 shows the increase in collateralisation if expressed in percent of gross credit exposure.

The above changes in the market demonstrate that market practice has changed significantly since the financial crisis struck. The market seems to go for increased central clearing and more collateralisation as a response to the crisis as well as the new regulation and upcoming requirements.

The Macroeconomic Assessment Group on derivatives (MAG) of the BIS published a study in 2013 to assess the expected overall benefits (and costs) of derivatives reform at global level. Although subject to uncertainties due to modelling assumptions and data scarcity, the MAG derivatives study concludes that the main benefit of the reforms arises from reducing counterparty exposures, both through netting as central clearing becomes more widespread and through more comprehensive collateralisation. The Group estimates that in the central scenario this effectively

¹⁵³ Technical standards on initial and variation margin are yet to be developed and adopted.

¹⁵⁴ ISDA Margin Survey 2013, June 2013.

¹⁵⁵ However, these agreements do not always include initial margins, but include variation margin only.

brings the annual probability of a financial crisis propagated by OTC derivatives almost down to zero.¹⁵⁶ With the present value of a typical crisis estimated to cost 60 % of one year's GDP,¹⁵⁷ the estimations suggest that the reforms help avoid losses equal to 0.16 % of GDP per year. The MAG study balances the benefits against the costs to derivatives users of holding more capital and collateral (see chapter 6), concluding that the net benefit of the reforms is roughly 0.12 % of GDP per year. While these estimates are based on derivatives reforms at global level, they suggest gross (net) benefits of about EUR 21 billion (EUR 16 billion) per year if applied to 2013 EU GDP.

4.3.3 Enhancing the securities settlement process

Settlement is an important process, which ensures the exchange of securities against cash following a securities transaction (for instance an acquisition or a sale of securities). Central securities depositories (CSDs) operate the infrastructures (so-called securities settlement systems) that enable the settlement of virtually all securities transactions. CSDs also ensure the initial recording and the central maintenance of securities accounts: they record how many securities have been issued, by whom, and changes in the holding of those securities. CSDs therefore assume the critical role of guaranteeing a safe and efficient transfer of securities. Because they provide these services, CSDs are systemically important institutions for the financial markets.

CSDs in the EU settled approximately EUR 887 trillion worth of transactions in 2012 and were holding almost EUR 43 trillion of securities. There are over 30 CSDs in the EU, generally one in each country, and two 'international' CSDs (Clearstream Banking Luxembourg and Euroclear Bank). In terms of relative shares, the latter concentrate around 65 % of transactions measured in terms of value between them – up from 55 % in 2006.¹⁵⁸

Despite their systemic importance, there were no common prudential, organisational and conduct of business standards for CSDs at EU level. In addition to the lack of common regulatory framework, there were also no common rules for the settlement process. The access and competition between different national CSDs are quite limited. These important barriers to cross-border settlement had a negative impact on the efficiency and on the risks associated with cross-border transactions.

¹⁵⁶ The MAG estimates that, prior to the reforms, the annual probability of two or more large dealers defaulting and triggering a financial crisis is 0.26 %. In all post-reform scenarios, exposures were found to be sufficiently collateralised that no plausible increases in default probabilities could generate a financial crisis through OTC derivatives exposures. From this, the Group concludes that, following the implementation of the reforms, the probability of such a crisis is negligible (absent the remote possibility that a CCP fails – see also chapter 7 in this report), so the expected cost of crises propagated by OTC derivatives exposures is almost zero.

¹⁵⁷ This estimate of crisis costs is based on the BCBS's LEI study (2010) and refers to the median cumulative output losses estimated in a large number of studies of international banking crisis.

¹⁵⁸ International integration of EU and global financial markets necessitated already in the 1960s for cross-border settlement and handling of Eurobonds the establishment of the I-CSDs. Clearstream and Euroclear also serve DE FR, and Benelux countries. Crest, Iberclear and Monte Titoli are the significant players respectively in the UK, ES and IT. The data on volumes and values is from ESMA (2014).

While generally safe and efficient within national borders, CSDs combine and communicate less safely across borders, which means that an investor faces higher risks and costs when making a cross-border investment. For example, the number of settlement fails is higher for cross-border transactions than for domestic transactions (the settlement failure rate for cross-border transactions reaches up to 10 % in some markets),¹⁵⁹ and cross-border settlement costs are up to four times higher than domestic settlement costs. At the same time, cross-border transactions (ranging from usual purchases/sales of securities to collateral transfers) continue to increase in Europe and CSDs become increasingly interconnected. These trends are expected to accelerate with the advent of Target2 Securities (T2S) – a Eurosystem project on borderless common securities settlement platform in Europe, which is scheduled to start in June 2015.¹⁶⁰

The CSD Regulation

In response to these problems, the Commission proposed a regulation on improving securities settlement in the EU and on CSDs in March 2012 and the last plenary of the current European Parliament in April 2014 approved the political agreement reached between the Union co-legislators. The Regulation is expected to deliver benefits by:

- increasing the safety of settlements, in particular for cross-border transactions, by ensuring that buyers and sellers receive their securities and money on time and without risks;
- increasing the efficiency of settlements, in particular for cross-border transactions, by reducing cross-border barriers for the operations of national CSDs; and to
- increasing the safety of CSDs by applying high regulatory requirements in line with international standards.

In order to achieve the first main benefit, the Regulation introduces a number of key provisions: the dematerialisation of securities;¹⁶¹ the harmonisation and shortening of

¹⁵⁹ Settlement fails increase counterparty risk, market risk and liquidity risk for market participants. Furthermore, they create disruptions for corporate actions, for instance if a dividend payment occurs in the period of delayed settlement.

¹⁶⁰ The T2S was launched by the Eurosystem to create a common technical platform to support CSDs in providing borderless securities settlement services in Europe. This is complementary to the regulation, which harmonises legal aspects of securities settlement and the rules for CSDs at European level, allowing T2S (<http://www.ecb.int/paym/t2s/html/index.en.html>) – which harmonises operational aspects of securities settlement – to achieve its goals more effectively.

¹⁶¹ Dematerialisation is the obligation for most securities to be recorded electronically, in book-entry form through a CSD, at least from the moment they are traded via an organised trading facility (i.e. non-OTC market) or posted as collateral. In certain Member States, mainly in the UK and Ireland, a certain number of securities are still held directly by the investors in paper form. It takes more than three times longer to settle a transaction in paper securities than a transaction in securities held in book entry form. The key objective of dematerialisation is to ensure a quicker settlement. Other benefits of this measure include: safety for holders, given that there will be fewer opportunities for fraud and less risk of losing paper certificates and ensuing indemnities; safety for issuers, custodians and third parties, in that there will be a better 'reconciliation' between the securities issued and the ones circulating and a better identification of the actual moment of transfer of securities from one holder to another; and reduction of costs for issuers, custodians and third parties, given that the management of paper securities is more costly. An extensive period of time, until 1 January 2025, will be envisaged for market participants to record all existing paper securities in book entries, in order to facilitate transition and reduce related costs.

settlement periods to a maximum of two days;¹⁶² and penalties for failure to deliver securities on the agreed settlement date. These provisions can be expected to reduce settlement failures and enhance settlement discipline, thereby enhancing safety of the settlement process.

Regarding the second type of benefit, the efficiency of the settlement process will be enhanced by reducing the scope for national monopolies, reducing cross-border barriers and opening access to the settlement systems: CSDs will be granted a 'passport' to provide their services in other Member States; users will be able to choose between all CSDs in Europe; and CSDs in the EU will have access to any other CSDs or other market infrastructures such as trading venues or Central Counterparties (CCPs), whichever Member State they are based in (see also section 4.7 on the efficiency objective of the reforms).

Regarding the third benefit, CSDs will have to comply with strict organisational, conduct of business and prudential requirements to ensure their viability and the protection of their users. They will also have to be authorised and supervised by their national competent authorities, with ESMA playing a coordination role. Thus, for the first time at European level, there will be a common authorisation, supervision and regulatory framework for CSDs.

The Regulation is not yet in force, so it is too early to observe any impacts in the markets. The analysis in the Commission's impact assessment shows that there will be important benefits in terms of efficiency, over and above the safety of the settlement process (see section 4.8). Overall, the measures should therefore facilitate issuers' ability to raise capital in the markets and investors' ability to place their funds more safely and cost effectively.

4.3.4 Reducing the financial stability risks and enhancing the transparency of short-selling and credit default swaps

Short-selling is a transaction that involves the sale of a security, which the seller does not own, with the intention of buying it back at a later point in time (at a lower price). 'Naked' short-selling is a transaction whereby the seller has not borrowed the securities, or ensured they can be borrowed before settlement prior to their sale. In normal market conditions, short-selling enhances market liquidity and contributes to efficient pricing by contributing to faster transmission of information into market prices, thereby mitigating overvaluation. However, short selling and in particular 'naked' short-selling can also be used to manipulate market prices downwards, at the risk of a short squeeze leading to settlement failures. Thus, short-selling has the potential to increase the magnitude of market disruptions by reinforcing a downward price spiral in distressed markets and amplifying systemic risks.

¹⁶² In Europe most securities transactions are settled either two or three days after the trading day (T+2 or T+3), depending on each market. A harmonised settlement period will reduce operational inefficiencies and risks for cross-border transactions, while reducing funding costs for investors (for instance, for those that have to deliver cash or securities at T+3 but can only receive them at T+2). A shorter settlement period would have an important advantage of reducing counterparty risk, that is, the period of time during which an investor runs a risk that its counterparty will default on its obligation to deliver cash or securities at the agreed settlement date.

Related concerns apply to sovereign credit default swaps. Sovereign CDS can be used to secure a position economically equivalent to a short position in the underlying sovereign bonds. The buyer of a naked sovereign CDS benefits from the deterioration of the credit risk of the sovereign issuer in a very similar manner as the short-seller of the bonds derives from this same deterioration in the bond price. While sovereign CDS provide the key economic benefit of allowing investors to hedge the default risk of the (sovereign or corporate) debt, speculation in CDS could put pressure on the underlying sovereign bond spreads. Similar to short-selling, there are concerns that this could impair funding conditions for the issuer of the sovereign debt and potentially provoke a vicious spiral, whereby rising funding costs translate into an ever increasing probability of default.

Concerns about (naked) short-selling and the buying of naked sovereign CDS have come to the forefront during the financial crisis and subsequently in the context of the euro area sovereign debt crisis. EU Member States reacted very differently to these concerns. A variety of measures were adopted using different powers by some Member States, while others did not take any action. There was no legislative framework at European level to deal with the concerns in a coherent way. The fragmented approach to these issues risked limiting the effectiveness of the measures imposed, leading to regulatory arbitrage (which basically means shopping around for the least onerous regime) and creating additional costs and difficulties for investors.

The new short-selling and CDS regulation

In response, the Commission proposed a Regulation on short-selling and certain aspects of CDS in 2010 that entered into force in November 2012. Whilst acknowledging that short-selling has economic benefits and contributes to the efficiency of EU markets (notably, in terms of increasing market liquidity, more efficient price discovery and helping to mitigate overpricing of securities), the Regulation seeks to address four main risks:

- **Transparency deficiencies:** the lack of transparency in relation to short selling prevents regulators from being able to detect at an early stage the development of short positions which may cause risks to financial stability or market integrity. It also provides the opportunities to engage in aggressive short-selling that may have detrimental effects, but go undetected.
- **The risk of negative price spirals:** as noted above, there are risks of short-selling (or short positions through CDS transactions) amplifying price falls in distressed markets, and that this could lead to systemic risks.
- **The risks of settlement failure associated with naked short selling:** when a financial instrument is sold short without first borrowing the instrument, entering into an agreement to borrow it, or locating the instrument so that it is reserved for borrowing prior to settlement (i.e. naked short selling), there is a risk of settlement failure. Some regulators consider that this could endanger the stability of the financial system, as in principle a naked short seller can sell an unlimited number of shares in a very short space of time.
- **The risks to the stability of sovereign debt markets** posed by naked sovereign CDS positions.

Correspondingly, the expected benefits of the Regulation come from:

- **Enhanced transparency:** significant net short positions in EU shares and government debt need to be notified to regulators;
- **Additional powers to regulators in exceptional situations within a coordinated EU framework:** in exceptional situations, regulators are given the powers to impose temporary measures, such as to require further transparency or to restrict short selling and credit default swap transactions. ESMA is given a central role in coordinating action in exceptional situations and ensuring that powers are only exercised where necessary;
- **Reducing the risks inherent in naked short-selling:** certain restrictions are imposed on naked short selling of EU shares in order to reduce the risk of settlement failures and increased price volatility. In particular, in order to enter a short sale, an investor must have borrowed the instruments concerned, entered into an agreement to borrow them, or have an arrangement with a third party who has located and reserved them so that they are delivered by the settlement date (the so-called “locate rule”). These requirements are adapted in relation to sovereign debt; and
- **Reducing the risks posed by naked sovereign CDS:** a ban is introduced on entering into a naked sovereign CDS (that is a sovereign CDS acquired by the buyer not to hedge against a) the risk of default of the sovereign issuer where the buyer has a long position in the sovereign debt of that issuer, or b) the risk of a decline of the value of the sovereign debt where the buyer of the CDS holds assets or is subject to liabilities the value of which is correlated with the value of the sovereign debt. A competent authority may temporarily suspend the ban where it believes, based on objective elements that its sovereign debt market is not functioning properly.

A number of exemptions apply, e.g. for market-making activities and primary market operations, in order to minimise potential adverse consequences for market liquidity and price discovery (see chapter 6).

In December 2013, the Commission published a report with an initial review of the functioning and effectiveness of the short-selling Regulation since it entered into force in November 2012,¹⁶³ taking into account technical advice from ESMA.¹⁶⁴ The results show that the Regulation improved the transparency of short-selling. There is also evidence of a general improvement in settlement discipline in shares. ESMA considers that the introduction of the restrictions on naked short-selling had a noticeable impact in reducing the incidence of settlement failures in share transactions.¹⁶⁵ However, it cautions that the analysis should be interpreted with due care given the short time span, the empirical limits and the difficulty in identifying the specific effects of the Regulation.

¹⁶³ http://ec.europa.eu/internal_market/securities/docs/short_selling/131213_report_en.pdf

¹⁶⁴ ESMA (2013).

¹⁶⁵ US market evidence also shows a significant reduction of settlement failures following the entry into force of a stricter regime for ‘naked’ short sales. See Office for Economic Analysis (2009).

The same applies to the wider economic effects of the Regulation, where the results are more mixed. For example, two Member States (Italy and Portugal) are reported to have applied the powers to temporarily restrict short-selling, but according to feedback from market participants, the bans created confusion and uncertainty and led to immediate impacts on liquidity and price efficiency. More generally, the empirical evidence available indicates that the Regulation has had some beneficial effects on volatility, mixed effects on liquidity and a slight decrease in price discovery. Overall, there is however no compelling evidence of a substantial negative impact (see chapter 6).

As concluded in the Commission's review report of December 2013, it is too early, based on available evidence, to draw firm conclusions on the operation of the SSR framework which would warrant a revision of the legislation at this stage. The Commission will, therefore, continue monitoring the application of the short-selling Regulation. Based on more empirical data and evidence, and once sufficient regulatory experience has been accumulated, a new evaluation could be concluded by 2016.

4.4 STABILITY OF SHADOW BANKING

Definition, size and drivers of shadow banking growth

The Financial Stability Board (FSB) defines shadow banking broadly as “credit intermediation that involves entities and activities fully or partially outside the regular banking system” or in short “**non-bank credit intermediation**”.¹⁶⁶

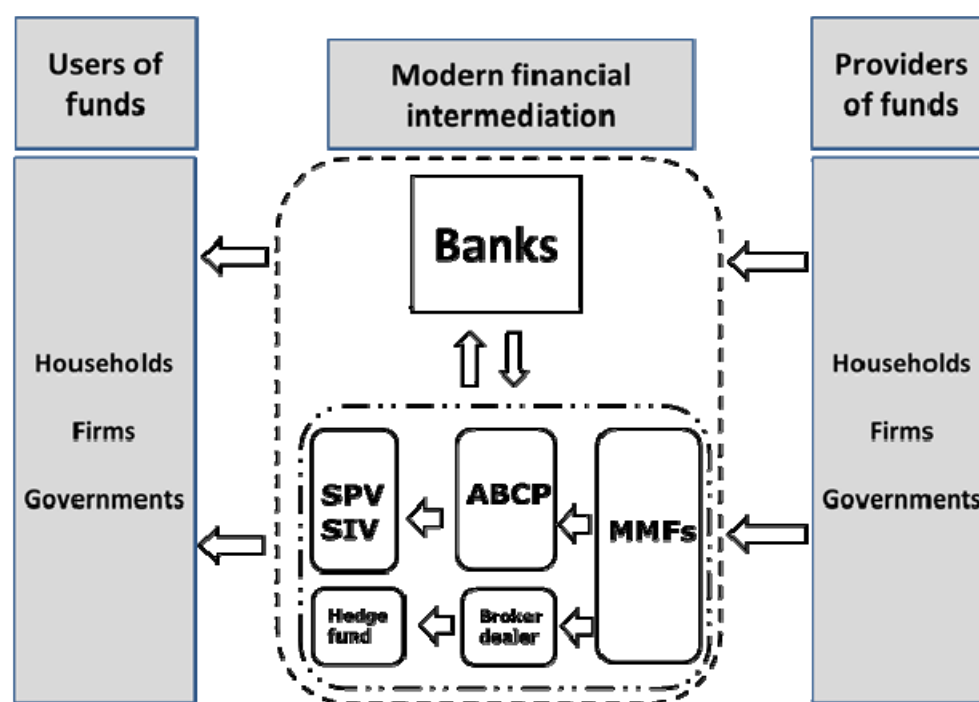
Shadow banking is an important alternative financial intermediation channel, next to regulated banks, and yields similar benefits for society. Chart 4.4.1 presents a simplified illustration of such non-bank credit intermediation in contrast to the traditional bank intermediation channel (see section 2.3). In practice, shadow banking entities raise funding with deposit-like characteristics, perform maturity or liquidity transformation, allow credit risk transfer or use direct or indirect leverage. Shadow banking is comprised of a chain of interconnected financial intermediaries that conduct either all three or any one of the classic banking functions - maturity, credit, and liquidity transformation-, but without access to explicit public safety nets, such as deposit guarantee schemes and central bank emergency liquidity assistance.

Although there are significant data gaps to date (see box 4.4.1), attempts so far suggest that **shadow banking is significant in size and grew rapidly in the run-up to the crisis** (see also chart 3.1.5). The FSB estimates that worldwide aggregated

¹⁶⁶ Shadow banking should not be confused with the entirely different concept of shadow economy. A less confusing term sometimes used by Commissioner Barnier has been “parallel banking sector”. The term “shadow banking” system is in fact quite new and credited to the economist Paul McCulley in a 2007 speech at the annual financial symposium hosted by the Kansas City Federal Reserve Bank in Jackson Hole, Wyoming: “Unlike regulated banks [...], unregulated shadow banks fund themselves with uninsured commercial paper, which may or may not be backstopped by liquidity lines from real banks. Thus, the shadow banking system is particularly vulnerable to runs.” In McCulley’s talk, shadow banking mainly referred to nonbank financial institutions that engaged in maturity transformation. Nowadays, it is generally perceived to be broader in scope.

financial assets of “other financial intermediaries”¹⁶⁷ reached 71.2 trillion USD at the end of 2012, which is equivalent to 24 % of total financial system assets (or 117 % of the corresponding aggregate GDP).¹⁶⁸ The “EU” non-bank financial intermediation accounts for 31 trillion USD (i.e. 22 trillion USD for the euro area and 9 trillion USD for the UK), whereas the US non-bank financial intermediation amounts to 26 trillion USD. Recent ESRB (2014) estimates of EU shadow banking assets are broadly in line.¹⁶⁹

Chart 4.4.1: Simplified illustration of credit intermediation via the shadow banking system



Notes: This chart is a highly stylised illustration only, which does not give a full picture of the shadow banking system or of the relative importance of its component parts. See separate list of abbreviations and further explanations below.

Source: European Commission

Box 4.4.1: Measuring the size of shadow banking

Measuring the relative size of shadow banks and shadow banking is challenging in general due to the heterogeneity of entities and activities, the fact that shadow banking is not always easy to distinguish from traditional banking, and its scalability and quickly evolving nature.

Measuring the size of shadow banking is nevertheless important given the fact that (i) the size of the shadow banking sector in the EU (more precisely euro area and UK combined) is reported to be greater than in the US and (ii) the sharp decline in US shadow banking since the financial crisis is more than compensated by increasing volumes in UK, euro area, and other jurisdictions (FSB, 2012; FSB, 2013a).

¹⁶⁷ FSB defines “other financial intermediaries” as all financial institutions that are not classified as banks, insurance companies, pension funds, public financial institutions, and central banks.

¹⁶⁸ FSB uses flow of fund data from 20 jurisdictions plus ECB data for the euro area. Box 3 in Pozsar and Singh (2011) succinctly summarise the limitations and data gaps of Flow of Funds data for measuring shadow banking activities and entities.

¹⁶⁹ ESRB (2014) aggregates funds (MMFs, bond funds, equity funds, private equity funds, real estate funds, ETFs), financial vehicle corporations engaged in securitisation, security and derivative dealers, and financial corporations engaged in lending.

ESRB (2014) reports that the EU shadow banking sector is estimated to have grown in total assets by 67 % in the 7 years between December 2005 and December 2012 (whereas EU banks according to ECB MFI statistics have grown by only 34 % or roughly half that much over that same time period).

Attempts to “fill the gap” are made by ESMA (2013), Bouveret (2011), Bakk-Simon et al. (2012), FSB (2012; 2013a), and ESRB (2014). Current efforts necessarily compile and combine several databases that have not been designed for these purposes and which are managed by central banks, industry associations, and commercial data providers. FSB (2013b) provides a summary of the data available to regulators on securities financing transactions (SFTs), showing the lack of frequent and granular data on EU securities financing markets. Similarly, ESRB (2013) concludes that the information available to EU regulatory authorities is not sufficient for the purpose of monitoring the systemic risks that may arise from SFTs. Existing industry data or data collected in other publicly available surveys displays weaknesses in relation to the level of granularity, coverage of instruments and of institutions and their geographic coverage across Member States. This makes it particularly difficult to compare and use the data from different surveys for prudential purposes. To date, the economic and financial statistics collected for the EU (and euro area) are not detailed enough nor have sufficient coverage to allow for a full understanding of shadow banking related policy concerns, such as the leverage and maturity transformation achieved by the shadow banking sector and the possible channels for systemic contagion towards the regulated banking sector. Relevant time series statistics are of particular importance when evaluating possible regulatory measures at the European level.

Work is currently being undertaken by the European Central Bank (ECB), European Systemic Risk Board (ESRB) and European Supervisory Authorities (EBA, EIOPA, ESMA) to fill EU shadow banking data gaps. In January 2014, the European Commission published a proposal for a Regulation requiring the reporting of SFTs to trade repositories in the EU (see also main text). This will allow central banks and supervisors to monitor closely the build-up of system risks related to SFTs. These initiatives will shed light on shadow banking activities, in particular with a view to add granularity in (i) the breakdown within non-bank financial institutions so as to better identify leverage and maturity transformation concerns, (ii) the counterpart information to monitor relationships between regulated banks and shadow banks, and (iii) the residual maturity breakdowns of exposures (current statistics often focus on original maturity only).

Policy concerns related to shadow banking

Shadow banking intermediation has important benefits for financing the economy and can help foster **economic growth**. However, shadow banking may, because of its size, give rise to systemic risk, which has already been highlighted above.

A second factor that raises systemic risk concerns is the high level of **interconnectedness between the shadow banking system and the regulated sector**, particularly the regulated banking system. Several shadow banking activities are shown to be operated from within systemically important banks or in a chain in which systemically important banks play an important role. The shadow banking system is “much less shadowy than we thought” (Cetorelli and Peristiani, 2012). In the EU, shadow banks provide up to 7 % of banks’ liabilities, and banks hold up to 10 % of their assets issued by the shadow banking system (ESRB, 2014). Given that the EU financial system is bank-intermediated, compared to the much more market-intermediated US financial system, the EU faces a greater urgency to map and understand the role of large EU banks in shadow banking activities. Shadow banking is a phenomenon that also defies geographic boundaries and there are important cross-border and even trans-Atlantic links between regulated banking and shadow banking. It turns out that the large EU banking groups have become intimately linked and connected to the US financial system in the run-up to the crisis, notably through the US shadow banking sector. At the peak of the crisis, the large EU banking groups were significantly: (i) relying on funding provided by US MMFs; (ii) acting as

sponsor for USD asset-backed commercial paper (ABCP) vehicles; (iii) borrowing through repo transactions with US collateral; and (iv) investing in US mortgage-backed securities (MBS) and asset-backed securities (ABS) (Bouveret, 2011).

Third, **regulatory arbitrage** may drive shadow banking sector growth and in turn raise concerns for the stability and leverage of the system as a whole. Regulatory arbitrage certainly explains part of the growth of shadow banking in the US and Europe.¹⁷⁰ In the pre-crisis period, banks could reduce regulatory capital charges by the use of allegedly bankruptcy remote special purpose vehicles (so-called conduits and structured investment vehicles) that relied on implicit (thus not requiring capital charges) and explicit credit and liquidity support from banks or by simply holding securitised assets on their own balance sheet which received better credit ratings than the original non-securitised assets. Regulatory arbitrage has exploited loopholes and has led to a sharp build-up of risk and leverage along the way.

The exploitation of regulatory gaps and regulatory arbitrage possibilities contributed to the build-up of risk and leverage in the system. Maturity and liquidity mismatches increased sharply outside the regulatory perimeter (through SIVs, broker-dealers). Excessive leverage arose in the financial system. When wholesale funding dried up throughout the system, an unprecedented systemic crisis has been triggered which to date requires significant and exceptional government and central bank intervention. The underestimation of correlation enabled financial institutions to hold insufficient amounts of liquidity and capital and to sell cheap insurance against negative shocks.

Fourth, given the absence of explicit public safety nets, **shadow banking is vulnerable to increased interconnectedness and bank-like runs**, as recently evidenced by the money market fund (MMF) segment. The crisis of 2008 itself can be seen as a market run on the repurchase agreement segment. Thus, the procyclical nature of funding liquidity provided by shadow banking entities can be disruptive, if not controlled and curtailed.¹⁷¹ For example, rehypothecation of collateral to support multiple deals (in particular, securities lending and repurchase agreements) helped

Tax arbitrage may have been another driver behind securitisation growth. Certain shadow banking entities have been used as instruments to hide illicit activities such as tax fraud or money laundering strategies (European Commission, 2012). Alworth and Arachi (2010) investigate the impact of taxes and tax avoidance activity on the recent financial boom and bust more broadly.

¹⁷¹ Margins and haircuts implicitly determine the maximum leverage of a repo-funded financial institution. If the margin is 2 %, the borrower can borrow 98 euro for 100 euro worth of securities pledged. Hence, to hold 100 euros worth of securities, the borrower must come up with 2 euros of equity. Thus, if the repo margin is 2 %, the maximum permissible leverage is 50 (=100/2). The liquidity impact of increased margins can be enormous. If margins would increase from 2 % to 4 %, the permitted leverage halves from 50 to 25. The borrower either must raise new equity so that its equity doubles from its previous level (difficult in crisis times), or it must sell half its assets, or some combination of both. The evidence in the crisis has been that margins on repo agreements have increased rapidly from very low to high levels. Haircuts on US Treasuries for example increased sharply from 0.25 % in April 2007 to 3 % in August 2008, for invest-grade bonds from 0-3 % to 8-12 %, for prime MBS from 2-4 % to 10-20 %, etc. which imply massive and acute deleveraging pressure on highly leveraged financial institutions, giving rise to price decreases and endogenous second-round effects. Brunnermeier and Pedersen (2009) emphasise that "funding liquidity", "market liquidity" and asset values are linked in self-reinforcing procyclical cycles. The example also makes clear that increases in haircuts will do most harm when they start from very low levels. In this sense, the low risk premiums at the peak of financial cycles are of particular concern. When haircuts rise, all balance sheets shrink in unison, and there may be a general decline in the willingness to lend.

fuel the financial bubble through increased liquidity as well as the build-up of hidden leverage and interconnectedness in the system.

Fifth, shadow banking regulation is required to **curtail moral hazard coming from implicit public safety nets**. Given their de facto similarity to regulated banks, numerous shadow banking activities and entities have enjoyed the ex post coverage of public safety nets (see below for experience of MMFs). Safety nets serve useful purposes ex post, but create incentives for excessive risk-taking and significant competition and other distortions ex ante. As is the case in the bank structural reform debate (see section 4.3), the question arises why and to what extent shadow banking activities necessarily need to enjoy (implicit) taxpayer support. It may need to be ensured that public safety nets only cover (i) activities essential to the economy and (ii) liquidity risk (not solvency risk), so as to curtail moral hazard and aggressive and inappropriate growth of the activities under consideration. If performed by entities more alienated from commercial banks (which benefit from public safety nets), shadow banking activities may not create systemic risks to the same extent.

Policy concerns are not solely driven by systemic risk concerns. Regulation can and should help in **fostering the recovery of sustainable, safe and high-quality securitisation markets with a view to unlocking funding sources for the economy** (see chapter 7).

EU policy measures in the area of shadow banking

Shadow banking is a phenomenon that defies institutional and geographic boundaries. The EU regulatory response to the crisis in general and shadow banking in particular has therefore been internationally coordinated through the G20 and the FSB. At the end of 2011, the FSB initiated five work streams aimed at identifying the key risks of the shadow banking system. These work streams focus on the following policy concerns:

- limiting spill-overs between shadow banking entities and regulated banks;
- reducing the vulnerability of money market funds to runs;
- identifying and controlling the systemic risks from new and unregulated shadow banking entities;
- assessing and aligning incentives associated with securitisation activities; and
- dampening the risks and procyclicality associated with securities financing transactions, i.e. securities lending and repo).

The Commission has been active in addressing the policy concerns raised by the G20 and FSB. The shadow banking regulatory agenda of the Commission has been set out in a Communication adopted in September 2013, which also provides a comprehensive overview of the policy measures taken to date and the work plan going forward¹⁷². The below sections focus on specific areas where a new regulatory framework has either been adopted (AIFMD) or proposed (money market funds, securities financing transactions). Work in the area of shadow banking is on-going.

Alternative Investment Fund Managers Directive (AIFMD)

¹⁷² COM(2013) 614 final

Early on in the crisis concerns arose as to the use of leverage and counterparty exposures by hedge funds. For this reason the Commission proposed in April 2009 a directive on Alternative Investment Fund Managers (AIFMD), including managers of hedge funds.¹⁷³

Non-harmonised funds or so-called Alternative Investment Funds (AIFs) contain different investment funds. AIFs invest in a wide variety of asset types and employ very different investment strategies. Inter alia, hedge funds, private equity funds, infrastructure funds, commodity funds, real estate funds or other special funds can all be classified as AIFs. The AIF sector is estimated to represent around EUR 2.5 trillion in assets. From a prudential and shadow banking perspective, the hedge funds are the most relevant entities to be analysed.

Macprudential and microprudential problems

AIFs **amplified the boom and the subsequent bust**. Certain types of AIF managers have exhibited a strong appetite for credit derivatives and ABS and thus have contributed to the rapid growth of these markets. AIF managers, in particular those managing large, leveraged hedge funds, may also have contributed to the pre-crisis asset price inflation in many markets. The same actors may also have contributed to the speed and scale of the market correction witnessed in the early stages of the crisis. On average, AIFs lost significant value during 2008 and assets managed by EU-domiciled managers contracted by 11.5 %. In addition to adverse market conditions, many managers were faced with increased redemption demands from investors and with tighter lending conditions from banks. Leveraged funds were forced to unwind positions (hedge fund leverage, for example, has declined from around 3 to 1.5). Faced with such pressures, in particular hedge funds were often forced to sell assets into declining markets, thereby realising losses and adding further pressure on declining asset prices. This pro-cyclical behaviour may have undermined financial stability and contributed to a deepening of the crisis.

AIFs had **inadequate liquidity and capital (i.e. shock absorbers)**. Excessive reliance on counterparties and trend-following at the expense of sound risk management and due diligence were observed by many market participants, including managers of alternative funds. The combination of increasing redemption requests and illiquid asset markets resulted in major funding liquidity risks for several AIFs. Many AIFs experienced net outflows of funds. Others unable to exit illiquid investments had to activate gate provisions in order to limit withdrawals and some offered lower fees in exchange for longer lock-in periods. The counterparty risks faced by hedge fund managers were demonstrated by the near-failure of Bear Stearns and the bankruptcy of Lehman Brothers that highlighted the importance of monitoring the security of the cash and security balances held with prime brokers.

Adopted measure

The AIFMD aims to put in place a **comprehensive and effective regulatory and supervisory framework for managers of alternative investment funds in the EU**. Concretely, the AIFMD makes all AIF managers subject to appropriate authorisation and registration requirements, allows monitoring of macro and microprudential risks,

¹⁷³ COM(2009) 207 final

and introduces several investor protection tools. Another objective is to develop a single market in the area of AIFs.

The AIFMD was published in the EU Official Journal in July 2011¹⁷⁴ and Member States were obliged to transpose it by July 2013. A number of key conditions have to be met to be authorised as an AIF: it must hold sufficient capital and have appropriate arrangements in place for risk management, valuation, the safe-keeping of assets, audit and the management of conflict of interests.

In order to provide competent authorities and investors with the necessary information that is needed to monitor the macro- and microprudential risks, AIFs are subject to detailed reporting requirements on their activity, including their positions, their risks and their counterparties. A specific set of rules has been established for the AIFMs that manage leveraged AIFs, typically the hedge funds. Those funds are subject to more stringent reporting requirements and competent authorities may decide to limit the use of leverage should they assess that it may pose a risk to the financial system.

Expected benefits

Due diligence will be facilitated on an ongoing basis. Each AIF manager will be required to set a limit on the leverage it uses and will be obliged to comply with these limits on an ongoing basis. AIF managers will also be required to inform competent authorities about their use of leverage, so that the authorities can assess whether the use of leverage by the AIFM contributes to the build-up of systemic risk in the financial system. This information will be shared with the European Systemic Risk Board. The AIFMD will also create powers for competent authorities to intervene to impose limits on leverage when deemed necessary in order to ensure the stability and integrity of the financial system. ESMA will advise competent authorities in this regard and will coordinate their actions, in order to ensure a consistent approach. As a result, the procyclicality of the financial system is expected to be dampened by the AIFMD. In addition, investor protection will improve, mainly through the increased transparency of AIFs and markets.¹⁷⁵

Money Market Funds (MMFs) Regulation

In Europe, MMFs are an important source of short-term financing for financial institutions, corporates and governments. Around 22 % of short-term debt securities issued either by governments or by the corporate sector are held by MMFs. MMFs hold 38 % of short-term debt issued by the EU banking sector. MMFs in Europe manage assets of around EUR 1 trillion. The EU market is equally split between Variable Net Asset Value (VNAV) MMFs and Constant Net Asset Value (CNAV) MMFs. While VNAV MMFs behave like any mutual fund with a NAV or share that fluctuates in line with the value of the investment assets held in the portfolio, CNAV MMFs maintain a constant share price (e.g. 1 EUR or 1 USD per share), irrespective of fluctuations in the value of the MMF's investment assets.

Problems

¹⁷⁴ Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010.

¹⁷⁵ For further details, see Directive 2011/61/EU.

MMFs give rise to **contagion** and are **vulnerable to runs**. The inherent liquidity mismatch between the maturity of MMF assets and the commitment to provide daily redemptions may prevent an MMF from meeting all redemption requests during stressed market conditions. A liquidity mismatch can cause redemption bottlenecks for both CNAV and VNAV MMFs. During the crisis, several EU based MMFs had to suspend redemptions due to their inability to sell illiquid assets (mostly securitised products like ABCP). If one MMF stops redeeming investors, investors in all other MMF tended to "rush to the exit" by withdrawing their money as well. As a consequence, banks and corporate issuers lose an essential channel to distribute their short-term debt.

CNAV MMFs are structured as an investment fund where each share invested can be redeemed at a stable price (unlike other investment funds). Events in 2007/08 and again in 2011 have shown that stable redemption prices cannot be maintained during stressed market conditions. In these situations, the MMF has to either decrease its NAV or share price or the sponsor has to provide financial assistance to "prop up" a stable redemption price. The first situation (decrease in value) is often referred to a "breaking the buck" (breaking the dollar or breaking the euro) because the fund must decrease its NAV from 1 EUR per share to reflect current market value of its shares. "Breaking the buck" is an event that can trigger **massive outflows**, in particular when coupled with a general deterioration in the credit quality of one or more MMF issuers. The second situation is less transparent because the injection of sponsor support avoids that the MMF is obliged to formally "break the buck". Instead, the MMF sponsor (often a bank) needs to make up the difference between the stable redemption price and the real value of the NAV out of its own means. Because banks did not build capital reserves directly linked to their exposure to the risk of MMFs decreasing in value (regulatory arbitrage), **sponsor support often reached proportions that exceeded the sponsor's available reserves**.

Proposed measure

The MMF proposal aims to prevent the risk of contagion to the economy (the issuers of short-term debt) and to the sponsors (usually banks).¹⁷⁶ The MMFs should have adequate liquidity to face investor's redemption requests and their structure should be transformed such that the stability promise can withstand adverse market conditions.

In September 2013, the Commission adopted a regulation proposal that intends to make the MMFs managed and marketed in the EU safer. Liquidity and stability aspects are at the core of the Commission proposal. The proposal is now with the co-legislators which may introduce amendments in the course of negotiations. Under the current proposal, the rules are expected to enter into force in 2015.

Liquidity shock absorbers are put in place. During the crisis numerous MMFs had to suspend redemptions or even close the fund. To respond to that problem, MMFs should always have "natural" liquidity at hand in order to provide orderly redemptions. This is achieved in the Commission proposal by introducing daily and weekly minimum thresholds of maturing assets (at least 10 % daily and 20 % weekly). The second aspect is to ensure that the portfolio is of appropriate duration and sufficient quality. This is ensured in the proposal by introducing new

¹⁷⁶ COM(2013) 615 final

diversification standards (5 % cap on individual issuers in CNAV MMFs), including new maturity and credit requirements for those MMFs that invest in ABS, in particular ABCP. The third point is on the investor side. Under the current proposal, managers will be obliged to “know their customers” better (in terms of redemption cycles and amounts). This is in order to better anticipate the redemptions patterns of their investors.

The proposal also puts in place **solvency shock absorbers**. Stable redemptions are often impossible without the support of the sponsor. To remedy this unhealthy dependence on 'discretionary' sponsor support the Commission proposal introduces an obligation that all CNAV MMF gradually establish a capital buffer amounting to 3 % of the MMF's NAV. This buffer will serve to absorb differences between the stable NAV per share and the real NAV per share.

Expected benefits

The proposed MMF regulation is expected to render the European MMFs more secure in adverse market conditions, mitigating systemic risk concerns. The proposed regulation is expected to give retail investors a fairer treatment (compared to institutional investors). By increasing the MMF safeguards, more retail investors will be attracted to these markets. With regard to SMEs, their protection will be enhanced when acting as investors. SMEs, like corporates of larger size, may use MMFs to place their excess cash for short periods. Reducing the probability to face limits or suspensions of redemptions will prevent SMEs from suffering cash shortfalls.¹⁷⁷

Regulation on the reporting and transparency of Securities Financing Transactions (SFTs)

Securities financing transactions (SFTs) are considered to be any transaction that uses assets belonging to the counterparty to obtain funding from or to lend them out to another entity. In practice, this includes lending or borrowing of securities and commodities repurchase (repo) or reverse repurchase transactions, or buy-sell back or sell-buy back transactions. SFTs are used by almost all actors in the financial system, be they banks, securities dealers, insurance companies, pension funds or investment funds. According to ESMA (2014), **EU repo markets** account for some 70 % of the EU shadow banking sector's liabilities, which, in turn, equal 19 % of the EU banking sector liabilities. At the end of 2013, the total size of these **markets** had shrunk to EUR 5.5 trillion, compared with over EUR 6 trillion in June 2013.¹⁷⁸ Global estimates on securities lending transactions are EUR 1.4 trillion.¹⁷⁹ According to ESMA (2014), the total value of EU securities on loan averaged USD 560 billion in the second half of 2013. EU government bonds at USD 336 billion represented the main type of assets on loan at end-2013, whilst equities averaged USD 160 billion and (EUR and GBP) corporate bonds USD 57 billion. The main purpose of SFTs is therefore to obtain additional cash or to achieve additional flexibility in carrying out a particular investment strategy.

Problems

¹⁷⁷ See impact assessment, COM SWD(2013) 315 final.

¹⁷⁸ See ICMA (2013).

¹⁷⁹ See International Securities Lending Association.

SFTs have the propensity to increase the build-up of leverage in the financial system as well as to create contagion channels between different financial sectors. The recent financial crisis showed that securities financing markets are vulnerable to bank-like runs and fire sales of the underlying collateral, especially when the value of the assets is decreasing. Moreover, the assumption that securities financing is always robust even in stressed market conditions proved to be flawed, as interconnections among markets and market participants led to contagion.

EU regulatory authorities lack the necessary data to better monitor the use of SFTs and the risks and the vulnerabilities for the stability of the financial system that they imply. At the same time, investors are not properly informed whether and to what extent the investment fund, in which they have invested or plan to invest, has encumbered or intends to encumber investment assets by means of engaging in SFTs and other equivalent financing structures that would create additional risks for the investors. Finally, insufficient contractual transparency makes clients uncertain about the extent to which their assets can be rehypothecated, or about the risks posed by rehypothecation.¹⁸⁰

Proposed measure

Different measures on the transparency of shadow banking activities have been proposed in January 2014.¹⁸¹ Under the current proposal, the transparency measures would enter into force in 2016.

To ensure that regulators have access to the information, the proposal requires that all SFTs are reported to a trade repository, or, if that is not possible, directly to the European Securities and Markets Authority (ESMA). In order to ensure that investors have sufficient information over the use of SFTs, the proposal requires periodical reports and fund's pre-investment documents such as the prospectus to include detailed information on the use of those SFTs by fund managers. To ensure that investors are informed over rehypothecation activity, the proposal includes specific transparency requirements which have to be met by the parties involved, including written agreement and prior client consent.

Expected benefits

Transparency in the area of SFT is important as it provides the information necessary to develop effective and efficient policy tools to prevent systemic risks. The reporting of SFTs to trade repositories will allow supervisors to better identify links between banks and shadow banking entities. It will also shed more light on the funding operations of shadow banking entities. Supervisors and regulators will then be able to monitor the market and, if necessary, design better-targeted and timely actions to

¹⁸⁰ “Rehypothecation” is defined as any pre-default use of assets collateral by the collateral taker for its own purposes. Rehypothecation is used in bilateral transactions between commercial market participants (dynamic rehypothecation) and between intermediaries and their clients (static rehypothecation). When market conditions deteriorate, rehypothecation can amplify market strains. Simply put, rehypothecation re-introduces counterparty risk in case a trader fails. Rehypothecation increases the linkages between traders. As dealers grow unsure of the quality of their counterparty, they prefer to take precautionary measures regarding their collateral. So it is natural that in a time of crisis, dealers become reluctant to agree to rehypothecation, to ensure that they know where their collateral is. This makes traders wary about agreeing to rehypothecation when conditions deteriorate. As a consequence, funding liquidity needs can increase, thus amplifying market strains.

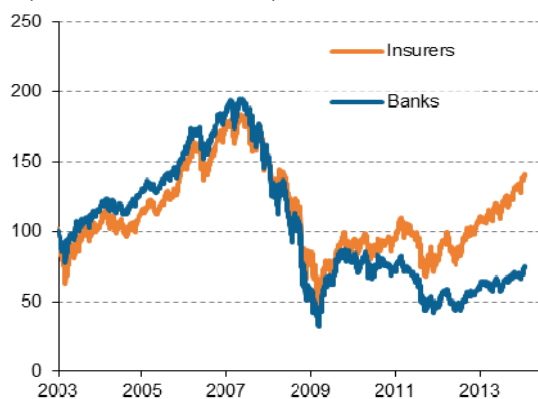
¹⁸¹ See COM (2014) 40 final.

address any risks to financial stability that emerge. Transparency in the use of SFTs by investment funds is vital. At present, there is very little information available on the use of these transactions by funds, in particular with regard to securities lending and total return swaps. The Regulation will therefore not only benefit investors, but also enable regulators to access valuable information. This, in turn, will allow them to assess the risk linked to the use of these instruments and propose further measures if necessary. Finally, the harmonised rules with respect to rehypothecation will limit potential financial stability risks and remove uncertainty about the extent to which financial instruments have been rehypothecated.¹⁸²

4.5 STABILITY AND RESILIENCE OF THE INSURANCE SECTOR

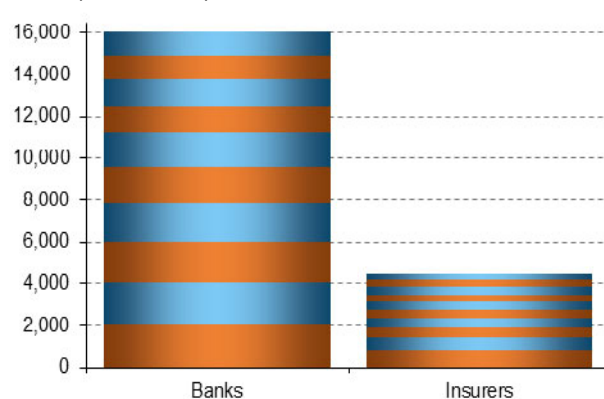
The insurance industry was significantly affected by the crisis (and in some cases as more than mere innocent bystander). In particular, since the origins of the crisis lay in credit markets, those firms offering various forms of credit insurance were significantly affected, as were the insurers as investors in credit products. Furthermore, across the sector, equity market movements presented significant challenges to insurance companies. EU insurance companies themselves experienced a sharp drop in their share prices following the onset of the crisis, although the trend has reversed since (chart 4.5.1). The financial positions of insurers have suffered from the low interest rate environment following the onset of the crisis and from the slow economic recovery and weak growth outlook. Moreover, due to their sovereign debt exposures, the sovereign debt problems created financial and operating problems for domestic insurers in some parts of the euro area, as clearly evidenced in the recapitalisation needs of a number of insurers following the 2012 Greek sovereign debt restructuring. At the more general level, the crisis demonstrated the need for effective risk management and governance for insurance companies just as much as for banks.

Chart 4.5.1: Share prices of European insurers (index, 02/01/2003 = 100)



Notes: Shows Stoxx 600 Insurance Europe index and corresponding index for banks.
Source: Bloomberg

Chart 4.5.2: Total assets of 10 large EU insurers vs banks (EUR billion)



Note: Sample includes 10 insurers (Axa, Allianz, Generali, Legal & General, Aviva, Prudential, Aegon, CNP Assurances, ING Verzekeringen, Crédit Agricole Assurance) versus 10 banks (HSBC, Deutsche Bank, BNP Paribas, Barclays, Crédit Agricole, RBS, Santander, SocGen, Lloyds, Groupe BPCE).
Source: SNL Financial

¹⁸² See also Annex 13 of the impact assessment for further details (SWD(2014) 30 final).

The risks and business profile of insurance are different from banking in at least two main respects. First, the business model is different: whereas banks (and shadow banks) are typically involved in the maturity transformation of short-term liquid liabilities into longer-term assets, insurers typically do not take such maturity transformation risks. Thus, insurers are less exposed to liquidity risks and "runs".¹⁸³ Second, the failure of insurance firms is far less likely to create systemic risks than that of a bank (and not just because the largest insurers are generally smaller than the largest banks, see chart 4.5.2). This means that financial stability risks are less relevant in insurance than in banking. Many of the risks are independent and uncorrelated (e.g. natural disasters, life expectancy).

Nonetheless, from a prudential regulation point of view, banks and insurers have at least one important thing in common which distinguishes them from other financial services providers, namely that they bring the funds which customers deposit or invest directly onto their balance sheets and therefore expose customers directly to the financial risk inherent in those balance sheets.

Also, insurer failure¹⁸⁴ can directly disrupt the provision of critical financial services. For example, long-term savings contracts provided by life insurers that are often an individual's primary pension provision are critical financial services that can often be substituted only at an unacceptable cost.

Insurer failure may also result in financial instability if the failure propagates stress to other financial firms.¹⁸⁵ For example, interconnections within the insurance sector can be generated through reinsurance, whereby insurers pass on some of the risks they have taken on to other insurers. While reinsurance helps individual insurers manage their insurance risk, it also results in additional counterparty risk exposures. Hence, failure of a major reinsurer (although not observed in practice) could affect the solvency of the insurers from which it faced claims.

Insurers are also interconnected with other parts of the financial system, either because of their participation in financial markets or because insurers form part of wider financial groups. In most European countries, insurance companies are the

¹⁸³ Liquidity risk is less acute for insurers than banks, due inter alia to the nature of policyholders' claims on insurers, which cannot be easily liquefied on demand at short notice. Instead, their claims can normally only be lodged following an insured event, the probability of which is generally uncorrelated with the economic or financial market cycle; or by cancelling the policy, usually only at the cost of a substantial fee. Insurers are nonetheless at risk if they are forced to make major unexpected payouts due, e.g. to natural disasters or increased surrender rates. Even in these cases, the lags involved are normally such that investments can be sold opportunely, rather than on a forced sale basis. However, there remains a risk that insurers are unable to raise the funds they need, if their assets are illiquid and they are required to make larger than expected cash outflows to meet margin calls on collateralised business, claims and early surrenders.

¹⁸⁴ The main causes of failure have been, historically, poor liquidity management; under-pricing and under-reserving; a high tolerance for investment risk; management and governance issues difficulties related to rapid growth and/or expansion into non-core activities; and sovereign-related risks. The insurers that performed best in times of systemic stress were those with robust franchises, solid liquidity management, and good capitalization. These companies also display strong underwriting and reserving policies, competitive cost structures and investment returns, and prudent risk management structures and risk appetite. Standard & Poor's (2013), "What may cause insurance companies to fail", June.

¹⁸⁵ For a discussion of financial stability concerns and other reasons to regulate insurers, see Bank of England (2013).

largest institutional investors and have the potential to disrupt financial markets. Owing to the rising size of insurers' investment portfolios, any significant risk reallocation within the insurance industry has the potential to impact asset price dynamics.

The collapse of AIG – a major global insurance group – in 2008 was triggered by its activities in derivative and securities lending markets. It was not AIG's insurance underwriting activity which caused the failure, but the auxiliary financial market activities it undertook on the back of its core insurance business. The US government rescued AIG partly because of the likely impact that a disorderly failure would have had on other market participants. In the EU, a number of insurers – and financial groups with an insurance arm - also received state aid during the crisis.¹⁸⁶

Overall, the economic case for regulation to achieve stability and resilience of the insurance sector is justified, inter alia, by two key sources of market failures:

- First, there is asymmetric information (as is the case in banking and other financial services provided). Policyholders need to be confident that commitments made by insurers will be honoured, but they do not have sufficient information to assess this. They do not have the expertise to appraise insurers' financial statements and make an informed assessment of an insurer's solvency. There is also limited market oversight and discipline. There is scope for moral hazard behaviour given that insurers receive premiums upfront, but it can take time before any payments are due. This leaves scope for insurers to take action that conflicts with policyholders' interest and financial stability. The incentive problems are reinforced if insurers believe that government bailout in the event of failure is likely.
- Second, there are negative externalities in that the potential impact of a failed insurer could raise financial stability concerns and cause other adverse spillover effects to the economy, albeit much less so than a failed bank, as set out above.

The insurance sector has of course long been subject to solvency standards to mitigate the risk and impact of insurance failure. However, it has also long been recognised that the prudential framework for insurance needs a fundamental overhaul: the regime is not risk sensitive; it has not ensured the removal of all restrictions preventing the proper functioning of the single market; it does not properly deal with group supervision; and it has been superseded by industry, international and cross-sectoral developments. This led to the Solvency II Directive proposal presented in July 2007 and amended in February 2008¹⁸⁷.

The new prudential framework for insurers (Solvency II)

The overriding objective of Solvency II is to bring about a fundamental change to the solvency and risk management standards for the European insurance industry and to thereby increase the resilience and stability of the insurance sector, resulting also in

¹⁸⁶ For case studies of insurers affected in the crisis, see The Geneva Association Systemic Risk Working Group (2010).

¹⁸⁷ http://ec.europa.eu/internal_market/insurance/docs/solvency/proposal_en.pdf

improved policyholder protection. More specifically, Solvency II will deliver, inter alia:

- **a risk-based capital framework**—Solvency II replaces 14 existing Directives on insurance supervision. It will implement an economic and risk-based supervisory framework. Insurers will have to hold sufficient financial resources to cover the risks inherent in their business and to absorb unexpected losses.¹⁸⁸ The adoption of this framework should encourage firms to better understand the risks they run, and thus increase the resilience of both firms and the industry as a whole.
- **a market-consistent approach**—Solvency II aims to embed a market-consistent approach to the regulation of insurance across the EU. Market-consistent valuations for both assets and liabilities of insurers' balance sheets will give both markets and supervisors much greater clarity of a firm's financial position, including the firm's capacity to meet its obligations;
- **improved transparency**—Solvency II requires consistent data disclosures by firms across Europe. This should facilitate better peer analysis on a pan-EU basis and generally raise the level of understanding by investors, supervisors and policyholders. Increased public disclosure will also enhance market discipline.
- **improved supervision and intervention tools**—Solvency II creates a codified ladder of intervention across the EU which will help group supervisors to act quickly and effectively in times of firm-specific or systemic stress.

Moreover, different regulatory regimes across the EU often place different financial requirements on very similar products, favouring some firms and disadvantaging others. By moving to a harmonised risk-based approach, Solvency II should align regulatory requirements with the underlying economics and risks of individual products. This will **provide a level-playing field across the EU**. Supervisors will be able to get a better, more consistent, view of European groups. Also, harmonisation and greater transparency may lead to increased competition. Moreover, firms which operate across the EU will have lower costs of regulatory compliance.

The new regime emphasises that capital is not the only (or the best) backstop against failures, and stresses the importance of risk identification, measurement and proactive management. Indeed, **one key benefit that the Solvency II process has already generated is improved risk management**. The launch of the Solvency II project in 2000 induced some firms (and supervisory authorities) to embrace the new provisions

¹⁸⁸ This is unlike legislation preceding Solvency II where prudential requirements are largely volume-based and not risk-reflective and where national approaches to implementation differ significantly. A survey of failed insurers and 'near-misses' conducted in 2005 confirmed that the current requirements do not provide sufficient early warning for an intervention to be launched. In more than 75 % of the cases, the reported solvency ratio up to one year before failure was more than 100 %, and in 20 % of the cases, the reported ratio was over 200 %. See Committee of European Insurance and Occupational Pensions Supervisors (2005), "Answers to the European Commission on second wave of Calls for Advice in the framework of the Solvency II project".

early.¹⁸⁹ Insurers (especially the large ones) started introducing stress scenarios and internal models for risk-based capital allocation, as well as increasing the profile of risk management and strengthening compliance teams to gear up early for Solvency II. Also, some firms' business models have already changed for the better. Insurers which started constructing (and in some cases applying) internal capital models before the crisis indicated that this has helped them through the crisis.¹⁹⁰ More generally, the process of internal model development brings benefits through improved understanding of the sources and magnitude of risks facing the companies.¹⁹¹

The introduction of internal models has however raised a number of concerns, in particular given the recent experience where sophisticated internal capital models, e.g. in banking, have not been reliable. Wide-spread adoption of internal models may also result in a loss of transparency and comparability between insurers. This has led some to call for companies that have an internal model approved by the regulator to also report a solvency ratio calculated using the standard formula of pre-determined risk weights.

Solvency II with risk-based capital and market-consistent valuation was vigorously supported by the industry in the pre-crisis boom years. While still supportive of the overall framework, the crisis has shifted the debate on the expected impacts of Solvency II. In particular, the low interest rate environment that followed the crisis presents a major challenge for insurance companies. As a consequence of the market-consistent valuation approach of Solvency II, the post-crisis present value of liabilities is higher than it would have been had the pre-crisis (higher) interest rates prevailed. This, in turn, demands higher reserves. The effect is significant given the typically long-term nature of insurance liabilities.

Given that we are in the aftermath of a considerable crisis, under a risk-based capital framework like Solvency II, one would necessarily expect prudential requirements for firms to be higher now than in the pre-crisis period. One would also expect the risk management of companies to address the volatility in asset prices and interest rates, since this can effectively deteriorate insurers' solvency in times of crisis. However, there is a valid concern that market-consistent valuation may induce excessive "artificial" volatility in the solvency ratios of insurers with matched long-term liabilities (see chapter 6 for some of the potential adverse consequences). This has led to significant modifications to Solvency II following the crisis experience, through a package of measures known as the long-term guarantee package.¹⁹² The measures

¹⁸⁹ Some national authorities have helped speed up the adaptation to a risk-based capital framework. For example, the Swedish FSA introduced a "traffic light system", in the spirit of Solvency II, in 2006. Using stress scenarios, insurers' exposure to various financial and insurance risks are measured on both the asset and liability side. Also, UK introduced the Individual Capital Adequacy Standards (ICAS) regime for general insurance companies in 2005, which presented a step change to risk-based capital requirements in line with Solvency II.

¹⁹⁰ Based on a survey of insurers for European Commission (2012), "European Financial Stability and Integration Report", April, chapter 4. Various industry surveys also report progress of the industry towards meeting the new Solvency II standards, e.g. Ernst & Young (2012) and Deloitte (2012).

¹⁹¹ In a 2012 survey, more than one-half of responding insurers (53 %) say they expect either some or significant tangible benefits from Solvency II, with an additional 20 % expecting some benefits in due course. See Deloitte (2012).

¹⁹² The measures were added via the Omnibus II Directive, which amends Solvency II with respect to the powers of EIOPA, contains a number of provisions to smooth the transition to the new regime and provides for the modified treatment of insurance with long-term guarantees.

include adjustments to the discount rates for calculating insurance liabilities (the so-called "volatility adjustment" and the "matching adjustment"), aimed at reducing the impact of volatility in asset prices and credit spreads. This aims to stabilise insurers' capital base and avoid pro-cyclical investment behaviour of insurers.

In order to ensure appropriate supervision of the whole insurance sector, the same principles apply to all insurers. However, by introducing simplified requirements for small undertakings proportionate to the nature, scale and complexity of the risks to which the undertaking is exposed, Solvency II seeks to avoid unduly burdening small, uncomplicated firms if they are dealing with equally uncomplicated risks.¹⁹³

Overall, the aim of Solvency II is not to increase capital levels of insurance companies across the board. Indeed, quantitative impact studies conducted by EIOPA demonstrated that the significant majority of insurers are not expected to raise capital because of Solvency II. Rather, the aim is to align solvency requirements more appropriately with the underlying economic risks. As a result, some insurance products may attract a higher capital charge and hence may become more expensive to provide, but this is because they reflect higher economic risks (e.g. life insurance products with guarantee). Concerns about artificial volatility in solvency ratios are being mitigated by the long-term guarantee package, which will facilitate transition to Solvency II in the current market environment. Once applicable in 2016,¹⁹⁴ the risk-based and market-consistent framework can be expected to deliver a more resilient and stable insurance sector. The actual impact can only be assessed thereafter.

4.6 FINANCIAL INTEGRATION AND THE SINGLE MARKET

The single market has brought significant benefits to EU Member States. It has contributed to solid economic growth and has supported employment. Estimates suggest that, from 1992 to 2008, the single market has generated an extra 2.77 million jobs in the EU and an additional 2.13 % in GDP.¹⁹⁵

Integration in the markets for financial services is a key element of the single market. Among other benefits, financial integration has contributed to the convergence and decline in financing costs for corporations and households and the opening up of investment and diversification opportunities across Europe.¹⁹⁶

Financial integration and the deepening of the single market in EU financial services is therefore a key objective which governs all reform measures at European level. As outlined in chapter 3, the financial crisis revealed significant shortcomings in the

¹⁹³ It cannot be excluded however that, in the transition phase, the higher degree of efficiency expected under Solvency II will put pressure on small and medium-sized insurance undertakings, where the most up-to-date risk management and risk-based capital management practices are not yet as widespread.

¹⁹⁴ In order to make the new solvency regime operational, it is necessary for the Commission to adopt a large number of delegated acts foreseen in the Solvency II Directive, which is expected for later in 2014.

¹⁹⁵ European Commission calculations using the macroeconomic model QUEST II. More detail about the model is available at http://ec.europa.eu/economy_finance/publications/publication1719_en.pdf. The QUEST model is also used in annex 6 to estimate the macroeconomic costs of certain bank reforms.

¹⁹⁶ See ECB (2012).

institutional framework supporting the single market and, given monetary union, in particular within the euro area. This created tensions between financial integration and stability.

The financial reform agenda seeks to address these shortcomings and jointly restore financial integration and stability. As further set out below, this includes in particular the move towards a single rulebook for EU financial services (section 4.6.1), establishment of the European System of Financial Supervision (section 4.6.2) and the creation of a Banking Union with a single rulebook, a Single Supervisory Mechanism (SSM) and a Single Resolution Mechanism (SRM) (section 4.6.3). Additional measures taken as part of the Single Market Acts I and II to promote access to finance are also briefly presented (section 4.7.4).

4.6.1 Towards a true single rulebook

The financial crisis revealed a significant lack of harmonised rules, leaving excessive room for divergences in national rules and a fragmented supervisory framework lacking consistency and coordination among supervisors, both across borders and across financial sectors. The lack of harmonisation resulted in a regulatory patchwork and huge legal uncertainty for financial institutions and investors, allowed for the exploitation of regulatory loopholes, distorted competition and created barriers for financial actors and investors to operate across the single market. Moreover, the financial crisis has shown the disruptive effects of national divergent approaches and ring-fencing measures which are incompatible with an integrated market.

In response to the crisis, a number of countries took unilateral action and imposed regulatory reforms aimed at reducing financial stability risks at national level. Examples include actions to suspend or ban short-selling, implementation of special frameworks for bank resolution, reforms to restrict the structure of banks, and so on. The national rules were divergent and risked not only being ineffective, given the integration of markets, but also creating arbitrage opportunities and related distortions. Thus, **a main benefit of EU level action comes from achieving a coordinated, harmonised response to the crisis across the EU** (and better coordination of the crisis response at global level between the EU and its international partners).

The need for coordinated action also applies to policy measures that are not directly crisis-related. For example, the current prudential framework for insurance companies is based on minimum standards that can be supplemented by additional rules at national level. Most Member States operate an 'EU-minimum plus' regime whereby insurers are subject to more stringent requirements than those set out in the current insurance directives. There are also continuing significant differences in the way in which supervision is conducted, which further undermines the creation of a level playing field and the integration of the EU insurance market. It also increases costs for cross-border insurers and hinders competition within the EU. Solvency II, once it enters into force in 2016 (see section 4.5 above), will change this and lead to a convergence of prudential standards.

More generally, a well-functioning internal market for financial services presupposes stringent, efficient and harmonised rules for all operators, coupled with an effective supervisory framework, strong, dissuasive sanctions and clear enforcement

mechanisms. In order to establish a unified regulatory framework for the EU financial sector, the European Union has engaged in the process of establishing a truly **single rulebook** providing for a single set of harmonised rules for the financial sector throughout the EU. The single rulebook does not only contribute to an integrated market by ensuring a uniform regulatory framework and its uniform application, but also closes regulatory loopholes and thus contributes to a more stable financial system. In addition, it will contribute to a more efficient and transparent financial system, since market participants only have to apply with one set of rules instead of 28 different sets of rules. It will thereby reduce compliance costs for cross-border activities and increase legal certainty. Moreover, the single rulebook will ensure higher quality of available and comparable information across the EU for supervisors, market participants, investors and consumers. Improved transparency will contribute to effective supervision but also to market and investor confidence.

The creation of the ESFS, and in particular, the three European supervisory authorities (EBA, ESMA and EIOPA) is instrumental for further developing the single rulebook.

4.6.2 The establishment of the ESFS

Building on the recommendations of the De Larosière report¹⁹⁷, the Commission presented in October 2009 proposals to strengthen financial supervision, which were adopted by co-legislators in November 2010. The European System of Financial Supervision (ESFS) consists of three micro-prudential European Supervisory Authorities (ESAs), namely the European Banking Authority (EBA), the European Insurance and Occupational Pensions Authority (EIOPA), and the European Securities and Markets Authority (ESMA), working within a network of national competent authorities (NCAs) and the European Systemic Risk Board (ESRB) as the macro-prudential body. The ESFS has been operational as from January 2011.

The ESFS reinforces the stability and effectiveness of the financial system throughout the EU. The ESAs take important regulatory, supervisory, financial stability and consumer protection roles. The ESRB provides early warnings of system-wide risks that may be building up and, where necessary, issue recommendations for action to deal with these risks. Close cooperation between the micro- and macro-prudential levels is essential to achieve valuable synergies, to mutually reinforce the impact on financial stability and to benefit from a fully integrated supervisory framework. The regulations establishing the ESFS provide for regular reviews of the system. The first comprehensive review has been carried out during 2013. The report will be adopted soon.

While the new system has been operational for just three years (and the parallel establishment of the Banking Union needs to be taken into account), the ESAs are widely perceived as having performed well and to have contributed to re-establishing confidence in the financial system. They are seen as having played a particularly important role in preparing draft technical standards, fostering supervisory convergence and culture through their participation in colleges, identifying and assessing systemic risks. EBA also had an important role in the stress tests and the recapitalization exercise of European banks in 2012/13.

¹⁹⁷ Report of the High-level Group of Financial Supervision in the EU, 25 February 2009.

The establishment of the Banking Union (see below) and notably of the Single Supervisory Mechanism (SSM) as a key component will impact the functioning of the ESFS, but does not call into question its existence and necessity. The ESAs, and in particular the EBA, will continue to be responsible for contributing to the single rulebook applicable to the EU 28 and ensuring supervisory convergence. Close cooperation between the EBA and the ECB will be crucial to avoid duplications and ensure a smooth functioning of the Banking Union within the wider single market for banking services.

The review process, as well as the own initiative report of the European Parliament¹⁹⁸ and the FSAP report by the IMF¹⁹⁹, identified some shortcomings of the ESAs, in particular regarding the governance and the limited action in the area of contributing to supervisory consistency and on consumer protection

The ESRB has managed to establish itself as a key component of the European supervisory framework. It provided a unique forum for discussion on financial stability issues throughout the crisis and contributed to raising awareness among policymakers on the macro-prudential dimension of financial policies and regulations. There are, however, a number of areas for improvement in terms of external organisation, internal governance and output, in order to enhance the efficiency of macro-prudential oversight at EU level. As the areas for potential improvements relate mainly to governance issues, legislative action seems appropriate.

When establishing the ESFS particular attention has been given to the interaction between the ESRB and the ESAs. Close interaction is ensured by cross-membership among the three micro-prudential authorities and the ESRB via the Joint Committee of the ESAs. The cooperation between the micro- and the macro-prudential elements has overall worked satisfactorily with minor arrears for improvement being identified in the course of the ESFS review.

4.6.3 The Banking Union – towards more sustainable financial integration

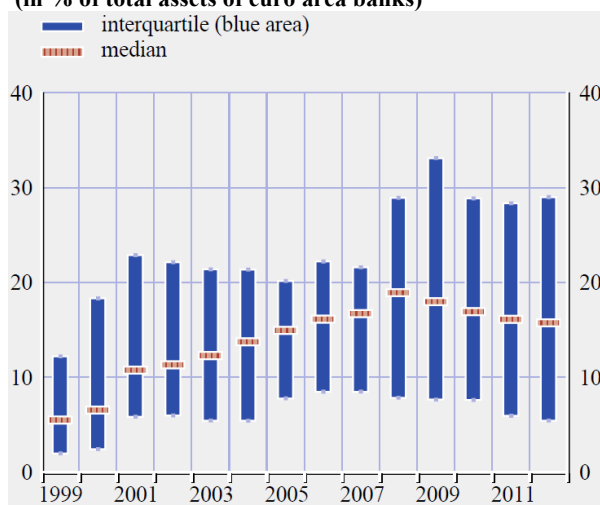
Boosted by the single currency and benign market conditions in the run-up to the crisis, the EU banking sector grew and became more and more integrated. Banks developed significant cross-border activities, and some outgrew their national markets. As set out in section 3.3, debt markets and in particular interbank markets had become most integrated, while cross-border flows in foreign direct investment and equity portfolio investment more limited. With capital flows in the boom years largely taking the form of interbank lending and debt, this exposed recipient countries in the euro area periphery to significant rollover risk. Financial integration was not backed by an appropriate institutional framework and therefore carried financial stability risks, especially in the single currency area. Free credit and other capital flows contributed to the build-up of imbalances in the euro area and helped fuel the boom-bust cycles observed in several Member States. Many cross-border capital flows turned out to be excessive and ultimately unsustainable.

¹⁹⁸ European Parliament Resolution of 11 March 2014 with recommendations to the Commission on the European System of Financial Supervision (ESFS) Review.

¹⁹⁹ International Monetary Fund – Financial Sector Assessment Program at EU level, March 2013.

The financial crisis abruptly stopped the integration of banking markets, capital flows stopped or reversed, resulting in significant economic and financial disruption. For example, chart 4.6.1 shows that cross-border activities of euro area banks across the euro area increased strongly and steadily between 1999 and 2008 but have been decreasing since 2008. The chart also shows significant differences in the share of cross-border assets between euro area countries.

Chart 4.6.1: Total assets of foreign branches and subsidiaries of euro area banks across euro area countries (in % of total assets of euro area banks)



Notes: The chart displays the median for the share of cross-border assets and the overall dispersion (interquartile range) across countries
Source: ECB Financial Integration Report (2013).

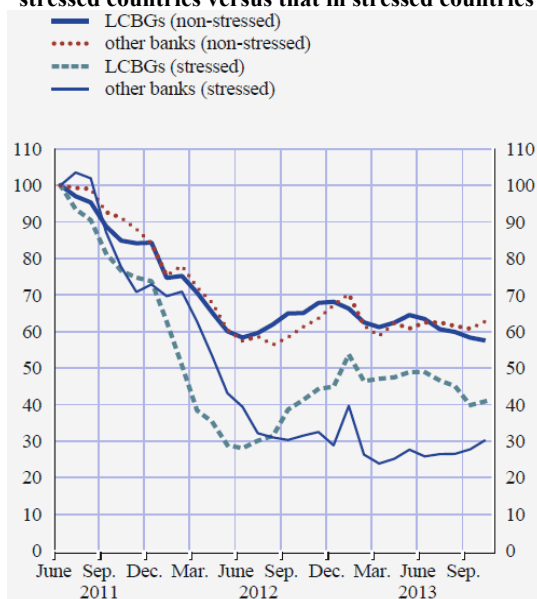
Financial fragmentation threatened the integrity of the single currency and the internal market. It increased the divergence of interest rates for firms and households across the euro area and hampered monetary policy transmission. While interest rates are high in the euro area periphery, fragmentation has led to very low interest rates and potential distortion of asset prices in the centre.²⁰⁰

Chart 4.6.2 and 4.6.3 show the significant financial fragmentation in terms of the availability and costs of market funding for banks, in terms of both their country of residence and the strength of their balance sheets (see also section 3.3). In the course of the sovereign debt crisis, debt issuance fell markedly across euro area banks. This process was most pronounced for banks of smaller size established in "stressed" countries.²⁰¹ By contrast, debt issuance by banks, in particular large banks, in non-stressed countries was more resilient and these banks had to pay much lower spreads on their newly issued unsecured debts than their counterparts in stressed countries.

²⁰⁰ See Draghi (2014).

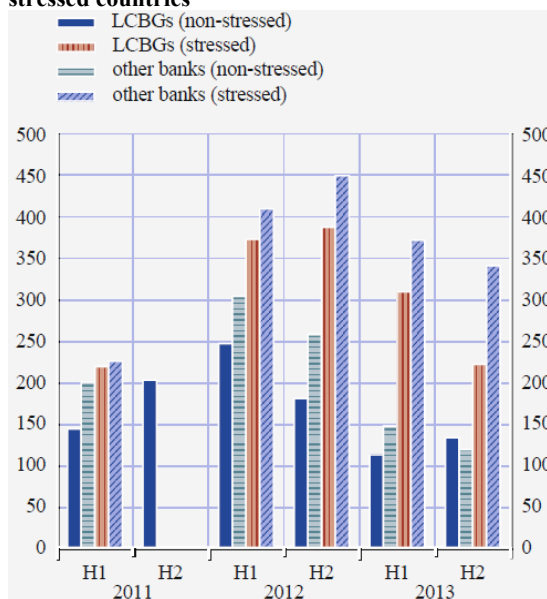
²⁰¹ "Stressed countries" refer to Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.

Chart 4.6.2: Debt issuance by large and complex banking groups (LCBGs) and other banks in non-stressed countries versus that in stressed countries



Notes: Excludes retained deals. Debt issuance measured by indices (june 2011 = 100), based on 12-month moving sums. “Stressed countries” refer to Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.
Source: ECB

Chart 4.6.3: Spreads on senior unsecured debt for banks in non-stressed countries versus those in stressed countries



Note: Shows spread over benchmarks in basis points. Based on euro-denominated fixed rate deals with an issue size of at least EUR 250 million. Excludes retained deals and government-guaranteed debt. In the first half of 2011, only LCBGs from non-stressed countries issued debt that met the above-mentioned criteria.
Source: ECB

The financial crisis clearly revealed the incomplete nature of integration in the euro area and the strong link between banks and the Member States in which they are established resulting in a harmful interplay between the fragilities of the sovereigns and vulnerabilities of banks. Bail-outs of failing banks imposed a heavy burden on the public debt of some Member States. As set out in section 3.3, negative feedback loops between strained national financial budgets and banks jeopardized not only national financial stability in the EU, but also called into question the sustainability of the euro area. The crisis demonstrated that a system largely based on the supervision of banks at national level and lacking a comprehensive cross-border resolution framework, is incompatible with an integrated and stable banking sector and a single currency.

On 23 May 2012, the European Council gave a mandate to its President, in collaboration with the Presidents of the Commission, the Eurogroup and the European Central Bank, to present a vision for the future of a more deep and integrated Economic and Monetary Union. On the eve of the European Council meeting of 28-29 June 2012, the Commission President laid out the main thrust of the proposal for a Banking Union to restore confidence in banks and the financial sector, the euro area

and the EU as a whole.²⁰² This approach was affirmed by both the European Council²⁰³ and the Parliament²⁰⁴.

Towards a Banking Union

The Banking Union is a vital part of a deep and genuine Economic and Monetary Union (EMU). It is instrumental for the EU and, in particular, for the euro area, where banking plays a central role in financing the economy. Its overarching objectives are to strengthen financial integration and complete EMU, restore confidence in the financial sector while minimizing costs to taxpayers, increase financial stability, and thereby contribute to economic recovery. The Banking Union aims to achieve these objectives by:

1. Ensuring that high and common standards of prudential supervision and resolution of credit institutions are consistently and impartially applied across all banks. The Banking Union will enable both supervisory and resolution decisions to be taken with the interests of the EU as a whole. This will contribute to create a level playing field in the provision of banking services and address the issue of "banking nationalism"²⁰⁵, i.e. the tendency of national supervisors to protect financial institutions in their territory or promote national champions or attractive financial centres. The Banking Union will deliver an institutional setup that allows the benefits from further financial integration to be realised in a more stable and sustainable way. It will furthermore stop the trend of market fragmentation which risks undermining the single market for financial services.
2. Generating a higher quality of financial integration and tackling the current mismatch between financial market integration and the fragmented nature of banking policy in Europe. Developments in the last years have provided instances of a 'financial trilemma'²⁰⁶, i.e. the impossibility to have an integrated financial system, financial stability and national responsibilities. The Banking Union is a tool to deal with these problems by replacing national for supranational responsibility in a European solution which ensures that all Member States are appropriately involved in decision making processes.
3. Helping ensure the smooth transmission of monetary policy, easing current bottlenecks and frictions which threaten to derail the appropriate monetary policy set by the ECB. Banks are the main transmission channel of monetary policy to the economy. Enhanced integration as a result of the currency union has shown the importance of establishing a single European regime for banking supervision and resolution. Restoring monetary policy transmission

²⁰² See http://europa.eu/rapid/press-release_SPEECH-12-494_en.htm?locale=en. The Commission set out its vision of a gradually unfolding Banking Union in its Communication of 12 September 2012 (COM(2012) 510 final). The Blueprint for a deep and genuine economic and monetary union of 28 November presents a comprehensive vision for a deep and genuine EMU (COM(2012) 777 final).

²⁰³ See in particular the Euro Area statement of 29 June 2012 and the European Council conclusions from 29 June as well as the European Council conclusions from March and June 2013.

²⁰⁴ See in particular the resolution of the EP on the Banking Union (European Parliament resolution of 13 September 2012 Towards a Banking Union (2012/2729(RSP)).

²⁰⁵ See Véron (2013).

²⁰⁶ See Schoenmaker (2011).

should help contribute to ease funding conditions of banks and the economy, in particular SMEs in vulnerable Member States.

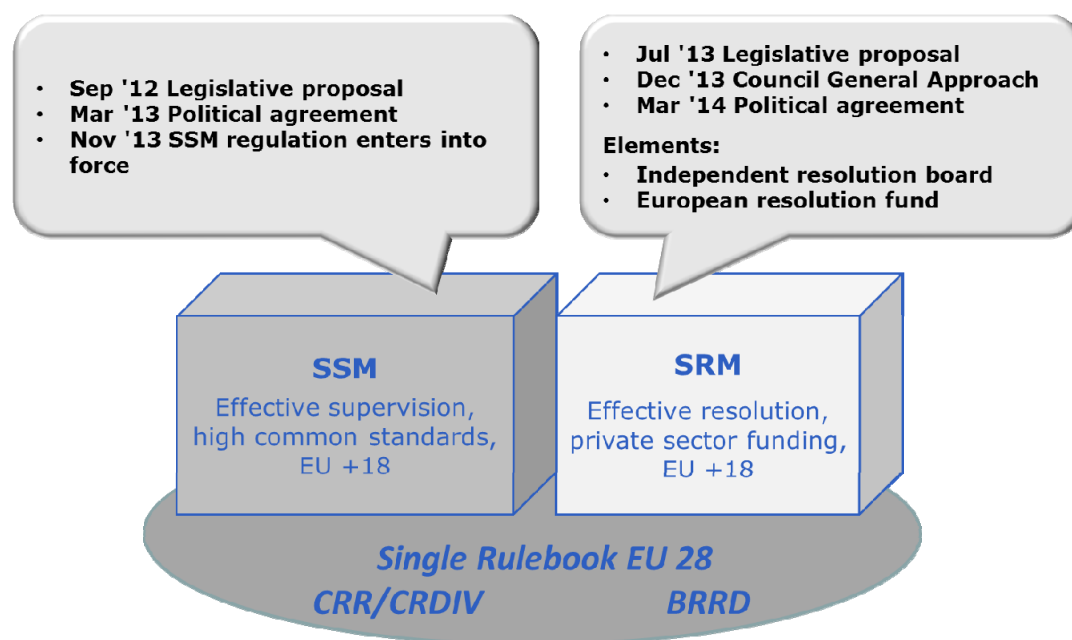
The single market and the Banking Union are mutually reinforcing processes. The Banking Union rests upon the single rulebook applicable to all 28 Member States of the EU, in particular the CRD IV package and the BRRD (described above in section 4.2). It thereby preserves the unity and integrity of the single market. Furthermore, the EBA will develop a single supervisory handbook complementing the single rulebook.

As illustrated in chart 4.6.4, the Banking Union consists of two main pillars: Banking supervision, i.e. the Single Supervisory Mechanism (SSM); and bank resolution, i.e. the Single Resolution Mechanism (SRM), consisting of a central decision-making body (the Single Resolution Board) and a Single Resolution Fund (SRF). These two central pillars complement each other.

The Banking Union is constructed as a hub and spokes system with a strong central level (the ECB for the SSM and the Single Resolution Board for the SRM) and a decentralised level (i.e. national supervisory and resolution authorities) involved in decision making and in the preparation and implementation of decisions at the central level.

The SSM and the SRM have the same material scope and are mandatory for Member States of the euro area, but they will also be open to the participation of any other Member States that may want to join. All banks in participating Member States (i.e. alone for the Euro area about 6000 banks with EUR 34 trillion of assets) will be covered. That is, the SSM will ultimately be responsible for the supervision of all banks in participating Member States, and potentially all banks will be subject to the resolution powers of the SRM. This is not only necessary to increase confidence in the stability of the banking sector but also to maintain a level playing field. However, in order to ensure practicable and efficient solutions and make best use of national expertise in this area, there will be an appropriate distribution of tasks between the centre and national supervisory and/or resolution authorities.

Chart 4.6.4: Illustration of key elements of Banking Union



Source: Commission Services

Reinforced supervision within the **SSM** will restore confidence in the health of banks. The SSM implies the transfer to the ECB of specific, key supervisory tasks for banks established in the euro area Member States and in participating Member States. While the ECB will retain ultimate responsibility for all banks within participating Member States, tasks will be distributed between the central level (ECB) and the decentralised level (national authorities) to ensure practicable and efficient supervision. This structure will provide strong and consistent supervision across the euro area, making best use of local and specific know-how to ensure that national and local conditions relevant for financial stability are taken into account.

A single supervisor removes some of the dividing lines between jurisdictions that create compliance costs.²⁰⁷ For example, there will no longer be a distinction between home and host supervisors for cross-border banks within participating Member States. Instead, there will be a single supervisory model and eventually a single supervisory culture, rather than one per country. Also, cross-border groups will be able to report at the consolidated level. Furthermore, with a European supervisor, borders will not matter. Issues such as protecting national champions or supervisory ring-fencing of liquidity will no longer be relevant. Therefore, another benefit of the SSM will be the lack of "hidden barriers" to cross-border activity linked to national preferences. This means that banks will be in a better position to achieve the economies of scale that were promised by the single financial market - and that they also need to be competitive at the global level.

The SRM will align the decision-making of bank resolution to the European level and help to ensure the timely, efficient and impartial resolution of failing banks minimizing externalities and coordination problems as well as possible tensions

²⁰⁷ See Draghi (2014).

between European supervision and national resolution. In a context where supervision is moved to the European level, it is essential that the responsibility for dealing with bank resolution is moved to the same level. Repeated bailouts of banks have created a situation of deep unfairness, increased public debt and imposed a heavy burden on taxpayers. The BRRD will help EU countries intervene to manage banks in difficulty to ensure that taxpayers won't have to end up bailing out banks repeatedly again and the SRM will apply the rulebook set out in the BRRD. On top of improving the challenges faced in securing adequate cross-border cooperation, the SRM can reduce national "home" biases that may appear in, and possibly impede, a resolution event. The SRM will ensure a swift and effective decision-making process at centralised level.

The SRM will be accompanied by a SRF funded via levies from the banking sector to protect the taxpayer from having to bail-out banks in times of crisis. Since all banks will profit from enhanced financial stability, the fund should be built up by contributions of all banks while taking their risk profile into account and hence respect the principle of proportionality. The SRF will have significant advantages as compared to a network of national resolution funds:

- Firstly, in terms of effectiveness by pooling resources, providing a bigger 'firepower' and having a greater ability to tap markets in the unlikely scenario that it is necessary.
- Secondly, and importantly, the fund can provide an appropriate and effective common backstop of financing for tail risk events, whereby there is either insufficient private resources to absorb the banks' losses, or it is deemed inappropriate for them to do so (following the rules and pecking order set out in the BRRD). This, in turn, can fully break the link between the bank and its national sovereign.
- Thirdly, and finally, by aligning the supervisory and fiscal incentives of the different stakeholders at the supranational and Member State level (i.e. SSM, SRM, national authorities) to ensure an efficient and effective resolution of cross-border banking groups.

The Regulation establishing the SSM entered into force in November 2013. The SSM, with the ECB at its centre, will be operational by November 2014. The proposal for a Regulation establishing the SRM was presented by the Commission in July 2013. A political agreement on the SRM Regulation was reached in March 2014 and it was approved at the last plenary of the current European Parliament in April 2014. The SRM will start resolution planning as from January 2015 and will have resolution powers as from January 2016. The SRF will be built-up progressively over a transitional period of eight years. During the transitional period, the contributions will be allocated to different compartments corresponding to each participating Member State (national compartments). These compartments will be subject to a progressive merger so that they will cease to exist at the end of the transitional period.

4.6.4 Additional measures aimed at boosting growth

The Single Market Act (SMA) I (April 2011)²⁰⁸ and the SMA II (October 2012)²⁰⁹ announced a set of key actions to further deepen the internal market and help boost economic growth. Focusing only on actions in the area of financial services, three innovative fund frameworks were proposed: European Venture Capital Funds (EuVECA); European Social Entrepreneurship Funds (EuSEFs) and European Long Term Investment Funds (ELTIFs).

For many companies in the EU, access to finance has become markedly more difficult with the financial crisis (see also chapter 6). Financing conditions remain tight especially for start-ups and SMEs and in countries whose economies have been hit most severely by the crisis. A drop in venture capital fundraising following the crisis is significantly limiting the funding available for innovative companies. The EU's 21 million SMEs represent a major asset for sustainable growth and job creation. Difficulty in accessing finance is one of the main obstacles that prevent SMEs from launching new products, strengthening their infrastructure and taking on more employees. This situation is equally true of well-established SMEs and those that are innovating and rapidly expanding. To help alleviate those problems the Commission proposed to create **European Venture Capital Funds (EuVECA)**. The Regulation (adopted in April 2013²¹⁰) will make it easier for venture capital funds to invest freely across the Union without obstacles or additional requirements. Its objective is to ensure that SMEs wanting to use venture capital can call upon funds with the necessary expertise for the sector and the capacity to offer capital at an attractive price.

The internal market is based on a "highly competitive social market economy", which reflects the trend towards inclusive, fair and environmentally sustainable growth. New business models are being used, in which these societal concerns are taking precedence over the exclusive objective of financial profit. This trend must be reflected in the single market. A level playing field must be ensured. Initiatives, which introduce more fairness in the economy and contribute to the fight against social exclusion, should be supported. The tremendous financial lever of the European asset-management industry (around EUR 9 trillion of assets under management) should be used to promote the development of businesses which have chosen – above and beyond the legitimate quest for financial gain – to pursue objectives of general interest or relating to social, ethical or environmental development. These objectives have guided the Commission in proposing **European Social Entrepreneurship Funds (EuSEF)**. The Regulation (also adopted in April 2013²¹¹) sets up a European framework facilitating the development of social investment funds, which aims to

²⁰⁸ European Commission (2011): Single Market Act – twelve levers to boost growth and strengthen confidence. Communication from the Commission; 13 April 2011. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0206:FIN:EN:PDF>

²⁰⁹ European Commission (2012): Single Market Act II – Together for newgrowth. Communication from the Commission. 3.10.2012. http://ec.europa.eu/internal_market/smact/docs/single-market-act2_en.pdf

²¹⁰ Regulation (EU) No 345/2013 of the European Parliament and of the Council of 17 April 2013 on European venture capital funds.

²¹¹ Regulation (EU) No 346/2013 of the European Parliament and of the Council of 17 April 2013 on European social entrepreneurship funds.

scale up the impact of national initiatives by opening single market opportunities to social enterprises.

Alongside SMEs and the social economy, other parts of the economy are vital for restoring growth. This is for example the case of long-term investments such as in the infrastructure sector. The large amounts of capital needed to realise infrastructure projects require the largest possible pool of investors that can only be reached at the level of the EU. The possibility to raise capital throughout the EU to be invested in long-term projects is key for facilitating the financing of such long-term projects. Allowing fund managers to fully benefit from the single market opportunities in order to boost investments was therefore one of the core objectives of the **European Long-term investment Funds (ELTIFs)** proposal. This proposal (July 2013²¹²) introduces a new investment fund framework designed for investors who want to put money into companies and projects for the long term. It aims at opening new sources of financing to long term projects and private companies.

4.7 INTEGRITY OF FINANCIAL MARKETS AND CONSUMER AND INVESTOR CONFIDENCE

In addition to enhancing the stability of the financial system, the financial reform agenda comprises a number of measures to enhance the integrity of financial markets. This includes the measures to counter market abuse (section 4.7.1) as well as a broad set of provisions to enhance the protection and confidence of (retail) consumers and investors in financial markets (section 4.7.2). The reforms also include important measures to address shortcomings in the credit rating process (4.7.3) and the measures to enhance the reliability of financial information (section 4.7.4 covers accounting standards and 4.7.5 audit market reforms).

Furthermore, in February 2013 the Commission adopted a proposal for a Directive to update the legislative framework for the prevention of the use of the financial system for the purpose of money laundering and terrorist financing.²¹³ The overarching objective for the revision of the anti-money laundering (AML) framework is to protect the financial system and the single market from abuse by criminals seeking to launder illicit proceeds, or from terrorists seeking to fund terrorist activities or groups. These measures contribute to protecting the soundness, proper functioning and integrity of the financial system, but are not further discussed in this report.

4.7.1 Countering market abuse

Regulatory reform was needed to counter abuse more effectively, which include insider dealing and market manipulation. Insider dealing consists of a person trading in financial instruments when in possession of price-sensitive inside information in relation to those instruments. Market manipulation occurs when a person artificially manipulates the prices of financial instruments through practices such as the spreading of false information or rumours and conducting trades in related instruments.

²¹² COM (2013) 462.

²¹³ COM(2013) 45 final.

Recent developments in financial markets have significantly increased the possibility to manipulate these markets, for example on new trading platforms or using automated trading and high-frequency trading technologies. At the same time, national authorities often lack effective sanctioning powers, and in some EU countries, criminal sanctions are not even available for certain insider dealing and market manipulation offences.

Based on the total market turnover of equity markets, total market abuse has been estimated at EUR 13 billion per year.²¹⁴ In addition to these costs, market abuse undermines market integrity and investor confidence, with further potential repercussions for financial stability.

For example, if the misuse of inside information is not sanctioned, investors will lose confidence in the market and they will be willing to pay less for financial instruments. Companies with the reputation of insiders misusing their information will see their share prices fall and their cost of raising capital increase. Investor confidence in these companies will also drop. Considering that confidence losses quickly spill over, investors may withdraw from the wider market, driving up the cost of capital for other companies, which ultimately damage the prosperity of the economy.²¹⁵

Since the start of the crisis, several high-profile cases of manipulation of financial benchmarks involving many of the largest EU banks resulted in record fines of several billion euros for these wrong-doings. Perhaps the most prominent example is that of the manipulation of interbank rate benchmarks (LIBOR and EURIBOR), which serve as reference rates for enormous volumes of contracts, including consumer loans and home mortgages. For example, an estimated EUR 500 trillion worth contracts are referenced to LIBOR and EURIBOR globally, including about 40 % of household loans in the euro area which are based on variable rates (see Box 4.7.1). Since June 2012, when the investigations started, a number of banks have been found liable for rate-rigging and settled for record amounts of fines. Moreover, criminal charges are being brought against the relevant traders.²¹⁶ There are also ongoing investigations by the European Commission into the potential manipulation of commodity price assessments for oil and biofuels used to reference the prices of spot contracts and to clear derivative contracts in the markets for these commodities.²¹⁷ Another case of potential manipulation became apparent in summer 2013, this time involving the alleged manipulation of foreign exchange (FX) rates, and already led to a series of staff being placed on leave or suspended at many of the global banks that dominate the FX market. There are also recent allegations of manipulation of the

²¹⁴ Capital Markets CRC Limited, Enumerating the cost of insider trading, unpublished, 2010, p. 8. These estimates are extracted from section 6.8 and annex 12 of the impact assessment on the MAR/CSMAD proposals:

http://ec.europa.eu/internal_market/securities/docs/abuse/SEC_2011_1217_en.pdf

²¹⁵ Example on the effect of insider dealing on capital markets from FMA: <http://www.fma.gv.at/en/companies/stock-exchange-securities-trading/special-topics/insider-dealing-effects-on-the-capital-market.html>

²¹⁶ Charges against individual traders have been brought up in the UK and the Netherlands among other jurisdictions: <http://www.bbc.com/news/business-18671255>, <http://www.ft.com/intl/cms/s/0/8d1e0978-7c94-11e3-b514-00144feabdc0.html#axzz2uFNHGmoX>

²¹⁷ There is an ongoing investigation by the European Commission services into a possible cartel in relation to the alleged submission of distorted prices by contributors to some of Platts oil and biofuels products published prices in order to manipulate those. See http://europa.eu/rapid/press-release_MEMO-13-435_en.htm

London gold fix, which according to an academic research paper could have been manipulated during the last decade.²¹⁸

New EU measures to counter market abuse

The Commission proposed a new regulation on market abuse and a directive on criminal sanctions for market abuse in October 2011 (MAR/CSMAD²¹⁹). The objective is to ensure that regulation keeps pace with market developments, to strengthen the fight against market abuse across commodity and related derivative markets, and to reinforce the investigative and sanctioning powers of regulators. Following the uncovering of the manipulation of LIBOR, EURIBOR and other financial benchmarks, the Commission modified these proposals to make the manipulation of benchmarks a prohibited and criminal activity under the market abuse regime in July 2012²²⁰. A political agreement on both these proposals was reached by the European Parliament and the Council in December 2013. The files were approved by the European Parliament in September 2013 and February 2014, and formally adopted by the Council in April 2014.

In response to the cases of benchmark manipulation, the Commission further adopted a proposal for a regulation on benchmarks which aims to enhance the robustness and reliability of financial benchmarks, facilitate the prevention and detection of their manipulation and improve their supervision²²¹. This proposal reflects the standards for benchmark setting agreed at international level by the IOSCO members and endorsed by the FSB and the G20.²²²

In addition, commodity markets have become increasingly global and interconnected with derivative markets, leading to new possibilities for cross-border and cross-market abuse. The scope of the existing market abuse regulation has therefore been extended to market abuse occurring across both commodity and related derivative markets. It clarifies that such market abuse is prohibited, and reinforces cooperation between financial and commodity regulators.

Taken together, the reform measures will strengthen the fight against abusive market practices and reinforce sanctioning powers against offenders. This will enhance the integrity in financial markets and contribute to greater consumer and investor confidence.

Box 4.7.1: Investigations against market manipulations

Manipulation of LIBOR, Euribor and Tibor (Tokyo interbank offered rate)

Since June 2012, investigations into the manipulation of major unsecured interbank reference rate benchmarks (IBORs) such as LIBOR, Euribor and Tibor, have been ongoing worldwide. Large financial institutions including Barclays, UBS, RBS, ICAP and Rabobank have been found liable for attempted manipulation of IBORs by the UK, US and Dutch financial authorities and agreed to pay

²¹⁸ See <http://www.bloomberg.com/news/2014-02-28/gold-fix-study-shows-signs-of-decade-of-bank-manipulation.html>

²¹⁹ COM(2011) 651 and COM(2011) 654.

²²⁰ COM(2012) 421 and COM(2012) 420.

²²¹ COM/2013/0641.

²²² IOSCO Principles for Financial Benchmarks: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>

finances totalling around USD 3.7 billion in the settlements so far.²²³ The Directorate General for Competition of the European Commission in December 2013 imposed a fine of EUR 1.7 billion on eight financial institutions for participation in illegal cartels in relation to LIBOR and Euribor.²²⁴

LIBOR, Euribor and Tibor reference returns and payments for enormous volumes of derivative contracts, commercial and personal consumer loans, home mortgages and other transactions (approximately USD 360 trillion financial instruments are priced by reference to LIBOR and up to USD 190 trillion to Euribor).²²⁵ Civil claims against banks involved in the manipulation of these benchmarks are also expected.²²⁶ Certain contributing banks have left the setting panels for these reference rates because continued participation exposes them to reputational and regulatory risk, as well as to large fines.

These investigations into the manipulation of IBORs have evidenced the existence of conflicts of interest which combined with the use of discretion and inappropriate governance and controls in the setting of these rates made possible their manipulation. The lack of transparency over the setting process, including of their methodology and input data, and the poor corporate ethics of some contributors were also key factors in their manipulation. For example, it appears that the main motivations behind the attempts to manipulate the benchmark rates were either to avoid signalling to markets credit issues of the relevant financial institution (by contributing unsecured interbank lending rates lower than the actual ones during financial stress periods) or to profit from trades on derivatives referenced to these benchmarks (by manipulating the reference rates prior to settlement). This was facilitated by the lack of governance and controls in place at the relevant banks to manage these conflicts of interest. Also, the benchmark setting process allowed manipulation because of the discretion it gave the contributing banks and the lack of transparency.

Inappropriate governance, controls and transparency over the benchmark setting process by the benchmarks' administrators are determinant factors, as evidenced by the recommendations of the 'ESMA-EBA report on the administration and management of Euribor'²²⁷ and the 'Wheatley Review of LIBOR'²²⁸.

FX investigations

At least six authorities worldwide, the European Commission, Switzerland's markets regulator Finma and the country's competition authority Weko, the UK's Financial Services Authority, the Department

²²³ "On 27 June 2012, the FCA fined Barclays Bank plc £59.5 million for misconduct relating to LIBOR and EURIBOR. On 19 December 2012, the Financial Services Authority (FSA), the FCA's predecessor, fined UBS AG £160 million for significant failings in relation to LIBOR and EURIBOR, and on 6 February 2013, the FSA fined The Royal Bank of Scotland plc £87.5 million for misconduct relating to LIBOR. On September 2013, the FCA fined ICAP Europe Limited £14 million and on October 2013 it fined Rabobank with £105 million": <http://www.fca.org.uk/news/the-fca-fines-rabobank-105-million-for-serious-libor-related-misconduct>

"The CFTC has now charged five global financial institutions for LIBOR manipulative schemes, with nearly USD 1.8 billion in penalties imposed by the Commission alone": <http://www.cftc.gov/PressRoom/PressReleases/pr6752-13>

²²⁴ EC press releases: http://europa.eu/rapid/press-release_SPEECH-13-834_en.htm and http://europa.eu/rapid/press-release_IP-13-1208_en.htm

See also: <http://www.ft.com/intl/cms/s/0/8a6a4b02-463d-11e3-9487-00144feabdc0.html#axzz2khc8HgXB>

²²⁵ Approximately USD 350 trillion of notional swaps and USD 10 trillion of loans are indexed to LIBOR. Measured by the notional value of open interest, the CME Eurodollar contract is the most liquid and largest notional futures contract traded on the CME and in the world. Euribor is used internationally in derivatives contracts, including interest rate swaps and futures contracts. According to the Bank for International Settlements, OTC interest rate derivatives, such as swaps and forward rate agreements ("FRAs"), comprised contracts worth over USD 187 trillion in notional value at the end of 2012:

<http://www.cftc.gov/ucm/groups/public/@lrenforcementactions/documents/legalpleading/enfrabobank102913.pdf>

²²⁶ See, for example, <http://www.ft.com/intl/cms/s/0/eed0cf58-486d-11e3-8237-00144feabdc0.html#axzz2khc8HgXB>

²²⁷ http://www.esma.europa.eu/system/files/eba_bs_2013_002_annex_1.pdf

²²⁸ Wheatley Review of Libor: <http://www.fsa.gov.uk/doing/events/wheatley-review-libor>

of Justice in the US and the Hong Kong Monetary Authority, are investigating whether traders in some of the world's biggest banks colluded to manipulate benchmark rates in the USD 4 trillion daily foreign exchange market. The investigations are examining areas such as the WM/Reuters FX rates following allegations that banks allegedly attempted to manipulate benchmarks and trade ahead of customers. In view of these serious concerns, the FSB set up a Foreign Exchange Benchmark Group on 14 February which will undertake a review of FX benchmarks and will analyse market practices in relation to their use and the functioning of the FX market²²⁹.

It appears that FX traders colluded with counterparts to front-run client orders and manipulated the WM/Reuters rates by pushing through trades before and during the 60-second windows when the benchmarks are set. This practice seems to have occurred almost daily over a long period of time²³⁰. As in the IBOR case, the existence of conflicts of interest (potential for large gains by front running client orders and manipulating the WM/Reuters FX rates) and the inappropriate governance and controls to manage those at contributor level, combined with the exercise of discretion by traders on which orders to place during the benchmarks setting window, may have had a key role in their manipulation.

Price assessments for oil and biofuel

There are also ongoing investigations by the European Commission into the potential manipulation of commodity price assessments for oil and biofuels used to reference the prices of spot contracts and to clear derivative contracts in the markets for these commodities.²³¹ There are concerns that the companies may have colluded in reporting distorted prices to a price reporting agency to manipulate the published prices for oil and biofuel products. Again, potential conflicts of interest at contributor level are key. The companies reporting prices to PRAs are also the users of their price assessments and they could, for example, profit on trading derivatives for a product (e.g. oil) by colluding to manipulate its price assessment. Thus, the administrators of these benchmarks and their contributors should have effective governance and controls in place to minimise and manage conflicts of interest and to detect potential manipulation attempts.

London gold fix

The potential manipulation of the London gold fix was exposed by the media already in 2013 and the allegations gained strength in February 2014, following an academic research paper by Professor Rosa Abrantes-Metz, University's Stern School of Business and Albert Metz, managing director at Moody's Investors Service, which has not been published yet.²³² According to this research paper, "unusual trading patterns around 3 p.m. in London, when the so-called afternoon fix is set on a private conference call between five banks of the biggest gold dealing banks, are a sign of collusive behaviour". The paper also concludes "the structure of the benchmark is certainly conducive to collusion and manipulation, and the empirical data are consistent with price artificiality". The German regulator BAFin launched an investigation into gold-price manipulation already in 2013 and, at the time of writing, the UK Financial Conduct Authority was examining how gold prices were set.²³³

4.7.2 Protecting consumers and retail investors

Failures in adequate financial consumer protection can be considered to be both triggers and magnifiers of the financial crisis:²³⁴ practices, such as abusive loan origination, mis-selling, conflicts of interest, inadequate complaints handling, transfer

²²⁹ FX benchmark group by the FSB: https://www.financialstabilityboard.org/press/pr_140213.htm

²³⁰ Please see press report on: <http://ftalphaville.ft.com/2013/06/12/1533132/trading-market-making-speculation-or-manipulation-who-knows-anymore/>

²³¹ There is an ongoing investigation by the European Commission services into a possible cartel in relation to the alleged submission of distorted prices by contributors to some of Platts oil and biofuels products published prices in order to manipulate those. See http://europa.eu/rapid/press-release_MEMO-13-435_en.htm

²³² See <http://www.bloomberg.com/news/2014-02-28/gold-fix-study-shows-signs-of-decade-of-bank-manipulation.html>

²³³ See FT press report at <http://www.ft.com/intl/cms/s/0/081b5a80-a90a-11e3-9b71-00144feab7de.html?siteedition=intl#axzz2wEL0IZMr>

²³⁴ See Melecky and Rutledge (2011).

of foreign currency risk, and exploiting the vague and complex terms and conditions of contracts all have increased the level of indebtedness of households.

Many households accumulated risks that they were not aware of or did not understand in the run up to the crisis. When the crisis unfolded these factors could only amplify the consequences. The financial crisis has had massive direct and indirect implications for EU households (see chapter 3), including in their role as taxpayers involved in bail-out processes but as well via its impact on growth, employment, earnings, disposable income, public finances, the provision of public services, both expected public and private pensions, savings rations and financial and non-financial wealth.

In countries where there were real estate bubbles before the crisis and where greater quantities of debt were built up in the run up to the crisis, many households ended up with negative equity. Also, in some Member States, particular consumer credit problems were created by the availability of erstwhile ‘cheap’ foreign currency loans. Due to exchange rate effects, many consumers ended up in a debt spiral with significant personal consequences.

Increased levels of household indebtedness are a particular policy concern.²³⁵ EU-SILC survey data shows that, in 2011 and across the EU area as a whole, one in almost nine households (11.4 %) were in arrears with payments on rent/mortgage, utility bills or hire-purchase/loan agreements. These averages conceal a wide variation in the levels and nature of the financial difficulties being faced by households in individual countries.

Concerns do not just apply in relation to consumer debt, but also in relation to other financial products. The financial crisis has shown that the consequences of taking unexpected risks and facing consequent losses can be devastating for consumers, also because investments in financial products often form the backbone of a consumer's life savings.

A study trying to assess the EU-wide scale of mis-selling concluded that around 60 % of sales in a mystery shopping exercise across all EU markets might be deemed 'unsuitable'.²³⁶ The study identified problems linked to non-compliance with existing point of sale rules and also noticed that a significant proportion of advice focused on products that are less regulated at the point of sale, indicating a possible form of regulatory arbitrage. The study found further problems with the disclosures concerning the products recommended to clients.

A national markets survey by the Joint Committee of the European Supervisory Authorities highlighted **numerous problems arising from the selling of complex products** with potentially volatile outcomes to retail consumers.²³⁷ In addition to earlier large-scale mis-selling episodes such as the mis-selling of Payment Protection Insurance (PPI) in the UK, with remediation costs amounting to some EUR 15 billion, Table 4.7.1 below lists cases of actual or suspected mis-selling to retail customers across a wide range of countries.

²³⁵ <http://www.bristol.ac.uk/geography/research/pfrc/news/pfrc1301.pdf>

²³⁶ SWD(2012) 187

²³⁷ See Annex to the Joint Committee of the European Supervisory Authorities (2013), "Joint Position of the European Supervisory Authorities on Manufacturers' Product Oversight & Governance Processes", 28 November 2013.

Table 4.7.1 **Retail mis-selling of financial products across the EU**

TYPE OF PRODUCT	COUNTRY
Highly (and increasingly) complex products, such as structured products	Belgium, Denmark, Estonia, Germany, Italy, Latvia, Spain
Complex hedging products designed to protect borrowers on flexible rate mortgages	Latvia, Spain
Self-certified and interest only mortgages	UK
Mortgage insurance products	Poland
Loans to individuals that are exposed to exchange rate risks, the extent of which is often unknown to the consumer	France, Hungary
Unregulated collective investment schemes, which invest in assets that are not always traded in established markets, are therefore difficult to value, may be highly illiquid, and have risks to capital that are generally opaque	UK, Germany
Units in funds based on hedging strategies	Belgium
Product wrapping which prevents consumers from comparing features, prices and charges and thus from making well-informed investment decisions	Finland
Banks placing financial instruments such as hybrid products with their own retail clients, where the risks were in some cases not disclosed or sufficiently explained and some consumers claim that they were given the impression that the investment was a protected deposit	Spain, UK
Insurance products linked to complex underlying structures	France
Expensive and opaque unit-linked insurance and pension products	Netherlands

Source: KPMG (2014) based on Joint Committee of the European Supervisory Authorities (2013).

In addition, some banks may have mis-sold interest rate swaps to SMEs and municipalities in the UK, Germany and Italy. Box 4.7.2 provides some further evidence of cases of mis-selling and irresponsible lending in select EU Member States.

There are **multiple causes for these failings**,²³⁸ including: organisational culture; revenue push at clients' expense; ineffective governance and controls; poorly designed processes; inadequate training; and underinvestment in IT systems. These failings have resulted in large costs for many financial institutions, including: fines; redress costs and settlement payments; investment in staff, systems and other resources; and reputational damage (see also chapter 6).

²³⁸ See also KPMG (2014).

Box 4.7.2: Examples of mis-counselling, mis-selling and irresponsible lending and borrowing

The UK has experienced large scale mis-selling of Payment Protection Insurance products by some of the country's largest banks. The resultant regulatory action has led to a substantial compensation scheme amounting to more than £13 billion (as of January 2014).²³⁹

In the UK, non-income verified (NIV) mortgages, designed initially to meet the needs of the self-employed, propagated well beyond this initial target group. By the time the mortgage market reached its height in 2006-2007, 45 % of all mortgages were advanced on a NIV basis²⁴⁰. According to the discussion paper of the FSA, no other country assessed by them for comparative purposes featured a similarly significant NIV market segment, with the exception of the USA and Ireland, both of which have experienced a boom in mortgage credit and house prices followed by a severe reduction in both.

According to Bloomberg²⁴¹ in Spain the mis-selling of higher-yielding securities to customers used to low-risk bank deposits affected as many as 686,296 retail investors holding about EUR 22.5 billion of preferred shares sold by banks as of May 2011, according to Spain's stock market regulator CNMV. Preferred shareholders, unlike depositors, are not insured against losses, which materialized with the MoU requisite of burden sharing measures from hybrid capital holders and subordinated debt holders for banks receiving public capital.

Forex loans are related to a variety of macro risks: increased probability of credit booms, elevated credit and funding risks, impediments to monetary policy and enhanced potential for cross-border spill overs²⁴². In addition, it implies a transfer of currency risk from banks to its consumers. In 2012, in Bulgaria, Hungary, Latvia, Lithuania and Romania 60 % or above of loans to non-financial corporations were extended in, or indexed to, foreign currencies.

Miscounseling scandals in Germany on certain financial products (e.g. 'open-ended real estate funds' and 'PRIIPS') have been estimated to result in EUR 30 billion of losses per year for consumers.²⁴³ In the area of insurance, losses in relation to life and pension insurance products sold in Germany have been quantified to amount to EUR 160 billion during the last decade²⁴⁴.

Denmark has experienced cases of large scale mis-selling to inexperienced and risk-averse retail investors of highly complex structured products, and of units in funds based on hedging strategies. Belgium as well as Finland have identified issues with the increasing complexity of products, such as structured products in Belgium or product wrapping in Finland, which prevents consumers from comparing features, prices and charges and, thus, from making well-informed investment decisions.²⁴⁵

Consumers of financial services suffer from severe informational problems. Most consumers find financial products complex. Many financial decisions require making inter-temporal trade-offs and also require assessing risk and uncertainty. Decisions are further complicated by the fact that it is difficult to learn about financial products, also because some of the financial decisions are made infrequently (e.g. taking out a mortgage to buy a house). This makes the general case for policymakers to intervene to protect consumers.

²³⁹ <http://www.fca.org.uk/consumers/financial-services-products/insurance/payment-protection-insurance/ppi-compensation-refunds>

²⁴⁰ http://www.fsa.gov.uk/pubs/discussion/dp09_03.pdf

²⁴¹ <http://www.bloomberg.com/news/2012-07-11/spanish-bank-bailout-means-forcing-losses-on-cooks-pensioners.html>

²⁴² Macro-prudential Commentaries, Lending in foreign currencies as a systemic risk. Piotr J. Szpunar and Adam Głogowski, ESRB, December 2012.

²⁴³ Germany's public TV channel ZDF, ZDF 'Zoom', 30.1.2013.: <http://www.zdf.de/ZDFzoom/Beraten-und-Verkauft-26321688.html>

²⁴⁴ http://www.vzhh.de/versicherungen/151189/Oehler_Studie_Paper.pdf

²⁴⁵ These and other cases are listed in Annex to the Joint Position of the European Supervisory Authorities on Manufacturers' Product Oversight & Governance Processes, 28 November 2013.

Reform measures to enhance consumer and retail investor protection²⁴⁶

The most efficient consumer protection comes from the prevention of occurrence of excesses, similar to those, which had been experienced in the run up of the last crisis. Thus, the new EU regulatory framework developed in response to the crisis focusses on enhancing the stability of the financial system, e.g. through measures on solvency, liquidity and risk-management practices, resolution and crisis management, and on improved transparency in financial markets, and thus has comparatively few consumer-specific regulations. Put differently, many of the rules discussed in the previous sections to improve stability in the system also inherently benefit consumers (e.g. higher solvency rules and better risk management procedures reduce the risk of losses to the customers of financial services). So do the rules countering market abuse and enhancing the reliability of financial benchmarks.

However, important legislation that specifically targets improved (retail) consumer and investor protection have also been proposed or already adopted and will enter into force progressively. In addition, the existing general framework protecting consumers unfair commercial practices acts as a safety for consumers purchasing financial services. The Unfair Commercial Practices Directive (2005/29/EC) prohibits misleading and aggressive practices when marketing financial products. The recent Communication and Report on the application of the Directive concluded that there was a need to step up its enforcement in certain sectors, including in particular financial services.²⁴⁷

Moreover, as part of the establishment of the ESAs, prominence was given to consumer protection: the three ESAs are also tasked with enhancing consumer protection in the EU.

Since most of the sector-specific legislation is not yet in force, it is too early to observe any benefits in the market. However, the potential benefits in the form of reduced consumer harm from mis-selling and other misconduct are large. The measures, discussed in more detail below, are expected to contribute to improved market outcomes for consumers, leading to wider benefits in terms of increased consumer confidence.

The Commission is an active contributor to the different international workstreams. Work in the field of consumer protection is based on the principles endorsed by the G20, although the Commission's approach is more targeted and prescriptive.

The importance and the relevance of adequate consumer protection have been recognised by the G20: Finance Ministers and Central Bank Governors called in February 2011 the OECD, the FSB and other relevant international organisations to develop common principles on consumer protection in the field of financial services. The adopted principles relate to: legal, regulatory and supervisory framework; role of

²⁴⁶ The following does not capture the more recent developments in the area of private pensions: on 27 March 2014, the Commission adopted a proposal to revise the existing 2003 Directive on Occupational Pension Funds (also known as Institutions for Occupational Retirement Provision or IORPs). The Commission conducted also in 2013 preparatory work for a possible legislative initiative on personal pensions.

²⁴⁷ Communication "On the application of the Unfair Commercial Practices Directive – Achieving a high level of consumer protection – Building trust in the Internal market' of 14 March 2013 (COM(2013) 138 final), accompanied by a Report (COM(2013) 139 final).

oversight bodies; equitable and fair treatment of consumers; disclosure and transparency; financial education and awareness; responsible business conduct of financial services providers and authorised agents; protection of consumer assets against fraud and misuse; protection of consumer data and privacy; complaints handling and redress; and competition.

A new international organisation of financial consumer protection supervisory authorities was also established in November 2013. The new organisation (to be known as FinCoNet) replaces the informal network of supervisory authorities which has existed for a number of years and builds on the work already started by that network. FinCoNet will focus on banking and credit consumer protection issues and intends to collaborate with other international bodies and contribute to advancing the G20's financial consumer protection agenda.

More responsible lending: The Mortgage Credit Directive

The Directive on credit agreements relating to residential property (also known as Mortgage Credit Directive – MCD), which was published on 28 February²⁴⁸, seeks to enhance responsible mortgage lending. Member States will have until March 2016 to transpose the Directive into national law.

Problems in the market

Two thirds of bank loans in the EU are mortgage loans. Yet, as the recent crisis has shown, property markets are prone to booms and busts. The financial crisis was partly triggered by lax property lending practices in the US. Some EU Member States experienced housing booms and busts, with consequences for the countries' financial solvability. An important problem identified in the impact assessment was inadequate creditworthiness assessments.²⁴⁹ To prevent a repetition, it is of utmost importance to ensure that responsible lending practices are applied consistently across the EU. Consumers have, for instance, been found to overestimate their income or underestimate their commitments in up to 70 % of mortgage applications.

The impact assessment also identified a series of problems linked to the provision of information to consumers. It demonstrated that the information consumers receive in the context of a credit agreement negotiation is often considered 'insufficient, untimely, complex, non-comparable and unclear', that advertising and marketing are often non-comparable, unbalanced, incomplete and unclear and that inappropriate advice may have been given to consumers, while the purchase of a property (often financed by mortgage credits) is likely to be the most important financial decision a consumer takes during his or her lifetime.²⁵⁰

²⁴⁸ Directive 2014/17/EU of the European Parliament and of the Council of 4 February 2014 on credit agreements for consumers relating to residential immovable property and amending Directives 2008/48/EC and 2013/36/EU and Regulation (EU) No 1093/2010.

²⁴⁹ For details, see impact assessment, SEC(2011) 356.

²⁵⁰ The impact assessment also showed that ineffective, inconsistent or non-existent admission and supervision regimes for credit intermediaries and non-credit institutions providing mortgage credits had the potential to create an uncompetitive environment and limited cross-border activity. This results in a situation where consumers are therefore likely not to always obtain the best/cheapest credit agreement offers.

Summary of the measures

To ensure responsible lending practices, the Directive establishes for the first time EU-wide creditworthiness assessment standards for the granting of mortgage credits. Creditors will have to conduct a thorough assessment of the ability for the consumer to repay the loan before granting any credit. Such assessment will need to be documented and based on relevant sources. In addition, the creditor will only make the credit available to the consumer where the results of the creditworthiness assessment indicates that the obligations resulting from the credit agreement are likely to be met in the manner required under that agreement.

Regarding information to consumers, the Directive enhances transparency of offers as creditors will be obliged to inform consumers via a European standardised information sheet (ESIS) of all relevant characteristics of the credit on offer at pre-contractual stage, including inherent credit risks, e.g. those attached to variable interest rates or foreign currency loans. Consumers will be able to compare offers and shop around for the most suitable offer on the market. Specific provisions on advertising, adequate explanations and standards for advisory services are also introduced by the Directive to ensure proper information to the consumer. In addition, staff dealing with clients will need to possess appropriate knowledge and competences and creditors and credit intermediaries will have to respect conduct of business rules e.g. on remuneration.

The measures in the MCD are also a first step towards the creation of a genuine single European mortgage market. Credit intermediaries that comply with the minimum standards will benefit from the passport and can thus easily branch out into other Member States. Access to credit register data across borders is also facilitated for all creditors. Such measures are likely to increase the availability of cross-border credit products and will lead to heightened competition, which benefit consumers.

Enhanced deposit guarantee: Review of the DGS Directive

A Deposit Guarantee Scheme (DGS) acts as a safety net for bank account holders in case of bank failures. If a bank is closed down or is unable to repay depositors due to a deteriorated financial situation, depositors are entitled to compensation by the scheme up to a certain coverage level. A 1994 Directive²⁵¹ ensured that all EU Member States have Deposit Guarantee Schemes in place and imposed a minimum coverage level of EUR 20 000 per depositor and per bank.

However, when the 2008 crisis started the existing EU system of Deposit Guarantee Schemes revealed itself to be fragmented. Member States applied different coverage levels which limited the benefits of the internal market for banks and depositors and could aggravate the situation in times of stress. Moreover, schemes were heterogeneously financed and proved to be underfunded. In order to restore confidence in the financial sector, in March 2009 the EU quickly reacted by amending the 1994 Directive to increase the minimum coverage level from EUR 20 000 to EUR 100 000.

²⁵¹ Directive 94/19/EC of the European Parliament and of the Council of 30 May 1994 on deposit-guarantee schemes.

In order to complete the work, on 12 July 2010 the Commission proposed a more comprehensive recast of the 1994 Directive²⁵². The proposal was approved at the April 2014 European Parliament plenary session, following the political agreement between the co-legislators in December 2013.

Problems with current arrangements

No bank, whether sound or ailing, holds enough liquid funds to redeem all or a significant share of its deposits on the spot. This is why banks are susceptible to the risk of bank runs if depositors believe that their deposits are not safe and try to withdraw them all at the same time, which can seriously affect the whole economy. If, despite the high level of prudential regulation and supervision, a bank has to be closed, the relevant DGS reimburses depositors up to a certain ceiling (the coverage level). Currently there are around 40 DGSs in the EU, but these are characterised by a number of problems that reduce the effective extent of depositor protection²⁵³:

- The scope of protection differs between countries (e.g. in terms of covered products and eligibility).
- There can be delays in payout procedures, which could undermine the essential purpose of the DGS: depositors might run on banks before the DGS is triggered rather than wait for it to make the pay-outs if the statutory delay is too long.
- Funding is often inadequate: a DGS needs adequate financing in order to be credible and effective in its function. As noted above, the crisis fully revealed the lack of adequacy both in the prominent case of Iceland and in the failure by Member States to allocate additional resources to their DGSs even when mandating unlimited coverage.
- There are differences in the involvement of the DGS in bank resolution operations where, instead of liquidating a bank and paying out depositors, there is an orderly winding up and continuous access is ensured, for example by transferring deposits to a bridge bank or a private purchaser (see also section 4.2.5).
- There is no European framework for cross-border cooperation: currently, the DGS Directive foresees that depositors at branches of EU banks are covered by the home-country DGS. This can prove cumbersome for depositors of branches of a bank from another EU Member State.

Summary of the measures

The proposed amendments to the DGS Directive encompass a number of key consumer protection measures:

- The coverage level is fixed at EUR 100 000, as already introduced in 2009. Also, the scope of protection is harmonised.

²⁵² COM/2010/0368.

²⁵³ For details, see impact assessment, SEC(2010) 834.

- The pay-out deadline is to be reduced gradually from the current 20 working days to seven working days in 2024, without depositors having to submit an application.
- Financing of the DGS is enhanced, by introducing risk-based ex-ante contributions from banks, with ex-post contributions in case of shortfall. Voluntary mutual lending between DGSs is introduced, together with the possibility of alternative funding arrangements.
- Additional measures are taken to improve the cross-border operations of the DGS and facilitate access to deposit guarantee in the case of depositors holding deposits in branches of banks from other EU Member States.

Together, these measures are expected to better protect depositors' wealth and strengthen their confidence in banks. This in turn also helps reduce the risk of bank runs and thereby enhances stability in the banking sector (i.e. it complements the measures discussed in section 4.2).

Enhanced retail investor compensation: Review of the Investor Compensation Directive

Investor Compensation Schemes (ICS) are currently established in all EU Member States under the 1997 Directive on ICS²⁵⁴. The schemes are designed to protect investors where firms or employees have committed fraud or made operational mistakes which cause client assets to be lost and the firm is unable to pay compensation. They are financed by investment firms, but the method of financing is left to Member States' discretion. The schemes must cover at least EUR 20 000 per investor and pay-outs must be made within three months of the establishment of the eligibility and amount of the claim.

Problems with current arrangements

Notwithstanding this framework, a number of frauds in Member States have resulted in important losses to small investors.²⁵⁵ In particular, the compensation minimum threshold of EUR 20 000 was never adjusted to reflect the increased exposure of European investors to financial instruments; furthermore, there have been some cases in which the ICS had insufficient funds to pay claims, or pay-out delays proved too long; finally, the treatment of investors needed to limit distortions with respect to deposits, which are covered up to EUR 100 000 under the DGS Directive.

Summary of the measures

In July 2010, the Commission adopted a proposal amending the existing ICS Directive²⁵⁶ to:

- Update the level of coverage from the EUR 20 000 minimum to a harmonised level of EUR 50 000;

²⁵⁴ Directive 97/9/EC of the European Parliament and of the Council of 3 March 1997 on investor-compensation schemes.

²⁵⁵ See impact assessment, SEC(2010) 845.

²⁵⁶ COM(2010) 371.

- Extend the scope of protection to losses due to the behaviour of third party custodians which hold assets and funds on behalf of investment firms, and to depositaries and sub-custodians of unit holders in collective investment schemes;
- Reduce pay-out delays by requiring that ICS pay partial compensation based on an initial (provisional) assessment of the claim if the pay-out delay exceeds 9 months; and
- Enhance scheme financing by mandating ex-ante funding and introducing a limited last-resort mechanism whereby national schemes can borrow from schemes in other Member States under strict conditions.

Taken together, these measures are expected to enhance the level of retail investor protection afforded by ICS and thereby strengthen consumer confidence in financial markets.

Better retail investor protection: Revision of the Markets in Financial Instruments Directive (MiFID II)

Enhancing consumer protection in investment services is one of the main objectives of the current MiFID (see also section 4.3.1).²⁵⁷ Hence, it includes specific requirements to increase levels of protection for retail clients, mainly related to: preventing and managing conflicts of interests; safeguarding client assets and client reporting; acting in the best interest of the client and providing fair and clear information; and carrying out suitability or appropriateness tests. This is in addition to other requirements under MiFID such as those for authorisation and effective supervision, transparency and competition which also have a positive impact on consumer protection. However, those requirements have been reinforced and enhanced under MiFID II to address certain issues in investment services which are not sufficiently or effectively addressed by the current MiFID.

Problems in the market

The financial crisis has shown that the consequences of taking unexpected risks and facing consequent losses can be devastating for consumers, as often investments form the backbone of a consumer's life savings. Weak governance and controls combined with the existence of conflicts of interest and inappropriate incentives in the investment services sector have been exposed by recent cases of mis-counselling and mis-selling of financial products (see table 4.7.1), which have greatly undermined confidence in financial markets.

Besides, insufficient product transparency and asymmetries of information for financial products often lead to ordinary investors having great difficulties in comprehending and using the information provided, as disclosures given are often overly complex, obscure, lengthy and difficult to use. Given an EU retail investment

²⁵⁷ The current MiFID was transposed in November 2007 and provides harmonised regulation for investment services in the EU. Its main objectives are increase competition and consumer protection in investment services: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0039:EN:NOT>

market with a value of up to EUR 10 trillion, buying wrong or unsuitable products can quickly become a major problem.

The evidence above shows that the consumer protection regime under MiFID did not effectively prevent cases of mis-selling, mis-counselling and insufficient product transparency.

The following problems have been identified:²⁵⁸

- Uneven coverage of service providers and uncertainty around execution-only services: currently investment firms providing certain services only at national level may be exempted from the requirements under MiFID provided that they are subject to national rules. Issuance of financial instruments is not covered by MiFID. Also, financial products classified as non-complex under MiFID are allowed to be sold without undergoing any assessment of the appropriateness of the given product.
- Lack of clarity and of strict requirements on the provision of investment advice: under MiFID, intermediaries providing investment advice are not expressly required to explain the basis on which they provide advice (e.g. the range of products they consider and assess). Thus, there is a lack of clarity concerning the kind of service provided, and requirements are often not adapted to the provision of that specific service by the intermediary, including those on governance and management of conflicts of interest. One study indicates that, at present, investment advice is unsuitable roughly half of the time.²⁵⁹
- Not clearly articulated framework for inducements: the MiFID rules for incentives from third parties require inducements to be disclosed and to be designed to enhance the quality of the service to the client. However, these requirements have not always proven to be very clear or well-articulated for investors, and their application has created some practical difficulties and concerns.²⁶⁰
- Inadequate requirements on advice to non-retail clients: in MiFID, the level of investor protection decreases from retail clients to professional and eligible counterparties, the underlying principle being that larger entities have access to more information and benefit from higher expertise. The financial crisis showed that in practice a number of non-retail investors, notably local authorities, municipalities and corporate clients, suffered losses due to being mis-sold complex financial instruments the risks of which they did not fully understand.

These issues may lead to the current MiFID framework for investor protection not being effective in preventing consumers being mis-counselled or mis-sold financial products which are not appropriate for them, or making sub-optimal investment choices based on insufficient information with the consequences as explained above.

²⁵⁸ See the impact assessment, SEC(2011) 1226 final.

²⁵⁹ Synovate (2011), "Final Report, prepared for: European Commission, Directorate-General Health and Consumer Protection", recently assessed the quality of advice across the EU based on a mystery shopping exercise. Weaknesses emerged in the ability of advisors across the EU to recommend suitable products to investors. Another study by Decision Technology Ltd, N Chater, S Huck, R Inderst (2010), "Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective", Final Report, November, sought behavioural economics insights on different factors relevant to investor decision making.

²⁶⁰ Responses to Questions 15-18 and 20-25 of the European Commission Request for Additional Information in Relation to the Review of MiFID, CESR/10-860, 29 July 2010, p 6

Summary of the measures

In addition to the measures already discussed in section 4.3.1 to strengthen financial markets and infrastructures, the revised MiFID package (MiFID II²⁶¹) contains a number of specific measures to enhance consumer and investor protection. In particular, MiFID II introduces better organisational requirements in order to enhance governance and controls in relation to consumer protection, such as an increased role of management bodies in this area, enhanced client asset protection and standards for product governance so that product manufacturers design and document products in a way that better reflects investor needs.

The new regime also provides for strengthened conduct rules for investment firms to prevent and manage conflicts of interest, such as an extended scope for the appropriateness tests and reinforced information to clients. Independent advice is clearly distinguished from non-independent advice, and limitations are imposed on the receipt of commissions (inducements) to align incentives.

The specific problems, as described above, have been addressed as follows:

- The scope of MiFID II has been broadened in order to include financial products, services and entities which are currently not covered (e.g. structured deposits), and the conditions for services where investors receive less protection from firms have been limited.
- Stricter requirements for portfolio management, investment advice and the offer of complex financial products such as structured products have been set and managers' responsibility has been introduced for all investment firms. Besides, advisers declaring themselves as independent will need to match the client's profile and interests against a broad array of products available in the market. Independent advisers and portfolio managers will be prohibited from making or receiving third-party payments or other monetary benefits.
- A stringent framework for inducements has been set up. In order to prevent potential conflicts of interest, independent advisors and portfolio managers will be prohibited from making or receiving third-party payments or other monetary gains.

Information to different categories of clients has been enhanced, particularly when complex products are involved. MiFID II also introduces harmonised powers and conditions for ESMA (and to EBA for structured products) to prohibit or restrict the marketing and distribution of certain financial instruments in well-defined circumstances. MiFID II has been agreed by the co-legislators and was approved by the European Parliament in April 2014. Once it comes in to application in 2016, it is expected that it will enhance consumer and investor protection in financial services and contribute to restoring consumer confidence in financial markets.

Improved distribution and advice on insurance products: Revision of the Insurance Mediation Directive (IMD II)

Whereas MiFID regulates the selling process in the case of investment services and products, the Insurance Mediation Directive²⁶² (IMD) aims to enhance distribution

²⁶¹ COM(2011) 656 and COM(2011) 652.

²⁶² Directive 2002/92/EC of the European Parliament and of the Council of 9 December 2002 on insurance mediation.

and advice in the insurance market, covering all insurance product from general insurance products to those containing investment elements. In July 2012, the Commission proposed a revision of the IMD (IMD II²⁶³).

Problems in the market

Consumers often are not aware of the risks associated with purchasing insurance. In fact, surveys show that more than 70 % of insurance products are sold without appropriate advice, while accurate professional advice is crucial in the insurance sector.²⁶⁴

Due to the fact that current EU legislation does not deal in detail with the sale of insurance products, the rules regulating it differ substantially across the Member States. The rules also currently apply only to insurance intermediaries, leaving out of the scope insurance undertakings that sell directly to customers.

Summary of the measures

The current IMD is a minimum harmonisation directive and the practical application of its provisions varies a lot between Member States. Some Member States already apply consumer protection standards that go much further than the requirements in the IMD. The IMD II seeks to raise minimum standards of consumer protection all over Europe.

IMD II also aims at setting similar standards for the sales of insurance products through insurance intermediaries and those sold by insurance undertakings or other market players so as to ensure that similar selling rules apply to everyone that sells insurance products: from insurance agents, brokers and insurance companies to car rentals and travel agents. Moreover, it aims to set more common standards between insurance intermediaries and insurance companies selling life insurance policies with investment elements and intermediaries selling investment products.

IMD II has strong links to consumer protection provisions in other financial services legislation, such as MiFID II (see above),²⁶⁵ the Mortgage Credit Directive (see above) and the proposed Regulation on Key Information Documents (KIDs)²⁶⁶ for investment products (see below). IMD II aims at being coherent with those provisions as much as possible.

In summary, the revised IMD contains provisions to ensure that:

- sales standards apply equally to direct sellers (insurance companies) as well as insurance intermediaries (agents, brokers);

²⁶³ COM(2012) 360.

²⁶⁴ See impact assessment, SWD (2012) 192 final.

²⁶⁵ For example, the relevant parts in MiFID II, which lay down conduct of business and conflict of interest rules for financial instruments, served as a benchmark in drafting the relevant parts in the IMD II. The aim is to limit regulatory arbitrage by having consistent selling rules regardless of whether they are sold by an insurance intermediary, an insurance company, or an investment firm.

²⁶⁶ COM(2012) 352.

- sales of insurance complementary to the supply of other services are regulated;²⁶⁷
- the risk of conflicts of interest are addressed more effectively, including disclosure of remuneration by intermediaries;
- sales standards for advised and non-advised sales are strengthened;
- enhanced requirements apply to life insurance products with investment elements, covering sales standards, conflicts of interest and rules on remuneration;
- a delegated act to be adopted by the Commission is to specify the steps that insurance intermediaries and insurance companies should take in order to prevent conflicts of interest between themselves and their customers (see MiFID II²⁶⁸);
- professional qualifications of insurance intermediaries are adequate and their knowledge is regularly updated;
- procedures for the out-of-court settlement of disputes are strengthened and streamlined to the Directive on Alternative Dispute Resolution²⁶⁹;
- special information requirements apply where insurance undertakings adopt the practice of tying or bundling products together;
- effective, proportionate and dissuasive administrative sanctions and measures by competent authorities in respect of breaches are applied; and
- supervision of cross-border insurance business is improved.

Although not yet adopted by the co-legislators, it is expected that IMD II, once in force, will enhance consumer protection in the insurance sector by creating common and higher standards for insurance intermediaries and reducing the risks of mis-selling of insurance products.

Better information for retail investors: Regulation on Key Information Documents (KIDs) for investment products

The legislative proposal for a regulation on key information documents (KIDs) for investment products was proposed by the Commission in July 2012²⁷⁰ and was approved at the last plenary of the current Parliament in April 2014, following the political agreement between the EU co-legislators. It forms part of a legislative package aiming to boost consumer confidence by ensuring well-regulated markets in

²⁶⁷ Less burdensome information, registration and organisational requirements would however apply.

²⁶⁸ Article 98a

²⁶⁹ Directive 2013/11/EU of the European Parliament and of the Council of 21 May 2013 on alternative dispute resolution for consumer disputes and amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Directive on consumer ADR).

²⁷⁰ http://ec.europa.eu/internal_market/finservices-retail/docs/investment_products/20120703-proposal_en.pdf

packaged retail and insurance-based investment products (PRIIPs). The PRIIPs initiative is wider than the proposed KIDs regulation and also includes the measures in MiFID and IMD which cover distribution and advice ('selling processes') in relation to investment and insurance products. The proposed KIDs regulation focuses on product transparency.

Problems in the market

There is a great variety of investment products being targeted at retail customers, combining different legal forms often with similar underlying investment propositions. Yet in general terms all of these products seek to address a relatively simple investor need: capital accumulation (in other words, taking on risk so as to have the potential for beating the risk-free rate of return, as may be represented by a pure deposit account).

The complexity of many of the financial products makes these difficult to understand and to compare in particular to retail investors. They are often less financially literate than many professional investors and have few opportunities to learn from experience in retail investment markets as they typically do not engage repeatedly in investment activities, but do so only in relation to certain specific and widely-spaced life events (inheriting money, or investing towards a specific future liability or goal, such as buying a house, retirement or family planning).

The quality of the information provided is also often very low. Disclosures can be difficult to compare, overly long, and over-loaded with legal disclaimers. The basic features of products may be difficult to see, and their risks obscured under difficult to understand detail. Costs are often opaque, so that the real-world performance that might be realistically expected becomes hard to discern.

This is in part a regulatory failure: European and national regulation on product disclosures already applies to most products, yet Union and national law has often developed on a largely sectoral basis, at different speeds and with different outcomes in mind and to different levels of harmonisation. Such a regulatory patchwork can increase administrative costs and potentially encourage regulatory arbitrage, incentivising choices of product structures to take advantage of less onerous requirements.

Lack of good quality information facilitating retail investor understanding and easy comparison of financial products leads to investor detriment through mis-sales, to an unlevel playing field between industry sectors, and to the erection of barriers to the further development of the internal market.

Summary of the measures

The regulation will improve the quality of information that is provided to consumers when considering investments. The new, innovative disclosure document – the Key Information Document (KID) - specifically aims at helping retail investors. The proposal is focused on 'packaged' products – notably all retail investment funds, insurance-based investments (such as unit-linked life and 'with profit' insurance contracts used for savings and investment purposes in many markets), and all retail structured products.

The KID covers the main features of investment products in plain language that is easy to understand to non-professionals. Notably, the information on risks and costs shall be straight-forward, though without over-simplifying complex products. The KID should make clear to every consumer whether or not they could lose money with a certain product.

The KID must be short, to the point and follow a common standard as regards structure, content, and presentation. In this way, consumers will be able to use the document to compare different investment products and ultimately choose the product that best suits their needs. The standardisation of information should also aid consumer education efforts.

Given that this document is proposed to be used for any kind of packaged product non-withstanding the legal wrapping, retail investors will be able to compare products that give them exposure to the same markets via different wrappers and thereby appreciate the different benefits these encompass. For instance an investor wishing to participate in stock markets will be able to more easily compare the advantages and disadvantages of doing so via a UCITS fund, a structured product or insurance-based investment product.

The legislation will ensure that every manufacturer of investment products (e.g. investment fund managers, insurers, banks) will have to produce such a document for each of their investment product. Further the proposal makes sure that the KID is provided to the retail investor in timely manner, so that the investor can make use of it – along with other pre-contractual information documents – to make an informed investment decision.

The KIDs proposal has only recently been agreed upon by the co-legislators (the vote on the agreed text took place in European Parliament in April 2014), so it is too early to assess its use and impact in the market. However, the measure is expected to improve the quality of investor decision-making and reduce the amount of mis-selling of investment products. As set out in more detail in the underlying impact assessment, product information the average retail investor can actually understand and use for comparisons is fundamental for empowering consumers. Given the potential scale of mis-selling of investment products, small changes in investor behaviours and their investment decisions could have a huge impact: even if product disclosure were taken to contribute only 1 % to changes in investor behaviour, it has been estimated that this could still amount to around a EUR 10 billion reduction in holdings of unsuitable products (or EUR 4 billion, if UCITS, already subject to KID requirements, are subtracted).²⁷¹

Better protection of investors in retail investment funds: Amendments to the UCITS Directive

In July 2012, the Commission presented a proposal to enhance the protection of investors in retail investment funds, referred to as undertakings for collective investment in transferable securities (UCITS)²⁷², by amending the UCITS Directive. The UCITS 5 strengthens the rules applying to the funds' depositaries (i.e. the asset-

²⁷¹ See impact assessment, SWD(2012) 187.

²⁷² COM(2012) 350.

keeping entities of the funds), introduces new rules on the remuneration policies of fund management companies, and strengthens the sanctioning regimes applicable to management companies and depositaries.

Problems in the market

The assets of a UCITS fund are entrusted with a depositary for safe-keeping. However, currently, there is little clarity on the institutions that are eligible to act as a depositary, and different depositary standards can lead to differential levels of investor protection. Moreover, current rules are unclear when it comes to the delegation of the custody function, and there are no rules on due diligence checks and monitoring of the delegate (sub-custodian).

Importantly, the liability in the case of loss is unclear, and liability standards are different in different Member States. The potential consequences of these divergences came to the fore with the Madoff fraud, which hit the headlines in December 2008.²⁷³

The brokerage operation of Bernard Madoff in the US was revealed as a giant Ponzi scheme resulting in the largest investor fraud ever committed by one individual. Huge sums that were allegedly invested by Bernard Madoff turned out to have vanished with no corresponding securities in Mr Madoff's investment fund.

The consequences of the Madoff scandal are not confined to the US. The issue has been particularly acute in some EU Member States. One particular fund that acted as a 'feeder fund' for Madoff recorded losses of around USD 1.4 billion due to Madoff investments which turned out to be fictitious.²⁷⁴ In this case, both the management of investments and custody in relation to the assets that belong to the fund were delegated to entities operated by Madoff. The large scale of the Madoff fraud essentially went undetected for a long period because the depositary responsible for the safekeeping of the fund assets delegated custody over these assets to another entity run by Bernard Madoff, the US broker "Bernard Madoff Investment Securities".

The Madoff scandal revealed general uncertainties within the UCITS framework in relation to the depositary's liability in case of delegation of custody to a sub-custodian. While in some Member States, the depositary was immediately liable to return assets in custody as a consequence of fraud at the level of the sub-custodian, in other Member States the situation is less clear and still subject to litigation.

As a separate problem, the financial crisis revealed that the remuneration and incentive schemes of the UCITS managers is, at least partly, based on the short term performance of the fund, which fails to take proper account of the risk in the portfolio. Such remuneration structures create incentives to increase the level of risk in a fund's portfolio in order to increase the potential returns. However, the higher level of risk can expose the fund investors to higher potential losses that might materialize in the medium-term to long-term.

²⁷³ See impact assessment, SWD(2012) 185

²⁷⁴ A 'feeder fund' is essentially a vehicle that collects investors' money and then provides these monies to another financial service provider, usually a broker or another fund, so that the latter can design and execute an investment strategy.

Finally, there are significant divergences in sanctioning regimes across the Member States, which also bear consequences for the enforcement of rules and hence for the effective level of investor protection (see also chapter 5.1).

Summary of the measures

The revised UCITS, also approved at the last plenary of the current Parliament in April 2014 following the political agreement between the co-legislators, addresses these problems by ensuring, inter alia, that the depositary's duties and liability are clear and uniform across the EU, that there are clear rules on the remuneration of UCITS managers, and that there is a common approach to sanction regimes. Taken together, the proposed measures will enhance the level of investor protection in UCITS funds.

In relation to the depositary, the proposed harmonised eligibility rules mean that only a credit institution or an investment firm can act as depositary. Also, delegation of functions is only possible under strict conditions and if the delegate satisfies certain minimum prudential, organisational and conduct requirements. Moreover, the depositary is liable to return instruments when they are lost in custody and also remains liable in case of delegation.

In relation to remuneration practices, the measures adopted by the proposal require remuneration policies for all staff that can impact the UCITS fund's risk profile. In addition, remuneration policies and the actual remuneration of relevant staff must be disclosed to investors.

Finally, in relation to sanctions, the proposal introduces minimum rules on type and level of administrative measures and administrative sanctions.

Safer payments: Revision of the Payment Services Directive (PSD II)

In July 2013, the Commission published a legislative proposal for a revision to the existing Payment Services Directive (PSD II)²⁷⁵.

Problems in the market

The way European citizens shop and pay is radically changing. Almost every account holder in the EU possesses a debit payment card and some 40 % also own a credit card. Some 34 % of the EU citizens already shop on the internet (2011 data) and more than 50 % possess a smartphone, which in principle allows them to enter into the world of mobile payments.²⁷⁶

It is already possible to purchase almost every good and service online, with some economy sectors – like travel industry – making most of their sales on the internet. Mobile payment services are increasingly offering access not only to the digital content, but to the physical goods, with e.g. mobile ticketing and car parking services roll out across Europe and the terminals allowing for mobile payments being installed in the traditional shops. These changes require certain adjustments to the existing

²⁷⁵ COM/2013/0547.

²⁷⁶ See impact assessment, SWD (2013) 288 final.

legal framework for payments in the EU, so as to increase the security of payment transactions and better protect payments data.

Summary of the measures

With the PSD II, the scope of the existing Directive is extended to cover new types of service providers (third-party payment service providers, TPPs) and new services (payment initiation services) as payment services. These services facilitate the use of online banking and allow for low-cost internet payments outside the framework of credit cards. This should increase consumer choice when paying online. The scope is also extended to payments when either the payer or the payee is located outside the EU, which should contribute in particular to making money remittances to non-EU countries fairer and possibly cheaper, as a result of higher transparency. Furthermore, intra-EU payments in all currencies will be covered, thus better protecting the consumer.

Banks and all other payment service providers, including TPPs, will need to enhance the security of online transactions, and apply strong customer authentication for payments (e.g. use dynamic, one-off transaction confirmation codes). Obligatory risk management rules and incident reporting for security risks is introduced. The EBA is tasked to issue guidelines and draft regulatory standards on the security of payments transactions.

The new Directive will also ensure that consumers are better protected against fraud, possible abuses and payment incidents (e.g. in case of disputed and incorrectly executed payment transactions). They will face only very limited losses – maximum 50 EUR - in cases of unauthorised card payments. Finally, in case of consumers using TPP services, high protection is ensured for private financial data, security rules are established and clear liability for the transaction is ensured.

In addition to increasing payment security, the PSD II is expected to enhance competition in the payments market, in particular by facilitating new entry and reducing market access hurdles, which in turn benefits consumers (see section 4.8).

The proposal was put forward in the so-called “Payments Package”, which also includes the proposal for a regulation on interchange fees for card-based payment transactions (“MIF Regulation”)²⁷⁷. Applying surcharges on card payments by merchants will become prohibited for all consumer cards, in accordance with MIF Regulation.²⁷⁸

Access to basic bank accounts: The Payment Accounts Directive

The Directive on Payment Accounts, presented by the Commission in May 2013²⁷⁹ and approved at the April 2014 plenary session by the European Parliament after agreement between the co-legislators, seeks to enhance access to a payment account with basic features (including the provision of a debit card) for EU consumers

²⁷⁷ COM/2013/0550.

²⁷⁸ The possibility for merchants to surcharge for the use of payment cards (and other means of payment) will be limited already by Article 19 of the Consumer Rights Directive (2011/83/EU), which must be transposed and made applicable in national laws by 13 June 2014.

²⁷⁹ COM/2013/0266.

regardless of their residence and regardless of their financial situation. It also aims at simpler switching of bank accounts and enhanced transparency of bank fees.

Problems in the market

Full participation in modern society is difficult without payment account. Yet 56 million Europeans over the age of fifteen have for various reasons currently no access to a payment account.²⁸⁰ A separate problem is the current lack of transparency and comparability of bank fees. Also, price levels for a simple payment account can differ significantly from one Member State to another, varying between EUR 0 and EUR 256, which seems incompatible with a competitive single market in financial services. Consumers currently have difficulties switching bank accounts, both nationally and across border. Moreover, they are often unable to open a payment account when they are not residents of the country in which the provider is located.

Summary of the measures

The Payment Accounts Directive will grant Europe's consumers the right to a basic payment account. This will allow all consumers to make and receive payments, shop online, and pay utility bills (telephone, gas, electricity). Consumers will receive a payment card. Overdraft may be provided as an optional service if the customer wants it. In this case, a maximum amount and duration of the overdraft may be defined at national level. Member States will have to designate a sufficient number or all credit institutions to offer a basic account on their territory. The basic payment account should either be free of charge or come at a reasonable cost to be determined by Member States. Moreover, all EU consumers will have the possibility to open and use a bank account anywhere in the EU. This is particularly relevant for highly mobile citizens (e.g. students, workers, pensioners, etc.) who aspire to take full advantage of free movement within the single market.²⁸¹

The Directive will also introduce more transparency and comparability in the payment account sector. To allow consumers to more easily compare the types of products and services offered by banks, the Directive will establish the use of standardised terms with respect to the most representative services offered on a payment account. This standardisation will empower consumers to better compare prices for payment account services both locally, nationally and cross-border. The standardisation will also result in heightened consumer choice and new business opportunities for banks in the single market. However, the initiative is not expected to render all products and services uniform. Particular local and national bank products and services to which consumers are accustomed will continue to co-exist. Also, payment service providers will offer to consumers a set of documents, including a price list for relevant products and services, an ex post list of the services used in the course of the year and a glossary, containing all the relevant information on the fees they pay on their

²⁸⁰ See impact assessment, SEC 2013/250.

²⁸¹ Payment service providers will be able to refuse to open an account, however only if the consumer already has an account in the Member State concerned or fails to comply with the Anti-Money-Laundering due diligence test. Moreover, the directive allows Member States to define specific cases at national level which may justify the refusal of a basic account. These include, for example, abuses of the right to access basic accounts by the consumer. Also, Member States may require that consumers show a genuine interest to open a basic account, provided that such condition does not prejudice the exercise of the consumers' fundamental freedoms guaranteed by the Treaty.

accounts. To further help consumer, the Directive establishes principles to guarantee that comparison websites are available, which contain reliable information on the fees charged by different providers. The website supplier can either be private or public, but needs to be independent. Finally, consumers should be informed about the price of each individual component of a packaged account.

Better comparability would be of no use if the consumer cannot switch easily between payment accounts. Fees do not necessarily constitute the biggest hurdle for changing a payment account. Consumers feel often discouraged to switch accounts due to burdensome administrative procedures and for fear of being held liable for non-executed debit payments. The Directive will therefore establish a streamlined step by step switching process for consumers who switch accounts between two providers located in the same Member State, where responsibilities are shared between the receiving and the current payment service provider. Consumers are guaranteed that their accounts will be switched at national level in a maximum of 12 business days.²⁸² In addition, consumers who hold a payment account with a provider and want to open another account in a different country will benefit from assistance by the providers to facilitate the process. Any financial loss for the consumer that results directly from delays or mistakes by a payment service provider needs to be made up for by the payment service provider.

Overall, the Directive will, once transposed, ensure that every EU resident has a right to a basic payment account. Consumers will also benefit from a high degree of market transparency of bank fees and from the possibility to switch their payment accounts more easily, including across borders.

4.7.3 Addressing the weaknesses of credit rating agencies

The financial crisis revealed significant weaknesses in the methods and models used by credit rating agencies (CRAs).²⁸³ In particular, the CRAs failed to sufficiently consider the risks inherent in more complicated financial instruments (notably, structured finance products backed by risky sub-prime mortgages²⁸⁴). It is now widely acknowledged that this failure, combined with investors' often "blind" reliance on those ratings,²⁸⁵ significantly contributed to the crisis. This problem was amplified by

²⁸² With the consumer's consent, the remaining positive balance will be transferred to the new account and the previous account will be automatically closed. Any closing fees must comply with the Payments Service Directive (EC/2007/64), but the consumer may however also decide to preserve his or her previous account.

²⁸³ Even before this crisis, CRAs were already coming under close scrutiny, and public authorities were aware of the pivotal role played by CRAs in the financial system. For example, CRAs had been criticised for their slowness to respond to the strains that ultimately gave rise to the Asian crisis in 1997/8, and the high-profile failures of Enron, WorldCom and Parmalat.

²⁸⁴ By December 2008, structured finance securities accounted for over USD 11 trillion. The lion's share of these securities was highly rated by rating agencies. More than half of the structured finance securities rated by Moody's carried a AAA rating—the highest possible credit rating. In 2007 and 2008, the creditworthiness of structured finance securities deteriorated dramatically; 36 346 tranches rated by Moody's were downgraded. Nearly one-third of downgraded tranches bore the highest "AAA" rating. See Benmelech and Dlugosz (2010).

²⁸⁵ For example, Adelino (2009) shows that in the case of mortgage-backed securities, investors only considered information published by the ratings agencies for AAA-rated tranches (for lower-rated tranches, proprietary information was also taken into account).

the fact that regulators and supervisors required institutional investors to invest into rated securities.

A number of key underlying problems can be identified as explanations for why the pre-crisis system based on self-regulation by the CRAs themselves failed to work properly: The market is highly concentrated and dominated by three agencies (Fitch, Moody's and S&P), as shown in Table 4.7.2, so there is limited scope for competition on the quality of the ratings produced. There are also misaligned incentives and clear conflicts of interest.

- First, CRAs are paid by the issuers or sellers of the financial instruments, rather than by the buyers who face the lack of information and knowledge. Consequently, the issuer may threaten to shop elsewhere for a better rating, if the CRA does not accommodate to the issuer's expectations. Since CRA revenues are predominantly driven by rating fees paid by issuers, the revenue incentives are such that ratings may be biased upwards so as to meet issuer's expectations and thereby gain or keep its business. Also, CRAs sell multiple and often interdependent products and services. The issuer may hence put additional pressure on the CRA by conditionally promising more business.
- Second, credit rating agency rating changes amplify procyclicality and cause systemic disruptions in some circumstances. This is exacerbated by important overreliance on external credit ratings by financial market participants. One of the underlying reasons for this over-reliance was the introduction over time of references to external credit ratings in some financial services regulation which reduced incentives for financial institutions to conduct their own credit risk assessment and rely exclusively and blindly on credit ratings.
- Third, model risk is particularly important for structured finance products, given their complexity and absence of pre-crisis experience. The decades-long experience in deep and liquid corporate and sovereign debt markets has proven to be of limited value for rating complex, untested, OTC financial instruments. CRA ratings have been too narrowly focussed on default risk and expected loss (first moment of loss distribution). Market and tail risk was not reflected (second and higher moments of the loss distribution), leading to the situation that AAA senior CDO tranches were able to pay out higher returns than equally rated AAA corporate bonds.

Despite their major impact on financial markets and the key role of credit ratings in the prudential regulation of financial institutions, CRAs have not been subject to any formal control and surveillance in Europe, neither at national nor at European level.

The new EU regulations on CRAs

The new EU regulations on CRAs²⁸⁶ contain a range of different measures that overall aim to ensure the independence and integrity of the rating process and to enhance the quality of the ratings issued. In particular, since July 2011, the European Securities and Markets Authority (ESMA) has been responsible for registering and supervising CRAs, which now need to fulfil a number of conduct rules to reduce conflicts of interest and improve the transparency of the ratings process. Additional requirements came into force in June 2013 that, inter alia: reduce the reliance on credit ratings by requiring financial institutions to strengthen their own risk assessment and not to rely solely and mechanically on credit ratings; make CRAs more transparent and accountable when rating sovereign states; and make CRAs liable in cases of gross negligence or intentional infringements of the rules. The rules also seek to improve the independence of the ratings process by introducing mandatory rotation for certain complex structured financial instruments and requiring issuers to engage at least two agencies for rating such instruments. Moreover, all available ratings will be published on a European Rating Platform, available as from June 2015, so as to improve the comparability and visibility of ratings. This in turn is expected to encourage investors to make their own credit risk assessment and also contribute to the diversity in the ratings industry.

In addition, in the course of the sovereign debt crisis it became evident that there was a need for an independent EU structure with adequate resources and capacity or a new European CRA that would issue credit ratings for sovereign issuers to provide market participants with a greater variety of opinions on the credit worthiness of issuers. Sovereigns would then get an additional rating from an independent and public source with a strong signalling effect to financial markets. However, some concerns were raised with regard to the credibility of a publicly funded body, particularly as it would assess the creditworthiness of sovereign issuers which provide for its funding.

In a recent report,²⁸⁷ ESMA identified some deficiencies in sovereign rating processes, which could pose risks to the quality, independence and integrity of the ratings and of the rating process. Deficiencies were highlighted regarding independence and avoidance of conflicts of interests; confidentiality of sovereign rating information; timing of publication of rating actions; and resources allocated to sovereign ratings. At this stage, ESMA has not determined whether any of the report's findings constitute a breach of the CRA Regulation, and may take action as appropriate in due course. Taken into account the findings in the last ESMA report, the Commission will reassess the feasibility of both an independent EU structure and European CRAs, as a follow-up of the implementation of the new reform package

The rules contained in the new regulations are proportionate and will enhance the independence and integrity of the rating process as well as improve the quality of the ratings issued and contribute to more diversity in the rating industry.

²⁸⁶ The first EU Regulation on Credit Rating Agencies (Regulation (EC) No 1060/2009 on credit rating agencies) was adopted in 2009 and entered into force in December 2010. The Regulation was amended in May 2011 to adapt it to the creation of the European Securities and Markets Authority (ESMA) which has been attributed all supervisory powers over CRAs since July 2011 (Regulation (EU) No 513/2011, amending Regulation (EC) No 1060/2009 on credit rating agencies). Finally, in 2013, a third regulation on CRAs was adopted to reinforce the regulatory framework and deal with remaining weaknesses (Regulation (EU) No 462/2013, amending Regulation (EC) No 1060/2009 on credit rating agencies). The discussion in this study focuses on the three Regulations as a whole, without distinction.

²⁸⁷ Deficiencies in the sovereign rating process are reported in ESMA (2013).

First of all, new rules were adopted in response to the FSB principles to reduce public authorities' and financial institutions' reliance on credit rating agency ratings.²⁸⁸ Concerns were raised by some stakeholders on risks of mere removal of all references without any alternatives in places. Therefore, the new rules encourage financial institutions to strengthen their own credit risk assessment processes and not to rely solely and mechanistically external credit ratings.²⁸⁹

As regards the new sovereign rating rules, which require the publication of ratings to follow a calendar, CRAs are concerned that they cannot conduct ratings whenever they consider this necessary. The final rules impose the calendar on a “comply or explain” basis only, i.e. CRAs can decide to adopt ratings on other timing if appropriately justified and explained. This seeks to find the balance between enhancing the predictability of the timing of the ratings and ensuring accurate and timely ratings.

As regards the CRA liability rules, CRAs perceive a risk of being sued for “wrong ratings” which could result in very big civil claims. However, in the final rules, liability has been limited to gross negligence and intentional violations of the rules, and investors must demonstrate damage due to the reliance on the wrong rating. This is deemed a proportionate civil liability regime.

As regards the mandatory rotation of CRAs, on the one hand, rotation makes the market more dynamic and provides opportunities for smaller CRAs in the rating agency, thereby improving competition. On the other hand, industry stakeholders have argued that rotation of CRAs would limit the free choice of issuers to choose the CRA of their preference and also create switching costs. The final rotation rule has therefore been restricted in scope to a subcategory of structural finance instruments only, which may be considered a test and leaves scope for further extension of the rules at a later stage, if deemed necessary upon future review.

Finally, to enhance CRA independence, the final rules impose limits on shareholdings in CRAs. While some have argued that CRAs do not choose their shareholders and that there should be no intervention in the ownership structure, there are clearly conflicts of interest if a CRA rates the financial instruments of an important shareholder. The CRA rating may not be as independent as it would otherwise be. There are also concerns that the investing shareholder could obtain preferential information of future upgrades or downgrades of financial instruments. In any case, the final rules impose limitations for substantial shareholdings only (5 % or 10 % depending on the provisions).

The new CRA regulations do not directly require changes to the issuer-pays model of CRAs. Instead, the regulations seek to limit the adverse consequences that arise from this and other structural features in the market. Going forward, the Commission will

²⁸⁸ See Financial Stability Board (2010),

²⁸⁹ These principles were introduced in sectoral legislation in the banking, insurance and the asset management sector. Additionally, national authorities are encouraged to monitor the use of contractual references to credit ratings by financial institutions and the ESAs have been requested to review their guidelines and technical standards to ensure compliance with the FSB principles. In addition, the Commission will continue reviewing the use of references to external credit ratings in EU law that trigger or have the potential to trigger sole or mechanistic reliance. The Commission will report by end of 2015.

review the situation in the credit rating market and, according to the regulations, is required to prepare a report to that effect by July 2016.

Evidence of changes in market structure

As regards already observable changes in the structure of the market, in addition to the big three, a number of distinctly smaller CRAs have already emerged in Europe, and their number has further increased after the introduction of EU legislation. ESMA registration information shows that 19 out of the 22 CRAs are small and medium-sized.²⁹⁰ However, to date, these new market players often remain small in terms of scope. They tend to operate with a clear focus on specific industry sectors (e.g. the insurance industry), financial market segments (e.g. municipal bonds) or specific geographical area. This is unlike the big three agencies, which cover the whole range of rating classes considered.

The three largest CRAs have a market share of 94 % if measured by the total number of ratings outstanding in 2013, somewhat down from the 97 % share in 2008 (Table 4.7.3). The market share is lower if measured in terms of new issues during 2012 and 2013 (85 %), suggesting declining concentration and increase market participation by smaller CRAs. Concentration levels vary by issuer segment. It is particularly pronounced for the structured finance and covered bonds ratings categories, in spite of few new entrants operating in those two segments, whereas it is less marked in the non-banking corporate category. Looking at new ratings only, the large CRAs covered 50 % of the overall corporate ratings. The structured finance and covered bonds rating classes, however, remain dominated by the large CRAs, which had covered practically 100 % of the EU market until the financial crisis, with only a small number of new participants emerging since.²⁹¹

Table 4.7.2: Market share of the three largest CRAs

	By outstanding ratings		By new issues
	2008 S2	2013 S1	2012 S1 – 2013 S1
Total corporate	86 %	82 %	53 %
<i>of which:</i>			
- Insurance	65 %	70 %	43 %
- Other	87 %	83 %	73 %
<i>financials</i>			
- Non-financials	94 %	85 %	49 %
Sovereign	82 %	86 %	60 %
Structured finance	100 %	96 %	84 %
Covered bonds	100 %	99 %	94 %
All rating types	97 %	94 %	85 %

Source: ESMA (2014), "ESMA report on trends, risks and vulnerabilities", no. 1.

²⁹⁰ See ESMA (2013)

²⁹¹ The greater level of concentration in these rating classes can be explained by a number of factors, such as the need for appropriate governance and specialist skills, including dedicated processes and methodologies, legacy and/or long-standing relationships, including access to proprietary information. See ESMA (2014).

Smaller CRAs identified reputation and insufficient visibility towards the investors' and issuers' community as the most important barriers to entry and expansion in the market. The CRA reforms contain provisions to tackle these barriers by helping smaller CRAs to build up their reputation and be more visible on the market. Among other measures, the registration and supervision by ESMA will act as a quality label, ensuring that minimum standards are met and helping a new CRA to build credibility; there will be a European Rating Platform which will contain all available ratings; and there is a requirement for issuers to consider smaller agencies when obtaining double ratings.

The final impact and effectiveness of these and other provisions on the CRA market is too early to assess, also because some provisions will only become effective going forward and technical standards remain to be developed. However, it is expected that the new CRA regulations will increase the independence and integrity of the ratings process and enhance the overall quality of the ratings.

4.7.4 Enhancing accounting standards²⁹²

Insufficient information on off-balance sheet financing, too late impairment of financial assets and the lack of guidance on fair value measurement have contributed to increase the financial crisis. This is the reason why the G20 required to the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) to review their standards to enhance accounting requirements.

The EU institutions do not develop international accounting standards. Rather, the EU decided to adopt the International Financial Reporting Standards (IFRS) in 2002 and has since endorsed new standards and amendments, drafted by the International Accounting Standards Board (IASB). Nevertheless, the Commission and its technical advisor, the European Financial Reporting Advisory Group (EFRAG), have regular contacts with the IASB to promote European interests in the accounting standard setting.

In 2011 and 2012, the Commission endorsed:

- New standards on consolidation (IFRS 10, 11 and 12)²⁹³ to improve the consolidation of securitisation vehicles and the disclosures on off-balance sheet financing relating to unconsolidated participations in "structured entities" like securitisation vehicles or asset-backed financing.

²⁹² Measures described relate mainly to accounting developments in response to the crisis. Separately, at EU level, there has been a review of the Accounting Directives which apply to limited liability companies in Europe that are not in the scope of IFRS. The new Directive simplifies the preparation of financial statements for small companies, thereby reducing their administrative burden. The Commission also adopted a proposal on EU companies' transparency and performance on environmental and social matters.

²⁹³ Commission Regulation (EU) No 1254/2012 of 11 December 2012 amending Regulation (EC) No 1126/2008 adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council as regards International Financial Reporting Standard 10, International Financial Reporting Standard 11, International Financial Reporting Standard 12, International Accounting Standard 27 (2011), and International Accounting Standard 28 (2011).

- A new standard on fair value measurement (IFRS 13) providing a single definition of fair value measurement, enhancing transparency by requiring additional disclosure and offering clearer and more consistent guidance on the application of fair value measurement in inactive markets.
- Amendments to improve the disclosure requirements devoted to the transfer of financial assets (amendment to IFRS 7)²⁹⁴.

The review of the standard applicable to financial instruments (IAS 39) is still ongoing, which should improve the current requirements on impairment of financial assets that was criticised during the crisis. The IASB is also developing a real IFRS standard on insurance²⁹⁵, which is key for European insurance entities in order to get common accounting requirements to enhance comparability and transparency of their financial statements.

These new standards are expected to enhance the overall transparency and comparability of financial statements, not only within the EU but also worldwide as IFRS are global standards.

The Commission also launched in 2014 an evaluation of the IAS regulation. This evaluation aims to 1) assess how the IAS regulation has been applied over the last 10 years and 2) review the European organisation in accounting matters to strengthen its influence towards the IASB in standard setting. The conclusions of this evaluation are expected by the end of this year.

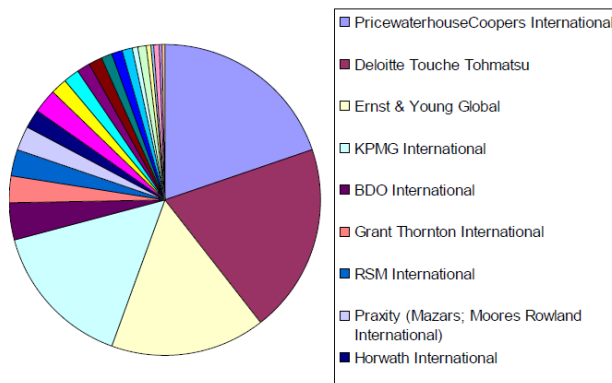
4.7.5 Improving the audit process

High-quality and reliable audits are an integral part of the financial reporting environment to ensure credible financial statements on which investors, managers and supervisors can rely. However, not only since the crisis, there has been unease about the value of audit reports and their quality, independence and consistency. A number of financial institutions failed only months after they had been given clean audit reports. Audit inspections by national authorities confirmed significant weaknesses in audit reports. For example, in Germany, 25 % of the inspections of audit firms with a client base comprising financial institutions and listed companies led to disciplinary proceedings during 2007 and 2010. In the UK, 11 % of audits were assessed as requiring significant improvement at major firms. In the Netherlands, the regulator identified weaknesses in 29 of the 46 audits reviewed in the context of its regular inspections and concluded that the quality of audits must fundamentally improve at the largest audit firms.

Chart 4.7.1: **Concentration in the audit market**

294 Commission Regulation (EU) No 1205/2011 of 22 November 2011 amending Regulation (EC) No 1126/2008 adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council as regards International Financial Reporting Standard 7.

295 The existing standard mainly refers to national accounting principles and rules.



Notes: Based on global revenue in 2009.
 Source: Commission Services impact assessment on audit reform

As with credit ratings (see above), there is an inherent conflict of interest in that the subject of the opinion is also the paying client. Coupled with limited rotation of auditors, this has led to a situation where many audited companies have become comfortable with their auditor, limiting auditor's independence and incentives for professional scepticism. For example, in the UK, a FTSE 100 auditing company remains in place for about 48 years on average; for the

FTSE 250 the average is 36 years. In more extreme cases, companies have used the same auditing company for more than 100 years. In Germany, two thirds of the DAX 30 companies have not changed their auditor for the last 20 years. The problems are exacerbated given the structure of the audit market, which is dominated by the 'Big Four' accounting firms (chart 4.7.1).

The EU audit reforms

To address these and other concerns, in November 2011, the European Commission adopted proposals to clarify the role of auditors and introduce a number of stringent rules, in particular to strengthen the independence of auditors and bring greater diversity into the audit sector.²⁹⁶

One key proposal in this regard is the mandatory alternation (rotation) of auditors. If auditors stay too long with the same client, their independence is likely to be undermined and, as a result, their professional scepticism is reduced. Rotation reduces this risk by limiting the length of professional relationships. At the same time, however, and as argued by critics of the reforms, auditor rotation imposes costs and may decrease audit quality due to the loss of client knowledge in the first year after the change of auditor. The recently adopted rotation requirement seeks to balance the benefits against the costs by allowing for long enough periods of audit engagements (final agreement rotation after 10 years, which under certain conditions could go up to 24 years). This is long enough to motivate auditors to invest into knowing their clients and imposes a reasonable cost by requiring companies to carry out tenders every ten years. In addition, the loss of knowledge in the first year of the engagement after the rotation is compensated by the preparation of a hand-over file from the outgoing auditor.

Other rules to enhance independence and diversity in the market include, among others, mandatory tendering for audit mandates, the prohibition of clauses requiring services of the major auditing companies only, strengthened audit committee's within companies and the prohibition for audit firms to provide certain non-audit services to

²⁹⁶ The reform comprises two legal instruments a Directive (amending the existing audit directive) with rules applicable to the whole audit market and a regulation with stricter rules applicable only to PIEs (Public Interest Entities - financial institutions, insurance companies and listed companies).

the same client (a black list of prohibited non-audit services is introduced). In addition, the rules seek to better coordinate and strengthen the supervision of auditors in the EU.

The measures, taken together, seek to address current weaknesses in the EU audit market and will help restoring confidence in the financial statements of companies. After provisional agreement between the Parliament and the Member States was reached in December 2013, the proposal was approved by the European Parliament in April 2014.

Some of the positive impacts will take several years in order to take effect in the market (i.e. rotation of auditors). A first indication of a positive impact of the reform is the fact that several listed companies in the UK that had very long relationships with their auditors have recently decided on a voluntary basis to put their audit services out for tender, and some have already changed their auditors. This is only indirectly related to the EU audit reform, as it is consistent with and supporting the outcome of the separate investigation by the UK Competition Commission into the UK audit market. The increased rotation (whether voluntary or mandated) brings some dynamics into the market, which can be expected to have a positive impact on audit independence and potentially also on audit quality to the extent that the new auditor will be reviewing with a fresh eye the work of the outgoing auditor.

Overall, the measures are expected to improve auditor independence and the quality of statutory audits in the EU. Combined with improved accounting requirements, the measures will thereby help restore the reliability of and confidence in financial statements, in particular those of banks, insurers and large listed companies.

4.8 EFFICIENCY OF THE FINANCIAL SERVICES SECTOR

Many of the reforms discussed so far that contribute to financial stability, financial integration and market integrity also improve the efficiency of the financial system. This section is therefore kept short and only highlights some of the main mechanisms by which the new reforms help enhance efficiency in the financial system.

In an efficient financial system, financial intermediation helps allocating capital to its most productive use, transaction costs are minimised, financial services are priced adequately to reflect their risk and social costs and the expected returns on financial instruments adequately reflect their risk.

In this respect, the set of banking reforms that work jointly to reduce the implicit subsidy enjoyed by too-big-to-fail banks (in particular the CRD IV package, BRRD and structural reform) improve efficiency by **reducing the distortions caused by the implicit subsidy**. The subsidy allowed the benefiting banks to grow their balance sheets and engage in risky activities beyond what would have been possible if funding costs had not been implicitly subsidised by taxpayers (see box 4.2.5 for quantification). To the extent that the reforms are successful in reducing the subsidy, this will ensure that bank funding costs are more risk-reflective and that resources are directed to uses that are more productive from a societal point of view as opposed to those that maximise bank returns but at a societal costs (see also box 6.1.1 in chapter 6).

Another example relates to the **risk-based prudential framework** for financial institutions. While the CRD IV package improves existing risk-based requirements by making them better capture all the relevant risk elements in the banking sector, Solvency II will for the first time introduce a risk-based prudential framework for the EU insurance sector. Combined with improved risk management standards, this induces financial institutions to internalise the risk of their activities and contributes to more efficient (risk-reflective) pricing of financial services and products.

The various measures aiming at **increasing the transparency of the financial sector** via enhanced disclosure and reporting requirements will reduce information asymmetries and thereby enhance the efficiency of the financial system. These include, for example, the flagging of short sales (in the short-selling regulation), reporting obligations to trade repositories (EMIR, proposed SFT regulation), the improved disclosure regime for issues in the Prospectus Directive, the increased transparency on algorithmic trading activities and trading in commodity derivatives markets (MiFID), and reporting and disclosure requirements in the area of investment funds. Stricter disclosure requirements to supervisors will facilitate monitoring of exposures and enable supervisory authorities to identify and assess emerging risks at an early stage. Transparency will also be beneficial for financial institutions and will contribute to better internal risk management practices. Finally, and importantly, transparency improves monitoring by the market and will lead to better-informed decisions by investors and consumers.²⁹⁷

In addition, the different legislative measures in the area of financial markets and infrastructure seek to **enhance efficiency along the whole securities trading chain**, covering pre-trading (Prospectus Directive), trading (MiFID, MAD/R, Transparency Directive) and post-trading, including clearing (EMIR) and settlement (CSDR). The measures seek to improve transparency, remove burdensome barriers to reduce trading costs and enhance the resilience of financial market infrastructures. The measures also prepare the ground for further initiatives increasing the efficiency, e.g. the Target 2 Securities (T2S) project, which will consolidate settlement across all countries in Europe.²⁹⁸

The resulting benefits have been estimated to be significant. Focusing mainly on the CSDR, the Regulation is expected to translate into lower costs for investors.²⁹⁹ The

²⁹⁷ The reforms also enhance **non-financial transparency** of the certain large financial companies and groups will be significantly enhanced as well following the Commission's proposal of April 2013 to amend the existing accounting directive to improve companies' transparency on social, environmental and diversity matters. Large public-interest entities with more than 500 employees will be required to disclose in their management reports information on policies, risks and outcomes as regards environmental matters, social and employee-related aspects, respect for human rights, anti-corruption and bribery issues, and diversity on boards of directors. This includes listed companies as well as some unlisted companies, such as banks, insurance companies, and other companies that are so designated by Member States because of their activities, size or number of employees.

²⁹⁸ T2S will offer synergies with the CSD Regulation and eventual harmonisation of securities law in the EU. T2S is also expected to spur competition amongst CSDs, which should promote better service quality, more efficient pricing and innovation to the benefit of all market participants. As a matter of fact, it is expected that EMIR and T2S, in combination with other EU regulation in the area of settlement, would deliver similar benefits in the area of clearing and settlement to the ones MiFID delivered for the trading landscape. If T2S proves to be efficient, it should offer significant economies of scale. It is then likely that most securities traded in Europe would be settled in T2S.

²⁹⁹ For details, see impact assessment, SWD(2012) 22 final.

Commission Services draft working document on post-trading from 2006 estimated between EUR 2 billion and EUR 5 billion of aggregate excess cost of post-trading for investors.³⁰⁰ Furthermore, EUR 700 million of cost reductions could be achieved through market consolidation.³⁰¹ Moreover, T2S is expected to further reduce both domestic and cross-border costs (see section 2.7). The T2S economic impact assessment of 2008 estimates cost savings from T2S of EUR 145 million to EUR 584 million. For investors, the CSDR is expected to reduce significantly the current gap between the costs of purely domestic and cross-border operations. It will not only reduce costs relating to CSDs (1.5 % of total costs of transaction and custody)³⁰² but also costs relating to intermediaries (including custodian banks) (22 % of total costs) by simplifying and reducing levels of securities holding.³⁰³ The issuers will benefit from the reduction of CSD costs in relation to securities issuing and the management of their relationships with the investors. They will also benefit from a choice between various CSDs: they can issue their securities in a CSD of their choice according to the location of their investors, enabling them better access to investors.

A combination of different reform measures help to further enhance efficiency by **improving the competitive functioning of the financial sector**. The competition measures work through different mechanisms, including:

- **opening access to market infrastructures**—access provisions contained in MiFID II, EMIR and the CSD Regulation reduce existing barriers to access to trading venues, CCPs and CSDs, respectively, and thereby enhance competition along the whole securities trading chain;
- **promoting entry in other markets**— in the concentrated markets of CRAs, the reforms aim to promote competition by enhancing visibility of new entrants through registration and authorisation and the creation of a European Rating Platform for the publication of available credit ratings and by requiring issuers to consider using a small CRA in case they would employ more than one rating agency. In other areas, the reforms often contain waivers to the rules for small firms (or additional measures for the largest firms),³⁰⁴ so as to reduce the relative burden for small firms and facilitate market entry by new firms;

³⁰⁰ http://ec.europa.eu/internal_market/financial-markets/docs/clearing/draft/draft_en.pdf

³⁰¹ These numbers give an indication of orders of magnitude but are probably overstated due to the fact that the gap between CSD cross-border and domestic costs has already started to decrease since 2006.

³⁰² The costs borne by investors to the CSDs are relatively modest. For example, the costs incurred by an investment fund in relation to CSD services amounts to about 1.5 % of its total costs of custody and transaction, excluding costs linked to the management of the fund. The rest is allocated as follows: the CCPs (1%), banks in securities depositories (22 %), trading venues (4.5 %) and market intermediaries (71 %). See Oxera (2011).

³⁰³ The possibility for issuers to issue directly in a CSD in another Member State and provisions strengthening the links between CSDs is expected to reduce the chain of custody.

³⁰⁴ By imposing additional requirements on the larger TBTF firms, the reforms improve the relative position of small and medium-sized firms in the market or new entrants. An example is the capital surcharge for systemically important banks or the structural reform proposals that restrict certain trading activities in these banks. As a result of these measures, smaller competitors or new entrants not subject to the requirements may gain market share. Of course, should the activities of these banks also become too important and risky, they would in turn be submitted to the stricter rules, as would be the case for the TBTF banks.

- **facilitating market exit**—A competitive and dynamic market does not only require easy market entry but also that inefficient or failing firms can easily exit the market. Better resolution tools (BRRD) for banks that are easier to resolve (CRD IV package, structural reform) reduce barriers to exit and thereby enhance competition;
- **reducing implicit subsidies** —financial institutions that are perceived as being too big to fail and therefore benefit from an implicit taxpayer subsidy have a competitive advantage over those that do not. The package of banking reforms aimed at addressing the TBTF problem (in particular the CRD IV package, BRRD and structural reform) helps correct these competitive distortions;³⁰⁵
- **reducing information asymmetries**—various transparency and disclosure requirements aim to reduce the informational disadvantage of consumers of financial services and thereby put them in a stronger position vis-à-vis providers (e.g. MiFID II, CRD IV package, IMD II, UCITS, MCD and PRIIPS); and
- **improving competition in payment systems**—The revised Payment Services Directive (PSD II) is expected to bring more competition to the electronic payments market, providing consumers with more and better choices between different types of payment services and service providers. Until now, entering the market of payments was complicated for third-party payment providers,³⁰⁶ as many barriers were preventing them from offering their solutions on a large scale and in different Member States. With these barriers removed, many more new players are expected to enter new markets and offer cheaper solutions for payments to more and more consumers throughout Europe. Furthermore, PSD II will contribute to the reduction of charges paid by consumers for card payments.³⁰⁷

In addition, the measures discussed above in section 4.6 on financial integration also contribute to competition and efficiency in the market, by levelling the playing-field and **facilitating EU cross-border activities**. For example, the creation of new

³⁰⁵ The level-playing field argument also applies across Member States. Banks in Member States that are in a better position to stand behind their domestic banks are likely to benefit from a larger implicit subsidy than banks in weaker Member States. Thus, weak banks in a strong Member State may not be sufficiently disciplined by the market place and are at a competitive disadvantage compared to banks that are potentially stronger but based in a weaker Member State. In addition to the measures aimed at reducing the TBTF problem, the Banking Union will help break the link between domestic banks and sovereigns and thereby contribute to improved cross-border competition within the euro area.

³⁰⁶ During the past years new actors have emerged in the area of internet payments offering consumers the possibility to pay instantly for their internet bookings or online shopping without the need for a credit card (around 60 % of the EU population does not possess a credit card), establishing a payment link between the payer and the online merchant via the payer's online banking module. These innovative and often less costly payment solutions are already offered in a number of Member States (e.g. Sofort in Germany, IDEal in the Netherlands, Trustly in Scandinavia). However, these new providers are not yet regulated at the EU level. The new rules will cover these new "third party payment providers" (TPPs) and the "payment initiation services" they offer, addressing issues which may arise with respect to confidentiality, liability or security of such transactions.

³⁰⁷ In all cases where the card charges imposed on merchants will be capped, in accordance with the complimentary multilateral interchange fees (MIF) Regulation, merchants will no longer be allowed to surcharge consumers for using their payment card (see section 4.7.2).

passports in the asset management sector (mainly the manager passport provided by AIFMD, but also the passports provided by EuVECA, EuSEF and the one proposed in EuLTIF) are adding to the existing single market for UCITS funds the possibilities for fund managers to market non-UCITS investment funds throughout the EU without additional national burdens.

Regulation imposes costs, and there is a risk that regulatory reform reduces the efficiency of the financial system and impedes its ability to carry out the key functions that are necessary in a well-functioning modern economy and that contribute to economic growth. Chapter 6 discusses the costs in more detail. However, it should be noted that the reform proposals were generally drafted with the aim of addressing and **correcting market (and regulatory) failures** that impeded the efficient functioning of the financial system. This focus on market (and regulatory) failures follows the principles of good regulation and minimises the risks and costs associated with regulatory intervention. Also, **proportionality** is a fundamental principle embedded within all the Commission proposals.³⁰⁸

While a major focus of the financial reform agenda has been to restore stability of the financial system, careful consideration has also been given to ensure that this does not unduly undermine economic growth. Recognising the vital role that financial markets play in supporting the economy, it has been particularly important to strike a balance between strengthening requirements to ensure financial stability and allowing a sufficient and sustainable flow of finance to the economy to support growth and investment.

An efficient financial system **ensures access to finance** for all financial market participants at fair prices. For all reform measures the impact on small and medium-sized enterprises (SMEs) has been considered and various measures specifically aim at addressing specific problems, in particular in the area of access to finance, faced by SMEs. **SMEs** are the backbone of our economy and contribute more than half of the total value added in the non-financial business economy.³⁰⁹ SMEs have historically faced significant difficulties in accessing funding to grow. These difficulties have been reinforced during the crisis given their reliance on bank financing. Faced with significant bank deleveraging and fragmented financial markets in the EU, this environment has led to a considerable divergence of conditions for access to finance from country to country. As set out in an action plan in 2011 to address the financing problems faced by SMEs,³¹⁰ the EU financial framework has been adapted considerably over the last three years. Measures include:

- **Reducing the administrative burden and reporting requirements for SMEs:**
 - The Accounting Directive simplifies the preparation of financial statements for small companies. The Directive reduces and limits the amount of information to be provided by small companies to satisfy regulatory requirements. The "think small first" approach of this Directive will enable companies to prepare profit and loss accounts,

³⁰⁸ See Article 5 TEU.

³⁰⁹ Structural Business Statistics (Eurostat)

³¹⁰ See http://ec.europa.eu/enterprise/policies/finance/files/com-2011-870_en.pdf.

balance sheets and notes that are more proportionate to their size and to the information needs of the users of their financial statements. Of course, any small company remains entitled to provide more information or statements on a voluntary basis;

- The Market Abuse Regulation (MAR) adapts the disclosure requirements for issuers on SME markets to their needs. For instance, the issuers on such markets will be subject to tailored rules for the requirement to draw up lists of insiders. Issuers on SME markets will also benefit from the clarification of the scope of the reporting obligations in relation to managers' transactions and the new provisions with respect to the thresholds which trigger the obligation to report such manager's transactions;
 - The Commission delegated act of 30 March 2012 to the amending Prospectus Directive implemented proportionate disclosure regimes aiming to increase the efficiency of the Prospectus regime by reducing administrative burdens for issuers where they were considered to be disproportionate. The reduction of disclosure requirements has been carefully calibrated in order to reach the right balance between the reduction of the administrative burden for the issuers and the need to preserve a sufficient level of investor protection;
 - The revised Transparency Directive of 22 October 2013 abolishes the requirement to publish quarterly financial information with the aim to reduce the administrative burden for listed companies and encourage long term investment.
- **Creating a dedicated trading platform (SME growth markets) to make SME markets more liquid and visible (MiFID II).** In addition, SME growth markets benefit from certain **exemptions in the CSDR** (e.g. more flexible requirements on settlement and buy-in period) to better serve the needs of these markets,
 - **Addressing the issue of SME risk weighting in the bank capital framework (CRD IV package).** There are specific treatments for exposures to SMEs under both the standardised approach as well as under the internal rating-based approach to calculate capital requirements. Furthermore, the CRD IV package includes a correcting factor that lowers the capital requirements related to credit risk for exposures to SMEs.
 - **Addressing the issue of SME risk weighting in the prudential framework for insurance businesses (Solvency II).** Risk weights of relevance for SMEs are being reviewed in the preparation of the delegated acts for Solvency II, based on advice from EIOPA (see also section 6.5.1). Possible adjustments might include, inter alia, a less onerous treatment of certain types of investment funds which are newly-created by EU legislation (EuLTIFs, EuSEFs and EuVECAs) as well as investments in closed-ended, unleveraged alternative investment funds (e.g. certain private equity funds); a more favourable treatment of high-quality securitisation (see also section 7.6); and amendments to the treatment of unrated bonds and loans.

- **Introducing new EU investment fund frameworks** for investment in venture capital (EuVEECAs) and in social entrepreneurship funds (EuSEFs). The proposal on European Long-term Investment Funds (EuLTIFs) further aims to facilitate the long-term financing of SMEs.

Further measures, also in the context of ensuring the long-term financing of the EU economy are currently being explored (e.g. crowdfunding). Improving access to finance and developing alternative financing sources is a key area of focus for ongoing work, as set out in the March 2014 Communication on long-term financing of the European economy (see box 4.8.1).

Box 4.8.1: Communication on long-term financing of the European economy³¹¹

The Commission adopted a Green Paper on the long-term financing of the European economy on 25 March 2013³¹² that opened a three month public consultation. Its purpose was to initiate a broad debate about how to foster the supply of long-term financing and how to improve and diversify the system of financial intermediation for long-term investment in Europe. Responses to the consultation contributed to further assessment by the Commission of the barriers to long-term financing, with a view to identifying possible policy actions and feeding the overall debate on this at European and international level.

One year later, on 27 March 2014, the Commission published the follow-up to this work: a Communication on long term financing of the European economy proposing a set of actions of actions to mobilise private sources of finance, make better use of public finance, further develop European capital markets, improve SMEs' access to financing, attract private finance to infrastructure and enhance the framework for sustainable finance. An action plan to implement the reforms will be put into place.

Private sources of long-term financing: The support of responsible bank lending and the fostering of non-bank sources of financing, such as institutional investors, including insurance companies, pension funds, traditional or alternative investments funds, sovereign funds and foundations is crucial. While banks will continue to play a significant role, the diversification of funding is important in the short run to improve the availability of financing, as well as in the long run, to help the European economy achieve its goal of sustainable growth. Actions in this area include incentives to stimulate long-term investment by insurers in the delegated act for Solvency II, and examining the opportunities presented by the creation of a single market for personal pensions. The legislative proposal for new rules on occupational pension funds, adopted on the same day as the communication, should also contribute to more long-term investment

Public funding: The public sector is a key contributor to gross capital formation in the form of tangible and intangible investment. Efforts are needed to enhance the transparency and efficiency in the use of public funds, to maximise the return on public investment, its contribution to growth and its ability to leverage private investment. Through the EU Semester process the Commission will continue to monitor the fiscal policies of the EU28, including the quality of public expenditure and compliance with the Excessive Deficit Procedure. In addition, a wide focus, which addresses the activities of national promotional banks and export credit agencies, is needed. Actions in this area will involve providing guidance on general principles for national promotional banks and to increase cooperation between them and with the European Investment Bank (EIB); and to explore ways of promoting better coordination and cooperation among national credit export schemes.

Financial markets: Policy will be developed to diversify European financing channels. European capital markets are relatively underdeveloped and are currently insufficient to fill the funding gap created by bank deleveraging (see section 6.4.1). Appropriate financial instruments are also required to allow financial markets to play an active and effective role in channelling funds into long-term investment. This includes innovative financial instruments linked to the key challenges of sustainable growth in Europe, including specific instrument to address infrastructure, climate and social challenges. Actions in this area include a review of the Prospectus Directive and analysis on the role of covered

³¹¹ COM(2014) 168 final

³¹² COM(2013) 150 final

bonds and private placement in the single market. Further work will be carried out on the differentiation of “high” quality securitisation products with a view to ensuring coherence across financial sectors and exploring a possible preferential regulatory treatment compatible with prudential principles (see section 7.6).

SME finance: A key issue for SME finance is facilitating the transition from start-up to SME to mid-cap, i.e. a transition up the so-called “funding escalator”. As they progress through their life cycle, SMEs use a combination of financing sources and often find it challenging to transition from one mix to another. Between the different stages of growth, companies can face “financing gaps” and “education gaps”. This is particularly prevalent at the early stage and at the growth stage, due in part to limited venture capital funding in Europe. The actions set out in the communication include improving credit information on SMEs, reviving the dialogue between banks and SMEs and assessing best practices on helping SMEs access capital markets.

A separate communication has been presented on the issue of *crowdfunding*,³¹³ following the public consultation. It will aim to raise awareness and information disclosure; promote industry best practices and facilitate the development of a quality label; monitor the development of crowdfunding markets and national legal frameworks. As this is an emerging source of finance, it will be important that a regular assessment of whether any form of further EU action – including legislative action – is necessary to support the growth of crowdfunding.

Infrastructure finance: In addition to the already announced measures as part of the Project Bond Initiative, further action will look at increasing the availability of information on infrastructure investment plans and improving the credit statistics on infrastructure loans.

Cross-cutting measures: The ability of the economy to channel funds to long-term financing is also dependent on a number of cross-cutting factors, including corporate governance, accounting, taxation and legal environments. The general business and regulatory environment is important for domestic as well as cross-border investment.

For example, discrepancies between the insolvency laws of Member States and inflexibilities in these laws create high costs for investors, low returns to creditors and difficulties for businesses with cross-border activities or ownership across the EU. These inefficiencies affect the availability of funding as well as the ability of firms to get established and grow, with particular impact on SMEs. In March 2014, the Commission issued a recommendation on best practice principles to enable the early restructuring of viable enterprises and to allow bankrupt entrepreneurs to have a second chance.

Other actions for this workstream will include work on corporate governance to increase shareholders’ and investors’ engagement; on accounting standards; and on tax and legal issues.

³¹³ COM(2014) 172 final

CHAPTER 5: THE COMPLEMENTARITY OF REFORMS

This chapter builds on chapter 4 to further highlight the overall coherence of the financial reform agenda and to summarise how different reform measures complement each other and work together to meet the overall aim of building a well-functioning financial system that is conducive to sustainable economic growth.

Many of the reform measures contribute to delivering on more than one key objective of the reform, and the objectives themselves interact to achieve a well-functioning financial system. What follows should not be interpreted as a fully exhaustive list. Rather, the chapter aims to illustrate why the different reform measures are overall coherent and complementary in achieving the reform objectives and also to highlight some aspects that were not covered in the analysis in chapter 4.

5.1 COMPLEMENTARITIES IN ACHIEVING A GIVEN OBJECTIVE

No single reform measure would have been capable of tackling the different underlying failures revealed by the financial crisis and achieving the wider reform objectives. Different rules are required to meet different objectives, and even the rules that aim at the same objective are necessary to the extent that they address different underlying problems in the market and/or reinforce each other in achieving the desired objective. The EU, in close cooperation with its international partners in the G20, therefore opted for a comprehensive set of measures to address the different failures.

In the banking sector, a large number of measures were needed to be taken to increase the stability and resilience of EU banks. Some may argue that higher capital requirements for banks are an all-encompassing solution to most financial stability considerations. However, given the number and severity of failures observed in the financial crisis, it is difficult to see how capital could be such a powerful tool. While capital can be used ex post to absorb losses of a bank when failure occurs, it does not tackle the different underlying incentive problems that can give rise to failure ex ante. Higher capital requirements enhance the resilience of individual banks, but are not sufficient to enhance the stability in the market as a whole. Moreover, given the size and leverage of bank balance sheets, the levels of additional capital that would need to be raised to address the different underlying problems could be so high that they would have disruptive effects on the ability of banks to support real economic activity, at least in the transition phase (see also chapter 6). In general, even if capital charges were capable of achieving the desired effects, the required capital levels would need to be set so high that the negative consequences would most likely outweigh the stability benefits. Thus, complementing capital requirements with further measures helps achieve the stability objectives while limiting disruptive effects. That is, **the combination of different measures allows achieving the stability objective not only more effectively but also at lower cost.**

Structural reform as a complement to other bank sector reforms

Bank structural reform provides a good example of how reform measures can complement each other in achieving a given objective (in this case, greater stability

and resilience of banks). As discussed in section 4.2.6, various bank sector reforms are needed to address the problem of too-big-to-fail banks. Higher capital requirements (Basel III, as implemented in the CRD IV package in the EU) and the availability of bank recovery and resolution tools (under BRRD) are necessary to reduce this problem. However, they are not sufficient in particular for the large European banking groups which are universal banks and typically combine retail/commercial banking activities and wholesale/investment banking activities in one corporate entity, or in a combination of interconnected entities. Thus, to complement existing reforms, structural measures have been proposed by the European Commission in January 2014 to reduce the probability and impact of failure of TBTF banks.

Structural bank reforms, which seek to require separation of significant high-risk trading activities from other activities within the banking group, can **complement the reforms related to capital requirements** as follows:

- Addressing TBTF problems by higher capital requirements only would not address the fundamental inconsistency of, on the one hand, "taxing" systemic risk and trading activities with capital requirements while at the same time allowing these activities to be performed by entities that enjoy explicit and implicit subsidies through coverage of their activities by public safety nets. Structural bank reform addresses the inconsistency and can eliminate undue implicit subsidies of activities that contribute to systemic risk and excessive trading, in full alignment with the prudential capital requirement framework;
- Irrespective of the changes to the capital requirements that increase the amount of capital required for market risk, banks could still have significant incentives for engaging in trading activities given the particularly substantial profits of such activities.³¹⁴ This has induced a broad-based shift towards these activities, at the expense of traditional activities, with an increase in systemic risk being the consequence. As shown in section 4.2.1, the ratio of risk weighted assets to total assets is significantly lower for TBTF banks, which typically have an important trading book, than for other banks.³¹⁵ In addition, the capital requirements for market risk that are based on value-at risk ("VaR") model calculations can still be small compared to the size of trading assets.³¹⁶ Standard setters at both international and European level are currently critically assessing the consistency and accuracy of the risk-weighted asset approach;³¹⁷
- Whereas a (non-risk weighted) leverage ratio helps addressing TBTF risks, it is a blunt tool that helps as a backstop against RWA manipulation, but does not adequately tackle risk-taking incentives. It would have to be set at a high

³¹⁴ See for example Boot and Ratnovski (2012).

³¹⁵ "The ratio of risk-weighted assets to total assets differs significantly between banks. It is remarkable that the banks with the highest amount of trading assets, notional derivatives, etc. (i.e. banks that are least "traditional") tend to have the lowest ratio." Report of the High-level expert group on bank structural reform (2012).

³¹⁶ "[...] for a sample of 16 large EU banks, the capital requirements for market risks vary between close to 0 % to just over 2 % of the total value of trading assets, the average being close to 1 %." Report of the HLEG, p. 48. This explains why some measures have been taken, e.g. the use of stressed VaR as part of Basel II.5's revisions to the market risk framework.

³¹⁷ See European Banking Authority (2013) and BCBS (2013).

level to fully off-set the remaining incentives in favour of trading. Given the current size of the banks under consideration, ensuring that sufficient capital is funding the activities may pose difficulties. Structural reform complements capital adequacy regulation and may avoid such difficulties;

- The prudential framework for banks is complex. This complexity also stems from the increased variety and complexity of bank activities that have been regulated via complex capital standards (Hoenig and Morris (2011)). These complex standards are difficult to monitor and understand for banks, supervisors, and the market. Structural reform may help to simplify supervision and enforcement of capital requirement regulation;
- Capital requirements do not address potential conflicts of interest between banks and their customers and misalignments between a commercial banking and an investment banking culture within a single “unstructured” banking group;
- Structural reform facilitates market monitoring, as envisaged in Pillar 3 of the capital adequacy framework, by providing more transparent group structures that match the main business lines, and by providing more disclosure of the data of the segregated business entities. This also allows a more effective and transparent tailoring of capital requirements to the different legal entities. A structural separation would entail different entities holding separate capital and liquidity buffers, aligning the prudential requirements more closely with the risk. This promotes market discipline.

Structural bank reforms can also **complement the reforms related to bank recovery and resolution** in a number of ways:³¹⁸

- Structural bank reform is an ex-ante tool to address a broader set of objectives beyond facilitating the orderly recovery and resolution of a banking group. Structural reform also aims at reducing the complexity, interconnectedness, cultural problems and conflicts of interest between the different banking entities within a given group, and aims at reducing the excessive growth of bank balance sheets by constraining the coverage of the public safety nets to specific activities only;
- As regards impact of failure, implementation of the BRRD will pave the way for the orderly resolution of average EU banks and thus will significantly reduce the impact of failure of such banks on public finances. However, the resolution powers may be challenging to exercise for TBTF banks, given their particularly large, complex and integrated balance sheets and corporate structures. Structural reform will increase the options available to authorities

³¹⁸ Structural reforms could also complement Banking Union. Banking Union is meant to reduce the inappropriate links between sovereigns and their banks. However, by shifting the risk to the supranational level, implicit subsidies and the corresponding problems of moral hazard, aggressive balance sheet expansion, and competition distortions become even more prominent. As a result, Member States may be reluctant to mutualise (future) risks through Banking Union, in the absence of structural reform and credible orderly resolution mechanisms. Targeting the safety net to those core banking activities that deserve subsidisation and protection because they address a market failure reduces the scope of the public safety net.

when dealing with failing banking groups, because the banking group balance sheet will be better structured into more distinct and autonomous building blocks. By increasing the resolvability of a bank, it will also increase the credibility of bank resolution, leading to improved market discipline and bank balance sheet dynamics. Also, structural reform could limit the scale of the task on an entity basis and thereby make it more feasible to apply the different resolution tools. This could also allow a swifter resolution process, as it would be easier to identify problems and apply targeted solutions. The resolution planning offers a vehicle to address potential impediments to resolution. In the absence of a more clearly structured corporate group structure, it might be difficult for a resolution authority to exercise its discretionary judgment and impose, for example, a divestment of a part of a large and complex diversified banking group. All this may explain market perceptions of remaining implicit subsidies and calls for further clarity as regards structural measures;³¹⁹

- Structural reform can potentially curtail contagion by clearly mapping and controlling intra-financial sector exposures. If left uncontrolled, bail-in may give rise to undue contagion (as bail-in related losses may create losses and distress at other linked financial institutions), although the BRRD provides for tools to avoid widespread contagion when bail-in is applied. Structural reform may enhance the effectiveness of the bail-in tool to the extent that it further curtails contagion.

Other complementarities in achieving a given objective

Examples of complementarities in the rules also exist in relation to other objectives. For instance, as regards consumer protection, the reforms are based on a cross-sectoral approach to ensure that consumers can access financial markets on fair grounds and benefit from the required protection irrespective of whether they consume banking, insurance or investment products and services. Hence, among other consumer protection legislation, the reforms introduce standards for better information and better financial advice in relation to all main retail financial products and services – e.g. mortgage loans (MCD), bank deposits (DGS), payment accounts (payment accounts package), investment services and funds (MiFID II, PRIIPs and UCITS) and insurance products (IMD II).

As regards efficiency in financial services, the access provisions contained in MiFID II, EMIR and the CSDR reduce existing barriers to access to trading venues, CCPs and CSDs, respectively, and thereby enhance competition along the whole securities trading chain. Combined with the other efficiency enhancing measures (see also section 4.8), the three pieces of legislation together seek to improve the structure and transparency along the trading chain and jointly contribute to further reducing the barriers and costs to trading and post-trading in Europe.

³¹⁹ See e.g. Moody's (2013) assessment of the BRRD: "Taken at face value, the draft is credit-negative for senior unsecured creditors of the roughly two-thirds of EU banks whose ratings incorporate some level of systemic support uplift. It is unlikely we would remove all systemic support from every EU bank's rating in the foreseeable future, but a change to our assumptions would imply lower ratings for some or all banks. However, there are a number of important areas in which we need greater clarity before we can take a definitive view on the implications for EU bank ratings. For example, to be able to assess the Directive's impact we would ideally want to understand [...] the plans for broader structural changes in the EU banking industry"

Without going into the detail presented in chapter 4, Table 5.1.1 provides an overview of the main reform measures and how they complement each other in reaching the relevant reform objectives.

Table 5.1.1: **Complementarities in achieving the objectives**

Primary objective	And how it is reached
A stable financial system	
Avert bank runs	<ul style="list-style-type: none"> • CRD IV package (increased loss absorbency; better liquidity management; improved internal governance) • DGS (strengthening the safety net for depositors in case of bank failures) • BRRD (orderly resolution, depositor preference)
Prevent the build-up of systemic (macro-prudential) risks	<ul style="list-style-type: none"> • Establishment of the ESRB • Macro-prudential elements in CRD IV package (e.g. systemic risk buffer) • EMIR (central clearing; conservative margin requirements and haircut policies; prudential requirements for CCPs) • increased disclosure requirements (e.g. MiFID II, SSR, CRD IV package, AIFMD)
Reduce pro-cyclicality	<ul style="list-style-type: none"> • ESRB • Macro-prudential elements in CRD IV package (e.g. countercyclical capital buffer) • CRA regulations (reduced mechanistic reliance of investors on external ratings) • EMIR (stable margin requirements and haircut policies through the cycle)
Reduce interconnectedness	<ul style="list-style-type: none"> • Banking sector: Structural reform proposal; CRD IV package; BRRD (ensures resolvability of banks) • Securities markets: EMIR (mitigation of counterparty risk); MiFID (circuit breakers); SSR (restrict short selling in extraordinary circumstances, ban on uncovered short sales) • Asset management: AIFMD (regulation and supervision of previously unregulated actors); MMF Regulation • Business environment: CRA regulations (improved quality of ratings); audit reform (ensure high-quality audit reports)
Prevent regulatory arbitrage and close regulatory loopholes	<ul style="list-style-type: none"> • Globally consistent rules for main reforms (e.g. EMIR, CRD IV package, BRRD, MiFID II) • Regulation of previously unregulated sectors (e.g. AIFMD, shadow banking) • Overall increased transparency vis-à-vis supervisors and market participants
Ensure resolvability	<ul style="list-style-type: none"> • BRRD, SRM for Euro area+ and those joining voluntarily • Bank structural reform • <i>Forthcoming: proposal for resolution of non-banks, in particular CCPs</i>
Address too-big-to-fail	<ul style="list-style-type: none"> • Banking sector: CRD IV package; BRRD; SRM; Structural reform • EMIR (by shifting risks from the banking sector to CCPs) • <i>Forthcoming: proposal for resolution of non-banks, in particular CCPs</i>
Align incentives	<ul style="list-style-type: none"> • Cross-sectoral policy elements (e.g. sanctions, securitisation, governance incl. remuneration) • Central clearing of derivatives transactions; trading on organised, transparent venues (EMIR, CRD IV package, MiFID II) • Requirements for investments in securitisation positions (CRD,

	<ul style="list-style-type: none"> AIFMD, Solvency II) • Internal governance and remuneration (CRD IV package, MiFID II, UCITS, AIFMD, benchmarks) • Sanctioning regimes (e.g. CRD IV package, MIFID II, AIFMD, UCITS) • Reduce conflicts of interests: CRA regulations; audit reform; MiFID II (trading platforms; investment advice) • <i>Forthcoming: review of the Shareholders Right Directive</i>
Stable and resilient financial market infrastructures	<ul style="list-style-type: none"> • MiFID II • EMIR • CSDR
A stable shadow banking sector	<ul style="list-style-type: none"> • CRD IV package; Solvency II • AIFMD • MMF regulation • Transparency of securities financing transactions
A stable and resilient insurance sector	<ul style="list-style-type: none"> • Solvency II; Omnibus • Establishment of EIOPA
Financial integration	
A reinforced single market facilitating the financing of the economy	<ul style="list-style-type: none"> • Single rule book • EuVECAs, EuSEFs, EuLTIFs
Enhanced supervision and enforcement	<ul style="list-style-type: none"> • Strengthening the powers of competent authorities (e.g. CRD IV package; MiFID II) • Establishment of the ESFS • Ensure appropriate supervision of all actors (e.g. CRA regulations, audit reforms, AIFMD, MMF regulation) • Horizontal approach on sanctioning regimes • SRM, SSM for Euro area+ Member States and those joining voluntarily
Breaking the adverse feedback loop between banks and sovereigns	<ul style="list-style-type: none"> • SRM, SSM for Euro area+ Member States and those joining voluntarily
Market Integrity and confidence	
Countering market abuse	<ul style="list-style-type: none"> • MAR/CSMAD • Proposal on benchmarks/financial indices
Protection of consumers and retail investors	<ul style="list-style-type: none"> • EU-wide creditworthiness assessment and responsible lending standards (MCD) • Standards for better information about financial products and services and higher standards for financial advice (MiFID, PRIIPs, IMD II, MCD, UCITS, PAD) • Better protection of the assets of consumers (DGS, ICS, rules on asset safekeeping in UCITS and AIFMD) • More secure alternative payment methods (PSD II) • Prohibition of surcharges (MIF regulation) • Streamlined switching processes and ensuring access to basic payment accounts (PAD)
Enhancing the reliability of financial information and credit ratings	<ul style="list-style-type: none"> • CRA regulations • Audit reform • Accounting reforms
Countering money laundering and terrorist financing	<ul style="list-style-type: none"> • AML framework
Efficiency	
Reducing the implicit subsidy for TBTF banks	<ul style="list-style-type: none"> • CRD IV package • Bank structural reform • BRRD, SRM

Securing more risk-reflective pricing	<ul style="list-style-type: none"> • CRD IV package • Solvency II • EMIR
Enhancing competition and efficiency	<ul style="list-style-type: none"> • CRAs (facilitating market entry) • MiFID II, EMIR, CSDR (opening access to market infrastructures) • BRRD (facilitating market exit)
Reducing information asymmetries	<ul style="list-style-type: none"> • EMIR • MiFID II, PRIIPs, IMD II, DGS, MCD • SSR • AIFMD • Prospectus Directive
A financial framework reactive to financial innovation and technological development	<ul style="list-style-type: none"> • ESMA/EBA/EIOPA (powers to temporarily prohibit certain products or practices) • MiFID II (safeguards for algorithmic and high frequency trading; OTF); reinforced by MAR • Transparency Directive (to cover Contracts for Difference) • Payments package
Ensuring access to finance	<ul style="list-style-type: none"> • Reducing the administrative burden and reporting requirements for SMEs (e.g. Prospectus Directive, Transparency Directive, Accounting Directive, MAR) • Creating a dedicated trading platform to make SME markets more liquid and visible (MiFID II) • Addressing SME risk-weighting in the bank capital framework (CRD IV package) • Introducing new EU frameworks for investment in venture capital (EuVECA) and in social entrepreneurship funds (EuSEFs)

Source: Commission Services

5.2 COMPLEMENTARITIES BETWEEN OBJECTIVES

Many of the reform measures contribute to delivering more than one of the four main objectives of the EU financial regulation agenda. Moreover, the objectives themselves interact and only in combination achieve a well-functioning financial system.

Financial stability is of little benefit to the economy if this is achieved by unduly hindering the efficient functioning of the financial system. This is why **the reform agenda is focused on correcting market failures**. As already set out in chapter 4.8, a number of measures contribute to both financial stability and efficiency:

- A transparent financial system allows better monitoring of transactions and market developments by supervisors as well as proper market analysis and monitoring by investors. Enhanced disclosure and reporting requirements (e.g. the flagging of short sales, reporting obligations to trade repositories, the improved disclosure regime for issues in the Prospectus Directive, the increased transparency on algorithmic trading activities and trading in commodity derivatives markets) will reduce information asymmetries and thereby enhance both the stability and efficiency of the financial system (and also contribute to its integrity). Stricter disclosure requirements to supervisors (e.g. AIFMD, MiFID II, SSR) will facilitate monitoring of exposures and enable supervisory authorities to identify and assess emerging risks at an early stage. Transparency will also be beneficial for financial institutions and will

contribute to better internal risk management practices and lead to better-informed decisions by investors and consumers. Again, this benefits both stability and efficiency in the system by providing better control and market discipline in order to avoid excessive risk-taking and instead ensure that risk is properly taken into account by all market participants.

- The package of reforms aimed at correcting the TBTF problem in the banking sector (in particular the CRD IV package, BRRD and structural reform) contributes to financial stability because a reduction in the implicit subsidy for TBTF banks reduces incentives for excessive risk-taking. At the same time, the reform package enhances efficiency by reducing distortions in competition between banks that benefit from an implicit subsidy. It also helps redirect resources to more productive uses from a societal point of view as opposed to simply maximising bank returns.
- Similarly, the improved prudential framework for banks as well as the new risk-based capital requirements for insurers in Solvency II, combined with improved risk management standards, will induce financial institutions to internalise the risk of their activities. This will not only improve stability (by reducing incentives for excessive risk-taking) but also contribute to efficiency (by promoting efficient, risk-reflective pricing).

As regards the objective of market integrity and consumer confidence, this also interacts with and reinforces financial stability (as well as the efficiency and integration objectives). For example, the different reform measures to reduce abusive market practices and better protect consumers and investors will enhance their trust and confidence in the financial system, which in turn is a pre-condition for the system to function in a stable (and efficient) manner.

The market integrity and the efficiency objectives are similarly and strongly related. For example, the audit reforms mandate the rotation of auditors. This aims at increasing auditor independence by tackling the risk of conflicts of interest due to familiarity, thereby enhancing integrity in the audit market. This also has the positive effect of bringing more dynamics in the concentrated audit market, which potentially can open the market to more audit service providers in some segments. Similarly, the black list of prohibited non-audit services is tackling the potential risk of conflict of interest, and at the same time it provides market access to provide those services to other providers than audit firms (in the current market situation the provision of audit services is often used by audit firms as an access to the client, allowing afterwards the provision of even more lucrative non-audit services). Therefore, to the extent that they target the underlying market failures (namely, conflicts of interest due to asymmetric information and lack of competition), the reforms are expected to bring about benefits in terms of both greater integrity and enhanced competition (efficiency) in the audit market. A similar point can be made in relation to the new CRA regulations.

As another example, the various transparency and disclosure requirements in retail financial services aim to reduce the informational disadvantages of consumers and thereby put them in a stronger position vis-à-vis the providers of financial services. This is likely to not only improve the competitive functioning of the market (i.e. benefiting efficiency) but also reduces the risk of unfair and abusive market practices (i.e. benefiting market integrity and consumer protection).

Finally, financial integration needs to go hand in hand with the financial stability objective. As the crisis experience has shown, financial integration needs to be complemented by a strong regulatory and supervisory framework to avoid that cross-border capital flows become a source of financial instability (see also chapter 3.3 and chapter 4.6). The reforms of the institutional framework to strengthen the single market and the functioning of monetary union (single rulebook, ESFS, Banking Union) therefore target both financial integration and stability.

The potential frictions between financial integration and stability, in the absence of an appropriate regulatory and supervisory framework, extend to the global level. Given the global nature of many financial services markets, regulation and supervision cannot stop at national level. Rather, there is a need for **globally consistent rules** in markets that are global in scope. The EU is closely cooperating with its international partners – both at multilateral level (G20, FSB) and also bilaterally (e.g. regular financial market regulatory dialogues with major jurisdictions) to encourage jurisdictions and regulators to defer to each other – when it is justified by the quality of their respective regimes - in order to avoid extra-territorial applications and duplications of rules. The financial reforms also aim at overcoming the existing barriers to entry for third country (i.e. non-EU) market participants and to ensure a level-playing field by introducing third-country equivalence regimes in various pieces of legislation (e.g. MiFID II, EMIR, AIFMD, CRA, benchmark regulation). The system based on the concept of equivalence has been significantly refined in recent years, and should be further improved in the future.

While significant progress has been made toward a global framework (e.g. implementation of Basel III, OTC derivatives), work is still ongoing in several policy areas (e.g. shadow banking, too big to fail, resolution) as well as to ensure effective, convergent and consistent implementation of the agreed reforms. The latter is particularly important to avoid regulatory arbitrage and overlapping and inefficient cross-border regulatory regimes (see chapter 7.9).

5.3 COMPLEMENTARITIES BETWEEN SECTORS

Most regulatory reforms target a specific sector and seek to enhance the functioning of that sector by making it more stable, responsible and efficient. Different sectors are highly interlinked and connected: banks and insurers offer their services and provide finance to each other; banks raise short-term funding from shadow banks; financial markets and infrastructures facilitate the issuance and trading of financial instruments by financial institutions; and so on. Thus, reforms that are targeted at increasing the stability, integrity or efficiency in one sector will indirectly benefit those sectors that have a claim on or customer relationship with it.

A particularly relevant example relates to how large banking groups are intertwined with shadow banking entities and activities through their asset and liability side, both on and off balance sheets. As already noted in chapter 4.4, shadow banks provide up to 7 % of banks' total liabilities in the EU, and banks hold up to 10 % of the assets issued by the shadow banking system (ESRB, 2014). Measures to enhance the stability of the shadow banking sector will therefore also contribute to a more stable banking sector. For large European banks made losses linked to their MMF activities

amounting to hundreds of millions of euro.³²⁰ In this respect, the MMF regulation will reduce the contagion links between MMFs and their sponsors, both by strengthening the liquidity and capital standards and by introducing rules on external support.

Similarly, the proposed measures to enhance the reporting and transparency of securities financing transactions will shed light and allow better control of a key source of contagion for banks (and other financial institutions engaged in such transactions) via the shadow banking sector.

The banking sector is also closely connected with the insurance sector, including in the provision of finance to each other. There is evidence that insurers' understanding of the complexity and risks of banks reduced their willingness to hold bank equity and debt, especially since the start of the crisis. In this regard, the reforms that ensure safer and more transparent banks may enhance the willingness of insurers to invest in banks.³²¹

Financial markets and infrastructures are critical for many transactions within the financial sector itself (and with the wider economy). More resilient (and efficient) infrastructures are beneficial for other financial institutions in their role as traders, investors or issuers of financial instruments.

More generally, the financial regulation agenda seeks to strengthen the overall resilience of the financial system both by making individual sectors more stable (e.g. capital requirements for banks) and by reducing risks of contagion between sectors (e.g. transparency requirements for OTC derivatives and securities financing transactions). Given the interlinkages in the financial system, strengthening one part of the system generally also reduces risk in other parts of the system (also because the reforms seek to avoid that risks are merely shifted from one part of the system to another).

These interlinkages are also relevant when it comes to market integrity and confidence. As seen during the financial crisis, evaporation of trust quickly spills over from one sector to the next and can adversely affect the whole financial system. Reform measures to enhance confidence and trust in one sector help building confidence in the financial system as a whole.

5.4 CROSS-SECTORAL SYNERGIES BETWEEN REFORMS

Given the links between sectors, the financial regulation agenda is based on a cross-sectoral approach that aims at consistent rules and a common supervisory and enforcement framework across sectors. Also, some reforms that target specific sectors have been drafted to create synergies with reforms in other sectors. Reforms with significant cross-sectoral synergies include the following:

- There are synergies between the CRD IV package in banking and the EMIR reform of derivatives markets. The former imposes higher capital and collateral requirements on banks for derivatives that are not cleared centrally. This will

³²⁰ See the impact assessment of the proposal for a regulation on MMFs, SWD(2013) 315 final.

³²¹ Potential negative interactions between bank reforms and Solvency II for insurers are separately discussed in chapter 6.

encourage a critical mass of contracts clearing via CCPs. In turn, this increases the probability that CCP clearing can effectively mitigate counterparty risk, as intended by EMIR.³²²

- The legislative framework on CRAs ensures better supervision of CRAs, improves the quality and transparency of credit ratings and strengthens market discipline. The new CRA regulations are reinforced by measures to reduce mechanistic reliance on ratings in all EU sectoral legislation (e.g. AIFMD, CRD IV package, EMIR, UCITS, Solvency II). These measures combined contribute to reducing pro-cyclicality.
- The reforms introduce cross-sectoral requirements for risk retention, due diligence and monitoring for investments in securitisation positions. These were introduced in CRD III and consequently extended in a consistent manner to Solvency II, AIFMD and UCITS. The provisions contribute to align the interests of originators and investors. The cross-sectoral approach reduces the scope for circumventing the requirements by shifting exposures to less regulated sectors. The resilience of the securitisation market has been further enhanced by the regulation of CRAs when rating structured finance products and greater transparency for securitisations.

The interactions between reforms and the resulting synergies are difficult to quantify. However, any such complementarities imply that the total benefits of the financial reforms taken together are likely to exceed the sum of the benefits of each individual reform.

5.5 COMPLEMENTARITIES THROUGH IMPROVED SUPERVISION AND ENFORCEMENT AND BETTER GOVERNANCE

The effectiveness of the financial reform agenda critically depends on the effective supervision and enforcement of the new rules. As discussed in section 4.6, the ESFS, and in particular the three European supervisory authorities (EBA, ESMA and EIOPA), are instrumental for ensuring consistent supervision and appropriate coordination among national supervisory authorities. The new supervisory framework is therefore a critical complement to all the EU reform measures taken.

In response to the gaps identified in the course of the financial crisis, the reforms are ensuring more appropriate supervision of all market participants (e.g. CRAs; AIFMs, auditors, MMFs), markets and infrastructures (e.g. CCPs, CSDs, other trading facilities) and instruments (e.g. OTC derivatives, structured products). The new comprehensive, internationally coordinated framework closes regulatory gaps and loopholes and reduces opportunities for regulatory arbitrage.

Also, the supervision of financial conglomerates has been strengthened through the first revision of the Financial Conglomerates Directive (FICOD I), which was proposed in August 2010 and adopted in November 2011. FICOD I amends the sector-specific directives to enable supervisors to perform consolidated banking supervision and insurance group supervision at the level of the ultimate parent entity,

³²² See ZEW (2011), study for EP.

even where that entity is a mixed financial holding company.³²³ It is expected to enhance the effectiveness of supplementary supervision and, among other benefits, reinforce the risk management of financial conglomerates.

In addition, enforcement of rules has been strengthened by a new approach to sanctioning regimes. Efficient and sufficiently converged **sanctioning regimes** are the corollary to the new supervisory regime. Sanctions provide a deterrent and act as a catalyst to ensure that EU legislation is complied with. They can help ensure better enforcement of EU financial services rules. The assessment of the coherence, equivalence and actual use of sanctioning powers in the Member States by the Commission in 2009/10 revealed a significant degree of inconsistency and divergences across Member States. In its Communication "Reinforcing sanctioning regimes in the financial services sector" of December 2010, the Commission presented areas for potential improvement.³²⁴ The new horizontal approach on sanctioning regimes aims to ensure minimum standards at European level to ensure effective, proportionate and deterrent sanctioning regimes. A sanctioning regime has been systematically introduced in EU legislative acts across the whole financial services spectrum (e.g. CRD, MiFID II, Solvency II, MAR/CSMAD, UCITS, CSDR) while taking sector-specific issues into account. Key elements of these minimum standards include: appropriate types of administrative sanctions, publication of sanctions, a sufficiently high level of administrative fines, the criteria for applying sanctions, and appropriate mechanisms supporting the effective application of sanctions.

Stricter rules, combined with improved supervision and enforcement, can only go some way in improving market behaviour and outcomes. The EU financial regulation agenda is therefore complemented with requirements to improve the internal risk management and governance of financial institutions. **Effective risk management and governance practices are essential to achieving and maintaining public trust and confidence in the financial system.**³²⁵ The financial crisis has revealed significant weaknesses in the risk management and governance of financial institutions, which contributed to excessive risk-taking, failures and a loss of confidence in the financial system. In order to address these shortcomings, a horizontal approach has been taken to improve the corporate governance framework, aiming at ensuring cross-sectoral consistency and limiting the scope for regulatory arbitrage. To that end, similar provisions have been introduced in various pieces of legislation (e.g. CRD IV package, MiFID II, AIFMD, UCITS), covering amongst others remuneration policies, improved oversight of risks by boards and enhanced authority and independence of the risk management function.

The legislative proposal on non-financial reporting³²⁶ presented by the Commission in 2013 and approved by the European Parliament in April 2014 after agreement between the co-legislators, complements these measures and will improve the quality

³²³ FICOD I also revises the rules for the identification of conglomerates, introduces a transparency requirement for the legal and operational structures of groups, and brings alternative investment fund managers within the scope of supplementary supervision in the same way as asset management companies. The revision also gives the ESAs powers to draft regulatory technical standards and the European Commission to adopt them.

³²⁴ COM(2010) 716 final

³²⁵ See BIS (2010).

³²⁶ COM(2013) 207 final.

of corporate governance reports. In addition, the upcoming review of the shareholder rights directive will further add to improved corporate governance by strengthening shareholder rights and long-term engagement (e.g. by improved transparency on remuneration and granting shareholders the right to vote on remuneration policies and the remuneration report) and by encouraging proper interaction between companies, their shareholders and other stakeholders. Taken together, these measures will significantly strengthen the risk management and governance of financial institutions across all sectors, thereby complementing the regulatory and supervisory framework.

CHAPTER 6: THE POTENTIAL COSTS OF THE REFORMS

The broad scope and significance of the regulatory reform agenda raises questions about the costs arising from the reform initiatives, both as individual initiatives and in their combination. Given the inherent complexity and special nature of financial institutions and markets, as well as the fact that many costs are dynamic in nature, no quantitative model exists that can reliably, precisely and comprehensively estimate all such costs.

This chapter reviews the available evidence and draws from the economic literature to provide insights into some of the main areas of concern. There are necessarily limitations to what can be covered in this document. In particular, it is beyond the scope of this study to consider all costs and impacts arising to specific stakeholders, so the study takes a wider approach and covers the main themes at a general level. The chapter shows that while the reforms impose costs, these are often costs to financial intermediaries (and their shareholders and employees) that arise in the transition to a more stable financial system and are offset by wider societal benefits. The reform agenda has been mindful of minimising costs by allowing longer phasing-in and observation periods and adjusting rules where significant costs are anticipated.

6.1 COSTS TO FINANCIAL INTERMEDIARIES VERSUS WIDER SOCIETAL COSTS

When analysing the impact of regulation, it is important to distinguish “private” (i.e. stakeholder-specific) costs from the wider “societal” costs (i.e. costs for society as a whole). Whereas private costs cover the impact on financial intermediaries (and their shareholders and employees), societal costs are broader in scope and encompass a more general measure of total or aggregate welfare by incorporating the impact on all stakeholders in society, including customers (e.g. depositors, borrowers and consumers of financial services), creditors, and taxpayers (i.e. the public finances of governments).

Private costs to financial intermediaries may in fact not present a cost to the wider economy. Indeed, an increase in these costs may indicate a sign of the effectiveness of the reforms. For example, a number of reforms in the banking sector are aimed at reducing the implicit subsidy that too-big-to-fail banks enjoy given the expectation or market perception of the possibility of tax-payer bail-out. A reduction in the implicit subsidy will undoubtedly increase the funding cost of the affected banks, which is a private cost. But this cost is offset by tax-payer savings and wider financial stability benefits, as described in section 4.2.

Similarly, the reforms induce a re-pricing of risks which again creates costs, but these are matched by the benefits of avoiding excessive risk-taking due to underpriced risks in the market. For example, in the pre-crisis securitisation boom, the financial system was producing CDOs in increasing quantities simply because the private cost did not fully reflect the associated risks (and related societal cost). The underpricing of risks contributed towards the build-up of systemic risk which was not included (i.e. internalised) in the pricing of such CDO products. Had this been the case, banks would not have produced such large volumes of CDOs. More generally, the financial system grew and certain activities expanded in a way that would not have been

possible if risks had been properly priced in the market. A re-pricing of risks, even if it brings costs to certain market participants, can therefore not be considered a net cost to the economy as a whole because it is matched by societal benefits.

It follows that **costs should not be examined in isolation from benefits**. A number of studies only focus on the costs of regulation to the financial services industry and often measure these costs with respect to pre-crisis market conditions. However, this fails to appreciate that **pre-crisis conditions cannot serve as the relevant benchmark**, as the system was increasingly fragile, overleveraged and about to implode.

Since regulation serves society as a whole, regulators necessarily have to focus on wider societal costs and not on the impact on financial intermediaries (and their shareholders and employees). In particular, the costs of regulation that really matter are the wider costs that may arise if the regulations impede the ability of the financial system to fulfil its key economic functions (financial intermediation, payment services, risk transformation and insurance, as discussed in chapter 2) and if they detract from the overall objective of having a stable, responsible and efficient financial system.

This chapter presents estimates of the costs to financial intermediaries, but for the above reasons focuses it focuses on the wider societal impacts of the reforms. It argues that many of the costs incurred by financial intermediaries do not translate into societal costs and that, overall, the costs are expected to be outweighed by the benefits of the reforms. Also, even if financial intermediaries pass on some of the cost increase to their clients, governments can always avoid this by explicitly, directly and transparently subsidising certain activities or instruments, instead of indirectly subsidising excessively leveraged banks or other parts of the financial system.

This chapter also seeks to **argue against a number of frequently made claims**, which are not always fact-based and can be countered. Evidence shows that a larger and more profitable financial sector does not automatically lead to higher long-term growth (see Box 6.1.1). The crisis demonstrated that credit provision can be excessive and contribute to over-indebtedness and misallocation of resources. Sustainable economic growth over the long-term depends on a resilient and stable financial system that is able to fulfil efficiently its essential economic functions at all times. Substantial part of the pre-crisis balance sheet expansion was intra-financial sector business and a reflection of increased complexity, interconnectedness and asset inventories built up by the universal banks engaged in capital market activity. At the end of 2013, loans of euro area banks to households and non-financial corporations (NFCs) made up 31.4 % of their aggregate balance sheet. Large European banks expanded and leveraged up rapidly in the run-up to the crisis, including by effectively intermediating between US savers and US borrowers (see Shin (2012)). Therefore, scaling back of their international transaction-based banking activities, for example, must not in any way impede their ability to continue providing finance to the EU economy. Thus, **it is not appropriate to maintain that bank deleveraging can only be achieved at the expense of real economy lending** and reduced economic growth. See section 6.4.1 for a more detailed discussion.

A related claim is that higher capital and capital requirements imply less lending. This claim is not justified. On the contrary, **better capitalised banks with stronger**

balance sheet seem to have a greater ability to support the economy (see chart 6.4.7). However, raising capital can indeed be difficult and costly in the transition period to higher capital levels, especially for banks with a debt overhang and weak balance sheet. See section 6.4.2 for a more detailed discussion.

Finally, critics often defend the idea that liquidity generating activities, such as trading, are always beneficial. However, such activities are only beneficial up to a point. Whilst delivering private benefits to intermediaries engaged in such activities, it is not proven that more trading always implies societal benefits. The position-taking and speculation in some markets can even be harmful and produce destabilising effects. Much of the pre-crisis liquidity can, in fact, be considered ‘artificial’ and a reflection of rapidly expanding bank balance sheets that contributed to the boom-bust cycle. As such, the **pre-crisis liquidity conditions in the market are not the relevant benchmark**, as they characterised an over-leveraged system that ultimately collapsed. See section 6.5.2 for a more detailed discussion.

Box 6.1.1: The relationship between financial sector size and economic growth

The financial sector serves the economy by intermediating funds between savers and borrowers, providing payment services, and allowing effective management of risks. A resilient and stable financial sector is a pre-condition to fulfil these essential functions and to allow for sustainable economic growth. There is substantial empirical evidence on the positive relationship between financial development and long-term economic growth (e.g. Fisman et al (2007)). Among other things, financial deepening alleviates financing constraints at the company level and supports creative destruction (e.g. Brown et al (2009)).

However, there does not seem to be a uniformly positive effect on economic growth at all levels of financial intermediation. Several recent studies actually find that the positive relationship breaks down, once the financial sector has grown beyond a threshold in the range of 40-150% of GDP (see OECD (2014), BIS (2014), Cecchetti et al (2012), Arcand et al (2012)). Furthermore, OECD (2014) finds a causal link from more financial intermediation to lower GDP growth. BIS (2014) also identify a threshold of 95 % for the turnover ratio, expressed as the value of total shares traded to average market capitalisation.

OECD (2014) lists several possible channels to explain this negative association. Implicit or explicit public guarantees or oligopolistic competitive conditions in the financial sector can create rents, which can divert resources to financial activities away from the rest of the economy (see also Bolton et al (2012)). This could lead to inefficiently high lending by banks and borrowing by households. Excessively high financial-sector earnings could also attract highly-skilled individuals at the expense of other sectors, even though returns from their work at the whole economy level may be higher in other occupations. Many bank employees have strong science or engineering backgrounds. They are perfect candidates to support manufacturing, information technology or other high-tech start-ups of the kind that Europe needs (see also Cecchetti and Kharroubi (2012), Baumol (1990), Murphy, Shleifer and Vishny (1991), Philippon (2013)). An overly large financial sector may also be conducive to growth-reducing boom-and-bust cycles. Arcand et al (2012) advance the hypothesis that excessively large financial systems reduce economic growth because of the increased probability of a misallocation of resources, the increased probability of large economic crashes, or the endogenous feeding of speculative bubbles. Philippon (2008) observes that outstanding economic growth was achieved in the 1960s with a much smaller financial sector. In addition, more finance may disproportionately benefit collateral-rich but low-productivity activities (such as construction), at the expense of high-productivity projects (especially in sectors with high R&D intensity) where future returns are uncertain and collateral is scarce.

These findings are compatible with empirical evidence showing that banking sector expansion exerts a positive influence on economic growth at earlier economic development stages. Whilst OECD (2014) suggests that it is the overall level of financial development rather than the debt structure that explains these economic outcomes, particularly in OECD countries, bank lending is associated with poorer economic performance than other forms of credit (see also BIS (2014)), with housing-related credit

having a particularly strong negative link with economic growth. Furthermore, Kaserer et al (2014) provide new evidence that increased capital market size positively impacts economic growth in Europe, especially as regards equity markets. Demirguc-Kunt et al (2013) conclude that banks provide different services to the economy than those provided by capital markets. Banks have a comparative advantage in financing standardised, shorter-term, lower-risk and well-collateralised transactions. As the economy develops, its sensitivity to the banking sector decreases, whilst its sensitivity to the capital markets increases. Overall, the study finds that deviations in the economy's actual financial structure from its estimated optimum are associated with a reduction in economic output.

6.2 TRANSITION TO A MORE STABLE, RESPONSIBLE AND EFFICIENT FINANCIAL SYSTEM

The transition to a more stable, responsible and efficient financial system requires adjustments, which inevitably impose costs: banks need to improve their capital and liquidity positions and enhance their risk management practices; insurers need to implement new solvency standards; retail financial intermediaries need to meet new consumer protection rules; large banking groups need to introduce more transparency and order in their legal and operational structures; and so on. These adjustments are intended and the associated costs to financial intermediaries are inevitable, although efforts have been taken to facilitate the transition.

It is important to differentiate potential short-term transition costs and one-off costs from the expected long-term effects of the rules. Moreover, costs that stem from current market conditions and the poor state of the EU economy cannot be used as a valid reason not to implement rules that would bring about social benefits in the form of a more stable financial system in the longer-term. As is further discussed below, **the ongoing difficulties in the market and wider economy cannot be attributed to the regulatory reforms**. Instead, they are directly related to the problems that built up before the crisis and the crisis' consequences (e.g. evaporation of trust in the market and related liquidity squeezes, weak bank balance sheets, high private and public debt levels, low interest rates, the recession and weak growth prospects).

Moreover, financial intermediaries do not just face pressure from regulation and current market conditions. The **need to adjust to a number of wider economic, societal and technological changes** may profoundly affect the financial intermediation business model. This includes, for example, demographic changes (population ageing) that may affect customer demands, technological developments that are predicted to change the world of retail financial services (mobile banking, big data, crowd-funding), or the growth of banks from China or other BRIC countries, which are increasingly competing in some of the international markets served by European banks.³²⁷

In other words, the many changes to come for financial intermediaries are more far-reaching and comprehensive than what may follow from the regulatory reforms. It would, therefore, be quite **disproportionate to attribute the main changes and adjustment costs solely to financial reform**. However, this is not always evident from current policy debates. Whilst one should not downplay the significance of the impact of the reform agenda on the financial sector, one needs to put it into

³²⁷ For example, a recent study by EY discussed this and seven other big themes that are predicted to drive bank business models as far out as 2030, none of which directly relate to regulation. See EY (2013).

perspective. Also, where possible, efforts have been made to minimise costs (for financial intermediaries and the wider economy), particularly through measures to reduce frictions and costs in the transition to a more stable, responsible and efficient financial system.

- **Longer phasing-in periods** have been granted in the transition phase to minimise costs and potential disruptions during the transition (although the market itself often require tighter standards ahead of regulatory deadlines).
- Where significant adverse effects were anticipated, the **rules have been adjusted** (e.g. trade finance in the CRD IV package, long-term guarantee package in Solvency II) or **exemptions have been applied** (e.g. pension funds and non-financial corporates in EMIR, SME growth markets established in CSDR).
- Where rules entered uncharted waters, **observation periods** have been applied (e.g. leverage ratio, liquidity ratio).
- **Review clauses** have been introduced in all major pieces of legislation (see annex 3) to allow adjustments where deemed necessary.

In addition, costs for financial intermediaries have been further lightened by:

- Developing a **common European approach** to financial reforms in response to diverging national initiatives, **with a single rulebook** to avoid multiple and overlapping requirements especially for cross-border business and unlevel playing field concerns; and, for the same reason,
- Striving for **international regulatory convergence** both in terms of high-level commitments and detailed implementation (see also section 7.9).

6.3 ASSESSING COSTS TO FINANCIAL INTERMEDIARIES

The financial regulation agenda has a significant impact on financial intermediaries. The reforms require adjustments in the way they conduct business, which triggers both one-off costs to adjust to the new requirements and recurrent costs of complying with the new standards on capital, liquidity, risk management, disclosure, and so on. Although some of these costs seem large in absolute amounts, they should be viewed against the size of the financial system. Moreover, the level of costs to meet regulatory requirements appears to be far less than the costs incurred by industry as a result of fines and redress costs related to market manipulation and other past wrong-doings (see Box 6.3.1).

Box 6.3.1: **Redress costs for past wrong-doings exceed regulatory compliance costs**

Post-crisis redress costs and associated fines represent one of the biggest, if not the biggest private cost that the industry is currently facing. Pre-crisis misconduct has resulted in increasing amounts of actual and potential redress costs and settlement payments made by financial intermediaries, substantially affecting balance sheet provisions and profitability. In October 2013, 40 % of respondents to an EBA

bank survey had already paid out amounts in excess of EUR 100m, whilst 16 % had paid out amounts in excess of EUR 1 billion³²⁸.

According to KBW (2013), this has cost the global investment banks some EUR 33 billion since 2012, and possible civil redress in the three cases of LIBOR/EURIBOR, foreign exchange market manipulation and the US Federal Housing Finance Agency (FHFA) could cost them another EUR 73 billion over the next decade. See section 4.7.1 for a description of some of these cases. Hence, when looking at the pre-crisis return on equity in the financial sector, one has to adjust the pre-crisis profit figures by these redress costs and fines as a minimum, let alone the legacy losses on toxic assets and non-performing loans³²⁹. An alternative way would be to deduct these costs when assessing banks' current profitability. Table 6.1 below provides a non-exhaustive³³⁰ overview of estimates for selected EU banks.

Table 6.1: Past fines and estimated future redress costs at selected EU banks

<u>Regulator fines (€bn)</u>	Deutsche	Barclays	BNPP	SocGen	HSBC	RBS
LIBOR/EURIBOR (main regulators)	0.4	0.4				0.5
LIBOR/EURIBOR (EC)	0.7			0.4	pending	0.4
<u>Estimated civil redress (€bn)</u>						
US FHFA	1.3	0.5		0.2	0.6	2.8
LIBOR/EURIBOR	2.6	3.2	2.2	0.7	0.8	3.0
FX market manipulation	3.0	2.0	0.5	0.3	1.4	1.1
Total redress and fines (€bn)	7.9	6.0	2.6	1.6	2.8	7.7
<u>Provisions 2013-2015 (€bn)</u>						
Redress costs and legal reserves	4.3	6.3			4.3	8.7

Note: Barclays avoided a EUR 690m fine in the LIBOR/EURIBOR case due to a leniency programme.
Source: KBW (2013), JPMorgan, Commission Services

The Commission Services' impact assessments on the individual legislative measures contain an assessment of the cost implications for financial intermediaries, along with the potential implications for the EU economy. Without unduly repeating the results, in order to give an illustration, the following lists estimates of compliance cost resulting from some of the main legislative measures in the area of financial markets:

- ***European Markets Infrastructure Regulation (EMIR)***³³¹

ESMA estimated that the costs of establishing new trade repositories and of upgrading existing ones would be in the range of EUR 9m to EUR 15m for one-off investments and EUR 2.2m to EUR 6m in recurrent costs. These costs include connection costs and fees to trade repositories, as well as the costs of hiring additional staff to handle the reporting process. This cost impact is expected to be

³²⁸ Joint Committee report of the European supervisory authorities on risks and vulnerabilities in the EU financial system, March 2014

³²⁹ Moreover, the taxable portion of such litigation costs represents a direct social cost on top of the harm that was subject to the litigation itself, where such litigation costs are tax deductible. Fines should have an element of punishment and a deterrent character, which is undermined by tax deductibility. Hence, tax deductibility of cartel fines imposed by the Commission is considered contrary to EU law. But even if fines themselves may not be tax deductible, legal fees most certainly are.

³³⁰ Notably, the pending regulatory investigation in foreign exchange manipulation is not included. Analysts estimate that Deutsche Bank, UBS, RBS, Barclays and HSBC will together have to set aside EUR 8.5 billion to EUR 10.6 billion for litigation costs (including fines and penalties) in 2014 and 2015, in addition to the EUR 16.4 billion already provisioned up to the end of 2013.

³³¹ See impact assessment, SEC(2010) 1058/2

mitigated significantly, especially for smaller market participants, through delegation of the reporting to their counterparties – in most cases, the bigger institutions with whom they usually enter into OTC derivative contracts. Where these bigger institutions already voluntarily report their contracts, the marginal cost of reporting on behalf of their counterparties would be close to zero.

The costs of CCP clearing include fees, margin payments and costs linked to the segregation of clients' accounts. As part of its regulatory technical standards, ESMA estimated the additional initial margin requirement to be in the range of EUR 6.3 billion to EUR 8.3 billion, implying one-off costs in the range of EUR 252m to EUR 332m and recurrent costs in the range of EUR 441m to EUR 582m. At the same time, the expected cost of the additional collateral will depend on the final market structure of the CCP clearing industry and the magnitude of netting effects. Finally, the more rigorous bilateral clearing requirements could also lead to increased costs for market participants due to collateral funding.

- ***Markets in Financial Instruments Directive review (MiFID II)***³³²

The Commission estimated that the MiFID review would impose one-off compliance costs of between EUR 512m and EUR 732m, as well as recurrent costs of between EUR 312m and EUR 586m, representing 0.10 % to 0.15 % and 0.06 % to 0.12 % of the total operating costs of the EU banking sector, respectively, as set out in the below table.

Consolidated overview of compliance costs (€ millions)	TOTAL INCREMENTAL COSTS			
	one-off		on-going	
	low	high	low	high
Market structures	10	31	9	21
New trading technologies ("automate trading")	1	1	1	1
Pre and post-trade transparency and data consolidation	38	41	12	18
Reinforce regulatory powers	8	13	10	20
Transparency to regulators	65	84	3	5
Commodity derivatives markets	2	3	4	4
Broaden the scope of regulation	46	74	9	15
Strengthening of conduct of business rules	281	351	196	369
Organizational requirements for investment firms	61	134	69	133
TOTAL MiFID REVIEW COSTS	512	732	312	586
Total operating costs of investment firms	500.000	500.000	500.000	500.000
Total MiFID review costs as a % of total operating costs	0,10%	0,15%	0,06%	0,12%

- ***Market Abuse Regulation and Directive (MAR/CSMAD)***³³³

The annual costs of implementing the package have been estimated at EUR 300m, in addition to EUR 320m of one-off costs in the first year to comply with the information obligations. At the same time, the MAR/CSMAD are expected to generate net benefits of an estimated EUR 2.7 billion per year.

- ***Regulation on indices used as benchmarks in financial instruments and contracts***³³⁴

The estimated compliance costs for EU benchmark administrators consist of one-time costs of about EUR 49m (EUR 98 000 per administrator) and recurring costs

³³² See impact assessment, SEC(2011) 1226 final

³³³ See impact assessment, SEC(2011) 1217 final

³³⁴ See impact assessment, SWD(2013) 336 final

of about EUR 17m (EUR 34 000 per administrator per year). The estimated compliance costs for benchmark contributors consist of one-off costs of EUR 13m (EUR 26 000 per contributor) and recurring costs of about EUR 3.5m (EUR 7 000 per contributor per year). These costs only apply to contributors that are regulated entities, which are predominantly large sized financial institutions.

- ***Short-selling Regulation***³³⁵

One-off compliance costs related to notification of the short positions (including CDS) were estimated at approximately EUR 137m. They concern mainly the requirement for banks and investment firms to make one-off investments in information technology and information systems (IT/IS) development, training and compliance procedures. The recurrent compliance costs were estimated at approximately EUR 15.8m per year, including the annual costs to maintain IT/IS of EUR 13.7m and disclosure costs of short positions in shares of approximately EUR 2.1m per year. The one-off compliance costs to implement the sovereign bond position disclosure requirement were estimated at EUR 34.2m. The recurrent EU-wide compliance costs for disclosure of sovereign bond positions were estimated at EUR 5m per year, including the annual costs to maintain IT/IS of EUR 3.4m and the disclosure costs of sovereign bond positions, estimated at EUR 1.6m per year.

Furthermore, a number of industry reports have been prepared that seek to estimate the cumulative costs resulting from the combination of rules, especially in the banking sector. Box 6.3.2 below provides an illustration of such estimates compiled by KPMG. Annex 1 presents a summary of the main cost quantification studies in the banking sector and their results.

Box 6.3.2: Examples of industry estimates of regulatory compliance costs

KPMG has performed several bank surveys at national level to gauge the regulatory compliance costs for banks³³⁶. The methodology employed focuses on costs in the transition period. Also, it does not appear to distinguish between compliance costs that merely reflect a good business practice (with benefits to banks themselves) from those that represent true incremental costs that can be attributed to regulation alone. The estimates appear to include costs of regulations that banks would have had to bear anyway, e.g. as a result of lessons learned from the crisis and market pressure. The studies focus on costs to financial intermediaries and do not take into account wider societal costs and benefits.

1. A KPMG survey of 20 German banks representing 60 % of the total banking sector by assets revealed progress in improving financial stability through a reduction in the scale of high-risk business activities and through higher capital and liquidity reserves. Banks were asked to identify direct costs of regulation as part of 2010-2015 project budgets along with the related administration expenditure in fields such as risk management, IT and organisation, compliance, accounting and internal audit. Extrapolating the survey results to the entire banking sector, KPMG estimated regulatory costs to the German banking industry of EUR 8.6 billion (i.e. EUR 1.4 billion p.a.).

Overall, banks estimated the negative impact on their return on equity (ROE) to be 2.4 percentage points, with the capital and liquidity requirements of Basel III playing the most prominent role. Based on the average ROE figure of 7.1 % in the 2010-2012 period, KPMG estimated the full cost of regulation at EUR 8.4 billion p.a. (not including the German bank levy). At the same time, the estimates made by respondents varied greatly, depending on the size and business model of banks surveyed. The estimates by smaller credit institutions were much more moderate and hardly any influence was expected by those with a conservative business model. This underlines the point that

³³⁵ See impact assessment, SWD(2012) 198 final

³³⁶ See KPMG (2013, 2014).

regulatory reform is achieving its intended objectives by reducing the riskiness of the most risky banks, with a corresponding decrease in their ROE, as the risk-return trade-off would predict.

2. Local banks in the Netherlands and Belgium identified the CRD IV package, Financial Transaction Tax, bail-in debt and the pre-funding of deposit guarantee schemes as the four most significant regulations likely to have the greatest impact on banks. Quantitative analysis of the impact of these four regulations on banks' capital, leverage and liquidity ratios, and the impact on net income, profitability and cost-income ratios also assessed the extent to which banks could mitigate the impact of these regulations by taking management actions, such as reducing costs, re-pricing loans, issuing new capital, retaining profits by not paying dividends, changing the structure of assets (holding more high quality liquid assets) and liabilities (raising long-term wholesale funding), and reducing the size of their balance sheets. KPMG conclude that banks could not both meet all the minimum regulatory requirements and achieve an 8 percent return on equity by cost reductions alone. In the central scenario, this would require the following set of management actions:

- A 9 percent reduction in the size of the balance sheet;
- An increase in the price of loans by 80–90 basis points;
- No payment of dividends;
- A 5 percent reduction in costs; and
- Replacing the equivalent of 2.5 percent of total liabilities with long-term wholesale funding.

KPMG conclude that such a set of management actions would have implications for customers of the banks and for the financing of the wider economy, in particular through less and more expensive credit and the provision of fewer risk management products and services.

Even though these costs are an important element of any impact assessment, private costs on specific financial intermediaries should not be the main metric from a public policy perspective. As explained above, what really matters is whether the reform delivers net societal benefits and results in a more stable, responsible and efficient financial system as a whole. The direct (compliance) costs are typically concentrated on a few (the financial industry) and are comparatively easy to quantify, whereas most of the benefits are dispersed (e.g. taxpayers, consumers of financial services) and are often less tangible and more difficult to quantify. This often tilts the balance in the current policy debate.

Estimates of private costs of financial reforms require careful interpretation, as there is a risk that such costs may be overemphasised and overestimated. First, many of the costs are one-off transition costs, which are amortised over many years and which should be distinguished from recurring costs that financial intermediaries would incur on a regular basis to meet the stricter regulatory requirements. As noted above, the transition to the new system clearly presents disruptions and adjustment challenges, especially given current market conditions, which is why longer phasing-in periods have been granted to reduce the burden on industry.

Second, many compliance requirements (e.g. investments in better data processing and risk management systems) also provide private benefits to the management of financial institutions by giving them a more detailed understanding of their own positions and risks and allowing greater access to funding sources as a result of the greater transparency offered to potential investors. Thus, **costs are often attributed to regulation when instead they are just reinstating good business practice.**

Identifying the true incremental impact of regulation on financial intermediaries is challenging. For example, banks decide on their target capital and liquidity levels based on a number of factors, and not just regulatory requirements. Other factors include their own economic risk models and the demands of rating agencies,

counterparties and financial markets. Since the start of the crisis, banks have adjusted their own economic risk models to reflect substantially higher risk perceptions. Rating agencies have become more conservative and now demand higher safety margins if banks are to maintain their credit rating. Finally, counterparties, financial markets and customers are more risk-aware (and risk averse) and themselves demand higher capital and liquidity or collateral to back up their exposures. Therefore, **any observed increase in capital and liquidity levels since the start of the crisis cannot solely be attributed to regulatory changes**. Doing so would risk unfairly attributing costs to regulatory changes that would have been incurred anyway.

The required adjustments can increase costs or reduce revenues for financial intermediaries, thereby reducing profits. However, as noted above, reduced profitability can also reflect reduced riskiness and the reduction of inappropriate and distortionary implicit subsidies.

Higher costs to financial intermediaries can be passed on to customers of the financial services and products provided, e.g. in the form of higher prices or restricted supply. However, **the cost pass-through (and hence the transmission of the financial intermediary costs to the wider economy) is far from straightforward**. It depends on the general macroeconomic environment and the competitive conditions in the market. It will also depend on the intermediaries' own actions in response to the increase in costs. Below is a selection of possible actions, using banks and other credit providers as an example, but similar possibilities would apply to other intermediaries³³⁷. The below list of potential responses suggests that there are ways to adapt without damaging customer interests:

- ***Cutting costs***

The most obvious way to offset the cumulative impact of regulatory reforms would be to cut operational costs elsewhere. This could include greater efficiency of processes and data management through investment in IT systems; branch closure and staff reductions; simplified legal entity and operating structures; outsourcing and specialisation,³³⁸ and reductions in salaries and bonus payments.³³⁹

- ***Lowering returns to shareholders***

Since the regulatory reforms aim to make banks more resilient and safer, investors should be willing to accept a lower return as long as the risk-return trade-off has not deteriorated. Indeed, a number of industry reports are highlighting an emerging downward trend in bank equity costs, often referring to a new equilibrium range of 8-10 %, because of the combined impact of reduced bank

³³⁷ See Elliot et al. (2012).

³³⁸ On average, large euro area banks' cost-to-income ratios remain elevated compared with their pre-crisis levels, and even showed an increase between 2010 and 2012. However, for the euro banking sector as a whole, the median cost-to-income ratio period 2008-2012 declined from 70 % to 62 %. During 2012, euro area banks' cost-to-income ratios remained stable, on average, as banks' cost-cutting efforts were insufficient to offset lower revenues. See ECB (2013) for more details.

³³⁹ Bonuses in the banking industry typically make up more than a substantial portion of an employee's pay, sometimes more than 75 percent of the total (as fixed salary can be relatively low). See SEC(2010) 671.

asset risk and reduced leverage³⁴⁰. Historically, UK evidence shows that the average ROE of UK banks was 7.0 % p.a. in the period 1920-1970 and increased to 20.4 % p.a. in the period 1970-2007, with significantly greater volatility (i.e. risk) (6.9 % vs. 2 %, respectively)³⁴¹. This suggests that reduced shareholder profitability to more sustainable levels is not abnormal from a historical perspective and that a reduced profitability need not be a concern when analysed in a risk-return framework.

- *Adjusting product supply*

Banks may respond to higher costs by restricting products and services supplied. This may not necessarily result in a societal cost. For example, banks may choose to eliminate overly complex (and hence costly) products and services. They may also tighten their credit standards or simply charge more for their loans or other products. To the extent that the product mix was overly complex prior to the crisis, and credit risk was underpriced and credit standards too lax, this change should not be interpreted as a cost to the economy. Rather, the pre-crisis credit growth and the proliferation in product supply cannot be a relevant benchmark.

From a public policy point of view, regulatory impacts on financial intermediaries are of relevance to the extent that the reforms impede their ability to perform their key economic functions and **serve the economy in a sustainable and responsible manner**. Therefore, the following sections review the financial regulation agenda with respect to its potential adverse social consequences on:³⁴²

- Bank lending to the economy (section 6.4);
- The provision of other (non-bank) finance to the economy (i.e. impact on other intermediation channels) (section 6.5); and
- The provision of insurance and hedging in derivatives markets (section 6.6).

6.4 IMPACT ON BANK LENDING

It is often argued that regulation has gone too far and that the overall package of reforms is having a major adverse impact on the provision of finance to the economy, with adverse consequences on growth and employment. These concerns have been raised in particular in the context of banking sector reforms and their impact on flow of bank credit to the economy, in particular to SMEs which are particularly dependent on bank finance.

The first part of this section reports on the ongoing bank deleveraging and the changes in bank lending since the onset of the crisis and shows that **regulatory reform has**

³⁴⁰ See for example PwC (2013).

³⁴¹ See Alessandri and Haldane (2009).

³⁴² The discussion focuses on the impact of the rules on those key economic functions for which the main negative impacts have been noted in the current policy debate. The discussion therefore does not cover the impact on the payment function nor on the function of "pricing of risks/creation of markets" (although, broadly speaking, the "creation of markets" is discussed in the context of the impact of rules on hedging through derivatives markets).

not been the only, nor indeed the main driver of bank deleveraging. The remainder of the section then examines the potential impact of different rules on bank lending, focusing on:

- Higher capital requirements as per the CRD IV package;
- Liquidity requirements as per the CRD IV package;
- Bail-in provisions and depositor preference as per the BRRD;
- The interplay of different rules, in particular the CRD IV package, BRRD and Solvency II.

6.4.1 Bank deleveraging and reduced credit supply

Since the onset of the crisis, the EU banking sector has started a process of deleveraging and downsizing its balance sheets. From a microprudential perspective, this is clearly desirable in order to enhance the resilience and stability of the banking sector. However, from a macroprudential perspective and as emphasised by those arguing against stricter microprudential requirements, the collective deleveraging process may tighten credit conditions, thereby reinforcing the recession or hindering economic recovery. **The collective bank deleveraging process that has occurred in Europe has to a large extent been driven by changes in bank strategies and de-risking and by the difficulties for banks to obtain funding in the market, and not so much by regulation.** It is worth bearing in mind that a disorderly deleveraging process has also been avoided through ongoing state aid and central bank support.

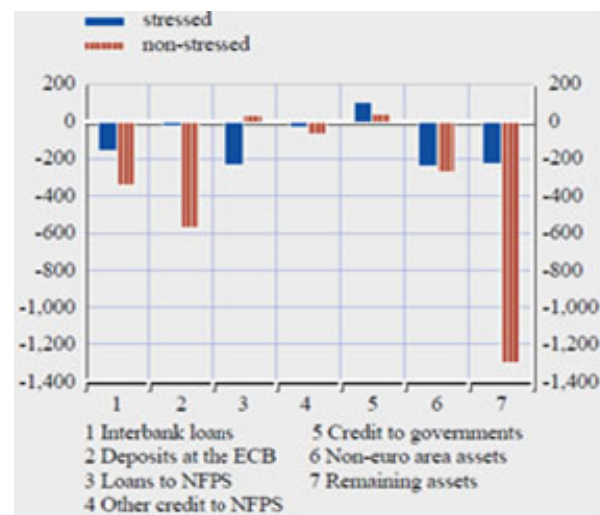
Irrespective of the underlying reasons, the more important point is that **deleveraging does not have to involve reduced flows of lending to the economy.** ‘Good’ deleveraging entails banks cleaning up their balance sheets by writing down the troubled assets that were accumulated before the crisis and reducing excessive interconnectedness and complexity. If the size of banks’ balance sheets shrinks because losses are recognised and accounting values are adjusted downwards, this adjustment may better support the economy from a medium-term perspective. Not recognising the losses from non-performing assets may actually prolong the period of stagnation and give rise to debt overhang problems and the ever-greening of bad loans.³⁴³ Widespread forbearance poses the risk that banks will devote scarce resources for lending to unhealthy corporates, crowding out lending to healthier and more productive firms. Also, when a universal bank with extensive investment and wholesale banking activities decides to de-risk away from market activities, the balance sheet will shrink. But again, the impact on lending may be limited, and the shrinking of the balance sheet may deliver de-risking benefits.

A number of **policy actions have been taken to ensure that mainly ‘good’ deleveraging takes place.** For example, the new risk-based capital framework (CRD IV package) provides for higher capital charges against market risk and trading book exposures, which gives incentives to focus deleveraging on these more risky assets that contributed to the build-up of vulnerabilities in banks’ balance sheets prior to the

³⁴³ Japan is usually referred to as an example of the negative consequences of forbearance. See Caballero et al (2008).

crisis. Also, the ECB and other central bank liquidity operations performed since the crisis alleviated pressures on bank funding and helped banks to continue granting credit to the economy. Another example is the EBA recapitalisation exercise in 2012 which required banks to form a capital buffer to sustain systemic risk arising from the sovereign debt crisis and which provided detailed guidance to prevent banks from simply curtailing lending. As a final example, the Vienna 2.0 initiative seeks to limit the impact of deleveraging in Central, Eastern and South Eastern Europe where EU cross-border banks may otherwise be induced to withdraw or cut back lending in the region.

Chart 6.4.1: Bank deleveraging, changes in assets of euro area MFIs since May 2012



Source: ECB Financial Stability Review, 2013

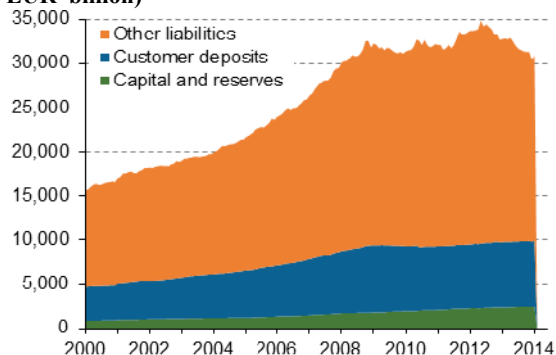
Notes: NFPS refers to non-financial private sector. Monetary financial institutions (MFIs) are split between stressed and non-stressed countries.

mainly reflects a fall in the market value of derivatives. Banks also reduced their deposits with the Eurosystem (which reflects repayments of funds obtained from ECB long-term refinancing operations), interbank loans and non-euro area assets (which, of course, may include loans to the real economy).

Prior to the crisis, aggregate bank balance sheets in Europe grew more rapidly than customer deposits in banks (on the liabilities side) or customer loans (on the asset side), as is shown in charts 6.4.2 and 6.4.3. As noted above, part of this balance sheet expansion can be attributed to increased intra-financial business and the building up of asset inventories by banks in relation to their trading activities. At the end of 2013, **loans of euro area monetary financial institutions (MFIs) to households and non-financial corporations made up only 31.4 % of their aggregate balance sheet.**

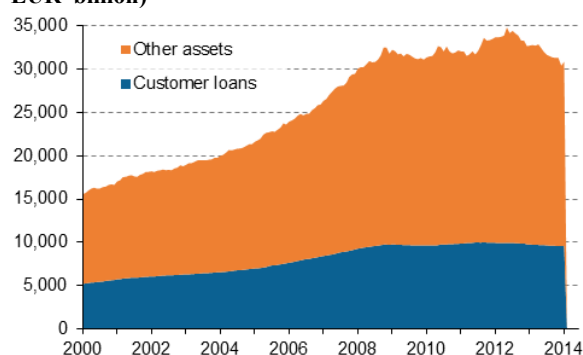
As analysed in the ECB's Financial Stability report of November 2013, the total assets of monetary financial institutions located in the euro area have fallen by 10 % (EUR 3.5 trillion) on aggregate since May 2012 (chart 6.4.1). Only a relatively small part of this can be accounted for by reductions in loans to the real economy. Indeed, while such loans declined significantly in the stressed countries of the euro area, banks in non-stressed countries recorded an increase in loans to the economy. The largest driver in the balance sheet decline is accounted for by 'remaining assets', which

Chart 6.4.2: Evolution of liabilities of MFIs (euro area, EUR billion)



Source: ECB data.

Chart 6.4.3: Evolution of assets of MFIs (euro area, EUR billion)



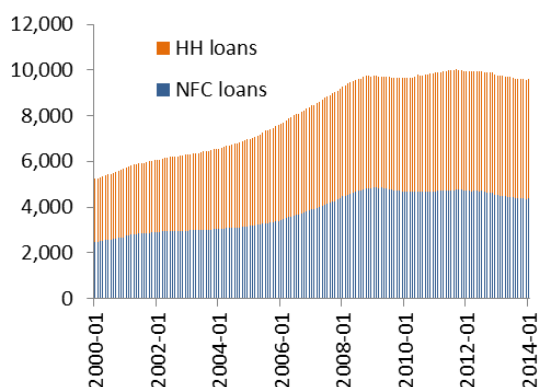
Notes: Customer loans include all loans to households and non-financial corporations.

Source: ECB data.

Thus, **there is no one-to-one relationship between changes in the size of banks' balance sheets and the provision of loans to the economy**, let alone sustainable economic growth. Put differently, balance sheet reductions and deleveraging can be achieved without reducing real economy lending – for example through reductions in intra-financial system exposures and by cutting lengthy intermediation chains.

This is not to say that the crisis did not put a break on the aggregate credit flows to the economy. Charts 6.4.4 and 6.4.5 show the development of loans to households and non-financial corporates of MFIs in the euro area, both in terms of the level and the percentage change on the previous year. With the onset of the crisis, the growth in bank loans observed prior to the crisis stopped markedly, with a particularly sharp reversal in the trend observed for lending to non-financial corporations.

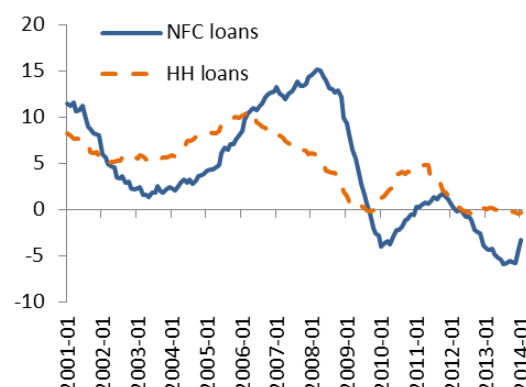
Chart 6.4.4: Loans of MFIs to non-financial private sector (euro area, EUR billion)



Notes: Shows stock of loans of euro area MFIs to households (HH) and non-financial corporations (NFC).

Source: ECB data.

Chart 6.4.5: Loans of MFIs to non-financial private sector (euro area, % change on previous year)



Notes: Shows percentage change in loans compared to previous year.

Source: ECB data.

The change in aggregate bank credit patterns partly reflects corrections of pre-crisis excesses. As explained in chapters 3 and 4, prior to the crisis, banks were operating with levels of capital and liquidity resources that were insufficient to absorb solvency and liquidity shocks. There was a general mispricing of risks in the market. Credit seemed abundant, but this abundance turned out to be unsustainable, and it contributed to the crisis and ultimately resulted in banks and other parts of the

financial system not being able to carry out their critical economic functions. This is what really constrained credit intermediation and growth, not regulation. Therefore, pre-crisis credit provision cannot serve as the relevant benchmark, since credit at that time was often excessive and built on a system that was unsustainable and which ultimately collapsed.

The lack of credit noted since the onset of the crisis, especially in the stressed economies, reflects the interplay between:

- **Constrained credit supply**, because bank balance sheets are still weak, suffering from excessive leverage (debt overhang), legacy assets and high levels of non-performing loans (see charts 3.3.5 in chapter 3), and because raising significant amounts of bank equity in primary markets (rather than through bank profit retention) can be difficult under the current circumstances; and
- **Weak credit demand**, which stems from excessive indebtedness of firms³⁴⁴ and households (see charts 3.3.3 and 3.3.4), as well as from generally weak economic conditions and growth expectations.

While banks have tightened credit conditions since the start of the crisis (with some improvements recently), reductions in credit have also been significantly driven by lower demand. **Europe's economy is highly indebted** (see chapter 3.3). Public and private sector debt is high and, in many cases, excessively high and unsustainable.

Credit demand is also held back because of weak economic activity, low investment, borrowers' risk and persistently high levels of economic uncertainty. Recent ECB bank lending surveys all suggest that these demand factors significantly weigh on credit.

There is **no general credit shortage in Europe** (also due to large-scale public intervention and central bank liquidity support). In fact, nominal and real interest rates are extraordinarily low, and financing is very cheap in many parts of Europe. Nonetheless, there are some important areas of concern in credit supply: the first is **access to finance for SMEs**, which tend to be particularly dependent on bank finance and less able to tap alternative funding sources (and which also tend to face higher lending rates, see chart 6.4.6). Consumers, and in particular more vulnerable ones, face similar problem of access to credit. In short-term and low value lending, the financial institutions, which do not have the status of credit institutions and thus are not subject to prudential regulation, often fill up the gap of credit supply. However, this usually implies a higher cost of lending and may also result in consumers potentially being exposed to unfair commercial practices. Much of the underlying problem in SME finance is asymmetric information where potential providers of finance find it difficult to assess the quality of the borrower and where acquiring such information is costly.

³⁴⁴ Although not part of the financial regulation agenda, it should be noted that in order to address the corporate debt overhang problem the European Commission has issued a Recommendation for a new approach to business failure and insolvency, setting out best practice principles to enable the early restructuring of viable enterprises and to allow bankrupt entrepreneurs to have a second chance (C(2014) 1500).

Chart 6.4.6: Spread between lending rates on small and large loans in the euro area (bps, 3-month moving averages)



Source: ECB

Note: small loans are below EUR 1 million, large – above.

rationing credit and increasing interest rates on new loans (see chart 3.3.6 in chapter 3). At the same time, weaknesses in the real economy have exacerbated the problems of weak banks. The corporate sector (and in some countries the household sector) is heavily indebted, and this high leverage has interacted with weak profitability to create debt-servicing difficulties. This, in turn, has led to an increase in non-performing loans, worsening the assets on bank balance sheets. Banks with weak balance sheets will be less able and willing to recognise losses and so will become more likely to forbear on loans.³⁴⁵ Widespread forbearance poses the risk that banks will devote scarce resources to unhealthy corporates (‘zombie’ firm lending), crowding out lending to healthier and more productive firms.

Breaking this vicious feedback loop **requires tackling both the weak bank balance sheets and the debt overhang in the economy**. The required orderly deleveraging will take time and presents significant transition challenges. As already noted above, this is why many rules are phased in over time and why continuous monitoring is required to address any unintended consequences, given the on-going adverse market conditions.

The above discussion illustrates that the observed **evolution of bank lending since the start of the crisis is not only (or even mainly) driven by regulation**. To say otherwise – as is often done by some in an attempt to lobby against tighter rules – is misleading. The next sections focus on the potential incremental impact that the regulatory reforms may have on bank funding costs and bank lending to the economy (i.e. the incremental impact over and above the other influencing factors).

³⁴⁵ See analysis of the interaction between weak banks and weak corporates in IMF Global Financial Stability Report 2013.

6.4.2 The impact of higher capital requirements on credit supply

The banking sector routinely stresses the impact of EU regulatory reform initiatives on their ability to support the economy. In particular, it is argued that higher capital requirements will result in higher funding costs, because “equity is more costly than debt” as a funding source; as a result, this higher cost will either be passed on to clients, or banks will respond by lowering the quantity of credit provided.

Higher capital could particularly harm low margin business such as **global transaction banking**, which is of particular importance for trade. Eight of the world’s top ten trade finance banks are categorised as globally systemically important financial institutions, requiring them to add a specific capital buffer on top of the general capital requirement (see section 4.2.4). The reforms recognise this and reduce the capital charge by calibrating the credit conversion factors for medium-to-low risk and medium risk trade finance products at 20 % and 50 %, respectively.

Also, specific concerns have been raised about the impact on bank lending to SMEs. As already noted in chapter 4.8, policy efforts are being taken to fill the funding gap for SMEs and ensure an appropriate flow of bank credit. As regards bank capital rules, the CRD IV package provides for specific treatments for bank exposures to SMEs, through lower risk weights and capital relief, to allow banks to increase lending to SMEs. Thus, rules have been adjusted to mitigate potential costs and to **strike the balance between strengthening prudential requirements to ensure financial stability and allowing the financial sector to provide a sustainable flow of finance to the economy.**

It is important to recall that bank capital levels were far too low in the run-up to the crisis (see section 4.2). EUR 1.5 trillion of EU state aid provided to banks (Box 3.4.1). Contingent taxpayer support, in terms of total parliamentary approved aid (as opposed to aid actually used) was higher and reached EUR 5.1 trillion, representing some 13.8 % of total EU banking assets. As such, the regulatory capital requirements and total loss absorption capacity demanded from banks under the new capital adequacy rules (and the bail-in provision of BRRD) are below the contingent public support provided to banks during the crisis.

A number of leading academics and policymakers have made the case for higher capital requirements.³⁴⁶ Some have even called for capital requirements that are higher than the Basel III requirements implemented in the EU through the CRD IV package. They also argue against the claim that issuing more equity would lead to a higher cost of capital to banks and result in less lending to the economy, on the following grounds.

³⁴⁶ See for example Admati et al (2013), Haldane (2011), Miles et al (2011), Tarullo (2008) and Vickers (2012). Similar points were made prior to the crisis by Harrison (2004) and Brealey (2006), who also conclude that there are no compelling arguments supporting the claim that bank equity has a social cost. Turner (2010) and Goodhart (2010) have argued that a significant increase in equity requirements is the most important step regulators should take at this point. See also a letter signed by 20 academics - “Healthy Banking System is the Goal, Not Profitable Banks,” Financial Times, November 9, 2010. Among the signatories are J. Cochrane, E. Fama, C. Goodhart, S. Ross, and W. Sharpe. The text and links to other commentary are available at <http://www.gsb.stanford.edu/news/research/admatiopen.html>.

First, the required return on equity and on issued debt should decline when more equity is used to fund bank activities. In line with the Modigliani-Miller (MM) theorem,³⁴⁷ **an increase in capital should lead to a decline in the equity risk premium**, because the same risk (assuming no change on the asset side of the balance sheet) is distributed over a larger equity base. Moreover, increased equity funding also lowers the required rate of return for holders of debt instruments. Under the MM theorem, the impact of higher equity on the banks' weighted overall cost of capital should, in principle, be zero, under certain conditions (i.e. in the absence of taxes, subsidies, etc.). Any argument or analysis that holds the required return on equity and debt fixed when evaluating changes in equity capital requirements is therefore flawed and goes against the basics of financial economics.

Second, capital is not set aside and thus is not unavailable for lending. Rather it is a source of funding, and the **funds can be freely used in financing any asset**. That is, higher capital requirements by themselves do not limit banks' activities. However, banks at risk of failure may indeed prefer to forego lending opportunities funded with equity, because equity issuance would improve the position of existing creditors and it may also be interpreted as a negative signal on the bank's health. Moreover, undercapitalised banks have incentives to "gamble for resurrection" by issuing even more debt and increasing their riskiness, because the equity holders face all the upside in the event that the bank recovers, whereas they have little to lose in the event that the bank fails because losses will primarily be borne by taxpayers in the absence of credible and effective resolution frameworks. Thus, debt overhang problems can only be tackled decisively if regulators require the recapitalisation of undercapitalised banks. Well-capitalised banks make better lending and investment decisions because they face less balance sheet constraints and thus have fewer incentives to take excessive risk.

Third, just because financial institutions choose to fund themselves primarily with debt, and have high levels of leverage, does not mean that this form of financing is optimal from a societal point of view. Instead, the observed funding decisions are partly driven by tax incentives and the implicit subsidy from public safety net coverage, as previously discussed. It is also related to frictions related to conflicts of interest between shareholders, debt holders and bank managers (i.e. the so-called agency costs). The annual return on equity has long been an industry-wide metric for the variable part of management compensation (i.e. bonus schemes). The easiest way to boost short-term return on equity is by increasing risk either through investment in riskier assets or by increasing bank leverage (see chapter 4.2).

Fourth, the return on equity is itself a performance metric that does not correct for the underlying riskiness of bank activities. Consequently, when leverage and hence risk is high, the required return on equity is high, whilst it is lower at lower leverage and risk levels. The risk-adjusted return on equity may be similar for both instances. Thus, the change in return on equity is commensurate with the change in the risk borne by

³⁴⁷ According to the Modigliani-Miller (MM) theorem, which is one of the core principles of modern corporate finance, there is no such thing as an optimal level of equity (capital) because the value of a firm is independent of its capital structure. The value of a firm is determined by its investments and operational activities (i.e. asset side of the balance sheet), not the proportion of debt to equity (i.e. liability side of the balance sheet). Thus, the overall funding cost of a bank is also determined by the risks on the asset side of its balance sheet independently of the way it structures its liabilities.

equity holders and does not mean that shareholder value is lost or gained, because the risk-adjusted return on equity remains constant. There is no free lunch: shareholders cannot boost return on equity without taking additional risk (unless of course they can shift the downside risk to taxpayers, in which case it is privately optimal for managers and shareholders to leverage up).

Finally, there are theoretical models that show that short-term debt can sometimes play a disciplining role on bank managers. However, arguments against higher capital requirements based on this notion are very weak given the recent financial crisis experience. High leverage actually creates many frictions and systemic risk. In particular, it creates incentives for banks to take excessive risk. Any purported benefits produced by debt in disciplining managers must be measured against the frictions created by short-term debt. Moreover, the notion that debt plays a disciplining role is contradicted by the events of the last decade, which include both a dramatic increase in bank leverage (and risk) and interconnectedness through a short term debt surge, culminating in an unprecedented financial crisis. There is **little or no evidence that banks' debt holders provided any significant discipline** during this period. Also, the supposed discipline provided by debt generally relies on a fragile capital structure funded by short term debt that must be frequently renewed. Reduced fragility, which is a key goal of capital regulation, would be at odds with the functioning of this purported disciplining mechanism.

At the same time, it is true that the MM theorem only holds perfectly in the absence of frictions, such as taxes and implicit subsidies. The favourable fiscal treatment of debt over equity (interest is tax deductible, whereas dividends are not) allows banks to reap certain benefits from substituting equity for debt. Debt financing is hence subsidised through taxes. More importantly, implicit guarantees originating from public safety net coverage also favour debt over equity financing (see Box 4.2.2 for a quantification of the implicit subsidies). As explained, the reforms seek to reduce these subsidies. Miller (1995)³⁴⁸ has also acknowledged that raising equity can be expensive, especially for smaller banks, if only due to the flotation and underwriting costs that are involved. The MM propositions are propositions that are concerned with *having equity*, as opposed to *raising equity*. Furthermore, stock offerings usually come at a discount, mainly due to the asymmetric information faced by the potential investors who do not know the real state of the bank as well as its management does.³⁴⁹ In addition, there is a limit to the funds available for investment in bank stocks over a specific period of time, possibly requiring an even deeper discount to attract investors.

The post-crisis market conditions may make it particularly challenging for raising substantial amounts of bank equity, especially for the banks with weak balance sheets or subject to major litigation risks. Hence, higher capital requirements could raise the overall cost of banks' capital, especially in the transition phase to reach the higher standards. This, in turn, could have an impact on the lending rates to the extent that costs are passed through to clients. However, other regulatory initiatives incentivise banks to reduce the overall riskiness of their balance sheets, contributing to a general lowering of their cost of capital, so that the risk-adjusted return of both debt and

³⁴⁸ See Miller (1995).

³⁴⁹ Debt is exposed to this phenomenon to a much smaller extent, because it is insensitive to any variations in banks' future performance except for default, provided debt is held to maturity. The specific financial performance matters a lot to shareholders though.

equity investors may remain unchanged. Moreover, the new capital requirements are phased in over time, giving banks time to make the required adjustments and thereby limiting costs in the transition phase. **On balance, therefore, one should not expect any significant impact of higher capital requirements on banks' aggregate cost of funding and even less so on the lending rates.**

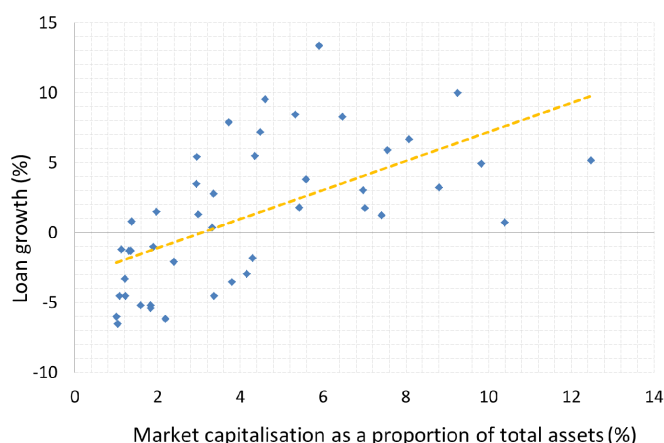
For example, Elliott (2009)³⁵⁰ estimates that, all else being equal, the loan rate would have to increase by 77 bps to compensate for the higher costs stemming from a 4 percentage point rise in the capital level. Elliot concludes that constraints on competitive lending sources would render such lending rate increases unfeasible or at least very difficult, and considers that a mere 20 bps increase is more realistic, as a result of banks adjusting also other variables, namely the return on equity and debt, the credit spread, administrative costs and customer-related benefits (e.g. from cross-selling). The author also reiterates the fact that regulatory capital requirements are not the only determinants of the capital levels that banks choose to hold. Other factors include desired credit rating levels and banks' internal economic capital models.

The BIS (2014) has examined how banks are adjusting to the higher capital requirements of Basel III based on a sample of 94 large banks from advanced and emerging economies for the period end-2009 to end-2012. The dataset includes 35 European banks and all of the 29 institutions identified by the FSB as globally systemically important banks, covering 64 % of the assets of the top 1000 global banks as listed by *The Banker*. European banks achieved roughly a 2.5 percentage point increase in the regulatory capital ratio by: (i) reducing risk-weighted assets (contribution of 2 percentage points) and (ii) raising capital (contribution of some 0.5 percentage points). As for the latter, retained earnings account for some 58 % of the overall increase in capital.

Banks do not appear to have cut back sharply on asset or lending growth as a consequence of higher capital standards. Moreover, banks with high capital ratios or strong profitability at the start of the process showed above average growth, underlining the importance of solid bank balance sheets in support of real economy lending. In this context, there has been a pronounced shortfall in lending growth on the part of European banks, though European banks have accumulated other assets in the form of cash and securities. Some banks have cut back on their trading portfolios. These conclusions lend evidence to the view that any observed shortfall in lending is not so much the result of higher capital requirements, but rather due to other factors.

Chart 6.4.7: **Relationship between capitalisation and loan growth**

³⁵⁰ See Elliott (2009).



Notes: The sample includes the largest 45 European banks and excludes banks that merged during the period. Loan growth is % change in stock of gross loans to customers during end 2011 and end 2012. Ratio of market capitalisation to total assets is based on consolidated data in December 2011.

Source: SNL Financial and Commission services calculations.

Chart 6.4.7 presents the correlation between bank capitalisation and loan growth for a sample of 45 large European banks. Bank capitalisation is measured by its market capitalisation, relative to total bank assets at the end of 2011.³⁵¹ Loan growth is measured by the percentage change in the loans on banks' balance sheets. The positive correlation between capitalisation and loan growth illustrates the point that the stronger the balance sheet of a bank is, the stronger is its ability to

support the economy.

Buch and Prieto (2012) analyse the link between bank capital and bank loans in Germany during 1960-2010 and conclude that there is a **positive long-term relationship between capital and lending**. More specifically, a one percent increase in the level of bank capital is found to increase bank loans by about 0.22 percent.³⁵² Similar evidence has been found in other empirical studies,³⁵³ where it appears that higher levels of bank capital are associated with higher lending and liquidity creation by large banks, bigger market shares and lower probabilities of default for banks, as well as higher bank values. However, an increase in regulatory capital requirements may be associated with small effects in terms of reduced lending, non-trivial transitional costs and a shift of lending from regulated to unregulated sectors.

The IMF (2012)³⁵⁴ finds that **higher economic growth and less growth volatility is associated with higher capital and liquidity buffers** within banks. The effects of buffer variables are non-linear, showing the trade-off between economic growth and stability. But this trade-off becomes material only at very high capital levels: higher capital buffers up to a threshold of above 25 % are all positively associated with economic growth, and the relationship reverses only beyond that threshold.

All of the above empirical evidence suggests that **the main challenge banks face is not higher capital levels as such, but the transition** to move away from excessive leverage towards a more stable and safer banking system. The costs generated by the crisis present ample evidence for the need to move forward (with appropriate phasing-in and observations periods). As summarised in PwC (2013): *"There will be*

³⁵¹ The conclusion also holds with other specifications and is confirmed by other research.

³⁵² The authors find a negative response of bank loans to an increase in bank capital only at levels of the capital-to-asset ratio of 35 % (ratios far outside the range of values observed in the sample period or proposed in the current regulatory debates).

³⁵³ See, for instance, Thakor, (2013). Further studies are listed in section 6.4.6 and annex 1.

³⁵⁴ See IMF (2012) Global Financial Stability Report.

disruptions and adjustment costs, but concerns about economic viability under the additional capital load (including at product level) are unfounded – reduced leverage is bringing down the cost of bank equity and this trend will continue."

6.4.3 The impact of liquidity requirements

Mismanagement and mispricing of liquidity risk due to excessive leverage and severe asset liability mismatches was at the core of the financial crisis (section 4.2.2). Adequate asset-liability matching and stable funding is sound business practice, so it is difficult to object to the principles of liquidity regulation. However, various concerns about the costs of the Liquidity Coverage Ratio (LCR) and introduction of the Net Stable Funding Ratio (NSFR) have been raised:

- **Reduced bank profitability:** Requiring banks to hold more sizeable pools of liquid assets would reduce bank profitability (and hence their resilience to sustain solvency shocks).
- **Crowding-out of long-term illiquid assets:** Liquidity requirements may incentivise a shift to shorter maturities across all types of assets. This would also affect loans to corporates. While larger corporates can get funds from corporate bond markets or from mutual funds (including money market funds) and unregulated financial institutions, SMEs depend very much on bank lending.
- **Increased borrower spreads:** In times when the interbank market dries up and funding is difficult, banks might also respond to the liquidity requirements by trying to attract more deposits. When the rate that a bank has to offer to gather deposits is higher than the rate earned on liquid assets, the bank's marginal funding costs will increase. The higher costs may be passed through to the loan interest rate.
- **Reduced credit supply and the impact on interbank lending and bank maturity transformation:** Since it requires longer-term assets to be funded by stable funding sources, the NSFR will reduce incentives to engage in interbank market operations (and more generally short-term funding) and hence reduce the ability of banks to engage in maturity transformation of banks. There is a positive economic role of maturity transformation, as savers want near-instant access to a (significant) portion of their funds whilst on the other hand the vast part of economic projects has long maturity. However, at the same time, the crisis has revealed the risks of poor liquidity risk management and excessive maturity transformation, so there are considerable benefits of improved asset-liability maturity matching, as intended by the NSFR.
- **LCR might not work as a buffer:** LCR is criticised as a rigid rule, which cannot work as a buffer due to its assumptions that the trigger factors (e.g. deposit flight, ratings downgrade) remain constant during the entire stress period. In addition, the calibration is based on the increased volatility in the aftermath of the crisis, which may turn out to be excessive, should the volatility wane with the recovery.
- **Pool of eligible assets for the LCR is too restrictive:** There is criticism that the definition of eligible assets is too prescriptive and restrictive (and that the scope of

eligible assets for the LCR pool is narrower than the ECB eligible pool of assets). It is argued that some financial instruments supporting the financing of companies and individuals, like corporate bonds, covered bonds or asset-backed securities (ABS), are not sufficiently considered as eligible. While it is understandable that banks want to expand the pool to lower funding costs, there are also good reasons to limit the eligible assets. For example, it is well known that some securities can be highly illiquid and there is no market price on a continuous basis.

As explained in section 4.2.2, the liquidity regulation seeks to curtail inadequate asset-liability matching and excessive short term wholesale funding. The potential costs to banks arising from the rules need to be distinguished from the corresponding societal costs. EBA (2013) finds that **most studies overestimate the societal costs of the LCR requirement**, because the studies fail to take account of implicit subsidies and the fact that some of the increase in costs to banks represents foregone tax subsidies. The costs imposed on banks by the LCR partially reflect decreased societal costs (i.e. societal benefits). As noted in section 4.2.2, the NFSR remains under development and subject to an observation period.

Other things being equal, restrictions on banks to engage in maturity transformation are likely to limit their ability to turn short-term deposits into longer-term loans to the economy. However, **much of the pre-crisis liquidity can, in fact, be considered ‘artificial’** and contributed to a boom-bust cycle. Market developments since the crisis were driven by evaporation of trust in the creditworthiness of counterparties and selected sovereigns, which dwarf any potential adverse effects of regulations.

There are means to create liquidity, such as financial engineering to overcome funding liquidity problems (which is likely to shift risks elsewhere) and central bank measures (e.g. relaxed eligibility rules on collateral), and replacement of absent private liquidity with public liquidity. This can help in the transition phase and address confidence issues, but it cannot solve liquidity problems that are driven by weak fundamentals and excessive leverage. Relaxing liquidity rules in the short-term may help, but at the cost of increased financial instability in the longer term.

In its recent impact assessment of the LCR,³⁵⁵ the EBA (2013) shows that the LCR as specified is not likely to have a material detrimental impact on the stability and orderly functioning of financial markets or on the economy and the stability of the supply of bank lending. To a large extent, this can be explained by the fact that EU banks already show an average LCR of 115 per cent (i.e. exceeding the minimum requirement of 100 %). However, the potential impact **differs depending on the business model**³⁵⁶. EBA concludes that the calibration of the LCR as defined by BCBS is generally appropriate also across the EU. It should be noted that the BCBS **revised the calibration of the LCR** in January 2013 to avoid a potential shift from lending (loan assets that are illiquid) to more liquid assets (e.g. cash, central bank deposits). Also, among other things, the EU has sought to limit unintended

³⁵⁵ The report follows a requirement in the CRD IV package, which tasks the EBA with advising on the impact of the LCR, on the business and risk profile of institutions established in the Union, on the stability of financial markets, on the economy and on the stability of the supply of bank lending

³⁵⁶ Diversified business models tend to be more adapted to the LCR than specialized banks. The share of non-compliant banks is relatively high for auto and consumer credit banks (83 %), pass-through financing banks (53 %), and private banking (45 %). EBA (2013) proposed specific derogations for certain specialised business models under stringent and objective conditions.

consequences on trade finance by reducing the run-off rate for deposits related to this activity to 0-5 %. Moreover, the inflow rate for all trade finance receivables maturing within the 30-day reference period has been increased from 50 % to 100 %.

EBA (2013) estimates that **the aggregate long-term costs of the LCR are negligible and in the order of magnitude of 0.03 % of EU GDP**. The additional demand for high-quality assets spurred by the LCR is unlikely to have a material detrimental impact on the stability and orderly functioning of financial markets (see also sections 7.3 and 7.4). It is also **not likely to affect negatively either the economy or the supply of bank lending, including lending to SMEs**. As regards the latter, the data analysis shows evidence that banks with larger SME exposures do not necessarily have lower LCRs and banks that became compliant did not do so through a reduction in lending to SMEs. EBA (2013) finds that neither the data, nor case studies, nor the empirical literature suggest that the implementation of the LCR could lead to a disruption in the credit supply.³⁵⁷

Other studies have also considered both the costs and benefits liquidity requirements (see Annex 1 for a literature review). An IMF study by Elliot et al (2012) examines the effect of Basel III liquidity requirements on bank lending rates and reaches the conclusion that it is likely to be relatively small: **LCR increasing lending rates by 8bps in the long term and the NSFR by 10 bps**, with the combined effect amounting to about 14 bps, given some overlapping effects. The LCR was recalibrated in 2013, further reducing these cost impacts.

Consistent with the approach taken by the BCBS, the EU reform agenda is being mindful of potential adverse consequences of liquidity regulation, especially in light of on-going adverse market conditions. Careful calibration is warranted, and so are the phasing in and observation periods granted under the CRD IV package.

The Commission is required by 30 June 2014 to adopt a delegated act specifying the general liquid coverage requirements. When adopting that delegated act, the Commission must take into account the reports submitted by EBA, including the above mentioned impact assessment, the Basel III rules as well as EU specificities.

The CRD IV package provides for the phased-in implementation of the LCR and introduces a long observation period before any legislative proposal on the NSFR. Implementation of the LCR and the current international discussions on the definition of the NSFR seek to find the right balance between improving the resilience of the banking sector to liquidity shocks and avoiding excessive restrictions on maturity transformation that discourage long-term financing. Thus, the Commission delegated act on LCR and the final calibration of the NSFR will aim to not unduly restrict the provision of finance by banks. In addition, full advantage can be taken of the monitoring period in the CRD IV package to adjust and address potential unintended consequences of the new liquidity rules for long-term investment.

³⁵⁷ It is relevant to point out that the baseline EBA data analysis assumes that any government and central bank unconventional liquidity support is not withdrawn. A separate analysis of the withdrawal of government support on the LCR has been included through.

6.4.4 The impact of bail-in provisions and depositor preference

As discussed in chapter 4.2.5, bank resolution and the bail-in tool have been developed in the BRRD to improve dealing with bank failures outside of formal bankruptcy process, to minimise the cost of bank failures and in particular to how losses are passed-on to taxpayers. At the same time, however, **the possibility of bail-in has an impact on bank funding costs**, as a result of the greater likelihood that creditors will suffer losses. Moreover, this is compounded by further changes that have been adopted in the BRRD to protect deposit claims vis-à-vis others, impinging on ordinary creditors. Together, the resulting cost increase on banks, if not compensated by a fall in other funding costs and if passed-through, could have repercussions on bank lending.

- **Removal of uncertainty**

On a first instance, it is important to bear in mind that uncertainty regarding the point at which EU Member States would support a bank played a role during the crisis. Such uncertainty worked to increase the cost of debt and provoke spike premiums of insurance against default at times of stress. The BRRD provides greater consistency and clarity and removes uncertainty from financial markets with regards to the behaviour of public authorities.

- **Costs to banks versus societal costs**

Bail-in is meant to curb the practice whereby creditors are rescued from facing losses incurred by a bank in case of failure, because external public resources are provided to save the bank (i.e. creditors are the ones usually bailed-out). In this regard, it is obvious to note that bail-in will necessarily imply a greater risk and cost for creditors and that they will try to pass on that cost to banks, by requiring higher returns for purchasing their debt issues. At the same time, such greater risk and cost for bank creditors is matched by the benefits for taxpayers from providing lower contingent support to them. Moreover, if as a result of acknowledging bail-in, creditors get to internalize the cost of banks risky choices, its provisions **will contribute to reduce risks *ex ante*** (i.e. will lead to more sustainable dynamics in banking) and lower the overall costs if resolution of a bank becomes necessary.

- **Bail-in builds on previous reforms to reinforce banks' balance sheets**

Wrapping up together with the previous points, the bail-in tool builds on previous reforms to reinforce banks' balance sheets and ensure the banking system as a whole remain a going concern. Hence, as a consequence of reforms to increase capital and loss absorbency; improve liquidity buffers and prevent excessive maturity transformation; and reduce pro-cyclicality and systemic risk (see chapter 4); the likelihood that creditors will face losses has diminished. Thus, the overall impact on creditors' risk and resulting costs because of the bail-in tool is ambiguous: it could lead to (i) a fall in the cost of funding, if banks' balance sheets are sufficiently reinforced to make the possibility of a bank failure very unlikely and limited in cost; or, alternatively, it could result in (ii) an increase in the cost of

funding, if the increased risk due to the possibility of loss absorption by debt offsets the reduced risk due to reinforced balance sheets.

- **Cost benefits from low deposit returns**

In addition to the above points, the BRRD has reinforced the claims of depositors with regards to other creditors. In deciding how to allocate their savings, households do not bear in mind the same considerations as wholesale financial market participants. The explicit guarantee present on deposits across the EU plus the expectation that governments will support depositors in case of bank failure has *de facto* become part of households' beliefs when planning how to save³⁵⁸. To reinforce such beliefs, the BRRD has raised the rank of deposits vis-à-vis other creditors. In particular, guaranteed deposits are now excluded from being bailed-in in case of resolution and general depositor preference has been affirmed with respect to senior unsecured debt. This rule further increases the likelihood that, upon a bank failure, creditors will be forced to take on losses. At the same time, banks benefit from households having such beliefs regarding deposits: the return households demand from their deposits is not on a par with the (previous) *pari passu* standing of deposits vis-à-vis senior unsecured debt. Thus, the overall impact of such reforms on the cost for the banking system is ambiguous: if households were to doubt on the safety of their savings, the banking system would be bankrupt. At the same time, the evidence presenting the minimum necessary to ensure that such doubts do not arise is scant or non-existent: depositor preference (and qualified exclusion) has been established to ensure such doubts never arise.

The above present the overall costs that can and will arise because of resolution, the bail-in tool in resolution and depositor preference. Nevertheless, it is important to bear in mind how financial market participants have interpreted the above change in the rules of the game.

As explained in box 4.2.5, according to the issuer credit rating methodology applicable to banks, a positive likelihood that a bank would receive future extraordinary support in a crisis from their sovereign may enhance their standalone credit profile, resulting in a 'government support uplift'. For a private-sector commercial bank, the likelihood of such government support is estimated by drawing on assessments of both the bank's systemic importance and the government's tendency to support private-sector commercial banks. For example, the introduction of bail-in in Denmark directly affected local banks' credit ratings, because the 'government support uplift' to their standalone credit profiles (arising from the expectation of State aid in a crisis) was reduced: some banks lost it altogether, whilst the largest Danish banks retained only one notch. This was estimated to have resulted in a 25 to 50 basis points increase in bank funding costs.

More recently, Standard & Poor's has announced a review of its European bank ratings by mid-2014 in response to the progressive implementation of bank resolution and creditor bail-in plans.³⁵⁹ Any resulting near-term rating actions are likely to

³⁵⁸ Moreover, the events surrounding the call for financial assistance by Cyprus, together with the response given by EU institutions, worked to reaffirm such beliefs.

³⁵⁹ See Standard & Poor's (2014). Several EU countries have already anticipated the BRRD in their legislation.

consist of revisions to the ‘support uplift’ mentioned above. Medium-term rating actions would likely affirm or lower ratings by one to two notches. As mentioned in section 6.4.2, this has been an implicit government subsidy to funding costs of banks. If bail-in removes this subsidy, it will have merely removed a previously existing market distortion.

It is important to realise, as has been mentioned above, that the increase in senior unsecured debt funding costs could be countered by a fall in the cost of other instruments. This is the case with respect to the beneficial position that covered bonds encounter under bank resolution frameworks. Fitch has recently made public that these funding instruments are likely to benefit from an uplift of 1-2 notches above the banks’ issuer default rating. The resulting adjustments would be implemented in parallel with any revisions to the ‘support uplift’. Out of 129 programmes publicly rated by Fitch, 92 are expected to be eligible for such uplift, with 42 % benefitting from a two-notch uplift and 30 % from a one-notch uplift.³⁶⁰

In general, investors appear to be willing to invest in bail-in-able debt. These indications originate from markets in: (i) financial instruments with an embedded *ex ante* (i.e. contractual) possibility of being bailed-in, known as contingent convertible (“CoCo”) capital instruments; as well as (ii) subordinated and senior unsecured debt, after authorities signalled the possibility of being subject to bail-in in case there is not enough equity to absorb losses. For in 2013, European banks issued some EUR 10 billion of CoCos – double the amount compared to 2012. Moreover, analysts expect³⁶¹ between EUR 30 billion and EUR 50 billion of CoCo issuance by European banks in 2014. Issuance has been supported by robust investor demand, because CoCos offer relatively high yields of up to in excess of 7 % on investment grade banks. For example, Santander raised EUR 1.5 billion with a coupon of 6.25 % and Danske raised EUR 750 million at 5.75 %. The latter coupon is the lowest issue price to date. The Nationwide Building Society became the first non-listed financial institution to issue a coco, with a £1 billion bond paying a coupon of 6.87 %³⁶². Barclays estimated³⁶³ that the European CoCo market could grow to as much as EUR 400 billion – similar in size to the current European bank subordinated debt market.

Nevertheless, according to the BIS (2013), so far the bulk of demand has come from retail investors and small private banks, with large institutional investors staying on the side-lines. This may be due to specific idiosyncratic features of CoCos, which differ by their loss absorption capacity (i.e. whether they convert into equity or directly absorb losses upon trigger) and by the triggers of conversion (i.e. book value, market metrics value or bank's supervisor's discretion). Some CoCos convert to equity once a specific core tier one capital threshold is triggered, whilst others simply write down investors’ principal. This lack of standardisation has made them attractive to specific niche investors and they are yet to develop deeper pools of funding.

Investors are already familiar with **subordinated debt** that can be bailed in (or quasi bailed in, depending on the legislation present at the time of the action) through a

³⁶⁰ However, the overall impact will be limited, since some 60 % of the covered bonds at stake already enjoy an AAA rating. See discussion in Natixis, Covered Bond Market Weekly 10, 12/03/2014.

³⁶¹ “Santander set to lead wave of coco sales”, *Financial Times*, 5 March 2014.

³⁶² “UK’s Nationwide poised to issue coco bond”, *Financial Times*, 3 March 2014.

³⁶³ “Barclays bond a key test for cocos market”, *Financial Times*, 22 November 2012.

number of cases in the EU (e.g. Amagerbanken, Anglo Irish Banks, Banco CEISS, Banco Gallego, Banco Grupo Caja, Bank of Cyprus, BFA-Bankia, BMN, Catalunya Banc, Fjordbank Mors, Liberbank, NCG Banco, SNS Reaal). This did not prevent banks from issuing more than EUR 90 billion of subordinated debt in 2013 – a volume not seen since 2008 when more than EUR 122 billion was issued. The demand could be explained by the fact that the probability of default (PD) has come down (as a result of banks having strengthened their balance sheets), offsetting the increase in the loss given default (LGD) parameter of subordinated debt.

With regard to **senior unsecured debt** has traditionally been the mainstay funding instrument for banks in wholesale financial markets. Hence, it is critical that it retains its standing in investors' minds. The demand pool has included banks as well as institutional investors, such as insurers and pension funds. The latter have traditionally had mandates requiring a minimum investment grade rating, which represents a critical constraint for banks to keep tapping such demand. As pointed out by IMF (2013), investor demand for senior debt critically depends on whether the issuing banks maintain investment grade ratings. According to a 2013 investor survey by JPMorgan, **34 % of investors in European bank debt would reduce their investment** in senior unsecured debt if it became a bail-in instrument, while **63 % of them would maintain** it as is. Survey participants indicated that **the most important factor determining their decision would be whether the debt would still carry investor grade ratings**. Recent guidelines provided by rating agencies suggest that only issuers with high stand-alone ratings would have investment grade senior bail-in debt. If that is the case, the investor base for senior debt may shrink. Hitherto, more than 90 % of the senior unsecured debt issued by banks has been investment grade.

Finally, the Commission services performed analyses regarding the impact bail-in and bail-in with depositor preference on banks' costs and, in particular, to what extent the increase in the cost of funding for a particular debt instrument translates into an increase in the overall cost of funding for a bank and if it is fully absorbed by the decrease in the cost of funding for other instruments. According to the European Commission's BRRD impact assessment, some pass-through to lending rates could indeed take place. However, the overall effect was limited with clear lower and upper limits estimated at 5 to 15 basis points, respectively.

Building on the BRRD impact assessment and on further evidence regarding the funding structure of 13 European banks presented by Morgan Stanley, the Commission services further analysed the extent to which depositor preference made a difference with respect to the above conclusions. In particular, Commission services assumed that in case *pari passu* between senior debt and deposits was kept, depositors would become more selective after the crisis regarding their savings and raise questions on the risk and reward trade-offs. Moreover, some depositors would move their savings to other assets, given that they would no longer view deposits as safe as they previously believed. Accordingly, the Commission estimated the increase in return that depositors would require for maintaining their savings levels in deposits at 190 basis points. In terms of implications for the overall bank funding costs, this would translate into a cost increase equivalent of between 12 to 18 basis points.

6.4.5 The interaction effects between different rules

As with the benefits (where rules often work to reinforce each other to deliver the overall objectives, see chapter 5), the aggregate costs of the financial reforms will be different from the sum of the stand-alone impacts. In particular, concerns have been raised that the many different reforms taken together are overburdening banks (and other parts of the financial system) and reduce banks' ability to lend to the economy. These are important concerns that call for on-going review of the interaction between different rules. It is, however, of note that the interaction effects do not necessarily work to increase costs to banks and therefore do not necessarily imply adverse repercussions for bank lending that are bigger than those assessed if adding the stand-alone effects of the different rules. In fact, the opposite can be the case.

For example, focusing on the capital and liquidity requirements discussed above, these are necessary to discipline banks to hold sufficient safety margins with respect to both capital and liquidity. But the **combined costs are less than the sum of the individual requirements**. Higher capital requirements generally help to meet liquidity requirements, and vice versa. The instruments qualifying as capital under the CRD IV package have long maturities and therefore do not carry with them any NSFR liquidity requirements. Similarly, if banks improve their liquidity positions, e.g. by switching into assets that are safer and more liquid, this will often have the effect of helping to meet capital requirements, since these assets also carry lower risk-weightings for capital purposes.

In an IMF study of the costs of financial regulation of the different reforms affecting the banking sector, Elliot et al (2012) conclude that *"the interactions tend to ameliorate the costs of each individual item. That is, the regulatory reforms provide a number of incentives to move towards safer operations, so that creating higher safety margins in one area will often automatically move a bank partway towards greater safety by other measures, reducing the cost of adjustment in that other area of regulation. Thus, the cumulative cost of the suite of regulatory reforms is probably modestly less than the sum of the parts approach"*.

Specific concerns about interaction effects have been raised regarding the interplay between bank capital and liquidity requirements in the CRD IV package, the BRRD and Solvency II. Other main areas of interaction (including criticisms of inconsistencies between rules) are discussed further below, as they are not specific to impacts on bank funding costs and bank lending capacities.

The interaction between the CRD IV package, BRRD and Solvency II³⁶⁴

Insurance companies are the largest institutional investors in Europe. They are also significant investors in the securities issued by banks, in particular bank bonds. Given these (and other)³⁶⁵ interactions and the fact that both sectors are subject to a

³⁶⁴ The following is based on analysis prepared by the risk sub-committee of the Joint Committee of European Supervisory Authorities

³⁶⁵ For example, banks can lend to insurers, insurers may have deposits in banks, and banks and insurers may engage in financial transactions (insurance linked securities, securities lending, liquidity swaps, etc) to transfer and manage risks. However, these interlinkages do not appear to be significantly affected by the interrelation of the prudential frameworks.

significant overhaul of the prudential frameworks, concerns have been expressed about potential adverse repercussions between the different sectors. More specifically, it is claimed that Solvency II discourages insurers' investment in bank bonds, especially debt of longer maturities³⁶⁶ and that this, in turn, conflicts with banks' requirements under the CRD IV package to build up higher capital and liquidity buffers.³⁶⁷ Moreover, the BRRD and expectation of bail-in is seen to further reduce the attractiveness of bank debt to insurers.

The impact of Solvency II on insurers' asset allocation is further discussed in section 6.5.1 below. A number of studies are indeed critical of Solvency II and predict that insurers will change their demand for debt issued by banks, shortening the maturity demanded and focusing on the highest quality.³⁶⁸ However, these studies do not reflect some important adjustments to the Solvency II framework. Moreover, there is other credible research refuting these findings.

Firstly, studies critical of Solvency II assume that capital requirements are binding on insurers' behaviour. A study by HÖring (2013) compared the market risk requirements of the standard formula in Solvency II to those of Standard & Poor's requirements for its rating model for an A-rated company for a representative European life insurer. HÖring found that the rating agency model required 68 % more capital (even for a target rating of BBB the capital required was 27 % more than the Standard Formula), suggesting that **the Solvency II standard formula will not impose any additional constraints for most life insurers.**

Secondly, many of the studies critical of Solvency II are partial in that they focus on credit spread risk. They do not take into account the interest rate risk charge (which captures the risk of mismatch between the duration of assets and liabilities) and which gives incentives for insurers to hold a matched portfolio where assets broadly match the generally long maturity of insurance liabilities. The studies also do not allow for diversification effects, which incentivises the holding of a diversified asset portfolio, including securities issued by banks.

Gorter and Bijlsma (2012) conclude that the attractiveness of bank debt is not strongly affected by Solvency II, mainly because what constitutes 'long-term' debt for banks tends to be shorter than the 'long term' for insurers. Similarly, Zähres (2011) concludes that senior bank bonds remain attractive for insurers. Insurers have revealed their preference for short to medium-term bonds with maturities between 3 and 5 years, which coincides with banks' issuing preferences. Longer-term maturities do not seem to be frequently chosen by banks.

³⁶⁶ Investment may also be in equity. However, the total amount of insurers invested in equity is significantly lower. Also, the general conclusions about a limited impact of Solvency II on asset allocation also hold for equity. Current trends in insurers' equity investments appear to be driven by the current economic environment and low interest rates and not capital requirements. As regards banks' equity investments in insurers, the holdings are not significant, and the CRD IV package does not introduce any material changes to capital charges for market risk in equities.

³⁶⁷ The reasoning is that, in the application of the standard formula of Solvency II, there is an increase in capital requirements as the maturity of the debt increases and as the credit quality deteriorates. It is therefore concluded that this may lead insurers to hold relatively fewer long-term bonds, especially low quality bonds, at a time when banks need to issue more.

³⁶⁸ See for example Fitch (2011) and Oliver Wyman and Morgan Stanley (2010).

Therefore, **Solvency II** – especially considering further adjustments as part of the long-term guarantee package (see section 4.5 above and section 6.5.1 below) – **does not appear to impose any barriers to insurers' investments in bank debt**. However, the CRD IV package and the BRRD are expected to lead to material changes in the equity and debt issuance of banks, and this could affect the demand for such instruments from insurers. In particular, BRRD introduces the possibility that unsecured debt can be written down or converted if the supervisor deems the institution failing or likely to fail, no reasonable prospect exists for alternative private sector or supervisory measures, and resolution is in the public interest. Bail-ins will introduce losses to senior unsecured debt-holders while the issuer is still a going concern.

In general, bonds that convert to equity may not have attractive features for insurers, since income streams will be less predictable. As already noted in the previous section, survey evidence suggests that **investors regard senior bail-in debt as an investible asset class**³⁶⁹. Also, the price of those bail-in bonds will be an important factor for insurers (and other investors). If returns are attractive then insurers may be willing to allocate assets not covering technical provisions or regulatory capital requirements to these bonds to earn higher returns. A distinction needs to be made for the behaviour of unit-linked investors, since in this case it is the decision of policyholders rather than the insurer per se that matters for asset allocation³⁷⁰. The returns available on these types of bail-inable bond may prove attractive, particularly at a time of low interest rates.

There are various factors that will affect the returns banks offer on their debt. For large banks that have benefited from being perceived as 'too big to fail', then BRRD might change investors' perception into not expecting the implicit subsidy, with the result that higher returns are required for unsecured debt. As noted above, the reduced implicit subsidy is a cost to the banks seeking to raise funds, but not a societal cost. Moreover, the additional capital and liquidity requirements as per the CRD IV package – and other measures to improve the resilience and stability of banks – will reduce the risk of default from the investors' perspective. Combined with the prospect of improved recoveries compared to what they otherwise might have been, this acts as an off-setting factor for increases in the cost of unsecured debt.

If insurers do not increase their investments in bank debt (or reduce it for fear it will be bailed in), then there is an open question of who would increase their holding of bank debt (e.g. hedge funds, mutual funds, pension funds), and whether this is desirable. Based on the above, however, it would seem premature to conclude that the overall effect would be significantly negative and enhanced through adverse interactions between Solvency II, the CRD IV package and BRRD. **The overall dynamics are complex and difficult to predict, which calls for on-going monitoring** (like with other parts of the reform). In any case, the potential risks and

³⁶⁹ See JP Morgan (2012).

³⁷⁰ A unit-linked insurance plan is a product offered by insurance companies that gives investors the benefits of both insurance and investment under a single integrated plan. Hence, the insurance company buys units in an investment fund. The number of units attributed to a specific policyholder depends on the amount invested and the price of the units at the time of the investment. One can choose from a range of different funds to suit one's attitude to risk. These include low-risk deposit-type funds, medium-risk funds and higher-risk funds that are mostly invested in the stock market. Almost all unit-linked plans involve some degree of capital risk.

related costs must be balanced against the longer-term prospect of a banking system where funds are allocated more efficiently to better managed institutions, as investors realise that there is a more realistic prospect of large banks being allowed to fail.

6.4.6 Summary of quantitative estimates of the impact on bank lending

It is too early to give a final assessment of how the regulatory reforms will impact on bank funding costs and what this means for bank lending. Nonetheless, a number of studies have aimed to predict the likely impact of different rules on bank lending, using various modelling techniques.

Elliot et al (2012), in an IMF paper, consider the combined effect of higher capital and liquidity requirements, derivatives reforms, and various other rules affecting the banking sector.³⁷¹ The long-term estimates provided show that the average cost of bank lending could rise by 18 bps in Europe.³⁷² These results are similar to studies from the OECD and the Basel Committee of Banking Supervisors. The OECD uses a macroeconomic model to translate the credit spread increases into declines in expected growth, concluding that the major economies' GDP would be about 0.16 % and for Europe 0.23 % lower after five years.³⁷³ The LEI report of the BCBS estimated that a 1 percentage point increase in capital requirements (with no change in liquidity ratios) would reduce the long-run steady-state level of economic activity by 0.14 % annually for the euro area and 0.2 % when the NSFR are also met.³⁷⁴

The Macroeconomic Assessment Group (MAG) (2010), established by the FSB and BCBS, estimated that bringing the global common equity capital ratio to the agreed minimum level would result in a maximum decline in the GDP level of 0.22 % after 35 quarters, relative to baseline forecasts. This is followed by a recovery in GDP towards the baseline. In terms of growth rates, annual growth would be 0.03 percentage points below baseline for 35 quarters, followed by a period during which annual growth is once again 0.03 percentage points higher. In other words, the potential negative effects of higher capital requirements on GDP are temporary and are later fully eliminated. These results also include the impact of spill-overs across countries, reflecting the fact that many or most national banking systems would be tightening capital levels at the same time.

Whilst the actual impact could be greater if banks attempt to meet the stronger requirements ahead of the regulatory timetable, other factors not modelled by MAG might lead to an offsetting impact. For example, banks have a number of options for responding to the higher capital requirements, such as cost reduction or shifting their portfolios towards safer assets, as discussed in section 6.3. This would correspondingly reduce the need for higher loan spreads and/or lower lending volumes, thereby reducing the assumed impact on real activity.

Higher macroeconomic estimates are reported in industry studies, such as the industry-financed Institute of International Finance (IIF). IIF (2011) predicts

³⁷¹ See Elliot et al (2012), for a full critique.

³⁷² The study also reports the impacts for Japan (8bp) and the USA (28bp).

³⁷³ See Slovik and Cournede (2011).

³⁷⁴ See BCBS (2010). Note when changes in RWA while meeting NSFR requirements are assumed, the costs for the Euro area sum up at 0.16 % (see Table 9 in the study).

significant increases in the price of bank credit, which are estimated to result in GDP levels that are 0.6 % lower in Europe by 2015 and 0.4 % by 2019 than would have been the case without the comprehensive financial reforms. This study focuses on transition effects more than the long-term effects. Also, the baseline against which changes are measured appears largely to reflect pre-crisis capital and liquidity levels, meaning that much of the costs of shifting to a more stable financial system are attributed to regulation even if they are due to market-driven adjustment. In addition, the model may translate too much of the cost increase to banks into higher lending rates for the economy.³⁷⁵

When interpreting the results of macroeconomic cost studies, it is important to realise that the baseline forecasts do not envisage any future financial crises – i.e. they only look at the costs and not the benefits of reform. It is also important to understand that the models are subject to significant modelling uncertainty. Also, the studies often assume a fixed cost of equity and debt (criticised above), full variable cost pass-through to clients (which applies only in fully competitive markets), static balance sheet (i.e. unchanged loan demand at a higher cost level), and a negative causal link between higher lending rates and economic growth via the credit channel. As such, these modelling techniques do not fully reflect the economic reality.

As regards especially the link between lending rates and credit growth, whilst the positive link between investment and economic growth is empirically well established, there is **no conclusive evidence that higher lending rates hurt economic growth in advanced economies**, even though they may slow down credit growth. For example, econometric evidence by Shafik and Jalali (1991)³⁷⁶ rejected the view that high interest rates are associated with low economic growth in the industrial countries. The 1980s saw a period of rapid growth in the world economy that coincided with unprecedentedly high real interest rates. Other authors³⁷⁷ have argued that the level of investment will be higher with increasing real interest rates, because the resulting greater savings mobilisation eliminates credit rationing. Higher interest rates may also be associated with rapid economic growth due to improved resource allocation and more productive investment. In other words, when interest rates are high, the projects face a higher threshold of positive net present value (NPV) for obtaining credit. As a result, only more productive projects will be financed, enhancing trend growth. For example, when interest rates are high, there should be less demand for housing loans and more real economy lending.

Thus, **any modelling approach is prone to challenges and critique**, because the results strongly depend on the chosen methodology and often strong assumptions. Moreover, the models are not capable of capturing all the expected effects and interactions³⁷⁸, including interactions between rules, and are constrained by data limitations. The results, therefore, need to be interpreted with some caution. The same

³⁷⁵ See Elliot et al (2012) op.cit. for a full critique and Table 1 in this report.

³⁷⁶ Shafik N., Jalali, J., "Are High Real Interest Rates Bad for World Economic Growth?", Working Paper Series 669, World Bank, May 1991.

³⁷⁷ E.g. see McKinnon, R.I. (1973), „Money and capital in economic development“, Washington DC, Brookings Institution, and Shaw, E.S. (1973), Financial deepening in economic development“, Oxford University Press.

³⁷⁸ For example, none of the study considers the interaction of the bank reforms with Solvency II. The interaction with the insurance sector would be extremely complex to model.

also applies to the macroeconomic model applied for the purpose of this study, as summarised in Box 6.4.1 below and explained in more detail in Annex 5.

Box 6.4.1: Modelling the macroeconomic costs of capital requirements, bail-in and resolution tools

The macroeconomic costs of new regulatory requirements are estimated using a dynamic general equilibrium model QUEST III, developed by the Commission services. In line with the estimations of benefits (see section 4.2.7 and annex 4), two scenarios are modelled: increasing minimum regulatory capital requirements from 8 % (baseline) to 10.5 % of risk-weighted assets (RWA) along with improvements in the quality of capital with (scenario 2) and without (scenario 1) the additional tools of increased loss absorbency (bail-in) and resolution funds. The transmission mechanism of the costs to the real economic is solely through the lending channel. Details are contained in annex 5.

There are two basic assumptions that underlie the model. First, if the banks' funding costs increase because of regulation, these costs are fully passed on to clients (such an assumption only holds true under perfect competition and is hence a likely overestimation). Secondly, the degree to which the Modigliani-Miller (MM) theorem holds is important for the impact of increasing capital requirements on banks' costs (see section 6.4.2 above). Under the MM theorem, banks would be indifferent between using debt or equity to fund their activities, as there is no optimal combination of the two for firms (i.e. the WACC is invariant to the debt-equity funding mix). When the MM theorem holds in full (100 %), an increase in capital funding would be completely offset by a fall in the equity and debt risk premium and overall weighted funding costs would not change. Otherwise, the funding costs would increase and could impact the economic activity through the extent of cost pass-through to clients.

In the most conservative approach, costs are estimated by assuming that MM does not hold (0 % MM offset), i.e. the increase in capital requirement is fully reflected in the increase of funding costs. This approach follows the methodology employed in studies by the BCBS (LEI report of 2010 and MAG 2010 study). Whilst no MM offset is a very strong assumption, there are several good reasons to believe that the MM does not hold at 100 % in banking, such as taxes and the existence of implicit subsidies. Therefore, the second approach follows the Bank of England methodology (Miles et al (2013) and allows for a 50 % pass-through to bank funding costs (i.e. 50 % MM offset).

The results reported below assume that all banks need to increase their capital levels by 2.5 percentage points (i.e. from 8 % to 10.5 %), which tends to overestimate the costs. Annex 5 therefore also reports results (showing lower costs) based on banks' 2012 capital levels (i.e. allowing for capital buffers) and counting increases in capital from those levels to meet the new requirement.

Results in Table 1 show the impact of increasing capital requirements, measured as the % deviation from the baseline for GDP and investment. The impact on other variables, including lending rates, loan volumes, employment and consumption are reported in annex 5. For example, with full cost pass-through and under the 50 % MM offset, on average, bank lending rates increase by some 13 bps on average in the long term, whilst the volume of loans falls by 0.86 %.

Focusing on the impact on GDP, assuming 50 % MM offset, increasing capital requirements from 8 % to 10.5 % of RWA has a negative impact on the level of GDP, which expressed as deviation from the output trend amounts to 0.13 % of GDP per year in the long term. The costs increase to 0.27 % under the more extreme assumption of zero MM offset (and they are equal to nil under the assumption of a full MM offset).

Table 1: The impact of increased MCR from 8% to 10.5% of RWA and changes to quality of capital.
(expressed as deviation from the baseline)

	GDP (in %)		Investment (in %)	
	No MM	50% MM	No MM	50% MM
2014	-0.05	-0.02	-0.68	-0.34
2015	-0.05	-0.02	-0.97	-0.48
2016	-0.06	-0.03	-1.00	-0.50
2017	-0.08	-0.04	-1.02	-0.51
2020	-0.12	-0.06	-0.99	-0.49
long term average	-0.27	-0.13	-0.81	-0.40

Source: Commission Services calculations

Table 2: The impact of increased MCR from 8% to 10.5% of RWA, bail-in and resolution fund.
(expressed as deviation from the baseline)

	GDP (in %)		Investment (in %)	
	No MM	50% MM	No MM	50% MM
2014	0.01	0.04	-0.71	-0.23
2015	-0.08	-0.05	-1.83	-1.10
2016	-0.15	-0.11	-2.51	-1.68
2017	-0.18	-0.11	-2.58	-1.65
2020	-0.28	-0.17	-2.53	-1.40
long term average	-0.69	-0.34	-2.08	-1.00

Source: Commission Services calculations, bail-in starts 2016. Resolution fund is phased in from 2016 to 2026.

Table 2 reports the joint impact of capital requirements and the additional BRRD tools of increasing loss absorbency through bail-in and the introduction of a resolution fund. The long term deviation from the output trend equals 0.34 % EU GDP per year when 50 % MM offset is assumed. In the most conservative case, when no MM offset is assumed, the costs are twice as high (and again zero if the full MM offset were to apply). As noted above and presented in annex 5, costs are estimated to be somewhat lower if the modelled adjustment in bank capital reflects banks' existing capital buffers (and only counts changes from the existing capital level in 2012 to the new required level).

The gross cost estimates need to be seen and interpreted in conjunction with gross benefits presented in section 4.2.7 (Box 4.2.6) to arrive at the net overall impact estimate, bearing in mind however that the costs and benefits are estimated in quite different models and are subject to significant modelling uncertainty.

6.5 IMPACT ON OTHER SOURCES OF FINANCING

Restoring bank balance sheets and improving banks' resilience is a key objective of the financial regulation agenda. However, there is also a case for diversifying financing sources to reduce the economy's dependence on bank lending. This would help strengthen the resilience of the economy faced with future banking crises and, more generally, contribute to financing of the EU economy. Concerns have been raised that the reform programme may be impeding the provision of other sources of finance or distorting the financial intermediation process in a way that increases the costs of alternative financing sources. The following focuses on two sets of alleged adverse effects:

- **The impact of Solvency II** on insurers' investment and asset allocation decisions (section 6.5.1);
- **The impact of different regulations on market liquidity**, which affects the financial intermediation process and ultimately the cost of raising finance in the market (section 6.5.2).

Other potential unintended consequences and possible new risks of the financial regulation agenda are discussed further in chapter 7.

While parts of the reform efforts are about making the financial system more stable and resilient whilst minimising any undue adverse effects on the financial

intermediation process, regulatory attention is, in fact, proactively promoting alternative sources of financing for the economy.³⁷⁹

6.5.1 The impact of Solvency II on insurers' investment and asset allocation decisions

Insurance companies are major institutional investors in Europe. Given the often long-term nature of their liabilities, they are particularly suited to make long-term investment and hence act as providers of long-term financing to the economy.³⁸⁰ It has been argued that strengthening capital requirements as part of Solvency II to capture all quantifiable risks, including market risk (which was not considered in Solvency I), and the introduction of “artificial volatility” due to market-consistent valuation may distort insurers' investment behaviour and long-term asset allocation decisions.³⁸¹

The introduction of risk-based capital requirements entails an incentive to adjust asset allocation in favour of assets with lower capital charges. For example, according to the standard formula, charges are higher for equity instruments and, among debt instruments, for debt with longer durations and lower credit ratings. Also, zero-risk weights apply to sovereign debt issued in the EEA, which has also been criticised in relation to bank capital requirements under the CRD IV package and is a point that requires further analysis, especially in the context of on-going sovereign debt problems and high public financing requirements. However, the incentives for insurers to shift assets (e.g. from equity to debt, from corporate to government bonds, or from short to long durations) is unlikely to be as pronounced as a simple comparison of risk weights may suggest.

Critics often neglect the fact that **Solvency II removes the investment limits** currently in place under Solvency I and national provisions (in the form of restrictions on both the admissibility of asset classes to cover technical provisions and quantitative limits on the degree to which certain asset classes can be held to cover technical provisions). They are **replaced by the "prudent person" principle**, which allows insurers to invest more freely, subject to the insurer properly diversifying assets and limiting investments to those assets whose risks they can truly understand and control. Hence, in principle, **Solvency II frees up insurers' asset allocation** and makes possible investments that have previously been constrained.

The alleged undesirable results on asset allocation are deduced from the implementation of the standard formula in Solvency II. However, insurers can also develop internal models that might mitigate some of the possible effects.

Importantly, **Solvency II aligns capital requirements with investment risks**. Thus, insurers will be incentivised to weigh up the investment risks with the expected returns on all their assets. Moreover, Solvency II **recognises diversification effects**, including on investment risks, which should incentivise insurers to invest in several classes of assets.

³⁷⁹ See the measures set out in the Communication on long-term financing the European economy (COM(2014) 168 final), summarised in section 4.8.

³⁸⁰ See the Green Paper on long-term financing of the European economy, COM/2013/0150 final

³⁸¹ See for example Insurance Europe (2013).

As regards the potential disincentive to invest in bonds of longer maturity, there is a trade-off between the higher credit risk resulting from investing in long-term corporate bonds and the mismatch resulting from investing in short-term corporate bonds to cover long-term liabilities. For high-quality bonds covering long-term liabilities, the incentive is still to invest in long-dated bonds. The incentive is reversed for low credit-quality bonds, for which the credit-risk charges outweigh the charges for a maturity mismatch between assets and liabilities.

As regards equity investments, Solvency II calibrations already take into account the role of insurers as long-term equity investors, and **calibration of capital charges for equity investments has been adjusted**. Detailed calibrations have also been conducted for other asset classes and will be conducted going forward, so as to ensure that the new regime, once it enters into force in 2016, will not unduly hinder long-term investments (but also not artificially favour certain investments, especially if they carry higher risk and deliver uncertain economic and social returns). Moreover, **there is a review clause which will require re-examining the risk weights under the standard formula**.

Parts of the past literature on potential adverse effects of Solvency II have been invalidated by the recent adjustments put forward as part of the long-term guarantees package (see also section 4.5). These adjustments mitigate the impact of short-term balance sheet volatility stemming from spread risk and better reflect the long-term investment model of insurers and their propensity to hold assets to maturity. They lessen in particular the volatility of own funds for insurers underwriting certain insurance products (e.g. annuities, other insurance products with long-term guarantees).

Importantly, **the role of regulation should not be overemphasised** given the many other factors that influence insurers' asset allocation decisions. This includes for example a repositioning of investment portfolios in light of the financial and economic crisis.

As already referred to in section 6.4.5 above, research by H6ring (2013) shows that the market risk requirements of Solvency II's standard formula would not bind for most life insurers. Instead, rating agency models already tend to require higher capital than what is required by Solvency II.

Industry surveys confirm the relative weight given by insurers to capital charges in determining their asset allocations, and that **major asset reallocations as a result of Solvency II are not expected**. For example, a survey conducted for BlackRock (2012) shows that less than 10 % of responding EU insurers expected to decrease their asset allocations to private equity and hedge funds upon the entry into force of Solvency II. 32 % instead were positive that allocations to alternatives would increase, in spite of comparatively higher capital charges. In another survey conducted by ING Investment Management (2013), 49 % of the UK fund managers and financial intermediaries interviewed believed insurers have over the past 12 months increased their exposure to new asset classes such as infrastructure. When asked about the next three years, 77 % of those interviewed said they expect insurers to increase their exposure to these new asset classes.³⁸² Allocation to alternatives has

³⁸² www.ingim.com/EU/News/News/IWP_072400

traditionally been low, both due to risk aversion and limits imposed by pre-Solvency II regulation. Interest in these assets from life insurers is generally explained by the search for yield in a low interest environment, the need to meet liabilities arising from legacy products with high long-term guarantees as well as insurers' need to match long duration liabilities. Other studies confirm that a reduction in equities and alternative assets is not expected despite the higher capital charge they may incur in Solvency II.³⁸³

In September 2012, the Commission asked the European Insurance and Occupational Pensions Authority (EIOPA) to examine whether the calibration and design of capital requirements necessitates any adjustment, without jeopardising the prudential effectiveness of the regime, particularly for investments in infrastructure, SMEs and social businesses (including securitisation of debt serving these purposes). EIOPA recommended criteria to define high-quality securitisation and a more favourable treatment for such instruments.³⁸⁴ This is a major step in the wider agenda of fostering sustainable securitisation markets (see section 7.6). The Commission will take the EIOPA advice into account when formulating the relevant delegated acts for Solvency II in the second half of 2014, including possible adjustments to the treatment of assets classes other than securitisation (infrastructure, SMEs and social businesses), as set out in the original mandate to EIOPA.

Furthermore, the Omnibus II directive³⁸⁵ will introduce measures into Solvency II which are specifically designed to reinforce existing incentives to match long-term liabilities with long-term assets and to hold these to maturity (the long-term guarantee package). The list of assets eligible for the use of the matching adjustment has been broadened to **include key long-term investments such as infrastructure project bonds**.

6.5.2 The impact of regulations on market liquidity³⁸⁶

Liquid financial markets tend to exhibit a number of desirable characteristics:³⁸⁷

- **Tightness** – i.e. low transaction costs, such as the difference between buy and sell prices, like bid-ask spreads in quote-driven markets, as well as implicit costs;
- **Immediacy** – i.e. the speed with which the orders can be executed and settled, reflecting, among other things, the efficiency of trading, clearing, and settlement systems;
- **Depth** – i.e. the existence of a large number of orders, both above and below the price at which the security trades at any given point of time;

³⁸³ See for example Committee on the Global Financial System (2011).

³⁸⁴ See https://eiopa.europa.eu/fileadmin/tx_dam/files/consultations/consultationpapers/EIOPA-13-163/2013-12-19_LTI_Report.pdf

³⁸⁵ A directive proposed in 2011 (COM 2011/0008) to adapt Solvency II to the new framework for implementing measures introduced by the Lisbon Treaty and to the creation of EIOPA

³⁸⁶ This section mainly focuses on market liquidity, which is generally referred to as the ability to buy or sell an asset at short notice with little impact on its price. This is different from what was discussed in section 6.4.3 in relation to banks' funding liquidity, which describes the ability to raise cash either by borrowing or via the sale of an asset. Market liquidity does of course influence funding liquidity.

³⁸⁷ See Sarr and Lybek (2002).

- **Breadth** – i.e. orders are both numerous and large in volume with minimal impact on prices; and
- **Resiliency** – i.e. new orders flow quickly to correct order imbalances, which tend to move prices away from what is warranted by fundamentals.

A natural consequence of the above is that there is more than one way **to measure liquidity**, the most prevalent of which have been: time to execution; trading volume; the number of active participants; and the bid-ask spread.

Liquid financial markets have traditionally been thought of as having high trading volumes, narrow bid-ask spreads, and the ability to trade larger orders without significant price changes. Liquid financial markets enable investors to buy and sell financial assets as and when needed and at a fair value. Liquidity provides the opportunity to move in and out of positions without difficulty. This does not only imply lower costs in secondary markets where the assets are traded, but also lower costs of issuing assets and raising external capital in primary markets. Additional benefits of liquidity include the ability of market participants to liquidate positions as needed and, particularly in the case of stressed markets, or a market participant default. Further, liquidity allows market participants to price contracts accurately and fairly, which allows them to manage risk credit and market risk effectively. Therefore, **liquidity is generally a highly desirable characteristic of financial markets**. In this context, concerns have been expressed that the EU reforms of financial sector legislation act to reduce market liquidity, with corresponding costs to the wider economy.

One of the recent challenges to the conventional theory and practice, explained also by the crisis experience, is the idea that **market liquidity can be illusory**.³⁸⁸ Such beliefs can disguise the fragility of the financial system, and induce investors to place excessive reliance on leverage to fund high-yield growth activities. This can stretch liquidity in the system beyond its limits, so that the system is unable to cope when an external shock occurs. Investors facing large, leveraged losses retreat to safer markets, and markets previously thought to be deep and resilient can dry up unexpectedly. One consequence of liquidity illusion is that it may invalidate the conventional measures of liquidity listed above because in a market suffering from liquidity illusion these measures will reflect investors' mistaken perceptions of liquidity. The true level of liquidity of a market may be very difficult to detect.

Liquidity is likely to be beneficial only up to a point. The additional benefits derived, say, from algorithmic trading that exploits price divergences for a fraction of a second must be minimal compared, say, to the benefits of having equity and bond markets with reasonable day-to-day liquidity. Moreover, the position-taking and speculation required to achieve greater liquidity can in some markets be harmful and produce destabilising effects. Active trading can be used by intermediaries to extract economic rents, by creating volatility in the market against which customers then seek to protect themselves and pay for the provision of market liquidity. In addition, trading on a proprietary basis may present conflicts of interest between the trader and customers. Thus, arguments that liquidity is generally desirable and that regulation

³⁸⁸ This can occur when market participants mistakenly perceive that financial conditions and specifically, the liquidity of an asset, portfolio, market or even the economic system as a whole, is more robust than it is in reality. See Nesvetailova (2008) for a more detailed discussion.

restricting liquidity is harmful need to be qualified. Regulation needs to strike the right balance between the positive and negative effects, and this approach has been followed in the EU financial regulation agenda.

Impact of transparency requirements

One of the stated objectives of MiFID II is to improve the price discovery process and achieve fair and efficient price discovery, which is expected to have an overall positive impact on liquidity (see section 4.3.1). However, one area where MiFID II has been criticised the most for the potential impact on liquidity are the transparency requirements for non-equities.³⁸⁹ The other area relates to restrictions of high-frequency trading, which are discussed separately below.

Industry concerns have mainly focused on **pre-trade transparency requirements**, in particular requirements that all requested quotes must be firm and once a firm quote is provided to one client, it must be universally executable for all clients. Critics argue that too much transparency would have detrimental effects on liquidity as dealers would be more reluctant to commit capital if their quotes or trades are firm and displayed in public, so that the market may turn against them. More specifically, it is argued that dealers need to be able to provide specific quotes depending on the product, the order size and the settlement risk, so as to effectively hedge their subsequent risk. Without this information, the dealer would face uncertainty and would either widen the quote or step away from the market entirely, impacting on all market participants. Also, it is argued that transparency compromises the ability of the dealer to hedge the position as information is leaked to other dealers who may take up contrarian market positions. Overall, this combination of higher risk and increased hedging costs is argued to lead to lower yields for investors and push up the cost for issuers. While a number of studies raise these concerns, **there does not seem to be any empirical evidence to substantiate (or refute) the significance of these concerns.**³⁹⁰

As regards **post-trade transparency requirements**, the main concern also relates to hedging positions, with industry asking for delays in reporting (especially on large transactions) to allow dealers sufficient time to hedge their positions. If not, dealers would be exposed to the market (e.g. competitors can take contrarian positions), which may discourage them from providing liquidity, in particular, in relation to larger transaction of less frequently traded instruments. However, **no negative impact on liquidity has been found in empirical studies.** These are mainly studies that examine the implementation of post-trade transparency requirements in the USA.³⁹¹

The **need to balance transparency and market liquidity** is acknowledged in MiFID II. Correspondingly, they were drafted to ensure proportionality in the transparency requirements to mitigate these risks. In particular, there has been recognition of the need to properly calibrate transparency requirements for non-equities. Also, special rules and exemptions (e.g. for large trade orders) are applied to accommodate and maintain liquidity in non-equity markets.

³⁸⁹ MiFID I only mandated transparency for shares admitted on a regulated market.

³⁹⁰ See for example, TABB (2012).

³⁹¹ See MiFID II impact assessment prepared by the Commission Services.

Restrictions on high-frequency trading (HFT)

HFT or any other type of algorithmic trading can have beneficial effects on market liquidity.³⁹² Correspondingly, any restrictions on HFT would then reduce market liquidity. However, it can also be argued that the provision of additional liquidity through HFT is more limited in practice (and ever faster trading frequencies may result in declining benefits and indeed have adverse effects³⁹³), and that HF traders can take liquidity from, rather than provide it to, long-term investors, particularly at times when liquidity is already low and the market is under stress. Data limitations make a final assessment difficult.

Even restrictions on HFT have the potential to adversely impact liquidity in theory, the HFT measures in MiFID II are unlikely to have such impacts. The main provision is a requirement for HF traders to provide continuous liquidity, similar to the conditions that apply to market makers. The objective is to ensure that HF traders provide liquidity at all times, not just when markets are liquid but also in more stressed market conditions, so as to mitigate episodes of high uncertainty and volatility. Thus, the provision is in fact intended to improve liquidity.

Nonetheless, the provision could impose significant additional risks for HFT if the requirement is interpreted to mean that, at all times the market is open, the HF trader has to offer to buy and sell a security across a spread that reflects the usual spread for that security. This could have the effect of making HFT non-viable and too risky, potentially resulting in such trading to return to manual trading (with adverse consequences on trading costs and liquidity). However, any HFT sequence algorithm is likely to be adjusted such that it will display firm bid and offers at competitive prices under normal market conditions, and to widen the spread offered or withdraw from the market under more distressed market conditions where bid and offers across a narrow spread become too risky (as is currently allowed for traditional market-makers), such that trades may actually rarely be executed in those conditions and hence risks for HF traders minimised. Thus, the rule on continuous liquidity provision for HFT is unlikely to have an adverse impact on liquidity. At the same time, it may however also not achieve the desired objective of improving liquidity and reducing volatility.³⁹⁴

Restrictions on short-selling

In December 2013, the Commission adopted a report on the evaluation of the Short-Selling Regulation,³⁹⁵ which took into account technical advice by ESMA.³⁹⁶ Overall, the Commission report concluded that the SSR has had **some beneficial effects on volatility, mixed effects on liquidity and led to a slight decrease in price discovery**. The introduction of restrictions on uncovered short sales in shares and

³⁹² See Box 4.3.1.

³⁹³ Budish et al (2013).

³⁹⁴ The other relevant measures (e.g. on minimum tick size, minimum latency periods and minimum execution orders) are also unlikely to have an adverse effect on liquidity. See for example study prepared for the UK Government Office for Science (2012).

³⁹⁵ COM(2013) 885 final

³⁹⁶ “ESMA’s technical advice on the evaluation of the Regulation (EU) 236/2012 of the European Parliament and of the Council on short-selling and certain aspects of credit default swaps”, Final Report, ESMA/2013/614, 3 June 2013.

sovereign debt has had the intended impact of improved settlement discipline. While ESMA's technical advice suggests that the introduction of the Regulation was followed by a decline in quantities available for loan on the securities lending market, it also concludes that this recovered after January 2013. Another analysis by ESMA showed that between June 2012 and June 2013, the value of equities on loan actually increased by more than 10 % when adjusting for seasonality³⁹⁷.

Some concerns were raised by market participants that **increased transparency of short-selling activities** could adversely affect market liquidity. According to these concerns, traders could seek to counter herding behaviour by trying to limit their short-selling activities, so that they do not exceed the regulatory thresholds, thereby harming market liquidity. Although the SSR has set rather high thresholds and provided for a market-making exemption to address these concerns, ESMA's analysis of net short positions in shares reported to competent authorities and disclosed to the public suggests that the data may indicate reluctance from some market participants to disclose their short positions to the public.

At this stage, the ban on uncovered sovereign CDS transactions seems to have had **no impact on the liquidity of EU single name CDS, as well as on the related sovereign bonds markets**, even though a decline in activity for sovereign CDS in a few EU countries and reduced liquidity in European sovereign CDS indices could be noticed. The Commission noted in its evaluation of the SSR that no Member State has so far used the possibility granted in the SSR to suspend restrictions on naked sovereign CDS in the event of an adverse impact on liquidity. In its technical advice, ESMA suggested that higher legal certainty should be pursued by clarifying some wording in the legal text (e.g. on the correlation test) and that some **refinements to the detailed provisions could be envisaged**: e.g. the use of sovereign CDS indices for hedging purposes, cross-border hedging under certain liquidity and correlation circumstances, and group hedging by a particular and dedicated entity.

Mixed market impacts have been noticed in relation to the longer-term emergency measures introduced by some EU countries at the height of the financial crisis. Concerning the possibility to impose restrictions on short-selling introduced by the SSR, ESMA considers that such measures are necessary and appropriate. However, no clear conclusion could be drawn as to their effectiveness on the basis of the few concrete experiences of short-term bans imposed in case of a significant fall in the price of a financial instrument.

According to ZEW (2011), temporary restrictions on short-selling do not harm market efficiency due to their transitory nature, but they cannot stop a downward spiral when problems are due to reasons other than temporary uncertainty. Cliftong and Snape (2008) argue that constraints on short-selling reduce informational efficiency of the market by inhibiting downward price discovery, and increase the likelihood of volatility and discrete price drops. Their empirical analysis shows significant negative effects on market liquidity of a ban lasting several months.³⁹⁸

³⁹⁷ See ESMA (2013).

³⁹⁸ E.g. see Cliftong and Snape (2008) and Boehmer et al (2008).

A study of the European short-sale ban on financial stocks of August 2011 by Félix et al (2013)³⁹⁹ finds that **the current format of short sale bans serves the intended purpose, though at a cost**. The bans restrict further selling pressures on selected financial shares, both in the spot and in the derivatives market. At the same time, the short-selling ban allows market participants to continue trading in the equity index derivatives markets. Although a degree of market failure is documented, their results show that the index option markets continue to function, while financial sector stability seems to benefit from the bans. During the ban period, the trading volume of stock put options for the banned stocks declined due to the reluctance of market makers, as they become more risk averse and as hedging costs increased. As a consequence, speculators are prevented from betting on further declines in financial stocks, as the out-of-the-money single stock put options become too expensive. Thus, the European 2011 **short-selling ban helped curbing synthetic shorting activity in financial stock and reduced the risk of bank runs**.

In contrast, holders of financial stocks trying to hedge their positions are no longer able to do so without paying a higher price. As a result, the short-selling ban transfers wealth from the hedgers and other liquidity takers to liquidity providers. Moreover, the shift in investors' risk aversion provoked by the ban could have acted as a reinforcing loop of the crisis. While the short-selling ban is effective in restricting both outright and synthetic shorts (e.g., through options) on banned stocks, the authors found some evidence of trading migration to the index option market. Trading volumes in puts on the EuroStoxx50 index reached an extreme level upon introduction of the short-selling ban. Investors seemed to switch from single stock puts to index puts because of valuation and "flight-to-liquidity" incentives. This migration of selling pressures from financial stocks to European equity indices does not seem to jeopardise the efficacy of the short sale ban. The selling pressure is diverted from the financial stocks to a larger share of the stock market, thereby potentially reducing the destabilising effects in the financial sector such as bank runs and financial contagion.

Concerning sovereign CDS, some studies such as Criado et al (2010) provided no conclusive evidence of a link between CDS market developments and higher sovereign funding costs. However, others such as Delatte et al (2011) conclude that at least in distressed markets, sovereign CDS become a bear market instrument to speculate against the deteriorating conditions of sovereigns. While credit spreads for average firms do not seem to be affected by the CDS market, CDS spreads for opaque and risky firms exhibit an increasing effect on funding costs.⁴⁰⁰ The corporate CDS market is more liquid than the underlying one and, therefore, reacts faster to new information. The deterioration in the informational value of CDS spreads could impact negatively on the objective to reduce reliance on credit agency ratings. Furthermore, it may be easy to circumvent the new regime as traders could short-sell sovereign bonds using options and futures instead.

Survey evidence suggests that the targeted short-selling ban contained in the Regulation is not widely perceived as having a detrimental impact on the market. **Only 13 % of financial experts surveyed by ZEW (2011) viewed the ban as**

³⁹⁹ See Félix et al (2013).

⁴⁰⁰ See e.g. Ashcraft and Santos (2009).

detrimental, compared with 65 % of respondents who stated that the Regulation would enhance financial stability.

Impact of bank structural (and other) reforms on market-making and liquidity

One of the functions which banks and investment banks perform in the market is to trade and thus provide liquidity, enabling end-investors and other market users to buy and sell at reasonably low bid-ask spreads. The **market-making function is of particular importance in markets that tend to be less liquid** and rely on market makers to act as willing buyers and sellers.

Tighter capital requirements on banks' trading books provide incentives to reduce trading risk exposures. Any reduction in trading could reduce liquidity in the market. However, **any reduction in liquidity provision that was, in fact, associated with underpriced risks and excessive risk-taking by banks may not be a societal cost, but rather a societal benefit.** More generally, as noted above, not all liquidity serves a useful economic purpose and, from a social impact point of view, it may be better to forgo liquidity in some cases where this would otherwise come with excessive risks.

Concerns about liquidity impacts have also been expressed in relation to bank structural reform, in particular, if market-making is among the bank activities that can be placed – under certain circumstances and depending on the supervisory assessment - into a subsidiary that is separate from the deposit-taking bank. “Liquidity” is often left undefined, but typically the fear is that bid-ask spreads may increase, increasing the costs to trade at any scale. Investor options will be reduced, as trading entities can no longer trade as much and as easily as before. Price discovery is made more difficult. And price volatility may increase, if professional position takers no longer spot price divergences from rational levels and correct them through trading and speculation. However, **many concerns about the liquidity impacts of bank structural reform can be rebutted.**⁴⁰¹

The USA has 80 years of continuous experience with subsidiarisation of investment banking activities (including market making, underwriting), as deposit taking affiliates within a Bank Holding Company are not allowed to do other than “core banking activities”. There is no evidence to suggest that US bond markets are less liquid than European ones and have been constrained in their development, on the contrary. Even in the era when Glass-Steagall Act (the US legislation separating investment banking from commercial banking) was in place, the US economy has on average been thriving, compared to the current juncture.⁴⁰²

Markets need a large number of independent traders to function properly. Subsidiarisation of market-making deprives trading entities of access to funds that are

⁴⁰¹ See also the Commission Services' impact assessment on structural reform.

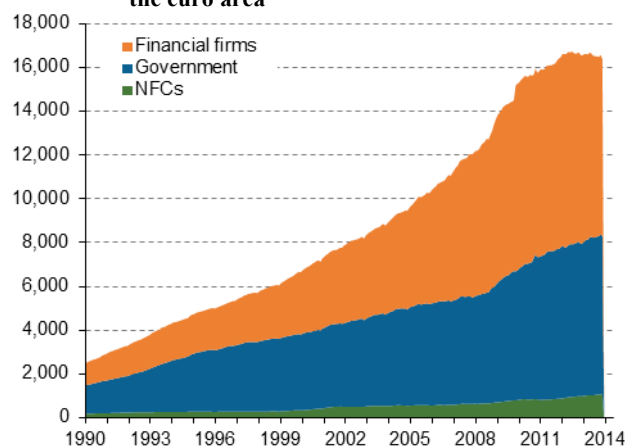
⁴⁰² Zingales (2012): “The third reason why I came to support Glass-Steagall was because I realised it was not simply a coincidence that we witnessed a prospering of securities markets and the blossoming of new ones (options and futures markets) while Glass-Steagall was in place, but since its repeal have seen a demise of public equity markets and an explosion of opaque over-the-counter ones. [...] With the repeal of Glass-Steagall, investment banks exploded in size and so did their market power. As a result, the new financial instruments (such as credit default swaps) developed in an opaque over-the-counter market populated by a few powerful dealers, rather than in a well regulated and transparent public market.”

artificially cheap because of implicit subsidies, forcing them to limit their size and the size of their bets and ensuring fair competition across stand-alone investment banks and investment banking arms within universal banking groups. These limitations may, in fact, increase the number of market participants, which may contribute to making markets more liquid.

The market liquidity concern neglects the fact that structural separation merely aims to reduce the implicit subsidies that distort the proper market functioning. Market prices are distorted when contaminated with implicit public subsidies. As a result, the banking system may produce excess liquidity (as is evident from its rapid and unsustainable expansion in the years leading up to the crisis). Separating market-making from the deposit entity will **reduce excessive risk-taking and artificial balance sheet expansion**. While the funding costs of the trading entity will increase, it may lower the funding cost for the deposit entity, which is exposed to less risk under subsidiarisation.

Bid-ask spreads on sovereign bonds of many EU countries as well as on large corporates were already at negligible levels before broker-dealer arms of universal banks started to sharply increase their inventories and market-making activities in the early years 2000. For example, bid-ask spreads on German Bund paper have not decreased in the run-up to the crisis, in which large European banks have sharply increased their inventories.

Chart 6.5.1: Nominal outstanding securities (excl. shares) in the euro area



Source: ECB data.

primary dealer corporate bond inventories have surged between 2000 and 2008 and have collapsed again back to 2002 levels.

In any case, the bulk of the securities inventories do not correspond to sovereign or corporate debt, but rather to securities issued by financial firms. Only a small fraction (6.5 % at end 2013) of the outstanding securities in the euro area has been issued by non-financial private issuers (chart 6.5.1). A similar observation holds for OTC derivatives, of which only a small fraction have non-financial firms as counterparts. The bulk of OTC derivatives are intra-financial sector derivatives. In the US,

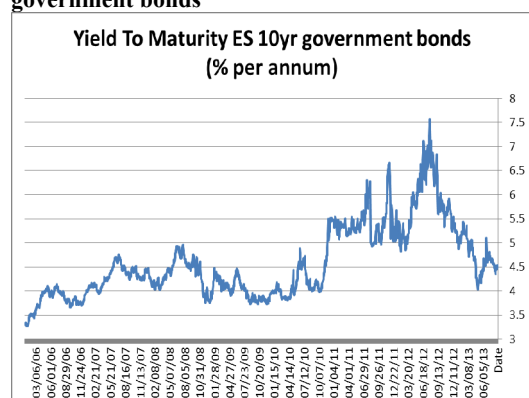
What matters for the economy is the level of the interest rate, at which corporates and sovereigns can fund themselves, which is a function of the supply and demand for these securities, and whether bid-ask spreads are reasonable to allow a normal degree of trading transactions. **The liquidity premium only makes up a negligible fraction of the interest rate level** and reflects the extent to which the security can be exchanged. Hence, the value added of the ability to purchase and sell a security 1000 times every minute is economically insignificant. As noted above, the liquidity concern is built on the presumption that more liquidity is always and inherently positive, irrespective of its level, which is not the case.

Financial economics does not have a good explanation yet on why people trade so much. One explanation is overconfidence, as in Odean (1999). Recent work presents models in which trading and trading speed can be excessive (Glode, Green, and Lowery (2012) and Bolton, Santos, and Scheinkman (2012)). In these models, advances in IT do not necessarily improve the efficiency of financial markets. French (2008) estimates that investors spend 0.67 % of asset value trying (in vain on average, by definition) to beat the market.

The market liquidity concern should be put into perspective. Richardson (2013) notes that **the issue of liquidity is more relevant in times of crisis than in normal times** when liquidity is typically not a pressing concern. Banks have not performed a significant liquidity role during crisis period,⁴⁰³ and **central banks have stepped in to assume the role of market maker of last resort** (in covered bond markets, government bond markets) next to their role as lender of last resort.

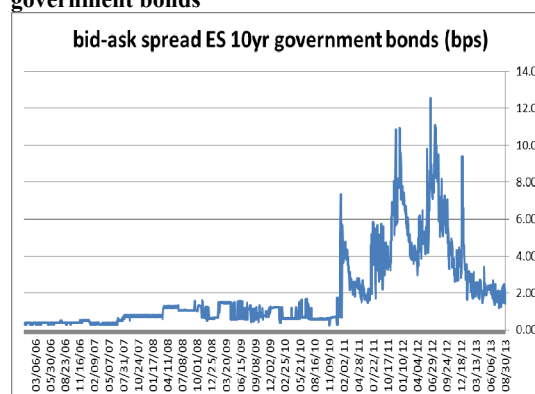
Bid-ask spreads are relatively negligible compared to the interest rate level. For example, as shown in charts 6.5.3 and 6.5.4, 10 year Spanish government bond yields have more than doubled and increased from less than 3.5 % in June 2006 to more than 7.5 % in July 2012. Bid-ask spreads in the period June 2006 to August 2013 on average are 2bp (0.02 %) and spiked at 12bp (0.12 %) in June 2012. The above suggests that the willingness and **ability of (private sector) market makers to influence the interest rate level is relatively limited.** If anything, their pro-cyclical behaviour and excessive liquidity provision can sow the seeds of future crises.

Chart 6.5.2: Yield to maturity of 10-year Spanish government bonds



Source: Bloomberg data

Chart 6.5.3: Bid-Ask spreads of 10-year Spanish government bonds



Source: Bloomberg data

Moreover, the structural reform as proposed by the Commission in January 2014 is only aimed at the large banking groups with significant trading activities. Medium-sized competitors or new entrants that are not subject to mandatory separation may gain market share from large banking groups, if artificial competition distortions in favour of too-big-to fail banking groups are being reduced. Hence, whereas some banking groups may face increased costs and may no longer serve certain customers, those activities may be picked up by smaller competitors that do not face structural separation requirements. Accordingly, customers are not likely to be left unserved.

⁴⁰³ More generally, voluntary market making may not occur when it is most needed, i.e. during troubled market conditions. Even dedicated market makers are typically only allowed to post quotes during 90 % of the trading period and of course they may decide to breach their contractual obligations if they deem that fulfilling them would threaten their solvency.

Finally, under a subsidiarisation model, market-making would not be prohibited within a banking group. Depending on the supervisory assessment, it may just need to be performed by a legally separate trading entity. The resulting increase in the funding cost for the trading entity is part of the desired effects of the separation. Market making is a financially viable activity on its own, as illustrated by the fact that several important market makers are not taking any deposits. The Commission's reform proposal only requires the full separation of proprietary trading activities from deposit-taking entities. **Customer-related market making is not prohibited and only subject to a subsidiarisation requirement**, unless the relevant bank has limited trading activities or can show – to the satisfaction of its supervisors – that this is not required.

6.6 IMPACT ON RISK TRANSFER AND RISK MANAGEMENT

In addition to financial intermediation and facilitating the flow of finance to the economy, the financial system has the key function of facilitating risk transfer and risk management in the wider economy. The following examines the potential impact of the reforms with respect to the risk transfer function, including:

- **Provision of insurance services** (life or non-life) which enables households, businesses and the public sector to reduce their exposure to risk and purchase protection from insurance companies, and
- **Creation of markets in derivatives instruments**, e.g. in interest rates, foreign exchange and commodities, that allow the hedging of risks.

6.6.1 Impact on insurance provision

Solvency II is not intended to result in a general increase in the capitalisation of the EU insurance sector (unlike the CRD IV package in banking), but to make the capital requirements risk-based. Indeed, **the significant majority of insurance entities are not expected to raise capital because of Solvency II**. This was demonstrated by the fifth and last quantitative impact study (QIS5)⁴⁰⁴ before the introduction of Solvency II. Based on a sample of 2 520 insurance companies, QIS5 showed that most of them have sufficient capital (own funds) to cover the new solvency requirements, and the industry average showed a comfortable solvency capital ratio (SCR) of 165 % for the participating institutions. This is in spite of the fact that the aggregate capital surplus is roughly 25 % lower than under the current regulation.

Subsequent analysis, conducted by EIOPA as part of the long-term guarantees assessment, showed that in the baseline scenario tested, life insurers had an aggregate deficit of EUR 145 billion relative to the SCR at the end of 2011, when credit markets were particularly volatile. However, the **adjustments proposed as part of the long-term guarantee package address the artificial balance sheet volatility** that was observed in periods of market stress under the baseline methodology for the long-term guarantees assessment.

⁴⁰⁴ EIOPA Report on the fifth Quantitative Impact Study (QIS5) for Solvency II, 14th March 2011.

Nonetheless, there may be effects on some types of products which see increased capital charges to better reflect the risks. **Life products with guarantees are expected to become more expensive**, with the implication that consumers will be offered the choice of higher cost guarantees or increased risk-bearing through unit-linked products.⁴⁰⁵ Some insurers may be withdrawing from long-term guarantee products if customers are not prepared to pay the increased (but risk-reflective) costs of guarantees, or they may be able to offer products with conditional guarantees, where the guaranteed return is linked to the market interest rate rather than fixed.

The increase in the price of guaranteed products is a reflection of the higher economic costs of providing these products. Policyholders have to either pay for shifting the risks to insurers or buy a cheaper product, but bear more risk. These changes are a direct consequence of moving to a more risk-reflective system.

6.6.2 Impact on hedging risks with derivatives⁴⁰⁶

A common criticism of the **OTC derivatives reforms (EMIR)** has been the assertion that it would make hedging idiosyncratic risks more costly. To the extent that EMIR helps correct the mispricing of risk that occurred prior to the crisis (e.g. in the form of inappropriate margining practices), its implementation **may lead to an increase in the price of hedging**. The precise magnitude of this increase is unknown, but it is not expected to be excessive. Moreover, the market players on the demand side may find that the cost of imperfect hedging is smaller than the pre-crisis cost of perfect hedging due to the low level of competitive pressures in the bilaterally cleared universe. As a result, they may end up being better off using an imperfect, but centrally cleared hedge. Notwithstanding these aspects, efforts have been taken to minimise any potential negative effects on the economy and to ensure gradual transition to the new clearing environment.

For example, **pension funds enjoy specific exemptions** from mandatory clearing. Some funds make extensive use of OTC derivatives to hedge their liabilities against inflation, currency and interest rate risk. Pension scheme operators have the objective of minimising their cash positions to maximise the efficiency and long-term returns, holding higher yielding investments, such as securities. At the same time, CCPs accept only cash as variation margin. Thus, a move to central clearing could necessitate pension funds to set aside additional cash reserves. This involves opportunity costs because of the low level of interest that is currently earned on cash collateral.

To reduce the potential negative impact of the central clearing requirement on retirement income, it has been agreed under EMIR to exempt pension funds from the central clearing obligation as regards OTC derivatives contracts that are objectively measurable as contributing to lower investment risks. In other words, trades that are done for hedging purposes are exempted for funds that are recognised as an eligible

⁴⁰⁵ Contracts offered by insurance undertakings where no guarantees are provided (i.e. where the market risk is borne by policyholders – e.g. unit-linked products) are not factored into the calculation of the solvency capital requirement.

⁴⁰⁶ In addition to the impact of the rules described here, as already alluded to in section 6.5.2, restrictions on short-selling may have an impact on hedging costs, whereby a short-selling ban acts as a wealth transfer from liquidity takers to its providers. As suggested by ESMA, some refinements can still be implemented to lessen this impact.

pension type under EU legislation. This exemption is currently valid for a period of three years, with a possible extension for another three years. During this period, OTC derivative contracts entered into by pension funds for hedging purposes will be subject to reporting and bilateral collateralisation requirements.

In addition, certain **exemptions apply for non-financial counterparties**. They are exempt from central clearing as long as they do not engage in non-hedging activities in the separate OTC derivatives asset classes that exceed a specific threshold: set at EUR 3 billion for interest rate, foreign exchange and commodity derivatives' classes, and EUR 1 billion for credit and equity derivatives. This was done specifically to limit any potentially adverse consequences on the real economy. Moreover, **the more stringent margining requirements apply to new trades only**.

As regards the macroeconomic impacts of derivatives reform, the Macroeconomic Assessment Group on Derivatives (MAGD) of the BCBS estimated that the gross **macroeconomic costs of OTC derivatives regulatory reforms would range between 0.03 % and 0.07 % of annual GDP**, depending on the assumptions relating to the netting benefits. At the same time, the estimated gross benefits from OTC derivatives reforms are 0.16 % of annual GDP and hence exceed these costs more than twofold (see also section 4.3.2).

Finally, there have also been concerns about the introduction of **position limits under MiFID II** impacting on the ability of commercial market participants to hedge their positions. These concerns have been addressed through an **exemption from the position limits regime for 'bona fide' hedging** by commercial market participants. Thus, position limits will not apply to positions held by or on behalf of a non-financial entity and which are objectively measurable as reducing risks directly related to the commercial activity of that non-financial entity.

CHAPTER 7: ADDRESSING NEW RISKS AND POTENTIAL UNINTENDED CONSEQUENCES OF THE REFORMS

Concerns have been expressed that the rules intended to increase the resilience and stability of the financial system may in fact create new risks elsewhere in the system or create unintended consequences if unaddressed. This chapter addresses the following main potential concerns:

- regulatory arbitrage and potential shift of activities to less regulated sectors (section 7.1);
- risk concentration at the level of market infrastructures, in particular CCPs (7.2);
- risks in collateral markets (7.3);
- asset encumbrance in financial institutions' balance sheets (7.4); and
- risks of disorderly deleveraging (7.5).

The chapter also discusses potential unintended consequences in relation to developments in securitisation markets (7.6), competition (7.7), EU competitiveness (7.8), the need for consistent rules at EU and global level (7.9), potential tensions between Banking Union and the single market (7.10), the complexity of the regulatory system (7.11) and potential inconsistencies in the legislations (7.12). Overall, these new risks and potential unintended consequences are either the subject of ongoing work and addressed through careful implementation or are not considered, at this stage, to require immediate policy action, but they will nonetheless be subject to continual monitoring.

7.1 REGULATORY ARBITRAGE AND SHIFT OF ACTIVITIES TO LESS REGULATED SECTORS

Financial institutions may respond to the financial reforms by changing their behaviour to avoid or mitigate requirements. There are a number of ways in which industry may respond to circumvent the rules: through financial engineering (deploying new products to sidestep regulatory rules); through supervisory arbitrage, by shifting activity across jurisdictions (i.e. depending on how strictly prudential supervision is exercised); and by shifting activities to less regulated parts of the financial system. If done on a large scale, this would render the reforms less effective. New risks would start building up that would need to be managed and evaluated.

Regulatory arbitrage through financial engineering

Financial engineering can be used by financial institutions or agents to structure activities or products in ways to "game" the system to avoid the intended effects of the regulatory reforms and thereby reduce private costs.⁴⁰⁷

⁴⁰⁷ For example, under the old capital rules, firms could avoid taking a deduction (from their capital requirement) for "material holdings" in other financials, by making the investment indirectly. This issue was spotted and addressed in the recent revisions of the capital requirements within the CRD IV package, which captures both direct and indirect holdings in other financials (under the rules for non-significant and significant investments). Whilst this example was spotted and addressed, there may be others that the regulators are yet to see as the market innovates to adjust to the new rules.

If financial institutions respond to regulations by engaging in financial engineering to meet the new regulatory requirements, this can create new risks. For example, in response to higher liquidity requirements, banks may look to access the liquidity embedded within asset portfolios held by insurers or fund managers, through so called liquidity swaps, or collateral upgrade transactions. These trades allow the borrower to exchange poorer quality assets (e.g. illiquid or less liquid assets or low credit quality assets) for better quality assets (e.g. liquid or higher credit quality assets) in return for a fee. In principle, such transactions can have a role in facilitating temporary transfers of liquid assets to financial institutions that need them (e.g. banks), whilst at the same time providing the lending firms (e.g. insurers or fund managers) with secured exposures and potentially enhanced yield. However, any significant increase in such activities in response to regulation could create new risks in the system: increased interconnectedness between banks and insurers and fund managers; possible increased pro-cyclicality of lending and asset prices (depending on the type and structure of the collateral arrangements); and concerns about whether using borrowed assets to meet liquidity requirements offers sufficiently resilient liquidity benefits in times of stress.⁴⁰⁸ Market pressures and the expected liquidity rules have created some initial demand from banks for liquidity swaps. Similarly, opportunities to enhance returns on assets also drew interest from insurers. To date, however, the market remains small.⁴⁰⁹ Nonetheless, it is worth watching this development.

Regulators and supervisors face the challenge of keeping track of new financial products and techniques, which of course may be developed with good intentions, but which may also allow financial institutions to circumvent regulations and create new risks to the system. Ongoing monitoring and review is required to ensure that regulatory arbitrage does not undermine the effectiveness of regulation.

Regulatory arbitrage through supervisory arbitrage

Separately, there may be risks of supervisory arbitrage. This refers to the shifting of certain activities or positions to other jurisdictions to avoid a situation of relatively more strict prudential supervision by one set of supervisors compared to another, or to avoid supervision altogether.

There is always a tension between rules and discretion. It would have been possible to completely eliminate such arbitrage by implementing a large number of strict and uniform rules. However, this would have then led to significant difficulties in areas where some discretion is clearly needed. The crisis demonstrated a "tick box approach to supervision" was inadequate (some banks "produced" satisfactory indicators shortly before their collapse). It is impossible to write down a complete (or even adequate) set of binding rules on the financial health of a bank (or on the substance of the professional competence of bankers). Policymakers learnt the importance of giving supervisors sufficient room for subjective discretion in decision-making. There are other examples where carefully constrained regulatory discretion is clearly desirable, for example in determining the trigger for bank resolution, where a strict rule-based trigger could prove counterproductive. At the same time, full discretion is also not

⁴⁰⁸ See Joint Committee of the ESAs (2013).

⁴⁰⁹ Based on a 2012 EIOPA study of 112 responding institutions, the overall size of the collateral upgrade transaction market is low, but varies much across the EU. In the survey, the notional value was about 3 % of total balance sheet assets.

desirable, as it can lead to legal and market uncertainties and potential divergences in implementation and application of the rules by different national regulators (see also section 7.9).

Clearly, **cooperation between regulators and supervisors, across borders and across sectors, is an important prerequisite to any attempt to suppress supervisory arbitrage.** The harmonisation of EU rules, including the single rulebook and the establishment of the ESAs with their mandate for contributing to supervisory convergence should help subdue supervisory arbitrage opportunities within the single market. Furthermore, the establishment of a single supervisor (ECB) as part of the SSM is a step change for Member States participating in the Banking Union that will ensure the consistent and objective application of the regulatory framework for the prudential supervision of banks.

However, **opportunities for supervisory arbitrage may still be apparent as long as the single market for financial services remains incomplete** and national discretion in decision-making exists. The aim is not necessarily for a full rule book and no discretion. National supervisors are likely to have more expertise on their specific financial sectors, and so will always play a fundamental role. Indeed, the design of the SSM was calibrated to utilise the local in-depth knowledge of national regulators. The ECB will focus on the most significant institutions, while national supervisors will, under the general guidance of the ECB, be in charge for the day to day supervision of less significant institutions.

The Commission recognises the need for both discretion and rules in the reforms, and has tried to strike a balance between providing clarity and consistency, without choking financial innovation and impinging on the freedoms on which the EU Treaties are established (e.g. to locate or conduct business anywhere in the EU).

Potential for risks to be shifted to less regulated parts of the financial system

The regulatory reforms have aimed to directly address key failings identified in the financial system as a result of the financial crisis. The measures have necessarily focused on fixing risks in specific segments of the financial system. There is a danger that in pursuit of the reduction of overall systemic risks new risks may be created in other parts of the system.

In particular, the regulations in response to the recent crisis have tended to focus more on the formal banking sector, rather than the non-bank credit intermediaries (some of which are part of the "shadow banking" sector). For example, **imposing tighter regulatory requirements on banks may incentivise the migration of some activities out of the banking sector altogether towards non-bank credit intermediaries.** However, this should not be interpreted as an adverse development per se. Rather, a move of finance towards non-banks reflects a move away from bank-based towards market-based finance and thereby helps diversify the funding opportunities for European businesses. Of course, it can also bring risks, especially if regulators and supervisors lack information about "shadow banking" activities and have fewer tools to effectively monitor risk and intervene as required.

However, this does not so much constitute an argument against tighter banking regulation. Rather, it highlights **the importance of strong oversight and adequate**

supervision on all parts of the financial system and, where required, stronger rules and supervision for the shadow banking sector. As discussed in section 4.4, work in the area of shadow banking continues at EU and international level.

7.2 CONCENTRATION OF RISKS IN CENTRAL COUNTERPARTIES

Robust financial market infrastructures make an essential contribution to financial stability by reducing what could otherwise be a major source of systemic risk. As explained in chapter 4.3, CCPs will become a critical market infrastructure of the new financial system. As part of the move to CCP clearing of derivative contracts, counterparty risks will shift from banks (and other relevant financial entities) to CCPs. It is therefore important that CCPs do not themselves become a source of systemic risk.⁴¹⁰

CCPs were not originally designed as macro-prudential institutions with a responsibility of improving the safety and soundness of the broader financial system⁴¹¹. However, as the derivatives markets grew, some CCPs have become sufficiently large and interconnected to be systemically important. This systemic importance is likely to increase as a result of EMIR mandating the central clearing of OTC derivatives contracts. The economies of scale (due to netting and diversification benefits) attached to central clearing favours the use of a small number of large CCPs. The financial resources of CCPs are not unlimited. One sufficiently severe shock (or a collection of multiple defaults of clearing members) could potentially threaten their solvency. Their financial soundness is therefore essential to ensuring the stability of the entire financial system.

A CCP default would typically follow unforeseen losses as a result of simultaneous default of several of its members. The trigger could be either from a member's insolvency, or its insufficient liquidity to meet a margin (or delivery) settlement obligation. The subsequent knock-on effects could be quite far-reaching. ESRB (2013) suggests that the risk concentration within clearing members themselves would build up due to the need for indirect access to CCPs. In addition, the large banking groups tend to exhibit significant overlaps across many CCP memberships. Thus, a significant cross section of CCPs and their members could be affected by a globally systemic event. To address the potential contagion risks between CCPs as a result of interoperability arrangements, EMIR specifically requires CCPs to identify and manage the risks arising from such arrangements. It also provides for these arrangements to be assessed and approved by the competent authorities.

If the defaulter's margin with the CCP is insufficient to cover its obligation, the CCP would have to call upon other financial resources, including its equity and default fund and its ability to call on additional capital contributions by members. If all of these resources are exhausted as a result of the member default(s), the CCP would default on its obligations to other members and their clients. Failure of a large CCP would possibly result in spreading financial contagion, as all major financial institutions will be interconnected via direct and indirect linkages to CCPs.

⁴¹⁰ Much of the discussion in this section can be extended to other systemically important market infrastructures.

⁴¹¹ See Pirrong (2011).

As noted above, a CCP could also default due to a lack of liquidity. Just like other financial intermediaries, CCPs are potentially susceptible to ‘runs’ due to a loss of confidence in their solvency. This could create a liquidity shock for the CCP as it attempts to return collateral. For instance, in the event of a member default, the CCP is obligated to make a timely payment to those owed variation margin payments. This will require the CCP to liquidate the defaulter’s collateral, and perhaps some of its own assets. The CCP may also attempt to borrow to meet its obligations. If such collateral sales and borrowings occur during stressed market conditions (which is when a large member default is most likely), the CCP may be unable to raise sufficient funds to meet its obligations in the short time available to do so.

Indeed, the nature of CCPs makes them most vulnerable to default in times when their resilience is most needed. The financial condition of the CCP is weakest at the time its financial obligations are greatest (i.e. they are susceptible to "wrong-way" risk).⁴¹²

EMIR explicitly recognises this problem and requires that margin requirements, haircuts and collateral eligibility all take wrong-way risk explicitly into account. Wrong-way risk is also to be accounted for during CCP stress-testing exercises. EMIR also requires CCPs to maintain sufficient financial resources to protect against its members' default and to have in place approved default procedures to manage the orderly wind-down of a defaulting member’s positions. Crucially, the CCP must be able to withstand the default of two of its largest clearing members.

However, even in this case the financial system remains exposed to significant tail risks, as long as there is no dedicated resolution regime for CCPs. The role that CCPs now play in enhancing financial stability makes it imperative to design a resolution mechanism to address the remote possibility of a CCP failure. The cessation of operations of a CCP would deprive market participants of some very basic functions, such as trade processing, thereby entailing shutdown of entire markets with knock-on effects. To prevent such an outcome, a flexible and efficient resolution mechanism for CCPs is required, and the Commission is already looking into this problem area as part of its **work on non-bank resolution**. This includes an ongoing dialogue with industry and international policymakers.

The central role that CCPs now play in increasing financial stability raises some concerns linked to the remote possibility of CCP failure. The cessation of operation of a CCP would deprive market participants of very basic functions such as trade processing, thereby entailing shutdown of entire markets, with knock-on effects even on markets not directly affected. To prevent such an outcome, CCPs require committed resources that cannot be used to satisfy obligations on derivatives contracts, but which are sufficient to permit the CCP to continue to undertake its operational (as opposed to risk-bearing) functions in the event of its inability to perform its contractual obligations and to allow for the transfer the positions of a defaulted CCP to solvent counterparties. The Commission announced in its work

⁴¹² Wrong-way risk tends to be largest for the most senior component of payment ‘waterfalls’ and highly rated counterparties. Entities with these characteristics rarely fail, but their failure tends to occur concurrently with large asset price movements, thereby exacerbating market crises. Given that CCPs have attributes that make them vulnerable to wrong-way risk, this is a major concern.

programme 2014 that it would table a proposal for a resolution scheme for non-banks. Work is under preparation, taking into account developments at international level.

7.3 POTENTIAL RISKS IN COLLATERAL MARKETS

The general move to increased collateralisation of transactions was a logical consequence of the financial crisis and helped securing some stability in financial intermediation. Collateral reduces credit risk between market participants and supports market-based sources of credit to the economy (see Box 7.3.1). It is central to the functioning of OTC derivatives markets and the funding provided by the securities financing markets. Since market-based finance needs collateral to grow sustainably, its availability directly influences the supply of finance to European households and businesses.

This section examines the demand and supply of collateral to address concerns that have been raised about the potential scarcity of collateral in the system. As explained below, the evidence available suggests that there is no general shortage of collateral in the financial system, although some scarcity could emerge, which needs to be monitored. Rather than shortages in the stock of collateral, there may be bottlenecks as regards the flow (i.e. collateral “fluidity”). Any such potential bottlenecks appear to be mainly driven by factors other than regulation. Upcoming policy initiatives may contribute positively to alleviating such bottlenecks.

Box 7.3.1: What is collateral and who uses it?

For the purpose of this section, collateral is defined as a financial asset pledged as security to be forfeited in the event of a default. For example, a house typically serves as collateral for the bank mortgage loan used for its purchase. Collateral is held by one contracting party (the collateral holder) to provide cover against counterparty credit risk exposure taken in respect of another party (the collateral giver). In other words, the collateral serves to mitigate loss in case of a counterparty default, alleviating the problems related to both asymmetric information and moral hazard faced by the collateral holder.

Historically, collateral has mainly been used in the context of secured lending, repurchase agreements (repo) and exchange-listed derivatives. During the 1990s, the practice of secured OTC trading had become well established in foreign exchange (FX) margin trading and it was adapted for use with virtually all OTC derivative products. In 2012, in excess of USD 2.5 trillion (85 % of which in cash) were employed to secure OTC derivative counterparties. Finally, many central bank money market operations are also secured with collateral.

Assets considered to be ‘safe’ generally exhibit: (i) low credit and market risks; (ii) high market liquidity; (iii) limited inflation risks; (iv) low exchange rate risks; and (v) limited idiosyncratic risks. Whilst cash is often used as collateral, many other types of collateral exist, such as fixed income bonds (sovereign/corporate) and covered bonds; securitisation programmes and commercial paper; metals and commodities; equities and funds; and credit claims.

High-quality and liquid collateral plays a critical role in a wide range of financial transactions. Its steady income streams and ability to preserve portfolio values are key considerations in investors’ portfolio decisions. As such, it is widely embedded in portfolio mandates and often acts as performance benchmarks. Yields on government bonds are reference rates for the pricing, hedging, and valuation of risky assets. While, in principle, any type of asset could be used as collateral in private repo transactions, liquid assets with high credit quality are preferred and therefore associated with lower secured funding costs. The bilateral repo market is structured around global dealer banks that, in part, reuse the received collateral to meet demand by other financial institutions and play a key role in liquidity provision.

The key collateral providers include hedge funds, broker-dealers and custodian banks. Collateral holders, in turn, count amongst them a wide range of market participants, including: central clearing counterparties (CCPs); banking institutions and central banks; and central securities depositories (CSDs); insurance companies, asset managers and pension funds; as well as prime-brokers and general clearing members.

The demand for collateral

The **importance of collateral has increased** significantly since the start of the financial crisis, which is mainly related to the shift in risk appetite of market participants and reduced trust in the financial system. Demand for collateral was boosted by the decline in unsecured money markets after the default of Lehman Brothers in September 2008. Before 2008, monetary and financial institutions were willing to lend to each other substantial amounts of money without any form of collateral, as mutual trust was high. Once the crisis hit, however, this mutual trust started to decline and financial institutions became more risk averse, especially when doubtful about their counterparties' financial health.⁴¹³ This caused transactions to shift towards the secured money market. As a result, market participants nowadays need more liquid high-quality assets for collateral purposes than in the past to attract funding in the private money markets.

The demand for high-quality liquid assets that can be used as collateral will increase further due to a number of regulatory reforms. In particular, the **OTC derivatives reforms (EMIR) are expected to significantly increase the demand for high-quality assets**, primarily through CCP initial margin requirements. Both parties to a centrally cleared derivatives transaction are subject to these requirements. A two-way margining regime with initial margin is also proposed in the standards for bilaterally managed transactions, although this is likely to be subject to thresholds. The initial margin will have to be in the form of cash or high-quality assets and may be held in segregated accounts, which will facilitate monitoring and reduce the possibilities for rehypothecation. Several studies have assessed the impact of derivatives reforms on the demand for high-quality assets, suggesting that initial margin requirements for centrally cleared derivatives could add another EUR 0.1 to EUR 0.6 trillion at global level under normal market conditions.⁴¹⁴

⁴¹³ See for example Levels and Capel (2012).

⁴¹⁴ A BIS study by Heller and Vause (2012) concluded that initial margin requirements of G14 dealers would amount only to a small proportion of their unencumbered assets, even if CCPs cleared all of their IRS or CDS positions. At the same time, BIS estimates of initial margin requirements for central clearing of non-dealer IRS and CDS positions were considerably greater, mainly reflecting the presumption that the degree of hedged positions is typically much lower in the portfolio of an end user of derivatives. BIS found that total initial margins would demand globally between USD 0.3 trillion and USD 1.2 trillion, depending on the assumed volatilities. A study by the BCBS and IOSCO estimated the total initial margin required to collateralise exposures from non-centrally cleared trades to be around EUR 0.7trillion (<http://www.bis.org/publ/bcbs242.pdf>). The CGFS (2013) estimates that the structural demand for HQA and other collateral assets could increase by combined EUR 1.3 trillion globally on account of initial margin requirements for bilaterally cleared OTC derivatives (EUR 0.7 trillion) and for centrally cleared derivatives (EUR 0.6 trillion). This additional collateral demand would be gradually phased in over a four-year period starting in 2015. Importantly, the margin requirements under EMIR apply to new trades only.

Although collateral segregation is not mandatory, it has implications for collateral availability, since segregated collateral cannot be re-used. The practice of collateral re-use, also known as rehypothecation, involves the re-pledging/re-delivery, sale, investment, or other contractually-permitted use of collateral received by a party. Securities lending activities and repos are prime examples of collateral rehypothecation. Institutional investors, such as pension funds, insurance companies and investment funds, lend out securities to offset custodians' fees and generate additional income on their portfolio holdings. In the same way, securities lending may also be employed by institutional investors to raise cash for meeting variation margin payments for derivatives trades requiring central clearing.

The liquidity rules for banks set out in the CRD IV package are also expected to have an effect on the demand for safe (liquid) assets. The ECB has concluded that a possible bank strategy to increase their LCR would be for them to rely more on central bank funding by posting non-high-quality liquid assets as collateral.⁴¹⁵ Based on a sample of 357 banks from 21 countries, representing about two-third of the European banking sector by total assets, EBA (2013)⁴¹⁶ estimates that, at the end of 2012, the LCR stood on average at 115 %, whilst the gross liquidity shortfall amounted to EUR 264 billion across all the banks (see also section 4.2). The estimated gross shortfall amounts to 0.8 % of the banks' total assets and represents just 1 or 2 % of the EU high-quality liquid assets markets. Importantly, the EBA study also estimates that more than 80 % of the banks are already LCR-compliant for 2015, taking account of the gradual phasing-in of the rules until 2018. EBA (2013) also concludes that the 2013 recalibration has led to a significant softening of the LCR regulation.

Collateral supply

The total supply of high-quality liquid assets is expected to continue to outsize demand. ESMA (2014) recently estimated that although the flow of supply is slowing compared to 2012 (increase of EUR 701 billion), it is expected to increase further by EUR 464 billion in 2013 and a EUR 376 billion in 2014 due to additional issuance from EU sovereigns with high ratings, whereas the supply of quasi high-quality collateral decreased by EUR 41 billion in 2013.⁴¹⁷ No absolute shortage of collateral assets is expected, even if collateral is becoming scarcer. Estimates suggest that there is a **large enough stock of collateral in the system to satisfy the demand** stemming from market and regulatory changes.⁴¹⁸

⁴¹⁵ See ECB (2013). ECB. *Liquidity regulation and monetary policy implementation*, Monthly Bulletin, April 2013.

⁴¹⁶ EBA (2013). Report on impact assessment for liquidity measures under Article 509(1) of the CRR, European Banking Authority, 20 December 2013.

⁴¹⁷ See ESMA (2014), ESMA Report on Trends, Risks and Vulnerabilities, No. 1, 2014. Sovereign bonds issued by countries with a credit rating of BBB- or above serve as the proxy for high-quality collateral, whereas corporate and covered bonds rated AA- or above are used to estimate quasi high-quality collateral. The annual sovereign debt estimates for 2013 and 2014 are based on AMECO general government debt forecasts, whilst net issuance of quasi high-quality collateral is assumed to remain stable in 2014.

⁴¹⁸ See also Levels and Capel (2012) who conclude that there is unlikely to be any collateral scarcity in absolute terms (total supply in 2012 of EUR 8.3 trillion-EUR 9.8 trillion, total demand of EUR 4.5 trillion), but that high-quality liquid assets are becoming scarcer (comparing the forecasted increases in collateral demand (EUR 1.8 trillion) and collateral supply (EUR 0.7 trillion-EUR 0.9 trillion). Increased collateral scarcity will create pressure on the prices of high-quality assets, especially when

The most comprehensive study so far, drawn up by the Committee on the Global Financial System (CGFS, 2013) of the BIS, suggests that liquidity regulation and OTC margin requirements might ultimately boost demand for high-quality collateral by some USD 4 trillion over several years. That figure is much smaller than measures of global supply. The supply of AAA- and AA-rated government bonds, for example, has risen by over USD 11 trillion since 2007; the stock of non-cash collateral eligible for derivatives transactions is some USD 50 trillion; and the major central banks have transformed more than USD 4 trillion of collateral (some high quality, some less so) into the most liquid asset of all (central bank reserves) through their quantitative easing programmes.⁴¹⁹

However, a separate issue is whether enough high quality collateral will always be readily available in place and time where it is needed.

Addressing potential collateral scarcity and lack of collateral fluidity

Private sector adjustments can ease the availability of collateral within a market. Any collateral shortages that occur will be reflected in price adjustments for any given level of high-quality asset supply. These price adjustments, in turn, induce market participants to raise the supply of such assets. Potential adjustments include broader eligibility criteria for collateral assets in private transactions, more efficient entity-level collateral management and increased collateral reuse and collateral transformation.

A scarcity of high-quality liquid assets generally prompts endogenous private sector responses, such as the observed higher retention rates of securitisations and covered bonds on bank balance sheets. Banks could expand their securities (collateral) lending activities to those institutions with a shortage of high-quality liquid assets. If banks themselves are short, they may turn to other financial market institutions, such as insurance companies and fund managers. Collateral transformation services and other forms of collateralised financing, including collateral swaps, can be also used to increase effective supply of high-quality liquid assets. In this arrangement, custodians or institutional investors provide such assets from their balance sheets through securities lending-type transactions to clients in exchange for lower-quality collateral (plus a fee).

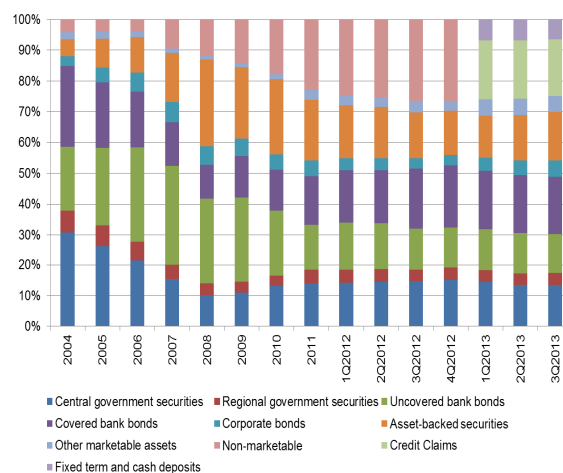
While mitigating collateral scarcity, such collateral upgrade transactions or other endogenous private sector responses can come with associated costs and risks, such as greater interconnectedness in the financial system (see also section 7.1 above). More collateral transformation activity can lead to greater complexity in the system and greater maturity and funding risks (as collateral lending tends to be of shorter maturity than the transactions they are used for). They may also add to financial system opacity (as these transactions are bilateral in nature), as well as increase operational, funding and rollover risks. Any new collateral assets produced by private sector solutions may not prove to be as qualitatively liquid during periods of stress (as occurred during the recent crisis, when market confidence in the underlying assets of some securitisations collapsed and the entire securitisation market became illiquid, see also section 7.6).

considering that many institutional investors now hold large portfolios of high-quality liquid assets on their balance sheet and that banks will demand more of those.

⁴¹⁹ See Hauser (2014).

When the price of high-quality assets rises, **financial institutions also have incentives to use these assets more efficiently**. Institutions that accept a range of collateral with fixed criteria are likely to be offered the cheapest eligible assets – known as the ‘*cheapest to deliver*’ approach where the best quality assets are used in market transactions to reduce the related risk premia.⁴²⁰ In practice, this means that especially central banks, via their market operations, will be confronted with a decreasing quality of collateral in times of market stress.

Chart 7.3.1: Eurosystem collateral (% of total)



Central banks can relax collateral constraints in the market by broadening the assets accepted as collateral. By broadening collateral acceptance when market participants require more or better collateral, central banks can have an important role in dampening the financial cycle. This has happened in the euro area, as is visible from chart 7.3.1. The share of non-marketable assets in Eurosystem refinancing operations increased from 4 % of the total in 2006 to 26.5 % in 2012. Sovereign bonds represent only a small fraction of the collateral delivered to the Eurosystem. Non-marketable credit claims and covered bonds both exceed their share, with asset-backed securities and unsecured bank bonds being of comparable magnitude.

Source: ECB

Notes: Collateral values are based on end of month averages over each time period after valuation and haircuts. Detailed breakdown of non-marketable assets is only available as of 2013.

magnitude.

There are other possible public (and private) sector responses to improve collateral fluidity, with a strong role to play for central banks. As an example, the impending **Target2 Securities (T2S) initiative should unlock European collateral flows** (see Box 7.3.2).

Another enhancement that should improve collateral fluidity is the abolishment of the repatriation requirement in the Eurosystem’s Correspondent Central Banking Model (CCBM), expected in 2014.⁴²¹ The removal of this requirement will facilitate the use of a combination between CCBM and cross-border securities transfer between two settlement systems. It will also facilitate tri-party collateral management services on a cross-border basis via CCBM and will enable the use of euro-denominated collateral issued in non-euro area countries.

⁴²⁰ It is also worth noting that the cheapest to deliver collateral in a low interest rate environment is often cash.

⁴²¹ Eurosystem counterparties and participants in the Eurosystem’s Target2 real-time gross settlement system can only obtain credit from their home central bank. CCBM enables them to use eligible marketable assets issued (i.e. registered or deposited) in other euro area countries as collateral. In line with the repatriation requirement in CCBM operations, assets have to be moved from the investor securities settlement systems to those of the issuer.

Overall, collateral markets need to be closely monitored and the emergence of any new risks promptly analysed. Markets are already adjusting to possible tensions between collateral demand and supply. Extended phasing-in periods granted in the relevant regulations will give market participants time to adjust and ease the pressures on collateral markets resulting from regulations. In addition, if needed, central banks can relax (and already have relaxed) eligibility rules on collateral – by absorbing lower quality securities to free up better ones to the market. There is a need for ongoing review and for considering whether additional policy levers may be helpful going forward.

Box 7.3.2: TARGET2 Securities (T2S)

T2S aims at creating a single securities settlement engine in Europe, eliminating differences between domestic and cross-border settlement. It is the Eurosystem’s main contribution towards the creation of an integrated post-trade market infrastructure in the EU. T2S will provide CSDs with a centralised service for delivery-versus-payment (DvP) settlement of securities transactions in central bank money at low and standardised cost, irrespective of whether transactions are settled nationally or across borders. DvP settlement will reduce counterparty risk, whilst the use of central bank money will eliminate settlement agent risk. T2S, in conjunction with the CSDR, will also introduce harmonised rules and standards to domestic and cross-border transactions.

T2S is conceived as a multicurrency system that will extend beyond the euro area, enabling other central banks to connect with their currencies. T2S will integrate into a single IT platform both market participants’ securities accounts and their dedicated central bank cash accounts held with the respective national central bank. It will also effectively provide a single collateral pool and incorporate several features that aim at helping banks to optimise their liquidity and collateral management. Migration to T2S is expected to be completed by February 2017.

Chart 1 The current landscape of EU settlement

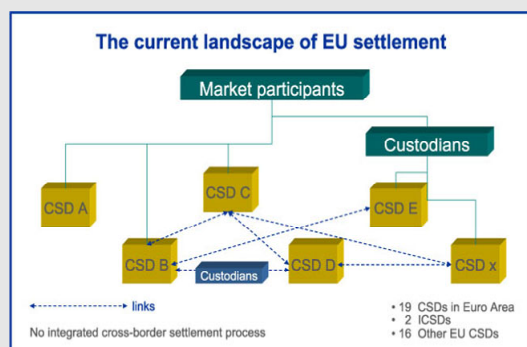
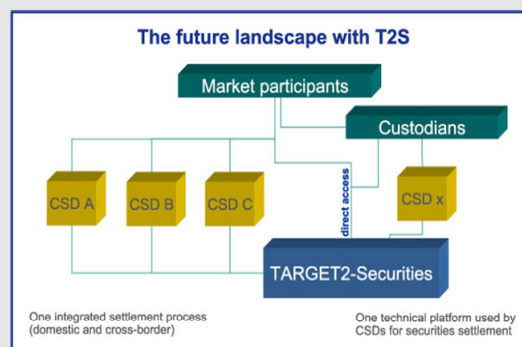


Chart 2 The future landscape with T2S



Source: ECB

Today, investors with diversified portfolios hold their securities, typically through custodians, with different national CSDs (Chart 1). This is because the collateral lies within those CSDs. The cross-CSD settlement, involving an investor holding securities with a single CSD which then acts as an investor CSD in other markets, is inefficient and costly. Although there has been some pooling of securities amongst international CSDs (ICSDs) and global custodians, the amounts are limited and settlement can only take place in commercial bank money, not central bank money. As a result of this fragmented environment, banks usually need to hold significant excess collateral, because they cannot reuse surplus collateral if they have a long position in a settlement system. At the same time, they need to maintain a precautionary buffer of collateral and liquidity for days when they will be short in this market.

T2S will abolish this need for market participants to hold multiple buffers of collateral and liquidity when settling in several European markets (Chart 2). T2S will make it possible for banks to have a single buffer for the entirety of their European business. A single pool of assets and liquidity will automatically net short and long positions in various markets, thus generating significant collateral savings. Banks and intermediaries will be able to manage their collateral much more efficiently, optimise their funding costs and avoid failed deliveries.

In addition, T2S will put into mainstream a market feature that is so far available only in a very few European countries: namely, the central bank auto-collateralisation mechanism, which allows the buyer of securities to use central bank eligible debt securities as collateral to obtain central bank intraday credit to pay for the securities being bought (auto-collateralisation on flow). It will also be possible for the buyer to use an earmarked stock of securities as collateral to obtain central bank intraday credit to buy assets, which may not be central bank eligible collateral (so-called client collateralisation).

The auto-collateralisation feature in T2S will significantly reduce the need for pre-funding of cash accounts, both for daytime settlement and, in particular, for night-time settlement. Furthermore, because the securities being bought can be used immediately as collateral, it will release for alternative use a large amount of collateral on stock that is normally needed as a buffer.

7.4 ASSET ENCUMBRANCE

A related area of concern is the encumbrance of assets in banks' balance sheets. As noted in section 7.3, banks have increasingly resorted to secured funding in the wake of the financial crisis and as unsecured funding has become more expensive and generally scarce, while investors have increasingly preferred secured assets in order to mitigate heightened counterparty credit risk.⁴²² An increase in secured funding implies an increase in banks' assets that are "encumbered" – i.e. pledged with priority to investors in the banks' secured debt.⁴²³ The encumbered assets therefore are not available to unsecured creditors in the event of a bank's insolvency, as they are structurally subordinated to secured creditors. Derivatives also lead to asset encumbrance, as collateral is posted to meet initial and variation margins to limit counterparty risk.

Prudential rules may add to the incidence of asset encumbrance. For example, secured funding in the form of covered bonds is given a favourable treatment in the calculation of banks' capital requirements for covered bonds and for exposures in covered bonds. Covered bonds will also become more attractive for meeting the liquidity rules under the CRD IV package, and such bonds receive favourable treatment under Solvency II. Combined with the increased collateral requirements of the OTC derivative reforms, this could result in greater asset encumbrance of banks' balance sheets. A further source of increased asset encumbrance is the provision of central bank liquidity on a secured basis, where banks pledge collateral to access the liquidity facilities.

There is only limited publicly available data on the level of asset encumbrance of banks. The ESRB has calculated that the median asset encumbrance of 28 large European banks (measured as the ratio of encumbered assets to total assets, with repos netted against reverse repos) increased from 7 % in 2007 to 27 % by 2011, although

⁴²² Long-term secured funding is typically in the form of collateralised mortgage debt. Two types of instruments are common. The first type consists of covered bonds, which remain on the issuing bank balance sheet and add to asset encumbrance. The second type relates to RMBS, which are generally off-balance sheet instruments. RMBS affect encumbrance only to the extent that issuing banks provide implicit or explicit guarantees, or retain the RMBS on their own balance sheet. For short term secured funding, repurchase arrangements (repos) are the most common instruments. These instruments play an important role in secured funding markets, including central bank liquidity provision. Repo positions are often offset through reverse repos, reducing the net contribution to asset encumbrance levels.

⁴²³ The CRD IV package states that an asset is considered encumbered if it has been pledged or if it is subject to any form of arrangement to secure, collateralise or credit enhance any transaction from which it cannot be freely withdrawn.

the degree of asset encumbrance varies very widely, even within Europe, between countries and between institutions. The Committee of Global Financial Supervisors (CGFS, 2013) estimates the median asset encumbrance ratio for a sample of 60 large European banks to be 28.5 %.

While much of the rise in secured funding and collateralisation is likely to come from the aftermath of the financial crisis and not from prudential regulation, increased levels of asset encumbrance raise policy concerns for a number of reasons.⁴²⁴ In particular, increased asset encumbrance can generate conflicts with the objectives of bail-in and depositor preference if fewer unsecured liabilities are available to bail in at the point of bank failure. It may also put more pressure on the potential liabilities of DGS funds, constrain access to unsecured funding, and lead to pro-cyclicality.

Asset encumbrance reduces the assets available to the liquidator in the event of a default of a bank and therefore the recovery rate of unsecured bank creditors. Even if depositors (and the DGS) are given a preferential status in insolvency proceedings compared to unsecured creditors, high asset encumbrance reduces the assets available to satisfy their claims against the failed bank. The risk to unsecured investors of increased asset encumbrance may make long-term unsecured debt more expensive for banks to issue, which may limit the quantity of these assets available for bail-ins under the new recovery and resolution regime (BRRD) and, in the extreme, may expose taxpayers to the cost of rescuing failing banks.

Assets available to meet claims of unsecured creditors can decline quickly, particularly under stressed market conditions. In addition, the lack of hard data on asset encumbrance may reinforce the uncertainty among unsecured debt investors. Increasing issuance of secured debt can also impede access to unsecured funding. As the investment risk for unsecured creditors rises with the level of asset encumbrance, they may demand higher interest rate payments. As could be observed recently, a rise in the cost of unsecured debt reinforces banks' reliance on secured funding, thereby raising asset encumbrance further. Beyond a certain threshold level of asset encumbrance, and in the absence of other risk mitigation tools, banks may find it increasingly difficult to retain access to unsecured funding markets.⁴²⁵

Asset encumbrance therefore warrants close monitoring. In addition, there is a need for greater transparency on asset encumbrance, also to ensure that unsecured creditors can more accurately assess the risk posed to their recovery rate by asset encumbrance.⁴²⁶ Furthermore, any increase in asset encumbrance raises residual risks for DGS. Whereas EU eligible deposits will enjoy seniority over unsecured debt, as

⁴²⁴ See Houben (2013) and Committee of Global Financial Supervisors (2013) for further explanations of asset encumbrance and its potential consequences.

⁴²⁵ However, when asset encumbrance increases, unsecured creditors should in principle demand a higher rate of return, so if prices for secured and unsecured financing are able to adjust, there is no reason why it should come to the point of no demand from unsecured creditors. They would simply accept the higher risk for higher returns.

⁴²⁶ While the general regulatory response has been to enhance the monitoring of asset encumbrance and impose requirements on banks to be more transparent in their reporting, some countries impose prudential limits on the issuance of covered bonds in order to contain asset encumbrance. For example, as summarised in Houben (2013), countries such as Australia, Canada and Singapore apply strict ceilings for the amount of covered funding or covered bonds'; in the Netherlands, Norway and the United Kingdom a case-by-case approach is used that sets threshold values for covered bond issues per institution.

per BRRD (see section 4.2), they could still remain vulnerable in case of an insufficient unsecured debt buffer. To this effect, the BRRD mandates the resolution authorities to require banks to hold a specific amount of own funds and subordinated and senior liabilities subject to the bail-in tool, with the explicit goal of avoiding that the latter is rendered ineffective. Besides, banks and prudential supervisors perform regular stress tests that evaluate encumbrance levels in periods of market stress.

Current asset encumbrance levels can be expected to fall somewhat going forward, as and when the economic and financial environment in the EU improves and stability in the financial system is restored. For unsecured debt to regain its status in bank funding markets, confidence and trust in the banking system as a whole and in individual institutions will have to be strengthened first. The current asset quality review exercise by the ECB is expected to provide a solid contribution towards this goal.⁴²⁷ Moreover, as the financial regulatory reforms take effect and banks become more resilient, their credit worthiness is enhanced, which is likely to give more comfort to unsecured creditors.

Against the background of recent episodes of contingent convertible bond issues, there does not seem to be evidence that the new bail-in regime could be at fault in the lack of revival in the unsecured debt markets. Even if the reversal to pre-crisis levels of unsecured issuance are unlikely (and would be undesirable if the debt continued to be underpriced in the market) and there is a structurally higher demand for secured lending going forward, unsecured debt markets can be expected to pick up again as risk aversion abates and the price of secured funding relative to unsecured funding rises. The eventual unwinding of the ECB balance sheet could also be expected to contribute to the latter phenomenon.

7.5 DISORDERLY BANK DELEVERAGING

Whilst the financial crisis has emphasised the need for the EU banking system to deleverage, it is important to recognise that this process could entail risks if it occurs in a disorderly manner.⁴²⁸ As already noted in section 6.4, bank deleveraging is a necessary process to correct the excess leverage built up pre-crisis and to put the banking sector back on a more stable footing. Banks have various options in which to deleverage, and this process does not necessarily have to hamper lending to the economy. However, a relatively fast and disorderly process of deleveraging ("bad" deleveraging) runs the risk of damaging economic activity.

Sharp cut backs in bank lending within a short period of time can harm the flow of credit to businesses, in particular SMEs due to their dependence on banking lending as a main source of finance. It can also harm the flow of credit for the financing of international trade, considering that European banks are a major supplier of such credit on a global scale. However, while sharp or disorderly deleveraging would significantly restrict bank lending (and can currently not be observed in Europe), a slow and unconvincing process of deleveraging may undermine market confidence and hinder the return to financial stability.

⁴²⁷ <https://www.ecb.europa.eu/pub/pdf/other/notecomprehensiveassessment201310en.pdf>

⁴²⁸ For an assessment of deleveraging and other potential risks in the European banking system, see also EBA (2013).

Policymakers need to tread a fine line between encouraging balance sheet repair at the financial institution level, whilst minimising the potential implications of disorderly deleveraging of the banking system as a whole at the macro-economic level. Caruana (2012) provides an overview of the challenges facing policymakers in a balance sheet recession. Historically, prompt and thorough balance sheet repair has proved to be the best way to restore post-crisis growth and stability. This is the lesson of the Nordic banking crisis in the early 1990s, and also the lessons from Japan's experience. The main challenge for policymakers is to prevent a balance sheet recession leading to protracted weakness. Policymakers need to devise policies that ease the required balance sheet adjustments without setting off destabilising dynamics.⁴²⁹

The IMF GFSR (2013) assessed the dilemma of the need to deleverage against the current macroeconomic situation in the European economy. It noted that if policy challenges are properly managed, and if reforms are implemented as promised, the transition towards greater financial stability should prove smooth and provide a more robust platform for financial sector activity and economic growth. However, the IMF also cautioned that a failure to implement the reforms necessary to address the problems identified in the crisis could trigger profound spill-overs across regions and potentially derail the smooth transition to greater stability.

In the EU, bank deleveraging (and in particular the direct causation from financial regulations) has not obviously constrained credit. While credit is falling during an economic downturn and it is difficult to disentangle the supply and demand effects, demand factors seem to have played a major role (see also section 6.4). Additionally, the issuance of debt securities has partly compensated for the decline in bank lending in aggregate terms, although this type of financing is not available for all non-financial companies in the same way.

Nevertheless, the European Commission's 2013 Autumn forecast⁴³⁰ provided some warnings. It noted that although bank funding conditions have generally improved, access to longer-term funding at sustainable cost remains a challenge for several small euro-area banks, in particular in Member States that remain under intense market scrutiny due to lingering concerns about fiscal sustainability. Moreover, banks that find it difficult to improve their capital position (for example by retaining earnings or raising capital on financial markets) may still be reluctant to extend credit to the private sector. Banks have also tended to focus their deleveraging efforts on cross-border activity and to ring-fence their domestic business.

The EU financial regulation agenda has been mindful of the risk of disorderly deleveraging. As set out in Chapter 6, longer phasing-in periods have been adopted to allow the necessary deleveraging process and strengthening of bank balance sheets to be a smooth process that does not hamper the economic recovery. The process of bank deleveraging is subject to ongoing monitoring, e.g. at EU level by the EBA.

⁴²⁹ Co-ordinated policy initiatives can help to ease this problem. For example, the Vienna initiative has helped ease risks of disorderly deleveraging in central, eastern and south-eastern Europe. See also section 6.4.1.

⁴³⁰ http://ec.europa.eu/economy_finance/publications/european_economy/2013/pdf/ee7_en.pdf

7.6 DEVELOPMENTS IN SECURITISATION MARKETS

Concerns have been raised that prudential regulation may be hindering securitisation activities and thereby impede a potentially important source of finance to the economy. The sharp decline in securitisation following the crisis cannot be attributed to regulatory reforms. On the contrary, tighter regulation was needed to address the failures in the market. A separate question is whether and what policy measures can be taken to facilitate the recovery of sustainable and safe securitisation markets with a view to unlocking additional funding sources for the economy.

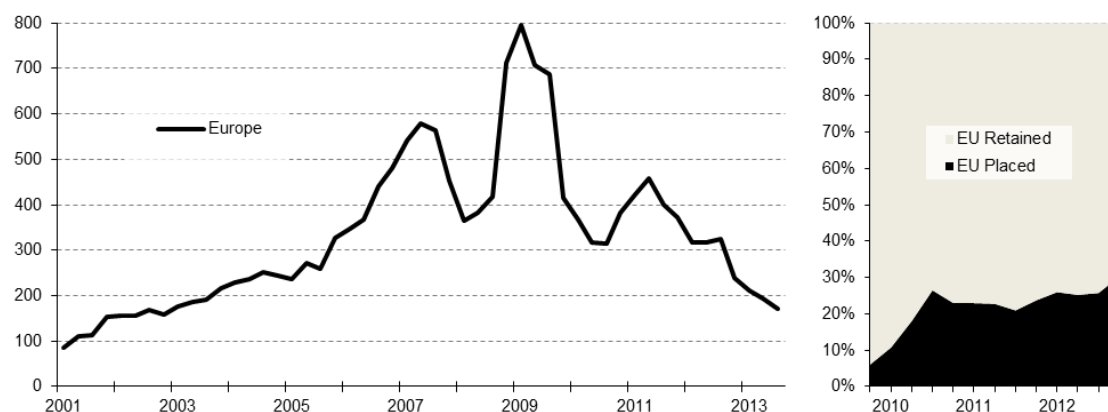
Some of the “originate to distribute” models, which were in particularly present in the US markets, have proved to be clearly inadequate to ensure sound and stable securitisation markets and contributed to the subprime crisis.⁴³¹ The weaknesses of these models have been identified early on and addressed through EU financial reforms. Risk retention (“skin-in-the-game”) requirements have been in place in the EU banking sector since 2011 and have been widened to all financial sectors. In addition, disclosure obligations have been reinforced to allow investors to develop a thorough understanding of the instruments in which they invest.

However, since 2008, no substantial recovery of these markets has been observed, and activity remains quite limited. **Since the start of the crisis, there has been a sharp fall in the issuance of securitised products in the EU.** Chart 7.6.1 illustrates that the peak of annual issuance of securitised products was reached in Q1 of 2009 with almost EUR 800 billion. In Q3 of 2013 it had dropped to 2002 levels again of EUR 170 billion. Roughly 70 % to 75 % of the issuance is retained on the balance sheet or used for repo, whereas the remainder is placed with investors.⁴³²

⁴³¹ It is worth noting that the performance of US securitised products during the crisis was considerably different to that in the EU, where much lower actual (and expected) losses have appeared. For example, see: Standard & Poor’s, “Transition Study: Less Than 1.5% Of European Structured Finance Has Defaulted Since Mid-2007”, 11 June 2013. Moody’s Investors Service, “Structured Finance Rating Transitions: 1983-2013”, 7 June 2013. Fitch Ratings, “The Credit Crisis Four Years On ... Structured Finance Research Compendium”, June 2012, “EMEA Structured Finance Losses”, August 2011.

⁴³² The total outstanding amount has peaked at EUR 2.25 trillion in 2009, but has dropped to somewhat more than EUR 1.5 trillion in 2013 (Q3). RMBS make up 60 % of outstanding securitised notes.

Chart 7.6.1: European securitisation issuance 2000-13 (EUR m)



Notes: Left panel shows annual issuance of securitised products in Europe; right panel shows breakdown of issuance by retention.

Source: AFME, as processed by the Commission Services.

In the current economic environment in Europe, securitisation could constitute an important instrument to finance the economy and help economic recovery, provided that appropriate safeguards are in place.⁴³³ Stakeholders and public authorities have actively supported the need to foster the recovery of safe and sustainable securitisation markets in Europe. The use of securitisation to facilitate SME financing has received particular attention in this regard (see Box 7.6.1). The Commission is following this development with interest, as already indicated in its Green Paper on long-term financing, published in March 2013.⁴³⁴

Box 7.6.1: Developing SME finance through securitisation

The development of financing SMEs through securitisation brings unique challenges – separate from those related to the reforms - that need to be addressed first before the market can develop. There are specific asset-class characteristics which had prevented the market for securitising SME loans from really taking off even when almost all other types of loans and receivables (e.g. auto leases, student loans, and credit cards) were being securitised in size. The granularity of the underlying asset pool is crucial to the tranching exercise, and relatively chunkier SME loans entail higher idiosyncratic risk which can result in quick credit enhancement depletion and senior tranches being hit after just a small number of individual defaults. The average tenor of SME loans tends to be around 4-5 years in most jurisdictions (if not shorter), which compared to around 20-25 years for mortgages could make them a less desirable investment for investors such as pensions funds and insurance companies with long-dated liabilities to match against. For these reasons, aside from any recent regulatory hurdles, there are other challenges to the growth in the SME securitisation market.

At this stage, it is not clear whether the reforms are having a particular impact on SME loan based securitisations. There does not appear to be any significant evidence yet to suggest that either the CRD IV package or Solvency II reforms have directly hampered SME financing through securitisation. With respect to Solvency II, the duration mismatch issue of SME loans are likely to make them less attractive to insurance companies in any event, irrespective of Solvency II changes. Furthermore, insurance companies are not the only players on the "buy side" in these markets. Market insights suggest insurance companies now only hold about 15 % of the European RMBS market (a market

⁴³³ There are a few studies on the impact of securitisation on credit market conditions and credit availability. For example, NERA (2009) study shows that a 10 % increase in securitisation rate can result in: a reduction of 15 bps in mortgage yield spreads; a decrease in yield spreads for car loans of between 22 to 64 bps; and a decrease in yield spreads for credit card loans of between 8 to 54 bps.

⁴³⁴ COM/2013/0150 final.

which is likely to provide less of a maturity mismatch for insurance companies than SME securitised loans), so any future market is unlikely to be only dependent on insurance companies.

As regards regulation, the prudential framework for banks is a risk-based system whereby the more risky an asset the more capital the bank needs to hold against it (see Chapter 4.2 for more detail). In some cases the reform agenda may have penalised higher quality and safer securitised products compared to other similar forms of financing.⁴³⁵ Although there seems to be a widespread acceptance for a required increase in capital requirements on securitised products, there is a more open debate amongst stakeholders about the appropriate level of capital. The BCBS is currently carrying out a substantial review of these measures, along with an impact assessment, in order to address some of the shortcomings revealed by the crisis and enhance the risk sensitivity of capital requirements. In this debate, it should also be kept in mind that the European banking sector traditionally refinances a significant amount of their residential assets thanks to covered bonds which benefit from a more favourable treatment under the CRD IV package. This can provide an alternative option for banks wanting to fund through secured financing, but may not help efforts to diversify sources of financing in the EU.

In terms of the impact of reforms on the "buy side", prudential requirements for insurance companies (within Solvency II) also play a role. Industry representatives have been arguing that the calibration for standardised risk-weights on securitised products is too high, especially when compared to other assets. This could in turn make it less attractive for insurance companies to buy securitised products, relative to other investments, as they would be required to hold more capital against it under Solvency II. However, the calibration of securitisation is being reviewed in the Solvency II framework based on the latest technical advice from EIOPA from December 2013.⁴³⁶

Whilst some reforms may have hampered securitisation markets, others have supported them, including for example the risk retention requirements or those enhancing transparency. In the EU, measures have been taken to ensure that the interests of the persons initiating securitisation transactions are firmly aligned with those of the end-investors. This evolution is essential to restore investors' confidence. Credit institutions are now obliged to check that the originator or sponsor institution of a transaction has an economic interest equivalent to at least 5 % of the securitised assets.⁴³⁷ Requirements similar to those set out in bank capital regulation are laid down for insurance companies (Solvency II), alternative investment fund managers (AIFMD) and UCITS. The European regulatory framework is in line with the recommendations issued on 16 November 2012 by the International Organization of Securities Commissions (IOSCO).⁴³⁸

⁴³⁵ See Mersch (2013), IOSCO (2012), and Joint Paper by the ECB and Bank of England (2014).

⁴³⁶ The advice includes a differentiated treatment for "high-quality" and other securitisations and significantly reduced risk factors for the high-quality category (see below).

⁴³⁷ The requirement applies since the entry into force of CRD II at the end of 2010. See Directive 2009/111/EC of the European Parliament and of the Council of 16 September 2009 amending Directives 2006/48/EC, 2006/49/EC and 2007/64/EC as regards banks affiliated to central institutions, certain own funds items, large exposures, supervisory arrangements, and crisis management (OJ L 302 17.11.2009 p.97)

⁴³⁸ See <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD394.pdf>.

Other reform measures are reducing information difficulties, through greater levels of transparency. The CRA regulations will notably require the issuer, the originator and the sponsor of a structured finance instrument established in the EU to jointly publish detailed information on all structured finance instruments on the website set up by ESMA. The main objectives are to enable investors to make informed assessments and to reduce their dependence on credit ratings. In addition, other initiatives led by the ECB and Bank of England on collateral and labelling initiatives taken by industry also aim to allow supervisors to better monitor risks and enable investors to better analyse risks.

The Commission set out in its recent Communication on long-term financing a number of actions to progress with securitisations going forward.⁴³⁹ For example, one way to foster the development of sustainable securitisation markets could be to develop an operational distinction between "high-quality" and "other" securitisation markets, as long as this is prudentially sound. This may help to alleviate stigma on these products and constitute a first step before considering a potential differential prudential treatment for safer instruments. In response to a request from the Commission, an approach identifying "high quality" securitisations has been advocated in the insurance sector by EIOPA in December 2013.⁴⁴⁰ A detailed list of criteria has been proposed related to i) structural features, ii) underlying assets and related collateral characteristics, iii) listing and transparency features and iv) underwriting processes.

With respect to the banking sector, the Commission asked the EBA for advice, inter alia, to assess the appropriateness of ensuring a preferential treatment for "high-quality" securitisations. In addition, the Commission's proposal on bank structural reform differentiates between "sound, simple and transparent" and "other" types of securitisations. Supervisors would have to review trading activities to be separated in trading entities, but core credit institutions would still be allowed to invest in or sponsor sound, simple and transparent types of securitisation.

At international level, a new working group has been established by IOSCO and BCBS. The group's mandate includes the need to develop criteria that identify and assist in the development of simple, transparent and high-quality securitisation structures, with a view to promoting diverse and reliable sources of market-based finance. Finally, the Commission will also work with standard setters to develop and implement international standards especially on rules on risk retention, high quality standardisation and transparency to ensure consistency and avoid regulatory arbitrage.

7.7 IMPACT ON COMPETITION

As set out in chapter 4.8, the financial regulation agenda helps improve the competitive functioning of the market in different ways: e.g. by opening access to market infrastructures; promoting entry to other markets; facilitating market exit with new resolution regimes; reducing implicit subsidies; and reducing information asymmetries. However, there could also be unintended effects from the reforms that limit competition.

⁴³⁹ See communication on long-term financing of the European economy, COM(2014) 168 final

⁴⁴⁰ http://eiopa.europa.eu/fileadmin/tx_dam/files/publications/reports/EIOPA_Technical_Report_on_Standard_Formula_Design_and_Calibration_for_certain_Long-Term_Investments__2_.pdf

Firstly, there is a risk that the rules will increase barriers to entry for market entrants. Regulations tend to pose a disproportionate burden on smaller players in the market and new entrants, which can make it harder for them to compete with more established players. However, as noted in chapter 4.8, the reform agenda seeks to reduce this effect by introducing waivers or exemptions from rules for smaller institutions in the market or, conversely, imposing additional requirements on the largest institutions.

Secondly, the rules may incentivise firms to focus more on core activities, encouraging them to sell-off non-core businesses, which in turn may reduce the number of providers for some financial services. As the cost of doing business becomes more expensive, it may be in the interest of financial institutions to either leave the relevant market or sell off parts of the business in which the relevant institutions are less profitable – focusing instead only on their "core" business. Other market incumbents may then take on the additional business. Firms could become increasingly specialised – which can be good for efficiency - but also larger, which could lead to less competition. For example, the structural bank reform proposals would ban the activity of propriety trading for deposit-taking banks. Any bank with a propriety trading desk will have to either close down or sell off its propriety trading desk. A large established investment firm may want to buy these operations to increase the scale of its operations. Structural separation could trigger some financial institutions to specialise their functions, rather than engage in a diversity of operations. On the other hand, structural reform may enhance competition by requiring the large banks to sell off (or subsidiarise) certain trading activities. This in turn may open the market to other providers, encouraging a diversity of institutions.

Another example relates to financial market infrastructures. Here, there also tend to be significant economies of scale, so that consolidation can enhance market efficiency. A number of infrastructure providers have recently merged, or expressed interests in mergers to realise these benefits. In addition to possible financial stability risks, the authorities will need to watch the implications for competition and potential risks of abuses of dominant positions of firms in the market. In markets with players, the risks of abusive practices (e.g. excessive pricing) can often be higher. As set out in chapter 4.8, the access provisions contained in the relevant legislations (MiFID II, EMIR and CSDR) seek to enhance competition along the trading chain. Also, at EU level, the Commission is watching these developments closely, preventing mergers where needed.⁴⁴¹

More generally, there is a risk that scalability leads to financial institutions becoming more concentrated within given markets.⁴⁴² Increased concentration of financial institutions can impact on competition in at least two ways: first, by potentially

⁴⁴¹ This was the case in the proposed merger between Deutsche Börse and NYSE Euronext. The analysis indicated that the merged entity would have held 90 % of the share in worldwide market for European financial derivatives traded on exchanges. It was therefore concluded that the proposed merger would have eliminated global competition and created a quasi-monopoly in a number of asset classes, leading to significant harm to derivatives users and the European economy as a whole. Commission decision - http://ec.europa.eu/competition/mergers/cases/decisions/m6166_20120201_20610_2711467_EN.pdf

⁴⁴² A more detailed assessment of the competition of financial markets is beyond the scope of this report. However, it may be useful to have more market investigations in the future to ensure the legislation is having its intended effect.

increasing the market power of existing firms and second, it can entrench the advantages that systemically important financial institutions gain from being 'too-big-to-fail'. The EU state aid regime, as well as the resolution framework with tougher bail-in rules and structural bank reform, will stand against this tension.

Some have argued that there may be a trade-off between competition and stability, that regulation aimed at enhancing financial stability may hinder competition, and that increased competition may in fact increase the risk and cost of financial crisis.⁴⁴³ However, neither economic theory nor the evidence suggest that measures to improve financial stability need to hamper competition.⁴⁴⁴ The instances where competition is likely to be bad for financial stability are when the incentives of financial intermediaries are not aligned with the public interest and this leads to excessive risk-taking. This is what regulatory intervention aims to correct. Restrictions to competition would not address the underlying problems of excessive risk-taking. Rather, they could have a negative effect on efficiency without improving the resilience of financial institutions.

Instead, the challenge is to design a regulatory framework that improves financial intermediaries' risk-taking incentives and thereby allows financial stability to be achieved without compromising on competition and resulting efficiency benefits. As explained in chapter 4.8, **the financial reform agenda includes measures that aim at enhancing financial stability while at the same time improving the competitive functioning of the market.**

An indicator to watch is the diversity of financial agents in the financial system. It has been argued that the new rules tend to incentivise banks to become smaller and more similar, and that banks will be encouraged to focus on certain types of activities rather than others. Smaller banks can be easier to resolve, and simpler products are easier for consumers and investors to understand in terms of levels of risk. However, caution needs to be taken with making the system too homogenous. Diversity in the financial sector is important for a number of reasons. In the limit, when all firms are the same, they take the same risks, and would then all take the same defensive actions when the risks materialise. This creates systemic risk to the financial system. The EU financial regulation agenda has therefore been mindful of the diversity objective.

Contrary to the claim that regulatory reform is reducing diversity, it should be noted that the pre-crisis system had in fact become more homogenous. As explained by Haldane and May (2011) *"in the run-up to the crisis and in the pursuit of diversification, banks' balance sheets and risk management systems became increasingly homogenous. For example, banks became increasingly reliant on wholesale funding on the liabilities side of the balance sheet; in structured credit on the assets side of their balance sheet; and managed the resulting risks using the same value-at-risk models. This desire for diversification was individually rational from a risk perspective. But it came at the expense of lower diversity across the system as whole, thereby increasing systemic risk. Homogeneity bred fragility."*

⁴⁴³ The traditional argument (see Keeley (1990)) goes that increased competition may reduce profits and hence reduce bank resilience, and it may spur incentives for excessive risk-taking because foregone future profits in case of failure are lower.

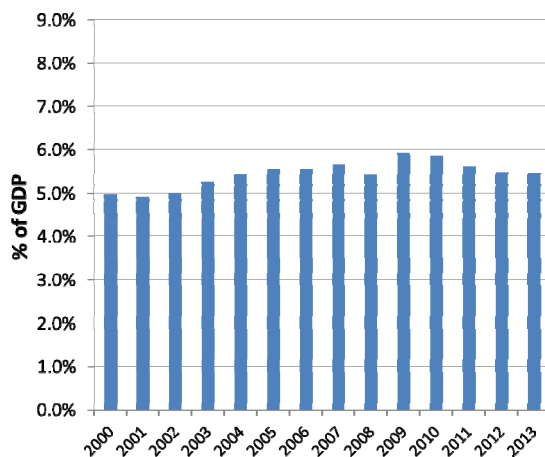
⁴⁴⁴ See OECD (2010) and Carletti and Hartmann (2002),

Finally, there may be a risk that the reform efforts to improve disclosure of information and increase the level of transparency in financial services could have unintended consequences on competition. There are some segments of financial markets that are operated by only a small number of market participants. In markets where there are a limited number of market players that are engaging with each other on a very frequent basis, there might be a risk of greater transparency leading to more collusive practices. If these market participants have full disclosure of the other market participants' positions and prices, it may be easier (and more tempting) to attempt to collude, possibly in the same manner as happened in the recent LIBOR/EURIBOR market manipulation scandal and the alleged manipulation of foreign exchange and commodity markets (section 4.7.1). Anti-trust authorities will need to continue to monitor these markets carefully.

7.8 IMPACT ON EU COMPETITIVENESS

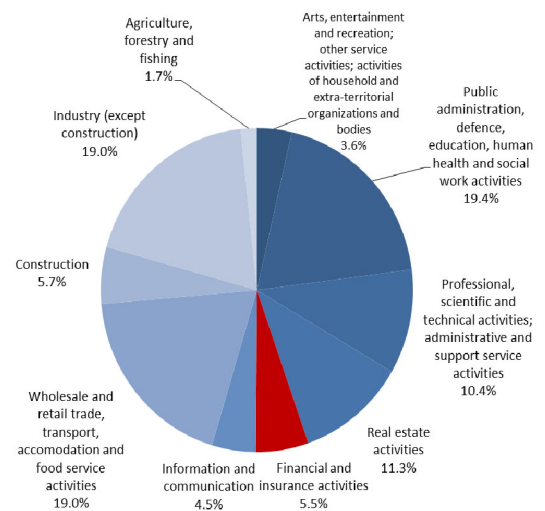
Financial services are an important industry in the EU, providing for jobs, GDP and exports. The financial services sector provides 6.5m jobs and has been estimated to account for EUR 636 billion or 5.5 % of total EU GDP (charts 7.8.1 and 7.8.2). Related professional services employ an additional 4.7m people (chart 7.8.3). The EU is a leading exporter of financial services with extra-EU exports of EUR 77.3 billion accounting for about a quarter of financial services exports worldwide (chart 7.8.4). Thus, it is an important industry of the EU economy for growth and jobs.

Chart 7.8.1: Gross value added (GVA) of financial services in % of EU GDP, 2000-2013



Notes: GVA is the standard way of measuring, within the National Accounts, the contribution of a sector to output in the economy. 2013 data are based on preliminary estimates.
Source: Commission Services

Chart 7.8.2: Financial services % share of GVA, 2013



Notes: Based on GVA at basic prices. Data are based on preliminary estimates.
Source: Eurostat

Chart 7.8.3: Employment in financial services, 2012 by Member State (million)

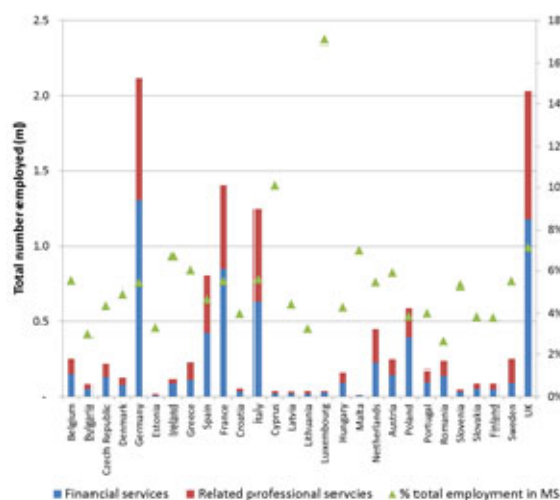
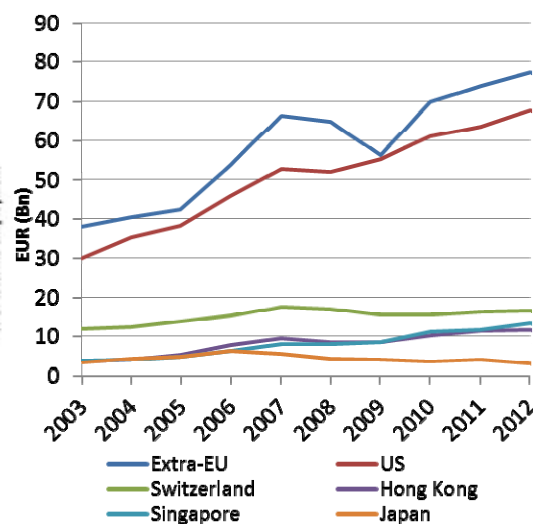


Chart 7.8.4: Exports of financial services, 2012 (EUR billion)



Notes: Related professional services include legal services, accounting and management consulting activities associated with financial services.
Source: Eurostat

Source: Eurostat, UNCTADS

The EU should be the market of choice for investors, depositors and insurance policyholders world-wide. In addition to creating jobs and income, there can be other advantages of remaining a central player in the global financial system. For example, the access to a global capital market helps to reduce the cost of financial services for EU firms. It can also promote greater levels of free trade in goods and services, and help reinforce other EU industries (e.g. manufacturing and high-tech service businesses) to compete globally. In this way, the EU can help re-build the integrated and open global financial system to stimulate sustainable economic growth going forward.

However, while having an internationally competitive EU financial services industry is a valid policy objective, given the recent crisis experience, this cannot override the objectives of re-building a stable, responsible, and efficient EU financial system. In fact, what matters is not so much the competitiveness of the EU financial sector but the competitiveness of the EU economy.

The global nature of financial services and markets makes it important for the EU to ensure and promote coherence with regulation in other jurisdictions (section 7.9). There can be costs to the EU in terms of competitiveness (compared to the rest of the world) and financial stability if the implementation of the financial regulatory reforms diverges across jurisdictions. Following the crisis, governments and regulators came together to work on a harmonised response. The international standard setters, such as the FSB, the BCBS or the International Organisation of Securities Commissions (IOSCO), have been working to set out common international principles and standards. Member jurisdictions have committed to follow those that have already been agreed. Yet these are non-binding, and jurisdictions are left to interpret and transpose these principles independently. This leaves room for divergence in application, and possible costs and risks for the EU if other jurisdictions do not move in tandem. If Europe moves either too quickly or decides to take

"tougher" measures (i.e. "gold plating"), there could be costs to the competitive position of EU financial services. However, if reforms are implemented too slowly or are much weaker, then the EU financial system remains prone to instability risks.

7.9 CONSISTENCY OF RULES WITHIN THE EU AND GLOBALLY

Given the financial integration in the EU as well as the global nature of many financial services and markets, there is a need for consistent implementation of regulatory reforms both in the EU and globally. Inconsistent implementation will carry risks of rendering the reforms less effective and impose additional costs (e.g. on regulated firms that need to comply with different and potentially overlapping requirements).

Need for consistent implementation of rules in the EU

As explained in chapter 4.6, policy action at the EU level was needed to drive convergence of regulations and supervisory practice, for example, through the development of a single rule book, the creation of the ESAs and the move to Banking Union.

Although well underway, the EU financial regulation agenda is dependent upon Member States ensuring faithful implementation of EU legislation, through timely and comprehensive transposition as well as appropriate monitoring and enforcement by the relevant authorities. In order to address system-wide threats to financial stability, it is important that such actions are coordinated and consistently implemented among all relevant national and European authorities. There is also a need to have robust procedural frameworks with sufficient procedural guarantees to ensure consistent and effective implementation and enforcement of the new legislations.

The Commission is working hard to identify and address barriers where they exist to help complete the single market for financial services and make it work better for all citizens of the EU. For example, the Single Market Act (SMA) I and II highlight key areas of action to stimulate the economy and further develop the single market (see section 4.6.4). Furthermore, the March 2014 Communication on long-term financing⁴⁴⁵ of the economy suggests a number of actions covering a broad scope (capital markets, SMEs, private savings, cross-cutting issues such as the accounting framework and insolvency law) in order to foster the supply of long-term financing and to improve and diversify the system of financial intermediation for long-term investment in Europe.

Need for consistent implementation of rules at global

If globally agreed rules (by the G20) are not implemented in a consistent manner, this creates tensions with the goals of achieving global financial market liberalisation while maintaining financial stability.

A process in which each jurisdiction implements its own legislation, with extra-territorial implications, creates scope for duplication and inconsistencies, which

⁴⁴⁵ COM(2014) 168 final

result in increased risks and costs. It creates considerable uncertainties for many global financial institutions and a deadweight cost for the economy. Such circumstances may occur due to an imprecision or even an absence of international rules in a given policy area. It may also be driven by technical inconsistencies between extra-territorial rules in different jurisdictions. Box 7.9.1 illustrates the need for globally consistent rules with respect to reforms of the inherently global OTC derivatives markets. Stakeholders have raised other examples, including on data protection, accounting principles, and trade reporting.⁴⁴⁶ The Commission is working closely with third countries to build efficient exchanges of information; to assess risks and evaluate market practices; and to ensure that a consistent regulatory and supervisory framework emerges between the EU and third countries.

Box 7.9.1: Illustration of the need for international cooperation: the case of EMIR

The large share of cross-border activity in many OTC derivatives markets means that coordinated implementation of global regulatory reform is crucial for all stakeholders. Uniform international principles covering OTC reform areas almost comprehensively have either been completed or are under development by the regulatory community. However, due to political, legal and market idiosyncrasies in individual jurisdictions, differences have emerged between the substance and timing of implementing rules in different jurisdictions. This can lead to regulatory conflicts, inconsistencies, duplication and gaps.

These issues are exacerbated by regulatory frameworks which seek to apply extraterritorially to market participants and infrastructures in foreign jurisdictions, as multiple differing rules may apply to the same entities or transactions. This can cause a range of issues from increased compliance costs to the inability for firms to execute cross-border transactions. For example:

1. Internationally active central counterparties (CCPs) may need to comply with multiple regimes

Internationally active CCPs are essential for ensuring that counterparties to cross-border transactions can satisfy their respective mandatory clearing obligations in line with G20 commitments. However, some jurisdictions require foreign CCPs providing services locally to comply with domestic requirements. This results in internationally active CCPs having to comply with multiple differing regimes, which can cause operational complexity and increased costs, ultimately making international activity less attractive.

2. Firms transacting cross-border may be subject to incompatible transaction requirements

Some jurisdictions require all domestic market participants to comply with domestic requirements in respect of transaction requirements such as reporting, clearing and risk management. Where cross-border counterparties are each obliged to comply with their own domestic requirements in respect of a single transaction, inconsistencies and conflicts can result in dual compliance. The consequences of this may be double reporting, which distorts the data available to regulators, or increased compliance burdens, which increases the costs of entering into cross-border transactions.

To the extent that cross-border activity is ultimately inhibited by these issues, market and liquidity fragmentation will occur. In the absence of harmonisation, conflicts, inconsistencies, duplication and gaps can be minimised by providing for deference to foreign rules.

EMIR (see also section 4.3.2) provides the possibility to recognise the rules and infrastructure of third countries by way of adopting an implementing act determining 'equivalence'. Third country CCPs and trade repositories can provide services to EU market participants, provided they are subject to domestic rules which achieve the same overall regulatory objectives as EMIR.

EMIR further provides a mechanism for firms to choose to comply with the rules of third countries with respect to transaction requirements, provided those rules achieve the same overall regulatory objectives as EMIR. This means that an EU firm can comply with the rules of its third country counterparty rather than EU rules.

⁴⁴⁶ See, for example, "The Danger of Divergence: Transatlantic Financial Reform and the G20 Agenda" by The Atlantic Council, co-chaired by Sharon Bowles, Chair of European Parliament's Economic and Monetary Affairs Committee, and US Senator Christopher Murphy.

These mechanisms therefore enable cross-border activity to continue without the application of multiple rules, whilst ensuring that regulatory objectives are still achieved.

The G20 and FSB have played a key role in agreeing the global reform framework and standards since the start of the financial crisis. It is important that in its implementation of those agreed standards, the EU works effectively with other jurisdictions to reduce the opportunity for regulatory fragmentation and arbitrage.

Jurisdictions have been working on cross-border agreements. The Commission has set up equivalence procedures (of third-country regimes) in many areas of reforms (see box 7.9.1 for an example). G20 finance ministers and central bank governors are taking steps to ensure global consistency of rules. Further work is being done by the international standard setters to assess compliance against the agreed international standards across jurisdictions (Box 7.9.2).

The work of international standard setters can be complemented by more granular bilateral agreements on regulatory cooperation with some jurisdictions. By creating accountable and transparent frameworks for bilateral cooperation, regulators and supervisors would then endeavour to implement international standards in a coherent manner. An outcomes-based assessment of the rules of the other jurisdiction would lead to mutual reliance and remove unnecessary barriers, while safeguarding financial stability.

Box 7.9.2: International work on consistency of implementation of global financial reforms

The lessons of the recent financial crisis underscored the need for full, timely and consistent implementation of the standards across the globe. International standard setters have set out a work agenda to assess the progress and consistency of rules across jurisdictions.

Implementation covers the period from the development of an international standard or policy through its adoption via changes in laws and regulations at national/regional levels to actual practice by market participants and oversight/enforcement by national authorities. International monitoring of this process, in all its phases, helps to ensure complete and consistent implementation across jurisdictions and the effectiveness of the standard or policy in achieving its desired results, and demonstrates accountability by providing information on implementation progress to the public.

At the request of the G20, the Financial Stability Board (FSB) has been monitoring progress in the development and implementation of the G20 recommendations for financial sector policy reforms since the Washington Summit in November 2008. The FSB coordinates with the relevant standard-setting bodies (SSBs) on substantial policy development work in a number of key areas, also creating the Coordination Framework for Implementation Monitoring (CFIM) to strengthen the coordination and effectiveness of this monitoring. CFIM promotes effective and prioritised monitoring by facilitating ongoing consultation and collaboration between the FSB and SSBs as well as by allocating their scarce resources efficiently based on comparative advantage. It also sets out where the primary responsibility for monitoring resides with a specific SSB.

For example, on bank prudential regulation (the Basel III measures), the Basel Committee on Banking Supervision (BCBS) has primary responsibility. As a result, the BCBS has established the Regulatory Consistency Assessment Programme (RCAP) to assess and report on the consistency of implementation of the rules on capital, liquidity, leverage and systemically important banks (see also section 4.2). The programme consists of two distinct but complementary workstreams to monitor the timely adoption of Basel III standards, and to assess the consistency and completeness of the adopted standards and the significance of any deviations in the regulatory framework.

Various other mechanisms are in place for monitoring the implementation of international financial standards and policies and for reviewing their effectiveness. They include the IMF-World Bank Financial Sector Assessment Programs (FSAP) and Reports on the Observance of Standards and Codes

(ROSC) assessments; FSB thematic and country peer reviews and progress reports; and monitoring and review processes carried out by the SSBs.

Notes: For more information see the FSB and BCBS websites

7.10 POTENTIAL TENSIONS BETWEEN BANKING UNION AND THE SINGLE MARKET

While the move towards Banking Union is an important development to complement EMU (see section 4.6.3), concerns have been raised that Banking Union may create a "two tier" system between euro area (and other Member States participating in the Banking Union, which is open to all Member States if they wish to take part) and those Member States that are not participating.⁴⁴⁷

However, **a number of important safeguards have been provided to help protect the interests of the single market in financial services when creating the Banking Union.** First and foremost, the Banking Union is based on the single rule book, which applies across the EU and not just to Banking Union members.

In addition, as concerns the relationship between participating and non-participating Member States, the home/host supervisor coordination procedures and colleges of supervisors will continue to exist as they do today, as far as coordination with supervisors in non-euro area Member States is concerned. Non-euro area Member States will hence retain all their existing powers and prerogatives, but the Banking Union will reduce the scope of coordination failures between national supervisors (as there will be coordination between only one authority (the ECB) instead of a multitude of authorities) and remove the tendency to blend prudential supervision with the protection of national interest. The ECB as a European institution will work in the interest of the whole EU and not only the Euro area. There will also be a memorandum of understanding between the ECB and the competent authorities of non-participating Member States on the way they will cooperate in performing their supervisory tasks.

Furthermore, the EBA will play an integral part in protecting and further developing the single market for banking. It will also have to ensure that the interests of the wider single market are protected. In order to ensure that the EBA can perform these tasks, some targeted amendments to the EBA founding regulation have been introduced in the context of establishing the SSM.

In particular, with the creation of the SSM for euro area members (and those other members that would wish to join), there could have been a concern that these members could form a block to systematically outvote the non-participating members on the EBA's Board of Supervisors, which is the main decision-making body of the authority, leading to a situation that might rather serve the interest of the euro area than the wider European interest. This concern was addressed through the creation of a double majority voting system. Now, when EBA decides, for instance, on binding technical standards, a majority of both euro area and non-Euro area countries need to agree for them to come into force. Also, some powers of the EBA were strengthened (e.g. access to information, stress tests, and rights of the EBA to request a meeting of

⁴⁴⁷ See also Enria (2013).

supervisory colleges). Furthermore, the ECB will be subject to the same procedure of binding mediation by the EBA as any other supervisory authority.

In addition, a "non-discrimination" clause has been inserted into the SSM regulation, stating that "no action, proposal, or policy of the ECB shall, directly, or indirectly, discriminate against any Member State or group of Member States as a venue for the provision of banking or financial services in any currency." This clause recognises that non-participating members of the Banking Union should still be able to play a role in euro-denominated banking services, in line with the principles of a single market.

Similar safeguards to protect the interest of Member States not participating in the Banking Union are valid for the SRM. Again, the first layer protection will be the application of the same EU-wide rulebook of prudential requirements, which will continue to apply to all Member States. In this way, the EU wide single rulebook will prevent differences of treatment among banks across the whole EU. Moreover, to ensure an objective and fair resolution process, any discrimination by all actors within the SRM against banks, their depositors, creditors, or shareholders on grounds of nationality or place of business is forbidden. Also, pursuant to the principle of cooperation, the Single Resolution Board will cooperate with the resolution authorities of non-participating Member States at different stages of the recovery and resolution process: for the drafting of group recovery and resolution plans; for the assessment of such plans; for addressing or removing impediments to resolvability in case of groups; and for taking concrete resolution decisions for the group.

Overall, therefore, the Banking Union has been created in a manner that will support the interests of the single market.

7.11 COMPLEXITY OF REGULATION

Primary legislation and the detailed rule-making that it triggers together amount to several thousands of pages. Regulatory and supervisory resources have increased significantly over the years, and so have the compliance costs of regulated entities. **Financial regulation is complex, and the reforms will further increase this complexity, with related costs.**⁴⁴⁸ There are more than 400 pages of legal texts for firms, regulators and proactive market participants to trawl through counting only the CRD IV package.

The complexity of regulation is, at least in part, a reflection of the complexity of financial institutions, the products and services they offer, and the financial system as a whole. It also is the result of a process of regulatory reforms that responds to new risks in the system and that adds or modifies rules as the system evolves and new risks emerge. In addition, the complexity reflects a desire for regulatory and legal certainty, which generally calls for rule-making at a very detailed level.

⁴⁴⁸ The increase in costs could affect the freedom to conduct a business enshrined in article 16 of the Charter of fundamental rights and limitations have thus had to be conceived in strict compliance with the requirement of legality and proportionality, as provided for in article 52.1 of the charter.

Schneiberg and Bartley (2010), Harford (2013), Haynes (2012) and others explain the difficulties for policymakers, regulators and supervisors in managing such complex systems. Schneiberg and Bartley explain that regulation faces problems of uncertainty that go beyond "getting the rules right". Complex systems are characterised by extensive interdependence and relations among elements that are poorly understood, non-linear, variable, and idiosyncratic. Under these conditions, many interactions will remain hidden, and oversight can yield false alarms and warning systems that may be ignored or rationalised away. Harford argues that regulators and regulated must learn about rapidly changing properties of financial products and markets and to adjust rules in light of their discoveries.

Haldane and Madouros (2012) and others have well presented the case against complexity of regulation, in particular in the context of the Basel III capital adequacy framework, which is transposed into EU law by the CRD IV package. Haldane and Madouros argue that complex rules often have high costs of information collection and processing; rely on "over-fitted" models that yield unreliable predictions; and can induce defensive behaviour by causing people to manage the rules. They conclude that *"modern finance is complex, perhaps too complex. Regulation of modern finance is complex, almost certainly too complex. That configuration spells trouble. [...] Because complexity generates uncertainty, not risk, it requires a regulatory response grounded in simplicity, not complexity."* Among other policy lessons, they argue in favour of the leverage ratio as a simple backstop to risk-based capital ratios determined by banks' internal models; a move to more simplified bank balance sheets; and a less rules-focused and more judgment-based approach to supervision.

While adding to the overall complexity of financial regulation, **the EU financial regulation agenda also seeks to reduce complexity and related costs in several ways**: by harmonising rules and developing a single rulebook to avoid duplication or inconsistent application of rules across the EU, which presents significant simplification for cross-border financial institutions; by developing the reform agenda in line with the G20 commitments and working towards greater coherence and convergence of international regulatory frameworks; and by adhering to the principle of proportionality in the form of exemptions (e.g. for small institutions) and targeted regulation to those institutions (e.g. systemically important or 'too big-to-fail' institutions) or activities that pose the greatest risk.

In addition, the EU is supporting ongoing work by the Basel Committee to introduce the leverage ratio as a backstop to the risk-based capital framework for banks. Requirements for banks to draw up recovery and resolution plans under the BRRD may also provide incentives for institutions to review the complexity of their organisational structures and simplify business models. Moreover, proposals to reform banking structures are aimed at simplifying bank balance sheets and imposing quantitative restrictions on what deposit-taking banks can and cannot do.

Review clauses have been included in the bulk of the EU proposed or adopted legislation (see annex 3), and there is scope for wider review in future ex-post evaluations of the effectiveness and transparency of the financial reforms. Complexity can be a key aspect of these reviews, including its impact on the effectiveness and ease of supervision. However, the more general question is not just about whether financial regulation is too complex, but also about the complexity of the financial system and what can or should be done to reduce this complexity.

7.12 POTENTIAL CONFLICTS AND INCONSISTENCIES IN THE REGULATORY FRAMEWORK

The financial and economic crisis made necessary a series of urgent reforms and thus precipitated a large number of interlinked reform proposals which normally would have been proposed over a longer time period. The need to respond swiftly to the crisis and restore confidence posed significant challenges for the legislative process and ensuring that the reforms are well-crafted and consulted with stakeholders and that they considered all possible effects, including the interaction effects between different reforms. The ongoing international reform efforts, led by the G20 and FSB, and the EU commitments arising under those, further influence the Commission's freedom when drafting legislative proposals and make it more difficult to adapt the timeline for proposals.

The Commission (as well as its co-legislators) made best efforts to ensure the coordination of the proposals and to avoid overlaps and inconsistencies that could affect the rights of the entities affected by the legislative measures.

Nonetheless, given the number of necessary reforms and the complexity of the task, technical inconsistencies and other mistakes in the legislative proposals are inevitable. Some have been identified already and corrected, but new ones may only be revealed going forward. Even if the initial proposals are based on a consistent approach, challenges may arise from the legislative process, where inconsistencies can emerge as a result of negotiations, and thereafter during the implementation phase.

The Economic and Monetary Affairs Committee of the European Parliament held a public consultation in 2013 on the coherence of EU financial services legislation.⁴⁴⁹ Responding stakeholders identified a range of specific areas where they perceive to be overlaps and inconsistencies both in existing legislation and in legislation being negotiated. Similar issues have also been raised in various industry submissions and available studies.

Overlaps and duplications: Given the sheer volume of legislation, there may be specific cases where regulation overlaps, creating the risk of duplicating requirements. There may be specific cases where a given market participant is required to meet similar obligations resulting from different pieces of legislation, or where different legislation appears to pursue the same objectives. However, it should be stressed that overlapping requirements do not necessarily mean contradictory requirements, and do not necessarily impose an unjustified burden in terms of cost and resource requirement of the entities that are concerned by the legislative measures.

Also, while overlaps are to be avoided wherever possible, seemingly overlapping regulation may in fact be complementary and enhance the effectiveness of the other reforms. As already noted, an example is structural bank reform. While some industry stakeholders argue that such reforms are redundant and do not deliver benefits over and above what is achieved by higher capital, resolution mechanisms and the other bank reforms in place, structural reform can deliver important complementary benefits (see sections 4.2 and 5.2).

⁴⁴⁹ <http://www.europarl.europa.eu/committees/en/econ/subject-files.html?id=20130314CDT63219>

In the area of financial reporting, firms often have to comply with a different set of accounting rules for financial statements (i.e. local accounting standards, IFRS, accounting rules for tax purposes, etc.). This creates a burden for the relevant firms.

Inconsistencies: Concerns have been expressed about inconsistencies in regulations or the risk thereof. Some of these concerns are of detailed technical or legal nature, and their economic significance appears limited. Others have been addressed, e.g. as part of negotiations.

It has been argued that there could be a potential inconsistency between the requirements applying to financial instruments under MiFID II and those applicable to insurance-based investment products under IMD II. The Commission proposal on IMD II aimed at reducing the regulatory divergences by mirroring as far as possible the MiFID II requirements on selling (see section 4.7.2). Related concerns have also been raised about the Prospectus Directive (covering securities issuance) and the recently agreed PRIIPS Regulation (covering retail structured products), as both have a common purpose to provide the most salient information to potential investors.

It has also been argued that there are inconsistencies in the rules on remuneration, e.g. in the CRD IV package, MiFID II and other legislations, which can all differ but apply simultaneously to some investment firms. However, the remuneration rules in MiFID II and the CRD IV package are designed in a complementary way. The CRD rules on remuneration cover mainly those "members of staff whose professional activities have a material impact on the institution's risk profile", whereas MiFID II rules on remuneration are designed to address concerns raised by the remuneration of client-facing and sales force staff and persons overseeing them. Their remuneration, if not properly designed, may give wrong incentives to act unfairly and not in the best interest of the client, thereby creating conflicts of interest.

Both EMIR (Article 7 and 8) and MiFIR (Article 28 and 29) contain provisions granting trading venues access to a CCP and vice versa, but with different scopes: EMIR just applies to OTC derivatives, whereas MiFIR extends the scope to other financial instruments. In most respects the provisions are aligned, and MiFIR has amended certain aspects of EMIR where necessary to ensure alignment.

The interactions between rules are often complex, also reflecting the complexity of the financial system and the regulatory framework. The initial "fire-fighting" mode in response to the crisis added to the challenges. Thus, inconsistencies were bound to arise and, where significant, should be (and have been) remedied when identified. The risk of these inconsistencies must be considered acceptable in relation to the objective pursued.

Inconsistencies often emerge as a result of inconsistent implementation of legislation within the EU. However, compared to the pre-crisis period, the legislative reforms rely more heavily on maximum harmonisation and move towards the adoption of a single rulebook in financial services. This reduces the scope for national interpretations and adding national requirements (gold-plating), which in turn reduces the risk of inconsistencies arising from the implementation of rules. A

separate but related issue is the need for consistent rule-making at international level, as already discussed in section 4.9 above.

Sequencing: The nature of the financial and economic crisis unfolding led to the incremental discovery of gaps in legislation, e.g. in the field of short selling, credit rating agencies and shadow banking. The order of such legislation is not always a choice but a consequence of developing insight into the failures of the financial system. The recent benchmark manipulation scandals are a clear example where action needed to be taken urgently when the problems came to light, irrespective of the fact that the initiative was not initially planned.

Sequencing challenges apply also at international level where, as noted above, efforts are being made to ensure global consistency and coordination. The concern here is about the EU front-running legislations that are still being consulted upon at a global level. The front-running of proposals may result in differently-defined requirements, different implementation dates and different implementations, which are undesirable in the international context even if the rules are necessary at EU level.

Uncertainty and delays: Concerns and criticisms in some cases stem not so much from inconsistencies in the rules, but from the uncertainty about the timing and final form of the legislative measures and their implementation. Delays in the adoption and implementation of proposed measures also create uncertainty and add costs. The most prominent example is Solvency II. Since the agreement of the Directive in 2008, insurance companies have been preparing for an implementation, which still has not happened, and incurred significant costs in the process that have increased as a result of the delays. On other occasions, an over-reliance on delegated and implementing acts, including technical standards, can sometimes lengthen the process. While often inevitable given the nature of the legislative process, uncertainty and delays are undesirable.

To conclude, financial regulation is a very complex task where policymakers face numerous challenges. This applied in particular to developing the policy response to the financial and economic crisis, where a large number of measures had to be taken in a short period of time to address the failures and restore financial stability and confidence. As the implementation of the reforms beds down, it will be important to closely monitor the overall effectiveness and impact of the new regime. Review provisions are included in all major legislation and will provide an opportunity to report on any issues arising and to consider any measure necessary to adapt, complete or improve the regime.

Where adverse consequences of the reforms have been identified, corrections to initial proposals have already been made (e.g. the treatment of trade finance in the CRD IV package, the long-term guarantee package in Solvency II). Also, where regulation entered uncharted territory, observation periods have been applied before finalising the rules or deciding on the need for intervention (e.g. the NSFR and the leverage ratio in the new capital adequacy framework for banks). In addition, the gradual phasing in of other provisions limits adverse impacts during the transition phase and allows adjustment as appropriate (while being mindful that too much flexibility creates uncertainty, which is also undesirable).

The financial reform agenda is not a one-off exercise with a static set of measures. Financial regulation needs to evolve and adapt over time. While the reforms address the problems revealed by the recent crisis, the risk of future crises cannot be regulated away. The rules adopted to deal with the causes of this crisis may not be adequate to deal with problems that may arise in the future. New risks will emerge, also as a result of changing markets, technological developments and financial innovation. The Commission will remain vigilant and proactive, monitoring financial innovations and identifying new risks and vulnerabilities as they emerge.

LIST OF ABBREVIATIONS

ABCP	Asset-Backed Commercial Paper
ABS	Asset-Backed Securities
AIF	Alternative Investment Funds
AIFMD	Alternative Investment Funds Managers Directive
ATM	Automated Teller Machine
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BRIC	Brazil, Russia, India and China
BRRD	Banking Recovery and Resolution Directive
CCP	Central Counterparty
CDO	Collateralised Debt Obligation
CDS	Credit Default Swap
CESEE	Central, Eastern and South Eastern Europe
CFTC	Commodity Futures Trading Commission
CGFS	Committee on the Global Financial System
CME	Chicago Mercantile Exchange
CNAV	Constant Net Asset Value
CNMV	Comisión Nacional del Mercado de Valores
CRA	Credit Rating Agency
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
CRR/CRD IV	Capital Requirements Regulation and Capital Requirements Directive IV ("CRD IV package")
CSD	Central Securities Depository
CSDR	Central Securities Depositories Regulation
DGS	Deposit Guarantee Scheme
DGSD	Deposit Guarantee Scheme Directive
EURIBOR	Euro Interbank Offered Rate
EBA	European Banking Authority
ECB	European Central Bank
EFRAG	European Financial Reporting Advisory Group
EIOPA	European Insurance and Occupational Pensions Authority
ELA	Emergency Lending Assistance
EMIR	European Market Infrastructure Regulation
EMS	European Monetary System
EMU	Economic and Monetary Union
ESA	European Supervisory Authority
ESBC	European System of Central Banks
ESFS	European System of Financial Supervision
ESIS	European Standardised Information Sheet

ESM	European Stability Mechanism
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EP	European Parliament
EuLTIFs	European Long-Term Investment Funds
EuSEFs	European Social Entrepreneurship Funds
EuVECAs	European Venture Capital Funds
EUR	Euro
FCA	Financial Conduct Authority
FDI	Foreign Direct Investment
FDIC	Federal Deposit Insurance Corporation
FHFA	Federal Housing Finance Agency
FRAs	Forward Rate Agreements
FSA	Financial Services Authority
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FX	Foreign Exchange
GDP	Gross Domestic Product
G-SIB	Global Systemically Important Bank
HFT	High Frequency Trading
HLEG	High Level Expert Group
HQA	High Quality Assets
HQLA	High-Quality Liquid Assets
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IBORs	Interbank Offered Rates
ICS	Investor Compensation Scheme
IFRS	International Financial Reporting Standards
IMD	Insurance Mediation Directive
IMF	International Monetary Fund
ISDA	International Swaps and Derivatives Association
KID	Key Information Document
LAC	Loss Absorbing Capacity
LCR	Liquidity Coverage Ratio
LIBOR	London Interbank Offered Rate
LTRO	Long-Term Refinancing Operations
MAD	Market Abuse Directive
MAG	Macroeconomic Assessment Group
MAGD	Macroeconomic Assessment Group on Derivatives
MAR	Market Abuse Regulation
MAR/CSMAD	Market Abuse Regulation and Directive on Criminal Sanctions

MBS	Mortgage-Backed Securities
MCD	Mortgage Credit Derivative
MFI	Monetary Financial Institution
MiFID	Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
MMF	Money Market Fund
MPO	Monetary Policy Operation
MoU	Memorandum of Understanding
MS	Member State
MTF	Multilateral Trading Facilities
NAV	Net Asset Value
NFC	Non-Financial Corporation
NFPS	Non-Financial Private Sector
NPL	Non-Performing Loans
NSFR	Net Stable Funding Ratio
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OTC	Over-the-Counter
OTF	Organised Trading Facility
PRIIPs	Packaged Retail and Insurance-based Investment Products
PAD	Payment Accounts Directive
PSD	Payment Services Directive
RCAP	Regulatory Consistency Assessment Programme
RMBS	Residential Mortgage-Backed Security
RoE	Return-on-Equity
ROSC	Reports on the Observance of Standards and Codes
RWA	Risk-Weighted Assets
SFT	Securities Financing Transaction
SIV	Structured Investment Vehicle
SMA	Single Market Act
SME	Small and Medium Enterprise
SRF	Single Resolution Fund
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
SSR	Short-selling Regulation
T2S	Target 2 Securities
TBTF	Too Big To Fail
TIBOR	Tokyo Interbank Offered Rate
UCITS	Units in Collective Investment Undertakings
USD	US dollar
WACC	Weighted Average Cost Of Capital

VaR
VNAV

Value-at-Risk
Variable Net Asset Value

BIBLIOGRAPHY

- Acharya, V. and Richardson, M. (2009), *Restoring financial stability: how to repair a failed system*, Wiley.
- Acharya, V., Cooley T., Richardson M. and Walter, I. (2009), "Manufacturing tail risk: a perspective on the financial crisis of 2007-2009", *Foundations and Trends in Finance*, 4, 4, pp. 247-325.
- Acharya V., Cooley T., Richardson M. and Walter, I. (2011), "Market Failures and Regulatory Failures: Lessons from Past and Present Financial Crises", February.
- Adelino, M. (2009), "Do investors rely only on ratings? The case of mortgage-backed securities", Job Market Paper, MIT Sloan School of Management and Federal Reserve Bank of Boston.
- Admati, A.R., DeMarzo, P.M., Hellwig, M.F., and Pfleiderer P. (2013), "Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Socially Expensive", Max Planck Institute for Research on Collective Goods, October.
- Admati, A. and M. Hellwig (2013), "The bankers' new clothes: What's wrong with banking and what to do about it", Princeton University Press.
- Adrian, T. and A. Ashcraft, 2012b, "Shadow banking: a review of the literature", FRB NY Staff Report 580.
- Adrian, T., A. Ashcraft, and N. Cetorelli, 2013, "Shadow bank monitoring", FRB NY Staff Report 638.
- Adrian, T. and H. Shin (2010a), "Liquidity and leverage", *Journal of Financial Intermediation*, 19, 3, pp. 418-437.
- Adrian, T. and H. Shin (2010b), "The changing nature of financial intermediation and the financial crisis of 2007–2009", *Annual Review of Economics*, 2, pp. 603–618.
- Al-Eyd, A. and S. Pelin Berkmen, "Fragmentation and Monetary Policy in the Euro Area", IMF Working Paper No 13/208, October 2013.
- Alessandri, P. and A. Haldane (2009), "Banking on the State", paper underlying a presentation delivered at the FRB Chicago International Banking Conference on 25/09/2009
- Alle, F. (1990), "The market for information and the origin of financial intermediation", *Journal of Financial Intermediation*, 1, 3-30.
- Alworth, J. and G. Arachi, 2010, "Taxation and the financial crisis", paper prepared for the European Tax Policy Form / Institute for Fiscal Studies Conference: Tax Policy in an Uncertain World, One Great George Street, London
- Anderson, M. (2010), "Contagion and Excess Correlation in Credit Default Swaps", Ohio State University working paper.
- Arcand, J-L., E. Berkes and U. Panizza (2012), "Too much finance?", IMF Working Paper 12/161.

- Arping, S. (2013), "Proprietary trading and the real economy", Duisenberg School of Finance – Tinbergen Institute Discussion Paper, TI 13-032/IV/DSF 52.
- Ashcraft, A.B., and J.A.C. Santos, 2009, Has the CDS market lowered the cost of corporate debt?, *Journal of Monetary Economics* 56 (4), 514-523.
- Awrey, D. (2011), "Complexity, innovation and the regulation of modern financial markets", *University of Oxford Legal Research Papers* 49/2011.
- Baba, N., R. McCauley, S. Ramaswamy, (2009), "US dollar money market funds and non-US banks", *BIS quarterly Review*, March.
- Bakk-Simon, K., S. Borgioli, C. Giron, H. Hempell, A. Maddaloni, F. Recine, and S. Rosati, (2012), "Shadow banking in the euro area: an overview", *ECB Occasional Paper Series No 133*, April.
- BIS (2013), "Asset encumbrance, financial reform and the demand for collateral assets," *Committee on the Global Financial System, CGFS Papers No 49*, Report submitted by a Working Group established by the Committee on the Global Financial System, May 2013.
- BIS (2014), "BIS quarterly review", March.
- Bank of England (2013), "The rationale for prudential regulation and supervision of insurers", *Quarterly Bulletin*.
- Bank of England (2013), "Strengthening capital standards: implementing CRD IV", August 2013, CP5/13.
- Barrell Ray, E. Philip Davis, Tatiana Fic, Dawn Holland, Simon Kirby, Iana Liadze (2009), "Optimal regulation of bank capital and liquidity: how to calibrate new international standards". *FSA Occasional Paper Series, No. 38*.
- Baumol, W. (1990), "Entrepreneurship: Productive, Unproductive, and Destructive", *Journal of Political Economy*, 98, 5, pp. 893-921.
- Basel Committee on Banking Supervision, (BCBS – LEI Group, 2010), "An assessment of the long-term economic impact of the stronger capital and liquidity requirements", August 2010.
- BCBS (2010), "Principles for enhancing corporate governance", October
- BCBS – MAG Group (2010), "Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements", December 2010.
- BCBS – MAG Group (2011), "Assessing the macroeconomic impact of higher loss absorbency for global systemically important banks", October 2011.
- BCBS (2012), "Fundamental review of the trading book", May.
- BCBS (2013) "Regulatory Consistency Assessment Programme (RCAP): Analysis of risk-weighted assets for credit risk in the banking book".
- BCBS (2013) "Regulatory Consistency Assessment Programme (RCAP) – Second report on risk-weighted assets for market risk in the trading book".
- BCBS (2014), "Basel III leverage ratio framework and disclosure requirements", January.
- Benmelech, E. and Dlugosz, J. (2010), "The credit rating crisis", *NBER Macroeconomics Manual*, April.

- BlackRock (2012), "Balancing risk, return and capital requirements: The effect of Solvency II on asset allocation and investment strategy".
- Boehmer, E., C.M. Jones, and X. Zhang (2008), "Which shorts are informed?", *The Journal of Finance* 63 (2), 491-527.
- Boehmer, E., Fong, K., and J. Wu (2012), "International Evidence on algorithmic trading", working paper.
- Blundell-Wignall, A., P. Atkinson, and C. Roulet (2013), "Bank business models and the Basel system: complexity and interconnectedness", *Financial Market trends*, Issue 2.
- Bologna, P. (2011), "Is there a role for funding in explaining recent U.S. banks' failures?" IMF Working Paper WP/11/180.
- Bolton, P., T. Santos, and J. Scheinkman (2012), "Cream Skimming in Financial Markets", working paper, Princeton University and Columbia University.
- Boot, A. and L. Ratnovski (2012), "Banking and trading", IMF Working Paper 12/238
- Boudghene, Y. and S. Maes (2012), "Empirical review of EU asset relief measures in the period 2008-2012", *European State Aid Law Quarterly*, Issue No. 4.
- Bouveret, A., 2011, "An assessment of the shadow banking sector in Europe", ESMA working paper.
- Bowley, G., 2011, "Fast traders, in spotlight, battle rules", *New York Times*, July 17, 2011.
- Brealey, R.A. (2006), "Basel II: The Route Ahead or Col-de-sac?," *Journal of Applied Corporate Finance*, 4, 34-43.
- Brennan, S., A. Haldane, and V. Madouros (2010), "The contribution of the financial sector: Miracle or mirage?", *The Future of Finance: The LSE Report*.
- Brown, J., Fazzari, S., and Petersen, M. (2009), "Financing innovation and growth: Cash flow, external equity, and the 1990s R&D boom", *Journal of Finance* 64, 151-185.
- Brunnermeier, M. and L. Pedersen (2009), "Market liquidity and funding liquidity", *Review of Financial Studies*, 22, 6, pp. 2201-2238.
- Brunnermeier, M., Crockett A., Goodhart, C. Persaud, A. and Shin, H. (2009), "The Fundamental Principles of Financial Regulation", *Geneva Reports on the World Economy*.
- Buch C. M. and Prieto E. (2012), "Do Better Capitalized Banks Lend Less? Long-Run Panel Evidence from Germany", *CESIFO Working Paper No. 3836*
- Budish, E., Crampton, P. and Shim, J. (2013), "The high frequency trading arms race: frequent batch auctions as a market design response", September.
- Calomiris, C. and C. Kahn, 1991, "The role of demandable debt in structuring optimal banking arrangements", *American Economic Review*, 81, 497-513.
- Capie, F., and Billings, M. (2004), Evidence on competition in English commercial banking, 1920-1970, *Financial History Review*, Vol.11.
- Cariboni, J. H. Joensson, L. Kazemi Veisari, D.Magos, E. Papanagiotou, C. Planas (2013) "Size and determinants of implicit state guarantees to EU banks", *JRC Scientific and Policy Reports*, European Commission.

- Carletti, E. and Hartmann, P. (2002), "Competition and stability: What's special about banking", ECB Working Paper No. 146, May.
- Carmassi, J. and S. Micossi, 2012, "Time to set banking regulation right", Special paper 206, LSE Financial Markets Group paper series.
- Cartea A, and J. Penalva, 2010, "Where is the value in high frequency trading", working paper.
- Caruana (2012) "Central Banking in a balance sheet recession," Panel remarks at the Board of Governors of the Federal System 2012 conference, Washington, 23-24 March 2012.
- Cecchetti, S. and E. Kharroubi (2012), "Reassessing the impact of finance on growth", BIS Working Paper 381.
- CEPS, 2011, "Business models in European banking: a pre- and post-crisis screening," report prepared by Ayadi, R., D. Llewelyn, W.P. De Groen, Centre for European Policy Studies.
- Cetorelli, N. and S. Peristiani, 2012, "The role of banks in asset securitization", FRB NY Economic Policy review, 18, 2.
- Cheng, I.H. and Xiong, W. (2013): "The Financialisation of Commodity Markets", NBER Working Paper 19642.
- Claessens, S., Z. Pozsar, L. Ratnovski, and M. Singh (2012), "Shadow banking: Economics and policy", IMF Staff Discussion Note 12.
- Claessens, S., Kose M.A., Laeven, L., Valencia, F. (2014), "Financial Crises: Causes, Consequences, and Policy Responses", IMF.
- Clifton, M., and M. Snape, (2008), "The effect of short-selling restrictions on liquidity: evidence from the London Stock Exchange", Working Paper Capital Markets Cooperative Research Centre.
- Cohen, B.H. (2013) "How have banks adjusted to higher capital requirements?", BIS Quarterly Review, September.
- Committee of European Insurance and Occupational Pensions Supervisors (2005), "Answers to the European Commission on second wave of Calls for Advice in the framework of the Solvency II project".
- Committee on the Global Financial System (CGFS) (2011), "Fixed income strategies of insurance companies and pension funds", CGFS papers No 44.
- CGFS (2013), "Asset encumbrance, financial reform and the demand for collateral assets", CGFS papers No. 49, May.
- Commodity Futures Trading Commission, 17 CFR Parts 1, 15, 17, 19, 32, 37, 38, 140 and 150, RIN 3038-AD99, Position Limits for Derivatives; 05 November 2013, pp. 49.
- Criado, S., L. Degabriel, Lewandowska. M., Linden, S. and Ritter, P., 2010, Report on Sovereign CDS.
- Cornett, M., J. McNutt, P. Strahan, and H. Tehranian, 2010, "Liquidity Risk management and Credit Supply in the Financial Crisis", Working Paper.

- Crockett, A. (2012) "A Macroeconomic Perspective" in K.E. Scott and J.B. Taylor (eds.) *Bankruptcy Not Bailout: A Special Chapter 14*, Hoover Institution Press, Stanford Univ., CA.
- Dang, T., G. Gorton, B. Holmström, 2009, "Opacity and the optimality of debt for liquidity provision", Yale/MIT working paper.
- Delatte, A-L, Gexy, M. and López-Villavicencio, A. (2011), "Has the CDS market influenced the borrowing cost of European countries during the sovereign crisis?" 22 August 2011, p. 29.
- Deloitte (2012), "Solvency II Survey 2012".
- Demirgüç-Kunt, A. and Huizinga, H., 2009, "Bank Activity and Funding Strategies: The Impact on Risk and Returns", World Bank Working Paper 4837, World Bank.
- Demirgüç-Kunt, A. and Huizinga, H., 2010, "Are banks too big to fail or too big to save? International evidence from equity prices and CDS spreads", World Bank Policy Research Working Paper Series, No. 5360, World Bank.
- Diamond, D. (1984), "Financial intermediation and delegated monitoring", *Review of Economic Studies*, 51, pp. 393-414.
- Diamond, D. and P. Dybvig (1983), "Bank runs, deposit insurance, and liquidity", *Journal of Political Economy*, 91, pp. 401-419.
- Dive, M., R. Hodge, C. Jones, and J. Purchase, 2011, "Developments in the global securities lending market", *Bank of England Quarterly Bulletin*, 51, 3, pp. 224-233.
- Draghi, M. (2014), "Financial integration and Banking Union," speech by Mario Draghi, President of ECB, at the conference for the 20th anniversary of the European Monetary Institute, Brussels, 12 February 2014.
- Elliot, Douglas J., 2009, *Quantifying the effects on lending of increased capital requirements*, Working paper, The Brookings Institution
- Elliot, D. Salloy, S. and Oliveira Santos, A. (2012), "Assessing the cost of financial regulation", IMF Working Paper WP/12/233.
- Enria (2013), "The Single Market after the Banking Union," speech at the AFME and EBF Banking Union in Europe Conference, Brussels, 18 November 2013.
- Ernst & Young (2012), "European Solvency II survey".
- EBA (2012), "Opinion of the European Banking Authority on the recommendations of the High-level Expert Group on reforming the structure of the EU banking sector", December.
- EBA (2013), "Interim results of the EBA review of the consistency of risk-weighted assets. Top-down assessment of the banking book", February.
- EBA (2013), *Report on impact assessment for liquidity measures under Article 509(1) of the CRR*, European Banking Authority, 20 December 2013.
- EBA (2013), "Risk assessment of the European banking system", December.
- EBA (2014), "Basel III monitoring exercise", March.
- ECB (2012), "European Financial Integration", April.
- ECB (2012), "Financial Stability Review", June.

ECB (2013), "Liquidity regulation and monetary policy implementation", Monthly Bulletin, April 2013.

ECB (2013), "High Frequency Trading and Price Discovery", Working Paper Series No 1602, November.

ECB (2013), "Banking Structure Report", November.

ECB and Bank of England (2014), "The impaired EU securitisation market: causes, roadblocks and how to deal with them", Joint Paper, April.

European Commission (2009), "Public Finances in EMU 2009", *European Economy* 5, 2009.

European Parliament (2011), "CRD IV – Impact Assessment of the Different Measures within the Capital Requirements Directive IV", June 2011.

European Parliament (2011), "Assessment of the Cumulative Impact of Various Regulatory Initiatives on the European Banking Sector", August 2011.

European Parliament (McCarthy 2013), Reforming the structure of the EU banking sector, 2013/2021 (INI).

European Securities and Markets Authority (2014), ESMA Report on Trends, Risks and Vulnerabilities, No. 1, 2014.

ESMA (2013), "Credit rating agencies – sovereign rating investigation. ESMA's assessment of governance, conflicts of interest, resourcing adequacy and confidentiality controls", December.

ESMA (2013), "Technical advice on a network of small and medium-sized CRAs".

ESMA (2013), "Technical advice on the evaluation of the Regulation (EU) 236/2012 on short-selling and certain aspects of credit default swaps", ESMA/2013/614, June.

ESMA (2013), "ESMA report on trends, risks, and vulnerabilities", No. 2, September

ESMA (2014), "ESMA report on trends, risks and vulnerabilities", no. 1.

ESMA (2013), "Technical advice on the evaluation of the Regulation (EU) 236/2012 on short-selling and certain aspects of credit default swaps".

ESRB (2013), "Towards a monitoring framework for securities financing transactions", March.

ESRB (2013), "Central Counterparties and Systemic Risk", ESRB Macro-Prudential commentaries, Issue No. 6, November 2013.

ESRB (2014), "Mapping and risks of the EU shadow banking system", non-public 30 January 2014 interim report.

ESRB (2014), "Flagship Report on Macro-prudential Policy in the Banking Sector", March.

Ernst and Young (2013), "Building the bank of 2030 and beyond".

FDIC (2011), "The Orderly Liquidation of Lehman Brothers Holdings Inc. under the Dodd-Frank Act", Volume 5, No. 2.

Fein, M. (2013), "The shadow banking charade", SSRN working paper.

Félix, L., Kräussl, R. and Stork, P., The 2011 European Short Sale Ban on Financial Stocks: A Cure or a Curse?", CFS Working Paper No. 2013/17, 31 July 2013

Financial Stability Board (2010), "Principles to reduce reliance on CRA Ratings".

- Fisman, R., and Love, I. (2007), "Financial dependence and growth revisited", *Journal of the European Economic Association* 5, 470-479.
- FSB (2013), "Thematic review on risk governance", February.
- FSB (2012), "Global shadow banking monitoring report 2012", November
- FSB (2013), "Global shadow banking monitoring report 2013", November.
- FSB (2013), "Policy framework for addressing shadow banking risks in securities lending and repos", August
- FSB (2013), "A Narrative Progress Report on Financial Reform", Report of the Financial Stability Board to G20 Leaders, August 2013.
- Financial Supervisory Authority (2012), "Measuring the impact of prudential policy on the macroeconomy: A practical application to Basel III and other responses to the financial crisis", Occasional Paper Series 42, May 2012.
- Financial Times (2013), "Volcker doing job despite Kafkaesque turns", December 15.
- Fioravanti, F.S. and M. Gentile (2011), "The impact of market fragmentation on EU stock exchanges", Consob Working Paper No. 69, July.
- Fitch (2011), "Solvency II set to reshape asset allocation", Oliver Wyman and Morgan Stanley (2010), "Solvency II: Quantitative and strategic impact – the tide is going out".
- Fitch (2014), "Sovereign support for banks - Rating path expectations: Special Report", 27 March.
- G20 Leaders Statement (2009): The Pittsburgh Summit, September 24-25, Pittsburgh.
- Gennaioli, N., A. Shleifer, and R. Vishny (2011), "Neglected risks, financial innovation, and financial fragility", *Journal of Financial Economics*, 104, 3, pp. 452-468.
- Giannetti, M. and S. Ongena (2009), "Financial integration and entrepreneurial activity: Evidence from foreign bank entry in emerging markets", *Review of Finance*, 181-223.
- Gomber, P., B. Arndt, M. Lutat and T.Uhle (2011), "High-Frequency Trading", Report commissioned by Deutsche Börse Group.
- Goodhart, C. (2008), "The Regulatory Response to the Financial Crisis", CESifo Working Paper Series No. 2257, March.
- Goodhart, C. (2010), "How Should We Regulate the Financial Sector?" Chapter 5 of *The Future of Finance*, LSE.
- Gorter, J. and Bijlsma, M. (2012), "Solvency II asset charges will not stop insurers funding banks", *Insurance Risk*, January.
- Gorton, G. (2010), "Questions and Answers about the Financial Crisis", presentation prepared for the US Financial Crisis Inquiry Commission
- Gorton, G. and A. Metrick (2011), "Regulating the shadow banking system", *Brookings Paper on Economic Activity*, pp. 261-312.
- Gorton, G. and Metrick, M. (2012), "Getting up to speed on the financial crisis: a one-weekend-reader's guide", *Yale University Working Paper*
- Gorton, G. and A. Metrick (2012), "Securitized banking and the run on repo", *Journal of Financial Economics*, 104, pp. 425-451.

- Greenlaw, D., J. Hatzius, A. Kashyap and H. Shin (2008), “Leveraged losses: Lessons from the mortgage market meltdown”, Proceedings of the US Monetary Policy Forum 2008.
- Hahm, J-H., H. Shin and K. Shin, 2012, “Non-core bank liabilities and financial vulnerability”, *Journal of Money, Credit and Banking*, 45, 1, pp. 3-36.
- Haldane (2009), "Banking on the state", September.
- Haldane, A. (2010), "The 100 billion dollar question", Bank of England, March.
- Haldane, A. (2010), “The contribution of the financial sector – miracle or mirage?”, Bank of England
- Haldane, A. (2010), “The \$100bn question”, Bank of England
- Haldane, A. (2012), “On being the right size”, Bank of England.
- Haldane, A. and May (2011) "Systemic risk in banking ecosystems", in *Nature*.
- Haldane, A. (2012), “On being the right size”, Bank of England
- Haldane, A. and Madouros, V. (2012), "The dog and the frisbee", paper given at the Federal Reserve Bank of Kansas City's 36th economic policy symposium in Jackson Hole.
- Harford (2013), "Preventing financial meltdowns; or decoupling," Chapter 6 in "Adapt: Why Success Always Starts with Failure," Little Brown.
- Harrison, I. (2004), “Banks, Capital and Regulation: Towards an Optimal Capital Regime for a Small Open Economy,” Working paper, Reserve Bank of New Zealand.
- Hauser, A. (2014), "Why there is life after death: four myths about the future of securities financing markets", speech given at JP Morgan's Collateral Management and Securities Financing Forum, London, March.
- Hasbrouck, J. (2009), “Trading Costs and Returns for U.S. Equities: Estimating Effective Costs from Daily Data,” *Journal of Finance*, 64, 3, pp. 1445–1477.
- Haynes, P (2012), "Complex theory and public policy: a radical methodology," Chapter 1 in "Public Policy beyond the Financial Crisis: An International Comparative Study," Routledge.
- High-level Group on Financial Supervision in the EU (2009), Report chaired by Jacques de Larosière, February.
- High-level Expert Group on reforming the structure of the EU banking sector (2012), final report, October.
- Höring, D. (2013), "Will Solvency II market risk charges bite", Geneva Papers on Risk and Insurance.
- Houben, A. and Slingenberg, J. W. (2013), Collateral scarcity and asset encumbrance: implications for the European financial system, *Financial Stability Review No.17*, Banque de France, April 2013.
- HSBC Global research (2011), “The ICB ring-fence: This is going to hurt”
- ICMA (2013). European Repo Market Survey, International Capital Markets Association, December.
- Insurance Europe (2013), "Funding the future – Insurers' role as institutional investors", June.

International Monetary Fund (2010), "Impact of Regulatory Reforms on Large and Complex Financial Institutions", November 2010, IMF Staff Position Note.

IMF (2012), "Assessing the cost of financial regulation", IMF Working Paper by Elliot, D. Salloy, S. and Oliveira Santos, A. September.

IMF (2012), "Global Financial Stability Report".

IMF (2013), "Global Financial Stability Report".

IOSCO (2011), "Principles for Regulation and Supervision of Commodity Derivatives Markets", September.

IOSCO (2012), "Global Developments in Securitisation Regulation – Final Report," 16 November 2012.

IOSCO (2013), "Principles for Financial Benchmarks", Final Report, July.

ISDA (2013), "ISDA Margin Survey", June 2013.

Institute of International Finance (2010), "Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework".

Institute of International Finance (2011), "The Cumulative Impact on the Global Economy of Changes in the Financial Regulatory Framework".

Jarrow R.A. and P. Protter, 2011, "A dysfunctional role of high frequency trading in electronic markets", Johnson School Research Paper Series No. 08-2011.

JP Morgan (2012), "European bank bail-in survey results".

JP Morgan (2010), "Global Banks – Too Big to Fail?" February 2010.

JP Morgan (2010), "European Bank Bail-In Survey", October 2010.

JPMorgan Europe Credit research (2011), "Running rings around banks".

J. Stiglitz (2013): "Market Failures in the Financial System: Implications for Financial Sector Policies, Especially in Developing Countries".

Joint Committee of the European Supervisory Authorities (2013), "Report on risks and vulnerabilities in the EU financial system".

Joint Committee of the European Supervisory Authorities (2013), "Joint Position of the European Supervisory Authorities on Manufacturers' Product Oversight & Governance Processes", November.

Jones, C. (2013), "What Do We Know About High-Frequency Trading?", Columbia Business School Research Paper No. 13-11.

Kapp, K.W. (1950), "The Social Costs of Private Enterprise", New York.

Keeley, M.C. (1990), "Deposit insurance, risk and market power in banking," *American Economic Review*, 80, 1183-1200.

KBW (2013), "Global Equity Research", Keefe, Bruyette & Woods, 12 November 2013.

Kahn, L.B. (2010), "The long-term labour market consequences of graduating from college in a bad economy", *Labour Economics*, vol. 17, p. 303-316.

Kay, Vickers, Mayer, and Ulph (1988), "Regulatory Reform in Britain," *Economic Policy*, Vol 3, No 7, pp285-351.

- Keller, J., 2012, "The shadow banking system: economic characteristics and regulatory issues", Financial Stability Review, National Bank of Belgium.
- KPMG (2012), "The cumulative impact of regulation. An impact analysis of accumulation of regulations on the Dutch banking sector", September 2012.
- KPMG (2013), "The cumulative impact of regulation. An impact analysis of the accumulation of regulations on the Belgian banking sector", June 2013.
- KPMG (2013), "Impact of regulatory requirements", December 2013.
- KPMG (2014), "Evolving Banking Regulation EMA Edition, Is the end in sight?", February.
- Laeven L. and Valencia F. (2013), "Systemic Banking Crises Database", IMF Economic Review, 61, 225–270.
- Laeven L. and Valencia F. (2012), "Systemic Banking Crises Database: An update", IMF Working Paper, WP/12/163.
- Levels, A. and Capel, J. (2012), "Is collateral becoming scarce? Evidence for the euro area", Journal of Financial Market Infrastructures, Vol. 1, No. 1, pp. 29-53.
- Lo, A. (2012), "Reading about the financial crisis: A 21 book review", paper prepared for the Journal of Economic Literature
- McKinnon, R.I. (1973), „Money and capital in economic development”, Washington DC, Brookings Institution,
- McKinsey & Company (2010), "Basel III and European Banking: Its impact, how banks might respond, and the challenges of implementation". November 2010
- Mehrling, P., Z. Pozsar, J. Sweeney, D. Neilson, 2012, "Bagehot was a shadow banker: Shadow banking, central banking, and the future of global finance", August 15, INET.
- Melecky, Martin and Rutledge, Sue (2011), "Financial Consumer Protection and the Global Financial Crisis", World Bank.
- Mersch (2013), "SMEs, Banking Union, and securitisation – exploring the nexus" - Keynote speech at the EIB Economics Conference, 13 November 2013
- Miccossi, S. (2011), "Basel Capital Rules and Alternative Methods to Control Risk in the Banking Sector" presentation made at the European Commission on the 23rd November 2011.
- Miles D., Jing Yang and Gilberto Marcheggiano (2011), "Optimal bank capital". Bank of England Discussion Paper n. 31.
- Minsky (1986), for example. Minsky, H.P., Stabilizing an Unstable Economy, Yale University Press, 1986.
- Mishkin, F. (2007), The economics of money, banking, and financial markets, Pearson.
- Moody's (2011), "UK Treasury Support for ring-fencing proposals is credit negative for banks"
- Moody's (2013), EU Bank Resolution: Draft Directive Offers Clarity On Future Support Framework, But Important Questions Remain Unanswered, special comment, Investor Services.
- Murphy, K., A. Shleifer, and R. Vishny (1991), "The Allocation of Talent: Implications for Growth". Quarterly Journal of Economics, 106, 2, pp. 503-530.

- Nera Economic Consulting (2009), "Study of the Impact of Securitisation on Consumers", Investors, Financial Institutions, and the Capital Markets", July.
- Noss, J. and R. Sowerbutts (2012), "The implicit subsidy of banks", Financial Stability Paper No. 15, May, Bank of England
- Office for Economic Analysis (2009), "Analysis of the July Emergency Order Requiring a Pre-Borrow on Sort Sales".
- OECD (2010), "Policy framework for effective and efficient financial regulation".
- OECD (2013), "An Indicator to Monitor the Value of Implicit Bank Debt Guarantees", DAF/CMF(2013)14, OECD, Paris.
- OECD (2010), "Competition, concentration and stability in the banking sector", Policy Roundtable.
- OECD (2014). "The role of the financial sector for economic growth in OECD and G20 countries", Working Party No.1 on Macroeconomic and Structural Policy Analysis, ECO/CPE/WP1(2014)6, 6 February 2014.
- Oxera (2011). "Monitoring prices, costs and volumes of trading and post-trading services", a study for DG Internal Markets and Services.
- Oxera (2011), "Assessing state support to the UK banking sector".
- Pirrong, C. (2011), "The Economics of Central Clearing: Theory and Practice", ISDA Discussion Papers Series No.1, May.
- Philippon, T. (2013), "Has the U.S. Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation", working paper, NYU Stern School of Business.
- Philippon, T. and A. Reshef (2008), "Wages and human capital in the US financial industry: 1909-2006", working paper, University of New York and University of Virginia.
- PwC (2013), "Deleverage take 2 – making a virtue of necessity", November.
- Poole, W. (2009), "Moral Hazard: The Long-Lasting Legacy of Bailouts," Financial Analysts Journal, Nov/Dec, 1-7.
- Pozsar, Z., 2011, "Institutional cash pools and the Triffin dilemma of the U.S. banking system", IMF working paper 190.
- Pozsar, Z., Adrian, T., Ashcraft, A. and H. Boesky (2013), "Shadow banking", FRB NY Economic Policy Review.
- Pozsar, Z. and M. Singh, 2011, "The non-bank-bank nexus and the shadow banking system", IMF WP 289.
- Rajan, R. (2005), "Has financial development made the world riskier?", paper prepared for Jackson Hole conference.
- Ratnovski, L. (2013), "Competition policy for modern banks", IMF WP 126.
- Ratnovski, L. and R. Huang (2009), "Why are Canadian banks more resilient?", IMF Working Paper WP/09/152.
- Reinhart, C. and K. Rogoff (2009), *This time it's different: eight centuries of financial folly*, Princeton University Press.

- Ricardo Caballero, T. Hoshi and A. Kashyap (2008), “Zombie lending and depressed restructuring in Japan”, *American Economic Review*, no 98(5).
- Roubini, N. and Mihm, S. (2010), *Crisis economics: A crash course in the future of finance*, Penguin Press.
- Schich, S. and S. Lindh (2012), “Implicit Guarantees for Bank Debt: Where Do We Stand?”, *OECD Journal: Financial Market Trends*.
- Schich, S. and B-H Kim (2012), “Developments in the Value of Implicit Guarantees for Bank Debt: The Role of Resolution Regimes and Practices”, *OECD Journal: Financial Market Trends*.
- Schoemaker, D. (2011), "The financial trilemma", *Economic letters*, vol. 111, pages 57-59, April.
- Shafik N. and Jalali, J. (1991), "Are High Real Interest Rates Bad for World Economic Growth?", Working Paper Series 669, World Bank, May.
- Shaw, E.S. (1973), "Financial deepening in economic development", Oxford University Press.
- Shin, H., 2012, "Global banking glut and loan risk premium", Mundell-Fleming Lecture, *IMF Economic Review*, 60, 2, pp. 155-192.
- Singh, M., 2012, "Puts in the shadow", IMF working paper 229.
- Singh, M., 2013, "The economics of shadow banking", paper prepared for the Reserve Bank of Australia Conference “Liquidity and Funding Markets”, August 19 and 20.
- Standard & Poor's (2014), "Standard & Poor's To Review Government Support In European Bank Ratings".
- Stein, J., 2010, “Securitisation, shadow banking, and financial fragility”, *Daedalus*, 139, 4.
- Stein, J., 2013, “The fire-sales problem and securities financing transactions”, speech at the Federal Reserve Bank of Chicago and International Monetary Fund Conference, Chicago, Illinois.
- Stulz, R. (2010), “Credit Default Swaps and the Credit Crisis”, *Journal of Economic Perspectives* 24(1), 73-92.
- Swaney et al (1989). Swaney, J., and Evers, M.A., The Social Cost Concepts of K. William Kapp and Karl Polanyi, *Journal of Economic Issues* 23(1): 7-33, 1989.
- TABB (2012), 'MiFID II and Fixed-Income Price Transparency: Panacea or Problem'.
- TABB Group (2013): "Dark matters: Time for facts", November.
- Tarullo (2008), "Banking on Basel: The Future of International Financial Regulation".
- Thakor, A.V. (2013), “Bank capital and financial stability: an economic trade-off or a Faustian bargain?”, *ECGI Working Paper N°*. 386/2013, October 2013.
- The Atlantic Council (2013), "The Danger of Divergence: Transatlantic Financial Reform and the G20 Agenda," Report published December 2013.
- The Geneva Association Systemic Risk Working Group (2010), "Systemic risk in insurance: An analysis of insurance and financial stability", March.

- Turner, A. (2010), "What do banks do, what should they do and what public policies are needed to ensure the best results for the real economy", speech given at Cass Business School, March.
- Turner, A. (2011), "Reforming finance: Are we being radical enough?", 2011 Clare distinguished Lecture in Economics and public Policy, FSA.
- Turner, A., 2012a, "Shadow banking and financial stability", 14 March Cass Business School speech.
- Turner, A., 2012b, "Securitisation, shadow banking and the value of financial innovation", Rostov lecture on international affairs, School of Advanced International Studies, Johns Hopkins University, 19 April.
- Ueda, K. and B. Mauro (2012), "Quantifying structural subsidy values for systemically important financial institutions", IMF Working Paper No. 128
- UK Government Office for Science (2012), "What is the economic impact of the MiFID rules aimed at regulating high-frequency trading?".
- Véron, N. (2013), "Banking Nationalism and the European Crisis", October.
- Wray (2011). Wray, R.L., "The Financial Crisis Viewed from the Perspective of the *Social Costs* theory", Levy Economics Institute of Bard College, Working Paper No. 662, March.
- Zähres, M. (2011), "Solvency II and Basel III, reciprocal effects should not be ignored", Deutsche Bank Research.
- Zhang, F, and S.B. Powell (2011), "The impact of high-frequency trading on markets", CFA magazine, March-April.
- ZEW (2011), "Assessment of the Cumulative Impact of Various Regulatory Initiatives on the European Banking Sector", ZEW GmbH, European Parliament study, August.
- Zingales, L. (2014), "Why I was won over by Glass-Steagall", Financial Times, June 10.

ANNEX 1: REVIEW OF EXISTING STUDIES

This annex presents a literature review of the main quantitative impact studies on banking sector reform. It reviews those studies prepared by industry, public authorities and academics. While it only covers banking sector reform, focusing in particular on the Basel III reforms, a wider set of literature has been reviewed for the main report. The other (non-banking sector) studies are also referred to, where appropriate, within the relevant sections of the main report and listed in the bibliography.

Studies commissioned or carried out by the industry focus mainly on the private costs of regulation, such as costs on banks' profitability, loan volume and pricing. Few of them go further to translate these banking sector specific impacts into the wider effects on the economy as a whole. The public authority studies tend to focus more on social costs, often struggling to fully estimate the benefits. This is a reflection of the difficulties in quantifying (or even just measuring), the benefits of several fundamental measures⁴⁵⁰, such as those to increase transparency. At present, it seems many benefits cannot be appropriately quantified, even by the most state of the art models.

In general, industry estimates tend to be more pessimistic than those undertaken by public institutions, in terms of the potential decline in the volume of lending and the short- and long-term decline in GDP. This is mainly due to the different economic assumptions, regulatory scenarios, forecasting methods and modelling techniques used. Many industry studies were estimated at a time when regulatory changes were still under discussion and not yet finalised. Most industry studies preserved their initial assumption of a swift implementation of all proposed changes under Basel III, despite the final agreement in Basel and its transposition in CRD IV providing for gradual implementation over a longer transitional period. It may therefore not be surprising that there is a wide range of results between industry and public authority studies.

Industry studies

The Institute of International Finance (IIF)⁴⁵¹ published a report on the cumulative impact of Basel III in September 2011. This report focuses on the transitional effects in the short- and medium term. It estimates the negative impact of new regulation in terms of credit and GDP dynamics. An econometric model (NiGEM), developed by the UK National Institute of Economic and Social Research, was used to estimate the impact on the economic activity. The IIF estimates a yearly GDP drop of 0.6 % from the trend for the Euro area over a period of five years (0.7 % in average for all countries included in the study) when measures are implemented in 2015. This drop is primarily triggered by an allegedly sharp decline in the growth of credit supply (up to 4 % in 2020 for the Euro area). According to the IIF, Basel III measures make credit not only more scarce, but also more expensive. Lending rates are projected to increase by 328bp for the period 2012-2019. The IIF study claims that there is a significant risk that the Euro area banking sector will not be able to fully meet the new liquidity

⁴⁵⁰ See FSB (2013) for an overview of the measures.

⁴⁵¹ IIF is an industry association that represents more than 430 institutions headquartered in more than 60 countries.

requirements (LCR and NSFR). The IIF results are high compared to those from public institutions. An important assumption which may overstate costs is that increases in safety margins are only due to regulatory changes and not driven by market-adjustments. Moreover, the IIF focuses on only transitional costs and not long term effects in contrast to public institution's studies which also take the long-term effects into account.

PricewaterhouseCoopers coordinated a project (Project Oak) in 2010 undertaken by the six largest UK banks and the British Bankers Association (BBA) to estimate the impact of Basel III and associated reforms in the UK. The study claims that the UK banks have moved much more quickly than the resulting Basel III framework envisages. The estimated economic cost of reforms over a 20 year timeframe ranges between £600 billion and £1.5 trillion (using a multi-equation structural model with separate credit variables). This translates to roughly between 24 % and 104 % of the 2010 GDP. Comparing these economic costs to the simulated benefit of having the risk of a crisis occurring every 20 years, where the cost of a crisis represents 30 % of GDP, gives an indicative economic benefit for the reforms of £200 billion in present value terms.

Other private firms, such as **McKinsey and JP Morgan**, estimate the impact only on bank fundamentals and credit volume and pricing. They base macroeconomic impacts on projections derived from accounting identities and past bank data. The **McKinsey and JP Morgan** primarily look at the impact on the banking sector return-on-equity (RoE). They foresee a sharp decline, from 15 % to 9.7 % by 2012 (McKinsey) or from 13.3 % to 5.4 % in 2011 (JP Morgan), if the banking sector fully internalises the costs of the reform. The studies claim that at these reduced rates of profitability the banking sector would not be able to attract new capital. They assert this is primarily due to higher capital and liquidity requirements and the business model changes being mandated for the derivatives business.

KPMG (2013a, 2103b) has conducted studies on the impact of the new regulation on the banking sector for Belgium and Netherland for the time period 2013 to 2016. These quantitative assessments derive from accounting identities and concentrate on private costs. They look at the effects of regulation on banks' balance sheets and income statements for the following measures: CRD IV/Basel III, crisis management and bank resolution (incl. bail-in), deposit guarantee scheme (DGS) and the financial transaction tax (FTT). Special measures in each country, such as the financial stability contribution for the Belgium banks, are also included. In the baseline scenario, in which banks do not take any additional measures to comply with the new regulatory requirements, the estimates show large falls in bank profitability, and an expectation that they would still not be able to reach the regulatory targets by 2016. The studies suggest that in order to reach the targets, a mix of measures (e.g. structural net costs reduction of 10 %, re-pricing of debt and loans, extra fee business and a liquidity transformation of assets), is necessary - the costs of which would be around EUR 4.4 billion for the Belgian and EUR 3.3 billion for the Dutch banking sectors respectively. KPMG (2013c) also conducts a more qualitative study on the regulatory costs for German banks from 2010 to 2015. This study is based on a sampled survey of 20 German banks forming up to 60 % of the total assets in the German banking sector. The direct costs of regulation for the sample banks are about EUR 2.3 billion for 2010-2012 and EUR 2.9 billion for 2013-2015. These costs include not only the CRD IV package, but also EMIR and other regulatory measures.

Studies by public authorities and academics

The **Basel Committee on Banking Supervision (BCBS)** has coordinated work on estimation of the impact of Basel III among public institutions worldwide in 2009/2010. The Basel Committee established a **Macroeconomic Assessment Group (MAG)** to draft a unified impact report based on the estimation approaches taken by public entities in each country. The interim report issued in June 2010 draws on the preliminary results of several quantitative assessments prepared by central banks and regulators in 13 countries⁴⁵² plus the IMF, the ECB and the European Commission Services. The final MAG report was published in December 2010 and reflects the regulatory proposals as agreed by the Basel Committee in September 2010 by the group of Governors and Heads of Supervision (GHOS).

The **MAG study** focuses only on the transitional costs of stronger capital requirements. The estimates consider the macroeconomic response during an eight-year implementation period for a gradual increase in target capital ratios, so that both the quantity and quality expectations of new capital requirements are met. Overall, the MAG's estimates suggest a modest impact on aggregate output in the transition towards higher capital standards. Based on the unweighted median estimate across 97 simulations, the MAG estimated that increasing the target ratio of tangible common equity (TCE) to RWA, in order to meet the agreed minimum requirements and the capital conservation buffer, would result in a maximum decline in GDP of 0.22 % relative to baseline forecasts after 8 and $\frac{3}{4}$ years. Note that these results apply to any kind of increase of TCE. They do not discriminate by type of increased requirement, e.g. higher regulatory minima buffers, changes to the definitions of capital or risk-weighted assets, or voluntary decisions by banks to increase their capital buffers. The regulatory impact of increased TCE on the volume and the costs of lending in the interim MAG report is also less severe than projected by the industry (e.g. IIF). The median lending volume declines by a maximum 1.9 % for capital changes (TCE rising by one percentage point) and 3.2 % for liquidity changes (a 25 % increase in the liquid-to-total assets ratio) according to the MAG interim results. The median increase in lending spreads under the MAG scenario was 17 bps due to changes in capital requirements and 14 bps due to liquidity requirements.

A later **MAG study in 2011** estimated the impact of **higher capital requirements on global systemic important institutions (G-SIBs)** by scaling the impact of raising capital requirements on the banking system as a whole by the share of G-SIBs in domestic financial systems. The study finds that higher capital requirements on G-SIBs have only a moderate effect on economic activity. It estimates that raising the capital requirements for the top 30 potential G-SIBs by one percentage point over eight years, would lead to a reduction in GDP of 0.06 % below trend which would then be followed by a subsequent recovery, i.e. it will bounce back to the trend. The primary driver of this macroeconomic impact is an increase in lending spreads of 5bp–6bp from the build-up of capital buffers.

The work of the MAG on short-term effects of higher capital requirements was complemented by an assessment initiated by the **Basel Committee on the long-term**

⁴⁵² Australia, Brazil, Canada, France, Germany, Italy, Japan, Korea, Mexico, Netherlands, Spain, United Kingdom, United States

economic impact (LEI) of the proposed capital and liquidity reforms⁴⁵³. The LEI report, published in August 2010, concludes that the potential benefits of the bank regulatory reforms are large and outweigh the perceived costs. The regulatory benefits are expressed through a reduction in the probability of a crisis multiplied by potential losses once it occurs. The costs are expressed as steady state output losses, mainly related to higher lending rates, resulting from a higher overall cost of capital. The LEI report presents the potential costs/benefits as a median of estimations from thirteen different studies. Key assumptions are within this report are: a full pass-through of capital and funding costs to loan rates; no reduction in operating expenses; no increase in non-interest sources of income; no credit rationing; no changes in the cost of capital and debt arising from higher capital and liquidity ratios; a possible reduction in the liquidity requirements arising from compliance with the capital requirements; a 15 percent return-on-equity (ROE) that firms need to meet all the time; and a 100 bps yield difference between illiquid and liquid assets and long and short liabilities.

The report treats the macroeconomic costs of financial crises as either temporary, in which case the economy returns to its growth path, or permanent, where the economy eventually resumes its pre-crisis growth rate but remains on a lower growth path compared to a no crisis situation. The potential losses associated with banking crises range between 19 % (when only temporary effects are assumed) and 158 % (when large permanent effects are assumed) of the pre-crisis GDP levels. Assuming moderate permanent effect of a financial crisis, the potential costs would sum up to around 63 % of the pre-crisis GDP.

The probability of a financial crisis is derived through two different approaches: (1) reduced-form econometric models based on historical data; and (2) structural (credit risk type) models based on portfolio theory. The second approach resembles the methodology used in the Commission's SYMBOL estimations (see Annex 4). Based on these two approaches and assuming moderate permanent effects of a crisis, then the expected annual benefits of increasing only capital requirements by two percentage points from 7 % to 9 % of RWA would be around 1.62 % of the pre-crisis GDP. When in addition the NSFR is fully met, the annual expected benefits can add up to 1.82 % of the pre-crisis GDP.

The estimation of macroeconomic costs is normally based on various DSGE (Dynamic Stochastic General Equilibrium) type models, which is similar to the QUEST model used to estimate the costs for this report (see Annex 5). It is estimated that increasing capital requirements from 7 % to 9 % of RWA would reduce the long-run steady-state level of GDP by 0.18 % annually (and by 0.26 % when the NSFR is also met).⁴⁵⁴ While these numbers represent a median of various different studies from different countries, the numbers for the Euro Area are similar. The net-benefits for the Euro Area sum up to 1.56 % of the pre-crisis GDP. More generally, the LEI

⁴⁵³ See "An assessment of the long-term economic impact of stronger capital and liquidity requirements", BCBS, August 2010. The report uses bank data that are not restricted to EU Member States.

⁴⁵⁴ See BCBS (2010), "An assessment of the long-term economic impact of stronger capital and liquidity requirements", BIS. For the Euro area this numbers are slightly higher (see Table 7, LEI report). No changes in RWA is assumed.

reports positive net benefits for a broad range of minimum regulatory capital ratios imposed, even in scenarios when the financial crisis has only temporary effects.

The **European Parliament** published an impact assessment on the different measures within the CRD IV package in June 2011. This assessment evaluates the potential effects of the new capital requirements on the cost of capital and thereby on interest rates through three scenarios: (1) fixed return on equity and bank debt interest rates, (2) complete/incomplete pass-through of increased bank financing costs to bank customers, (3) Modigliani-Miller (MM) perspective on bank financing, assuming that bank financing costs does not change (100 % MM). In the first scenario bank funding rates are assumed to be constant due to the gradual implementation of reforms. The weighted average cost of capital (WACC) is calculated based on the changes in the shares of equity and debt in bank funding. A one percentage point increase in the capital requirements and the liquidity requirements will increase the WACC by 11.5 basis points. In the second scenario the report does not provide a conclusive finding on whether bank cost of funding will be fully transferred to customers. The increase in WACC will lead to a different response in the costs of credit depending on the credit demand elasticities. In the third scenario the study concludes that the WACC increase will be modest. The report by the European Parliament estimates the costs of CRD IV measures on economic output and growth. It finds a one percentage point increase in the capital requirement and the liquidity requirement will lead to a decrease in the GDP growth rate of 0.33 percentage points in the short run. This is breaks down into a decline in the GDP growth rate of 0.18 percentage points due to the increase in the capital requirement and 0.15 percentage points due to the increase in the liquidity requirements⁴⁵⁵.

The **Organization for Economic Cooperation and Development (OECD)** provided estimates of the macroeconomic impact of the new Tier 1 and common equity standards in early 2011. OECD uses a simple banking model, where the transmission mechanism is the lending channel. This model assumes the increased costs of funding are directly passed through as an increase in the price (interest rates) of loans. Adjustments on operational costs are not considered. The bank discretionary buffer, which in practice a bank might decide to reduce in a new environment of higher capital requirements, is also kept constant. These assumptions tend to overstate the costs. To meet the capital requirements by 2019, the estimations show that the banks' lending spreads would increase by 54bp for the Euro area and about 50bp for the advanced economies (OECD 2011). The increase in lending rates would translate in 1.14 % decrease in GDP level for the Euro area and 0.73 % for the advanced economies after five years (OECD 2011).

In May 2012, the **UK Financial Services Authority (FSA)** published an empirical study on the impact of changes in prudential standards on economic activity. The total cost of the policy package was estimated at £4.9 billion or 0.38 % of yearly GDP and includes measures related to the FSA's capital requirement regime, CRD III, Basel III minimum requirements, capital conservation and countercyclical buffer, systemic institutions surcharge and the new liquidity coverage ratio. The key finding of this study is that short-run reductions in GDP are more than offset in the longer term as

⁴⁵⁵ The effects of more stringent liquidity requirements on output are calculated to be 25 % increase in the ratio of liquid asset to total asset. it is however, not clear how the exact calibration on liquidity requirements is applied.

crises become rarer. This is in addition to the increase in financial stability related benefits to public welfare. The study finds the overall net impact on GDP to be positive, with a net benefit estimated to be £11.9 billion annually (or ranging between £4- 66 billion per year within a 90 % confidence interval).

In September 2012, the **International Monetary Fund (IMF)** published a working paper "Assessing the Cost of Financial Regulation" which assessed the costs of financial regulation in terms of an increased credit spread. The relatively low economic costs found in this study strongly suggest that the benefits will outweigh the costs of regulatory reforms in the long-term.

The IMF cautions the approach taken in some other studies (e.g. IIF) that assume all increases in safety margins are due to regulatory changes, which may exaggerate the total cost of reforms. The IMF uses a relatively simple model to estimate the increase in credit spreads required to accommodate the various reforms (capital and liquidity requirements, derivatives reforms). IMF assumes that credit providers need to charge for the combination of the cost of allocated capital, the cost of other funding, credit losses, administrative costs, and other miscellaneous factors. Cost estimates are provided for capital and liquidity requirements, derivative reforms, and the effects of higher taxes and fees.

The cumulative impact estimates break down as follows: a 19bp increase in cost of capital; 4bp increase in LCR; 10bp increase in NSFR; 6bp increase due to taxes; and 1bp due to derivative reforms⁴⁵⁶; all of which will be offset by a 9bp decrease in return on equity (ROE) and 2bp spread adjustment for overlaps. The total gross effect on the credit spread is an increase of 29bp. When other actions are taken into account, for example, expense cuts of 5 % and other aggregate adjustments for Europe, the credit spread additionally decreases by 8bp and 5bp respectively. Taking these together, the IMF estimates a total net increase in the credit spread of 17bp.

Sensitivity analysis performed on the cost estimates indicates that reasonable changes in the assumptions would not alter the conclusions dramatically. The results are broadly in line with previous studies, including the official BIS assessment of Base III (BCBS (2010), MAG (2010) and the OECD analysis by Slovik and Cournéde (2010).

In its approach, the IMF extends the methodologies of the public authority studies which lead to substantially lower net economic costs. The increase in the credit spreads are roughly a third to a half of those found in the BIS and OECD studies. The major difference stems from the fact that the IMF assumes greater impact from market forces on the safety margins, and as a result less regulatory effect. Industry actions through the end of 2010 suggest that these market reactions would have occurred even if no regulatory changes were contemplated. Another major difference from the previous public authority studies relates to the effect on credit prices and availability. However, the IMF recognises some limitations to its own analysis,

⁴⁵⁶ Derivatives reform will have different effects on banks depending on the size of the bank, the profitability of the business, and the structure of the derivative operations within the bank. Non-financial firms should benefit on the whole. Standardisation of trading should decrease the transaction costs. Securitization requirements, currently at 5 % of the total amount, may change. In addition, taxes and fees are estimated at 5.9 % and 8.8 % related to financial stability contribution and deposit insurance fee changes, respectively.

including that: transition costs were not examined; a number of regulatory reforms were not modelled; subjective judgement was used in developing some estimates; the overall modelling approach is relatively simplistic; and that the regulatory implementation is assumed to be efficient and sensible.

In its consultation paper from August 2013 "Strengthening capital standards: implementing CRD IV", the **Bank of England (BoE)** estimated the impact of higher capital requirements coming from the CRD IV package for the period 2010 to 2021. The sample used for estimations includes 10 UK firms representing 64 % and 70 % of the UK banking sector in terms of total assets and lending activity. The BoE clearly states that the estimated numbers should only be indicative, as it is not possible to disaggregate the benefits of the CRD IV package in isolation from other measures taken in response to the crisis that affect deposit-takers' capital ratios. However, the measured benefits of actions taken since the crisis to raise capital ratios are estimated to be in excess of the assessed costs. Therefore, the BoE considers the CRD IV package to be net beneficial to the UK economy. Macroeconomic costs (using the NiGEM model) of higher capital requirements are estimated to be around £ 4.5 billion/year, while the benefits resulting from reducing the probability of a crisis are about £ 15.5/year. Note that these estimates underlie significant model and data uncertainty, which is demonstrated by their variability for different confidence intervals (e.g. for the 95 % confidence interval the net-benefits lie between a range of £ -2 billion and £23 billion / year).

For the UK economy, there have been additional studies on the impact of higher capital and liquidity requirements. **Barrell et al. (2009)** estimates using the NiGEM model that one percentage point rise in the target level of the capital adequacy ratio and in the liquidity ratio is found to reduce equilibrium output by around 0.08 per cent in the UK. Barrell et al. (2009) also provide a cost-benefit analysis of increased capital and liquidity standards. A three percentage point increase in the capital and liquidity ratios will produce long term net benefits that are worth 7 % of 2009 UK GDP.

In a working paper published by the Bank of England, **Miles et al. (2011)** link the capital asset pricing model (CAPM) and the MM theorem by showing that in the absence of systemic risk on bank debt the risk premium on bank equity should decline linearly with leverage. The authors find that the MM offset is about 45 % for UK banks. Miles et al. use a constant elasticity of substitution production function to assess the impact of higher capital requirements. If the UK banks are required to halve their leverage this translates into a long run decline in GDP of 0.15 %, or a fall of the present value of all future output by about 6 % of GDP.

References:

- Bank of England (2013): "Strengthening capital standards: implementing CRD IV", August 2013, CP5/13.
- Basel Committee on Banking Supervision, (BCBS – LEI Group, 2010). "An assessment of the long-term economic impact of the stronger capital and liquidity requirements", August 2010.
- _____, BCBS – MAG Group, (2010a). "Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements", December 2010.
- _____, BCBS - Basel III, (December 2010b). "Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements", December 2010.
- _____, BCBS – MAG Group, (2011). "Assessing the macroeconomic impact of higher loss absorbency for global systemically important banks", October 2011.
- Barrell Ray, E. Philip Davis, Tatiana Fic, Dawn Holland, Simon Kirby, Iana Liadze (2009). "Optimal regulation of bank capital and liquidity: how to calibrate new international standards". FSA Occasional Paper Series, No. 38.
- European Parliament, (2011). "CRD IV – Impact Assessment of the Different Measures within the Capital Requirements Directive IV", June 2011.
- _____, (2011). "Assessment of the Cumulative Impact of Various Regulatory Initiatives on the European Banking Sector", August 2011.
- Financial Stability Board (2013): "A Narrative Progress Report on Financial Reform", Report of the Financial Stability Board to G20 Leaders, August 2013.
- Financial Supervisory Authority (2012): Measuring the impact of prudential policy on the macroeconomy: A practical application to Basel III and other responses to the financial crisis, Occasional Paper Series 42, May 2012.
- International Monetary Fund (2010). "Impact of Regulatory Reforms on Large and Complex Financial Institutions", November 2010, IMF Staff Position Note.
- _____, (2012). "The Cumulative Impact on the Global Economy of Changes in the Financial Regulatory Framework". Assessing the cost of financial regulation", September 2012, IMF Working Paper
- Institute of International Finance (2010). "Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework".
- _____, (2011a). "The Cumulative Impact on the Global Economy of Changes in the Financial Regulatory Framework".
- J.P. Morgan (2010). "Global Banks – Too Big to Fail?" February 2010
- _____, (2010). "European Bank Bail-In Survey", October 2010
- KPMG (2012): "The cumulative impact of regulation. An impact analysis of accumulation of regulations on the Dutch banking sector", September 2012.
- KPMG (2013): "The cumulative impact of regulation. An impact analysis of the accumulation of regulations on the Belgian banking sector", June 2013.
- Miles D., Jing Yang and Gilberto Marcheggiano (2011). "Optimal bank capital". Bank of England Discussion Paper n. 31.

McKinsey&Company (2010). "Basel III and European Banking: Its impact, how banks might respond, and the challenges of implementation". November 2010

ANNEX 2: SUMMARY OF PROPOSED AND ADOPTED LEGISLATIONS

The following lists the main measures of the financial reform agenda, categorised into three groups:

- Response to the financial crisis—the measures that constitute the direct response to the financial crisis, as also agreed at international level as part of the G20 commitments;
- Banking Union—the measures to improve the operation of the economic and monetary union in the euro area by creating a Banking Union; and
- Other measures—the wider, additional measures taken to establish a stable, responsible and efficient financial sector that serves the real economy and contributes to economic growth.

Response to financial crisis

<i>Date of COM proposal</i>	<i>Short title</i>	<i>Status</i>	<i>Link to website</i>
Apr 2009	Hedge Funds & Private Equity (“AIFMD”)	Completed	http://ec.europa.eu/internal_market/investment/alternative_investments/index_en.htm
Jul 2009	Remuneration & prudential requirements for banks (“CRD III”)	Completed	http://ec.europa.eu/internal_market/bank/regcapital/index_en.htm
Sep 2010	Derivatives (“EMIR”)	Completed	http://ec.europa.eu/internal_market/financial-markets/derivatives/index_en.htm
Jul 2010	Deposit Guarantee Schemes	Political agreement reached; pending final vote	http://ec.europa.eu/internal_market/bank/guarantee/index_en.htm
Nov 2008 June 2010 Nov 2011	Credit Rating Agencies	Completed	http://ec.europa.eu/internal_market/rating-agencies/index_en.htm
Jul 2011	Single Rule Book of prudential requirements for banks: capital, liquidity & leverage + stricter rules on remuneration and improved tax transparency (“CRD IV package”)	Completed	http://ec.europa.eu/internal_market/bank/regcapital/index_en.htm
Oct 2011	Enhanced framework for securities (“MiFID II”)	Political agreement reached; pending	http://ec.europa.eu/internal_market/securities/isd/mifid/index_en.htm

		final formal adoption	
Oct 2011	Enhanced framework to prevent market abuse ("MAD/R")	Political agreement reached; pending final formal adoption	http://ec.europa.eu/internal_market/securities/abuse/index_en.htm
Jun 2012	Prevention, management & resolution of bank crises ("BRRD")	Political agreement reached; pending final vote	http://ec.europa.eu/internal_market/bank/crisis_management/index_en.htm#maincontentSec4
Sep 2013	Shadow banking, including Money Market Funds	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/finances/shadow-banking/index_en.htm
2014	Prevention, management & resolution of financial institutions other than banks	Proposal to be presented by COM	

Banking Union

<i>Date of COM proposal</i>	<i>Short title</i>	<i>Status</i>	<i>Link to website</i>
Sep 2012	Single Supervisory Mechanism	Completed	http://ec.europa.eu/internal_market/finances/banking-union/index_en.htm
Jul 2013	Single Resolution Mechanism	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/finances/banking-union/index_en.htm

Other measures to enhance a stable, responsible and efficient financial sector

<i>Date of COM proposal</i>	<i>Short title</i>	<i>Status</i>	
July 2007	Risk-based prudential and solvency rules for insurers ("Solvency II")	Completed	http://ec.europa.eu/internal_market/insurance/solvency/latest/archive_en.htm
Sep 2009	Establishment of the European Supervisory Authorities (for banking, capital markets, insurance and pensions) & the	Completed	http://ec.europa.eu/internal_market/finances/committees/index_en.htm

	European Systemic Risk Board regulations		
Sep 2009	Proposal for a review of the Prospectus Directive	Completed	http://ec.europa.eu/internal_market/securities/prospectus/index_en.htm
July 2010	Investor Compensation Schemes	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/securities/isd/investor/index_en.htm
Aug 2010	Strengthened supervision of financial conglomerates (FICOD I)	Completed	http://ec.europa.eu/internal_market/financial-conglomerates/supervision/index_en.htm#maincontentSec2
Sep 2010	Short-Selling & Credit Default Swaps	Completed	http://ec.europa.eu/internal_market/securities/short_selling/index_en.htm
Dec 2010	Creation of the Single Euro Payments Area ("SEPA")	Completed	http://ec.europa.eu/internal_market/payments/sepa/index_en.htm
Jan 2011	New European supervisory framework for insurers ("Omnibus II")	Political agreement reached; pending final vote	http://ec.europa.eu/internal_market/insurance/solvency/latest/index_en.htm
Feb 2011	Interconnection of business registers facilitating cross-border access to information about EU companies	Completed	http://ec.europa.eu/internal_market/company/business_registers/index_en.htm
Mar 2011	Responsible lending (mortgage credit directive, MCD)	Completed	http://ec.europa.eu/internal_market/financial-services-retail/credit/mortgage/index_en.htm
Oct 2011	Simplification of accounting	Completed	http://ec.europa.eu/internal_market/accounting/sme_accounting/review_directives/index_en.htm
Oct 2011	Enhanced transparency rules	Completed	http://ec.europa.eu/internal_market/accounting/non-financial_reporting/index_en.htm
Nov 2011	Enhanced framework for audit sector	Political agreement reached; approved by Parliament and endorsed in Coreper in April 2014	http://ec.europa.eu/internal_market/auditing/reform/index_en.htm

Dec 2011	Creation of European Venture Capital Funds (EuVECAs)	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/investment/venture_capital/index_en.htm
Dec2011	Creation of European Social Entrepreneurship Funds (EuSEFs)	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/investment/social_investment_funds/index_en.htm
Mar 2012	Central Securities Depositories	Political agreement reached; pending final vote	http://ec.europa.eu/internal_market/financial-markets/central_securities_depositories/index_en.htm
Jul 2012	Improved investor information for packaged retail and insurance-based investment products ("PRIIPS")	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/finserVICES-retail/investment_products/index_en.htm
Jul 2012	Strengthened rules on the sale of insurance products ("IMD II")	Political agreement reached, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/insurance/consumer/mediation/index_en.htm
Jul 2012	Safer rules for retail investment funds ("UCITS")	Political agreement reached; pending final vote	http://ec.europa.eu/internal_market/investment/ucits-directive/index_en.htm
Feb 2013	Strengthened regime on anti-money laundering	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/compAny/financial-crime/index_en.htm
Apr 2013	Non-financial reporting for companies	Political agreement reached; pending final vote	http://ec.europa.eu/internal_market/accounting/non-financial_reporting/index_en.htm
May 2013	Access to basic bank account / transparency of fees / switching of bank accounts	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/finserVICES-retail/inclusion/index_en.htm
Jun 2013	Creation of European long-term investment funds (EuLTIFs)	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/investment/long-term/index_en.htm#maincontentSec2
Jul 2013	New rules for innovative payment services (cards,	Proposal presented by	http://ec.europa.eu/internal_market/payments/framework/index_en.htm#psd2

	internet & mobile payments) & the interbank fees paid on card transactions (“multilateral interchange fees”)	COM, but not yet adopted by the co-legislators	
Sep 2013	Regulation of Financial Benchmarks	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/securities/benchmarks/index_en.htm
Jan 2014	Structural reform of banks	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/bank/structural-reform/index_en.htm
Jan 2014	Securities financing transactions regulation	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/finances/shadow-banking/index_en.htm
2014	Revised rules for occupational pension funds (“IORP”)	Proposal presented by COM, but not yet adopted by the co-legislators	http://ec.europa.eu/internal_market/pensions/directive/index_en.htm
2014	“Say on Pay” & increasing long-term shareholder commitment	Proposal to be presented by COM	

ANNEX 3: OVERVIEW OF REVIEW REPORTS REQUIRED IN KEY LEGISLATIONS

The reform measures include comprehensive review clauses on the application and impact of the respective measures two to five years after entry into force or application of the legislative act. This annex lists the different reports required under the legislations. It is not exhaustive and only covers a selection of reports to be produced under some of the key legislative measures during 2014 and 2016.⁴⁵⁷ Other legislative measures also contain review clauses.

Basic legal text	Topic(s)	Deadline
CRR Regulation (EU) No 575/2013	Liquidity (Art. 8)	01/01/14
CRR Regulation (EU) No 575/2013	Cyclicality of capital requirements (Art. 502)	Bi-annually
CRA Regulation Regulation (EU) No 462/2013	Appropriateness of the development of a European creditworthiness assessment for sovereign debt (Art. 39b)	31/12/14
EMIR Regulation (EU) No 648/2012	Progress made by CCPs in developing technical solutions for the transfer by pension scheme arrangements of non-cash collateral as variation margins (Art. 85)	01/08/14
CRR Regulation (EU) No 575/2013	Covered bonds (Art. 502, 503), long-term financing (505), level of application (508), transferred credit risk (512, 513), large exposures (517), own funds (519)	31/12/14
CRR Regulation (EU) No 575/2013	Temporary stricter prudential requirements (Art. 459)	At least on an annual basis
CRD Directive 2013/36/EU	Disclosure (Art. 89), Pillar 2 (161), Central bank funding support measures (161)	31/12/14
CRR Regulation (EU) No 575/2013	Lending to SMEs (Art. 501)	Within 36 months after entry into force
CRD Directive 2013/36/EU	Benchmarking of internal models (Art. 78)	01/04/15
CRD Directive 2013/36/EU	Country by country reporting (Article 89)	31/12/14
CRD Directive 2013/36/EU	Diversity (Art.161)	31/12/16
CRA Regulation Regulation (EU) No 462/2013	Report in respect of the delegated powers in the CRA Regulation (Art. 38a)	At the latest 6 months before 1/6/15
MiFID II (political agreement, pending final formal adoption)	Assessment of the treatment of Central Banks and of the BIS (Art. 1(4g))	01/06/2015
EMIR Regulation (EU) No 648/2012	Application of EMIR (Art. 85), systemic importance of the transactions of non-financial firms in OTC derivatives contracts	18/08/15; 17/08/15
EMIR Regulation (EU) No 648/2012	Risk and cost implications of interoperability arrangement	Annual report
CRD Directive 2013/36/EU	Systemic risk (Art. 132)	31/12/15
CRR	Large exposures to shadow banking	31/12/15

⁴⁵⁷ As a result, the table does not include, for example, the various reports required in Solvency II/Omnibus 2 starting in 2017.

Regulation (EU) No 575/2013	entities (Art. 395), investment firms (498, 508), large exposures (507), long-term investments (516), own funds (518)	
SSM (Council Regulation (EU) No 1024/2013) incl. amendment to EBA regulation (Regulation (EU) No 1022/2013)	Application of SSM Regulation; impact on internal market, governance arrangements in SSM and EBA (Art. 2 of Regulation No 1022/2013, Art. 32 of the SSM Regulation)	31/12/15
CRA Regulation Regulation (EU) No 462/2013	Report on steps taken to delete references to ratings and on alternative credit risk assessment tools	31/12/15
CRA Regulation Regulation (EU) No 462/2013	Report assessing disclosure on Structured finance instruments, conflicts of interest, rotation, remuneration, competition, contractual over-reliance on ratings, financial stability (Art. 39)	01/01/16
BRRD (political agreement, pending final vote)	Preventive recapitalizations (Art. 27)	01/01/16
MiFID II (political agreement, pending final formal adoption)	Assessment of the need for temporary exclusion of exchange traded derivatives from the scope of Article 28 and 29 (Art. 43(8))	30/06/2016
CRR Regulation (EU) No 575/2013	SMEs (501)	28/06/16
CRD Directive 2013/36/EU	Remuneration (Art. 161)	30/06/16
CRD Directive 2013/36/EU	Systemic risk (Art. 89, 132), governance (161)	31/12/16
CRR Regulation (EU) No 575/2013	Covered bonds (503), own funds (504), leverage ratio (511), counterparty credit risk (514, 515), extension of Basel I floor (500)	31/12/16; 01/01/17
CRA Regulation Regulation (EU) No 462/2013	Appropriateness and feasibility of a European CRA dedicated to assessing the creditworthiness of MS sovereign debt and/or a European credit rating foundation for all other credit ratings (Art. 39b)	31/12/16

ANNEX 4: QUANTITATIVE MODELLING OF BENEFITS

This annex has been prepared by the Joint Research Centre (JRC) of the European Commission (EC). It presents some estimations of potential benefits for public finances and macroeconomic benefits of implementing the Capital Requirement Directive IV (CRD IV) package and the Bank Recovery and Resolution Directive (BRRD). The methodology used in this section is the same in the BRRD impact assessment published in June 2012.⁴⁵⁸

The benefits of the new bank regulatory framework for public finances are measured as a decrease in the potential costs for public finances in the case of bank defaults when the above reforms are in place. More precisely, the costs are the losses of distressed banks as well as recapitalisation needs (i.e. capital injections solvent banks need to replace depleted capital in order to remain viable) beyond those covered by the available tools set up in the EU legislation (CRD IV package and BRRD).⁴⁵⁹ These losses and recapitalisation needs were mostly covered by State aid during the recent financial crisis started. Results are calculated as an aggregate for the entire European Union 27 (EU 27)⁴⁶⁰.

Macroeconomic benefits of introducing the CRD IV package and the BRRD arise from the fact that individual banks' increased capital and safety net tools determine a reduction in the probability of a systemic crisis (*Systemic PD* henceforth). This implies that expected costs of a crisis are reduced compared to a situation where CRD IV and BRRD are not in place.

The CRD IV package and BRRD are two pieces of EU legislation which aim to reduce the probability of future crises and also to set up tools which call shareholders and creditors to pay costs of a crisis in case of need. More specifically, the CRD IV package⁴⁶¹ is a package that entered into force in July 2013 which transposes into EU legislation the new global standards on bank capital (the Basel III agreement). The new CRD IV rules "tackle some of the vulnerabilities shown by the banking institutions during the crisis, in particular the insufficient quantity and quality of capital, resulting in the need for unprecedented support from national authorities. More specifically, Basel III rules raise both the quality and quantity of the regulatory capital base and enhance the way Risk Weighted Assets (RWA) are computed. The BRRD Proposal, published by the EC in July 2012 and for which an agreement among the EU decision-making institutions was reached in December 2013, ensures that banks' shareholders and creditors pay their share of costs in case of need (via the bail-in tool) and it sets up pre-funded national Resolution Funds (RF) to be used in

⁴⁵⁸ See: http://ec.europa.eu/internal_market/bank/docs/crisis-management/2012_eu_framework/impact_assessment_final_en.pdf. and M. Marchesi, M. Petracco Giudici, J. Cariboni, S. Zedda and F. Campolongo "Macroeconomic cost-benefit analysis of Basel III minimum capital requirements and of introducing Deposit Guarantee Schemes and Resolution Funds", JRC Scientific and Policy Report, 2012, EUR 24603.

<http://publications.jrc.ec.europa.eu/repository/bitstream/11111111/28210/1/lbna24603enc.pdf>

⁴⁵⁹ In this exercise tools vary according to different regulatory scenarios and can include capital, bail-in, deposit guarantee schemes and resolution funds. See also Chapter 4.

⁴⁶⁰ Data refer to 2012. Thus, Croatia was still not part of the Union.

⁴⁶¹ see European Parliament and Council, Directive 2013/36/EU of the 26 June, 2013

case bail-in is not sufficient. Moreover, it sets the rules clarifying the role of deposit guarantee schemes (DGS) in the resolution process.

Results in this annex are obtained using the SYMBOL model (Systemic Model of Banking Originated Losses), a simulation engine developed by the JRC, the Directorate General Internal Market and Services, academia, and experts on banking regulation (see De Lisa et al., 2011). Using selected balance sheet data as inputs and the loss distribution function of the Basel Foundation Internal Rating Based (FIRB) approach, it simulates losses within a banking system.⁴⁶² The SYMBOL model is also employed to estimate the *Systemic PDs* of occurrence of a systemic crisis for the macroeconomic benefits analysis.

The model can be run under alternative “counterfactual” specifications for the amount of Minimum Capital Requirement (MCR) and for the resolution tools in place, enabling to assess the effects of introducing the CRD IV package and BRRD. In particular, we simulate the effects of moving from a baseline scenario reflecting the situation at the inception of the crisis to alternative ones with improved capital (CRD IV implementation) and bail-in/resolution funds (BRRD introduction).

Benefits for public finances are measured by comparing residual losses (i.e. losses not covered by provisions, capital and safety net tools) in the baseline with those obtained under the alternative "reform" scenarios. Macroeconomic benefits are measured as the avoided expected shortfalls in GDP due to the decrease of the frequency of systemic crises (i.e. reduction of the *Systemic PD*). In this report a systemic banking crisis is defined as a situation where the amount of covered deposits⁴⁶³ held in distressed banks (i.e. defaulted or undercapitalized) exceed a specified threshold, beyond which authorities would find it impossible to avoid the crisis from spreading into the real economy.

This annex is organized as follows. The next section outlines the SYMBOL model. The data and the regulatory scenarios are subsequently described. The following sections present estimated benefits for public finances and the macroeconomic benefits in terms of avoided costs. The last section concludes. Three appendices give more detail on technical aspects. Appendix 1 describes the preliminary steps for setting up the SYMBOL model. Appendix 2 gives details on the dataset employed. Appendix 3 gives technical details on the estimation of the cost of crisis employed in this annex.

SYMBOL

SYMBOL simulates the distribution of losses in excess of banks' capital within a banking system (usually a country) by aggregating individual banks' losses. Individual banks' losses are generated via Monte Carlo simulation using the Basel FIRB loss distribution function. This function is based on the Vasicek model (see Vasicek,

⁴⁶² SYMBOL is run separately for the 27 EU MS and results are then aggregated over the EU.

⁴⁶³ Covered deposits are deposits protected under Directive 94/19/EC. In rough terms, they represent customer deposits below EUR 100 td . Data on the amount of eligible and covered deposits in EU countries have been estimated by the JRC using data collected from EU DGS and complemented by ECB data (see also Cannas et al., 2013a). These data are used in the current exercise to obtain covered deposits at single bank level starting from customer deposits. The coefficients applied are presented in Appendix 2.

2002), which in broad terms extends the Merton model (see Merton, 1974) to a portfolio of borrowers.⁴⁶⁴ Simulated losses are based on an estimate of the average default probability of the portfolio of assets of any individual bank, which is derived from data on banks' MCR and Total Assets (TA).

For the purpose of the present exercise, each SYMBOL simulation ends when 100,000 runs with at least one default are obtained. The large number of runs ensures a sufficient degree of stability in the tail of the loss distributions. As a consequence, the model runs for a few millions of iterations for small countries and hundreds of thousands iterations for medium or large countries.

The model includes also a module for simulating direct contagion between banks, via the interbank lending market. In this case, additional losses due to a contagion mechanism are added on top of the losses generated via Monte Carlo simulation, potentially leading to further bank defaults (see also Step 4 below). The contagion module can be turned off or on depending on the scope of the analysis and details of the simulated scenario.

In addition to bank capital, the model can take into account the existence of a safety net for bank recovery and resolution, where bail-in, DGS, and RF intervene to cover losses exceeding bank capital before they can hit public finances.

Estimations are based on the following assumptions:

- SYMBOL approximates all risks as if they were credit risk; no other risk categories (e.g. market, liquidity or counterparty risks) are explicitly considered.
- SYMBOL implicitly assumes that the FIRB formula adequately represents (credit) risks that banks are exposed to.
- Banks in the system are correlated with the same factor (see Step 2 below);
- All events happen at the same time, i.e. there is no sequencing in the simulated events, except when contagion between banks is considered.
- The only contagion channel is the interbank lending market. SYMBOL assumes that each bank is linked with all others and uses a criterion of proportionality to distribute additional contagion losses: the amount of losses distributed to each bank is determined by the share of its creditor exposure in

⁴⁶⁴ The Basel Committee permits banks a choice between two broad methodologies for calculating their capital requirements for credit risk. One alternative, the Standardised Approach, measures credit risk in a standardised manner, supported by external credit assessments. The alternative is the Internal Rating-Based (IRB) approach which allows institutions to use their own internal rating-based measures for key drivers of credit risk as primary inputs to the capital calculation. Institutions using the Foundation IRB (FIRB) approach are allowed to determine the borrowers' probabilities of default while those using the Advanced IRB (AIRB) approach are permitted to rely on own estimates of all risk components related to their borrowers (e.g. loss given default and exposure at default). The Basel FIRB capital requirement formula specified by the Basel Committee for credit risk is the Vasicek model for credit portfolio losses, default values for all parameters except obligors' probabilities of default are provided in the regulatory framework. On the Basel FIRB approach, see Basel Committee on Banking Supervision, 2005, 2006 and 2010 rev. 2011.

the interbank market (for more details and references see also the description of SYMBOL steps below).

We continue this section detailing steps/assumptions of SYMBOL and the way safety net tools are introduced into the framework.

Steps of SYMBOL

- **STEP 1:** Estimation of the Implied Obligors' Probability of Default (IOPD) of the portfolio of each individual bank.

The model estimates the average IOPD of the portfolio of each individual bank using its total MCR⁴⁶⁵ declared in the balance sheet by numerical inversion of the Basel FIRB formula for credit risk. Individual bank data needed to estimate the IOPD are banks' RWA and TA, which can be derived from the balance sheet data. All other parameters are set to their regulatory default values. Appendix 1 gives additional technical details on the FIRB formula for the interested reader.

- **STEP 2:** Simulation of correlated losses for the banks in the system.

Given the estimated average IOPD, SYMBOL assumes that correlated losses hitting banks can be simulated via Monte Carlo using the same FIRB formula and imposing a correlation structure among banks (with a correlation set to $R=50\%$). This correlation exists either as a consequence of the banks' common exposure to the same borrower or, more generally, to a particular common influence of the business cycle⁴⁶⁶. In each simulation run j , losses for bank i are simulated as:

$$L_{ij} = LGD \cdot N \left[\sqrt{\frac{1}{1-R}} N^{-1}(IOPD_i) + \sqrt{\frac{R}{1-R}} N^{-1}(\alpha_{i,j}) \right]$$

where N is the normal distribution function, $N^{-1}(\alpha_{i,j})$ are correlated normal random shocks, and $IOPD_i$ is the average implied obligors' probability of default estimated for each bank in Step 1. LGD is the Loss Given Default, set as in Basel regulation to 45 %.

- **STEP 3:** Determination of the default event.

Given the matrix of correlated losses, SYMBOL determines which banks fail. As illustrated in Figure 1, a bank default happens when simulated obligor portfolio losses exceed the sum of the expected losses (EL) and the total actual capital (K) given by the sum of its MCR plus the bank's excess capital, if any :

$$L_{ij} \geq EL_i + K_i$$

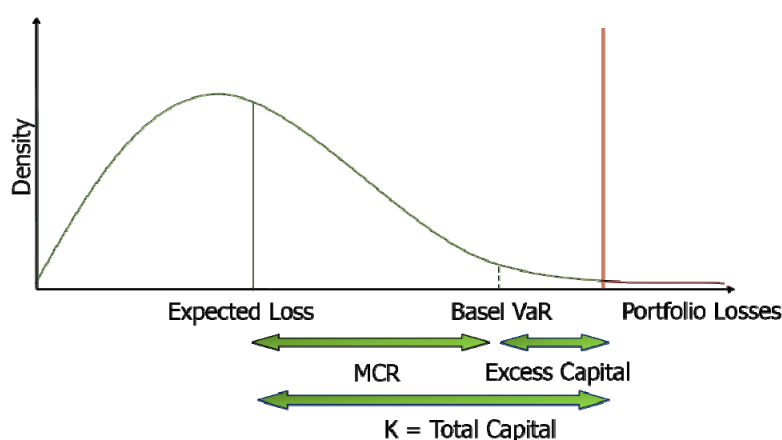
⁴⁶⁵ Banks must comply with capital requirements not only for their lending activity and credit risk component. Banks assets are in fact not only made up of loans, and there are capital requirements that derive from market risk, counterparty risk, and operational risk, etc. The main assumption currently behind SYMBOL is that all risk can be approximated as credit risk.

⁴⁶⁶ The choice of the 50 % correlation is based on Sironi and Zazzara, 2004. A discussion and a sensitivity check on this assumption can be found in De Lisa et al., 2011.

The green-shaded area in Figure 1 represents the region where losses are covered by provisions and total capital, while the red-shaded one shows when banks default under the above definition. It should be noted that the probability density function of losses for an individual bank is skewed to the right, i.e. there is a very small probability of extremely large losses and a high probability of losses that are closer to the average/expected loss. The Basel Value at Risk (VaR) corresponds to a confidence level of 0.1 %, i.e. the MCR covers losses from the obligors' portfolio with probability 99.9 %. This percentile falls in the green-shaded area as banks generally hold an excess capital buffer on top of the MCR.

Data needed for determining the default event for each bank is its level of total capital.

Figure 1: Individual bank loss probability density function



- **STEP 4 (Optional):** Contagion mechanism.

SYMBOL can include a direct contagion mechanism since the default of one bank can compromise the solvency of its creditor banks, thus triggering a domino effect in the banking system. SYMBOL focuses on the role of the interbank lending market in causing contagion. In fact, the failure of a bank is assumed to drive additional losses on the others equal to 40 % of the amounts of its total interbank debts.

As bank-to-bank interbank lending positions are not publicly available, an approximation is needed to build the whole matrix of interbank linkages. It is assumed that the more a bank is exposed in the interbank market as a whole, the more it will suffer from a default in the system. In particular, contagion losses are apportioned to all other banks proportionally to their interbank loans. A default driven by contagion occurs whenever these additional contagion losses and losses generated via Monte Carlo exceed the bank's available capital. This contagion mechanism stops when no additional bank defaults.

The magnitude of contagion effects depends on the two assumptions made: first the 40 % interbank debits that are passed on as losses to creditor banks in case of failure, and, second, the criterion of proportionality used to distribute these losses

across banks.⁴⁶⁷ A loss of 40 % of the interbank exposure is consistent with the upper bound of economic research on this issue, see e.g. James, 1991, Mistrulli, 2007 and Upper and Worms, 2004. A sensitivity test has been developed in Zedda et al., 2012 in order to test whether variations in the structure of the interbank positions systematically change the magnitude of contagion. The test shows that increasing the concentration of interbank linkages does not relevantly affect the results.

Data needed to simulate contagion is the amount of interbank debts and credits for each individual bank.

- **STEP 5:** Aggregated distribution of losses for the whole system.

Aggregate losses are obtained by summing losses in excess of capital plus potential recapitalisation needs of all distressed banks in the system (i.e. both failed and undercapitalised banks) in each simulation run.

In order to compute losses hitting public finances, we consider the amount of funds necessary to recapitalize all banks to an 8 % level of RWA. This is done because of two main reasons: first, this is the level of minimum capitalization under which a bank is considered viable under Basel rules and the minimum level to which banks were recapitalized by public interventions in the past crisis; second, even if under the newly agreed provisions that allow the European Stability Mechanism (ESM) to directly recapitalize banks which have capital ratios between 4.5 % and 8 %, ⁴⁶⁸ this funding will still be coming from public sources.

On the other hand, in order to estimate macroeconomic benefits and to be conservative in the estimation of benefits, we consider a recapitalisation to 4.5 % of the RWA of each bank. This is based on the assumptions that banks below this level, if not bailed out, would not be able to access any source of new capital and should thus be considered as equivalent to a defaulted bank in terms of systemic consequences. Similarly, banks which are above this level could possibly issue new equity on the markets and, in the worst case, resort to ESM direct recapitalization. It also has to be noted that considering only banks which are severely undercapitalised as having systemic consequences implies a more conservative estimate of the benefits because the probability of a systemic crisis is lower than in the 8 % recapitalization case.⁴⁶⁹

⁴⁶⁷ In formula, if a bank j fails, losses due to contagion on bank k equal to:

$$L_k^{\text{contagion}} = 40\% IB_j^- \frac{IB_k^+}{\sum_{h \neq j} IB_h^+}$$

where IB^- and IB^+ are respectively the interbank debts and credits of a bank. This is equivalent to a so-called *maximum entropy* estimation of the interbank matrix.

⁴⁶⁸ According to the agreement reached in June 2013, banks with a capital below 4.5 % of RWA would have to receive help from their own government before the ESM can step in via direct recapitalisation. ESM direct bank recapitalisation instrument <http://www.eurozone.europa.eu/media/436873/20130621-ESM-direct-recaps-main-features.pdf>

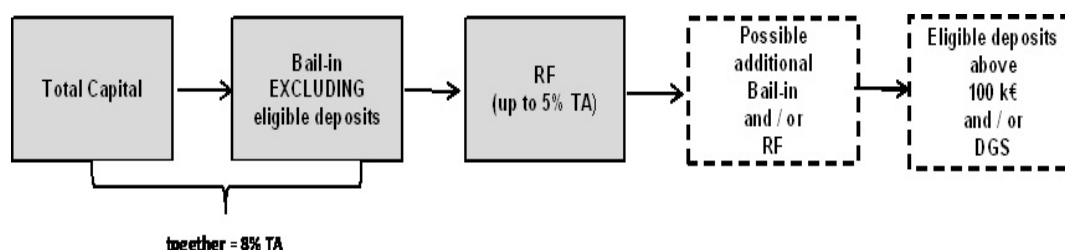
⁴⁶⁹ In particular considering a minimum capitalisation ratio equal to 8 % for determining the *Systemic PD* would imply counting towards determination of *Systemic PD* also banks which are undercapitalised by extremely small amounts.

In addition, the model estimates the distribution of covered deposits held in distressed banks (i.e. defaulted and/or needing recapitalisation). This distribution is used to measure the probability of a systemic crisis. This is defined as a crisis where the total of covered deposits held by banks in distress exceed a certain threshold, assumed to be equal to 3 % of the GDP.^{470,471}

Implementation of safety net tools

Safety net tools modelled in SYMBOL include bail-in, RF and DGS. These tools are assumed to intervene to cover simulated losses and recapitalization needs, hence protecting public finances. The tools' order of intervention, reflecting the position agreed by the European Parliament, the Council and the EC in December 2013 (see European Parliament and Council, 2013), is sketched in Figure 2. Under the bail-in tool, a minimum amount of losses, equal to 8 % of total liabilities plus own funds (here measured by total assets) needs to be covered by shareholders and unsecured creditors (first two boxes in Figure 2) before other tools can intervene. Then, only in exceptional circumstances the RF can contribute to the resolution (Article 38 of the text agreed) in order to exclude or partially exclude an eligible liability or class of eligible liabilities, absorbing losses up to 5 % of the total assets of the failing bank (third box Figure 2). The total size of RF ex-ante funds equals 1 % of the country-level amount of covered deposits (Article 93). After this, the order of intervention of the remaining tools is subject to the discretion of the resolution authority. For instance the additional bail-in tool could be used (i.e. all other unsecured creditors, if available, could be written down) and/or the residual RF could be called to cover losses above 5 % total liabilities (including own funds) after all unsecured, non-preferred liabilities, other than eligible deposits, have been written down or converted in full (Article 38(3cab)). Eligible deposits (above EUR 100 td) and/or the DGS could also intervene as the last tools (Article 98(a)).⁴⁷²

Figure 2: Order of intervention of the safety net tools.



Only the first three tools (grey boxes in Figure 2) are considered in this modelling exercise, due to the following reasons:

⁴⁷⁰ The GDP is taken from the AMECO dataset by the European Commission Directorate for Economic and Financial Affairs. 3 % of the GDP in terms of covered deposits loosely corresponds to a situation where banks holding assets equal to 20 % of GDP are in distress. This is also almost equivalent to situations where banks holding a share of 5 % of total assets in the banking system are in distress.

⁴⁷¹ Macro-economic benefits are measured using the reduction in the expected costs of a systemic crisis (i.e. the product of its costs and the reduction in its probability) due to the implementation of CRD IV and BRRD. See the section on macro-economic benefits below.

⁴⁷² The total size of DGS funds which can be used in resolution is 0.4 % of covered deposits (according to Article 99(10)) "the liability of the DGS shall not be greater than the amount equal to 50 % of the target funding level prescribed for the DGS under applicable Union law", which is 0.8 % of the aggregated covered deposits).

- There is discretionary decision given to the resolution authority to call additional RF intervention above the cap of 5 % of TA (see in Fig. 2 the dotted boxes).
- The amount of additional unsecured debt above the minimum required to comply with the 8 % threshold is not available on a bank-by-bank level and it is likely that the current level of unsecured funding will change due to the implementation of the bail-in tool.

Though not directly considered in the exercise, the additional tools in the dashed boxes of Figure 2 will in practice contribute to further reduce losses. In terms of implementation, in the BRRD scenario it is imposed that all banks hold an amount of capital and bail-in-able liabilities which is needed to trigger the RF intervention, equal to 8 % of total assets.⁴⁷³ RF is also assumed to absorb losses up to the 5 % of total assets maximum. Moreover, the model assumes that the BRRD tools are, by themselves, sufficient to ensure the orderly resolution of banks and prevent contagion in the system. In practice, to the extent that structural reform is deemed necessary to facilitate orderly resolution for the large banks, the modelled BRRD impacts partly reflect structural reform benefits.

Data

Unconsolidated balance sheet data

The main data source for SYMBOL simulations is Bankscope, a proprietary database of banks' financial statements produced by Bureau van Dijk. The dataset covers a quite large sample of banks in 27 EU countries (about 3,000 banks). The data used is as end of 2012. European Central Bank (ECB) data on aggregated banks' total assets per country (see Appendix 2) are used as the statistical population, in order to calculate the sample coverage ratio. This is defined as the share of aggregated total assets in the sample of banks compared to ECB aggregated total assets per country.

To maximize the sample size, robust imputation procedures of missing data have been applied in order to input missing data for capital variables (see Cannas et al., 2013b for more technical details).

Table 1 presents the aggregated sample amounts of selected SYMBOL input variables. Sample data for individual MS are presented in Appendix 2. It should be noted that capital levels and RWA as used in the simulations are modified with respect to current balance sheet data and are therefore different from the ones presented in Table 1. These modifications reflect an estimation of the impact of different capital and RWA definitions, as detailed in the description of the regulatory scenarios below. The last two columns compare the total assets in the sample with the total assets from the population of banks obtained from ECB data. The second to last column shows that our sample covers roughly 72 % of these total assets.

⁴⁷³ We refer to the sum of capital and bail-in-able liabilities as Loss Absorbing Capacity (LAC) The choice to define a threshold on the TA is in line with the approach agreed by EU institutions in December 2013

Table 1: Sample used for SYMBOL simulations (aggregated amount of selected variables, data as of December 2012).

	SYMBOL sample									ECB
	Banks	G1 ^(**)	Total	RWA	Customer	IB	IB	Capital	Coverage	total assets
		Banks	Assets		Deposits	Credits ^(*)	Debts ^(*)		Ratio	
Total EU-27	2,956	67	29,368	10,514	10,950	4,374	4,907	1,720	72%	40,875

Source: Bankscope, ECB and JRC estimations.

(*) Following the methodology adopted in the Impact assessment of BRRD Proposal, a correction factor for the volume of interbank debts/credits has been applied to the following MS to correct for the inclusion of some classes of debt certificate. The same correction factors as in the BRRD Impact Assessment have been applied.

(**) In this exercise G1 banks are those with Tier1 Capital larger than EUR 3 billion.

Capital and RWA adjustment

Among many other issues, the crisis has shown that the quality of banks' capital was poor and that banks' risks weights were not adequately calibrated under Basel II. Basel III rules aim to tackle these problems (see Basel Committee on Banking Supervision, 2010 rev 2011). In order to assess the benefits of such improvements for EU public finances and their macro-economic impacts, it is therefore necessary to estimate the effects of these definition changes on capitalisation levels.

To properly estimate the effects of introducing Basel III (and thus CRD IV), we make use of the results of the Basel III monitoring exercise run by the European Banking Authority (EBA) (see European Banking Authority, 2013 and Committee of European Banking Supervisors, 2010). The aim of the EBA exercises, which started in 2009 and since then have been regularly updated,⁴⁷⁴ is to assess and monitor the impact on a specific sample of EU banks of the new capital standards foreseen in the Basel III Accord.

In particular we use the average reduction in the capital ratio and average increase in the RWA from the monitoring exercise (see Table 2 differentiating between G1 and G2 banks).⁴⁷⁵ These adjustments reflect the more stringent definition of capital as well as the new RWA rules,⁴⁷⁶ as foreseen in the Basel III Accord. The table should be read as follows: if a G1 bank has capital and RWA in 2012 equal to $K(2012)$ and $RWA(2012)$, its capital and RWA under the new Basel III rules be:

$$K^{adj}(2012) = K(2012) \cdot 0.71$$

$$RWA^{adj}(2012) = RWA(2012) \cdot 1.128.$$

⁴⁷⁴ The last published update makes use of bank data as of end 2012, see European Banking Authority, 2013.

⁴⁷⁵ In the current exercise G1 banks are those whose Tier1 capital is larger than EUR 3 billion.

⁴⁷⁶ From the change in the capital ratio and the change in the RWA one can estimate the change in capital.

In other words, the amount of capital of good quality (i.e. capable of absorbing losses) under Basel II is lower than under Basel III. In the same way, RWA under Basel II were not adequately reflecting some risks faced by the banks.

We will refer to these adjustments as QIS adjustments.

Table 2: EU average capital and RWA change by banking group due to the CRD IV implementation.

	G1 banks	G2 banks
RWA 2012 - $QIS^{RWA}(2012)$	1.128	1.102
Capital 2012 - $QIS^k(2012)$	0.71	0.76

Source: EBA Basel III monitoring exercise JRC estimation

Regulatory scenarios

In order to measure the benefits of introducing the CRD IV package and the BRRD, SYMBOL is run under various scenarios, aiming to reflect the introduction of improved regulation on capital standards and of resolution tools.

The baseline scenario is meant to proxy the situation where banks comply with Basel II rules, in terms of lower quality of regulatory capital and lower level of the MCR (MCR equal to 8 % of RWA) with respect to what is foreseen in the CRD IV package (i.e. 10.5 % of RWA). The alternative scenarios introduce CRD IV rules in Scenario 1, leading to improved quality and quantity of capital, and bail-in and RF tools (in addition to the CRD IV package) in Scenario 2.

SYMBOL is run considering contagion among banks in the baseline scenarios and in Scenario 1. This aims to represent the fact that without BRRD being implemented, the regulatory setting does not assure that contagion is stopped. The aim of BRRD is, among others, to prevent contagion. Thus in Scenario 2 contagion is not allowed.

One crucial issue for determining the benefits is the treatment of actual capital above the MCR. We will refer to this additional capital on top of MCR as the capital buffer. Banks might hold these buffers because they want to hold a “cushion” of capital above regulatory minima, or they might hold it for reasons that may not be related to regulation and/or as part of a transition towards the CRD IV rules.

Intuitively, not considering the buffers may lead to an overestimation of the benefits, since this implies an assumption that, solely due to CRD IV package, all banks move from 8 % RWA to 10.5 % RWA as a result of the rules: in reality there are banks which already hold an actual capital between 8 % RWA and 10.5 % RWA, or even above the MCR as in CRD IV package. However, considering currently existing buffers in the baseline may lead to an underestimation of the benefits, since it is not certain that banks currently holding a buffer will not maintain its size above the 10.5 % RWA new minimum. Moreover, to the extent that the analysis focuses on the adjustment to the new capital levels as of 2012, looking at actual buffers may ignore some of the adjustment that has already taken place prior to 2012.

It is very difficult to univocally determine the sign of the bias, since the reaction of the banks to CRD IV is not predictable *a priori* and it is hard to discern if banks are already in a transition toward the higher capital level required by CRD IV or not. For these reasons we run each scenario twice, with and without the buffers, and we build ranges of benefits using these alternative assumptions.

The scenarios implemented are displayed in Table 3, with more detail provided below.

Table 3: Summary of the regulatory scenarios

Scenario label	CAPITAL			BRRD		Contagion
	CRDIV	Minimum Capitalisation	Additional Capital Buffers	Bail-in	RF	
	Definition	Ratio		(LAC % TA)		
Baseline no buffers	N	8%	N	N	N	Y
Baseline buffers	N	8%	Y	N	N	Y
Secenario 1, no buffers	Y	10.50%	N	N	N	Y
Secenario 1, buffers	Y	10.50%	Y	N	N	Y
Secenario 2, no buffers	Y	10.50%	N	8%	maximum 5% TA	N
Secenario 2, buffers	Y	10.50%	Y	8%	maximum 5% TA	N

- **Baseline scenario: No CRD IV, contagion.** This scenario aims to represent the situation where banks comply with Basel II rules as it was before the crisis. The regulatory capital available to each bank depends on whether buffers are considered or not:

$$\text{No buffers: } K_{\text{NoBuff}}^{\text{Base}} = 8\% \cdot RWA(2012)$$

$$\text{Buffers: } K_{\text{Buff}}^{\text{Base}} = \max[K(2012) \cdot QIS^R(2012), 8\% \cdot RWA(2012)]$$

In the first case (no buffers), it is assumed that banks hold exactly the MCR foreseen in Basel II, with the RWA measured under Basel II rules. Any capital buffer above this MCR is not considered. Data show that the large majority of the banks comply with the minimum 8 % RWA requirement when the adjustment is applied to the actual level of capital. Therefore the QIS adjustment for capital is not applied in the no buffers case. Applying the QIS correction would lead to an artificial overestimation of the benefits of CRD IV and BRRD.

In the second case (buffers), we also consider any eventual buffer above the MCR. To take into account the possibility that part of the capital is not of good quality we correct the *current* level of capital using the QIS adjustment.

JRC tested the impact of the QIS adjustment on the level of 2012 total capital: the analysis shows that the vast majority of banks (roughly 98 %) already have capital level larger than 8 % RWA after applying the QIS adjustment.

- **Scenario 1: CRD IV, contagion.** This scenario aims to measure a framework as if CRD IV rules were applied to banks balance sheet as of December 2012. All banks are assumed to hold a total capital $K^{\text{CRD IV}}$ at least equal to the minimum of 10.5 % RWA foreseen by CRD IV package. Also the new Basel

III definitions of capital and RWA are employed. Thus, the regulatory capital for each bank in Scenario 1 is computed without and with capital buffers as:

$$\text{No buffers: } K_{NoBuff}^{CRDIV} = 10.5\% \cdot RWA(2012) \cdot QIS^{RWA}(2012)$$

$$\text{Buffers: } K_{Buff}^{CRDIV} = \max\{K(2012) \cdot QIS^R(2012); 10.5\% \cdot RWA(2012) \cdot QIS^{RWA}(2012)\}$$

where $QIS^{RWA}(2012)$ is the EBA adjustment introduced in Table 2.

In the first case the RWA are increased using the QIS correction to represent the impact of the new CRD IV rules on their measurement. Any capital buffers above the 10.5 % RWA that banks might hold are not considered.

In the second case banks keep any buffer above the MCR that may remain after applying the QIS adjustment to their *current* levels of capital.

Note that the model does not capture the impact of the new buffers introduced in the CRD IV package other than the capital conservation buffer.

- **Scenario 2: CRD IV, bail-in and RF, no contagion.** This scenario aims to measure the benefits of the BRRD rules combined with the CRD IV package. This scenario considers the bail-in tools that impose a LAC equal to 8 % of total assets, and the intervention of RF up to a maximum of 5 % TA. Total RF funds are equal to 1 % of country-aggregate covered deposits. The safety net tools are assumed to block any contagion mechanism via the interbank market. As discussed above, the use of remaining tools is subject to discretionary choices of the resolution authority and thus not further considered in this specific scenario.

Moreover, when reading results, it should be kept in mind that two extreme situations are compared: a full contagion mechanism via the interbank market versus a zero-contagion one. In the first case the model could overestimate losses since all banks are potentially exposed to the failure of others and no reaction mechanism is modelled to stop this domino effect.⁴⁷⁷ In the second case it is assumed that the BRRD is capable to completely prevent direct contagion, and the model does not allow for indirect contagion dynamics.

Table 8 of Appendix 2 shows the regulatory capital and RWA for the scenarios analysed, computed as described above.

In all scenarios the average implied obligor default probability (IOPD) is estimated assuming a MCR equal to 8 % of RWA under CRD IV definition of RWA, i.e. RWA are increased using the results of the EBA monitoring exercise:

$$MCR = 8\% \cdot RWA(2012) \cdot QIS^{RWA}(2012)$$

⁴⁷⁷ The use of a proportionality assumption to spread contagion across a full network of interbank connections could actually tend to dampen contagion for low levels of aggregate losses, and to amplify it for higher levels of losses.

The level of 8 % is kept constant through the scenarios as the additional 2.5 % of capital required under Basel III represents a capital conservation buffer, while the capital requirement proper remains 8 % of RWA.⁴⁷⁸

Results

Benefits for public finances

SYMBOL is run for 27 EU MS using data as of December 2012. Results are rescaled from the sample of banks to the population of banks in each MS, using the sample ratio shown in the last column in Table 1. The outputs of SYMBOL are simulated distributions of losses in excess of capital plus recapitalization needs. These distributions are aggregated first at MS level and then at EU level.

We make use of data on State Aid to the financial sector during the recent crisis (2008-2012) to calibrate the model in order to reproduce similar events. The total amount of recapitalisation measures in the period 2008-2012 is roughly EUR 410 billion (see DG Competition state aids Scoreboard⁴⁷⁹). Moreover, banks went on the markets to raise additional capital to face their distress: the cumulated issuance of equity in the markets in the same period amounts to roughly EUR 130 billion,⁴⁸⁰ leading to a total of EUR 540 billion. A total of roughly EUR 180 billion was also provided to the financial sector via asset relief during the same period (see DG Competition state aids Scoreboard). These figures lead to an estimate of total losses and recapitalisation needs due to the crisis of up to EUR 590 billion.

As in the current financial crisis contagion was limited thanks to bail-outs and state aids, to calibrate the SYMBOL output we focus on a no CRD IV scenario, without contagion.⁴⁸¹ A loss compatible with the figure above is observed at percentile 99.95 % (about EUR 670 billion) of the distribution of losses plus 8 % recapitalisation needs.⁴⁸²

In Table 4 below we present the benefits for public finances of introducing CRD IV package and BRRD. As already discussed above, these benefits are computed on the distribution of losses plus 8 % recapitalisation needs. Benefits are measured as the relative decrease in the losses moving from the baseline scenario to the alternative ones, at percentile 99.95 %.

⁴⁷⁸ Literally, under the FIRB approach, RWA are obtained as 12.5 times the capital requirement, to be calculated using the model.

⁴⁷⁹ Box 3.4.1: State aid measures and central bank support. Some of this new equity will have been subscribed by government and would thus be already included in other measures. On the other hand, no estimate is available for the amount of retained earnings.

⁴⁸⁰ Source: DG ECFIN Bank Watch 206 21/03/2014

⁴⁸¹ In practice the capital is the same as the one of the Baseline Scenario, but contagion is not considered.

⁴⁸² While part of the issuance of new equity could be driven by regulation and not by crisis losses, and asset relief could not entirely constitute a loss, one should also take into account that banks also issued subordinated debt, retained earnings and that there exists most probably hidden losses still not accounted.

Table 4: Losses for public finances under the various scenarios and estimated benefits of introducing CRD IV and BRRD.

	Losses plus 8% recapitalisation needs (% GDP)			Benefits: relative decrease in losses from	
	Baseline (Basel II)	Scenario 1 (CRD IV)	Scenario 2 (CRD IV and BRRD)	Baseline to Scenario 1	Baseline to Scenario 2
Buffers	19.10%	14.87%	1.49%	22.15%	92.21%
No Buffers	25.55%	17.24%	1.49%	32.55%	94.17%

The results can be summarized as follows:

- Moving from baseline to Scenario 1 the decrease in potential costs for public finances is between 22 % and 33 %, depending on whether we account for buffers or not. In absolute terms, the gross benefits (without considering the costs of regulation) would be between EUR 0.5-1.1 trillion. This result should be read by taking into account the following key assumptions: (i) there is no intervention from government to stop contagion, as instead it was the case in the current crisis⁴⁸³ and (ii) no other tool than capital (CRD IV) is used to absorb losses.
- Moving from baseline to Scenario 2, where the contagion is stopped, reduction of potential costs for public finances is between 92 % and 94 % (in absolute terms roughly EUR 2.3 trillion and EUR 3 trillion respectively). Also here the result should be read taking into account that supervisors have additional tools – and the flexibility on how to use them – to absorb potential residual losses beyond those covered in Scenario 2, including (i) additional bail-in of unsecured debt that banks can hold on top of the 8 % minimum, (ii) the use of additional RF funds, on top of the 5 % cap set in the BRRD, (iii) bail-in of eligible non-covered deposits and only when other means deployed the (iv) DGS intervention. Moreover, it is assumed that the BRRD is effective in resolving banks, including the large banks for which structural reform may be necessary to achieve resolution.

Macroeconomic benefits

The estimation of macroeconomic benefits relies on a stylized methodology similar to the one also used by the Bank of England, 2010. This approach allows estimating macroeconomic benefits on the basis of two pieces of information: first, how the implementation of the CRD IV package and the BRRD may reduce the probability of a systemic crisis (*Systemic PD*) and, second, the (avoided) potential costs associated with a banking crisis, measured as the present value of deviations from baseline trend GDP.

Estimations are based on the following assumptions:

⁴⁸³ Losses in baseline range between EUR 2.5 and 3.3 trillion. We observe that in baseline contagion takes place, hence the losses cannot be compared with those observed in the recent crises when contagion was stopped by State aid.

- A systemic crisis is defined as a crisis where the total amount of covered deposits held in distressed banks (i.e. defaulted and undercapitalized up to 4.5 % RWA) exceeds a certain threshold, assumed to be equal to 3 % of GDP.
- It is assumed that the reduction in GDP and its shortfall on trend GDP are solely due to the systemic banking crisis.
- The initial cost of a systemic banking crisis is assumed to be the drop in GDP from 2008 to 2009 plus the lost trend growth of GDP. Trend GDP is the GDP that would have been observed in 2009 if economies would have grown at their potential growth rate for this period. This rate is currently estimated at an average equal to 1.96 %⁴⁸⁴ for European countries (see D'Auria et al., 2010).
- The drop in the GDP due to the crisis is assumed to be partly a temporary effect and in part a permanent loss. In particular in this analysis, 67 % of the initial GDP reduction due to the crisis is assumed to be reabsorbed in 5 years, while the remaining 33 % is assumed to be a permanent loss.⁴⁸⁵ (In other words, a systemic banking crisis is assumed to induce a permanent level shift in the growth path of GDP. See Appendix 3 for details.)
- The real discount rate used for the discount factors to calculate present values is $i=2.5\%$.

In practical terms, to obtain macro-economic benefits, the following steps have been implemented:

1. The initial cost of a banking crisis is estimated using data on the recent crisis and is assumed to be the variation in GDP from 2008 to 2009,⁴⁸⁶ plus the lost trend growth of GDP (see first and second columns in Table 5 below):

$$\text{InitialCost} = 2009 \text{ GDP change} + \text{trend on GDP.}$$

2. The total (avoided) cost of a systemic banking crisis is the net present value of the initial costs considering the permanent and temporary effects (see third column in Table 5):

$$\begin{aligned} \text{Total (avoided) cost} \\ = \text{InitialCost} \cdot [\text{TempShare} \cdot DF_N + (1 - \text{TempShare}) \cdot DF_\infty] \end{aligned}$$

where: *TempShare* is the share of the initial costs which are temporary in nature (67 %); DF_N is the n -years rent discount factor, defined as $(1+i)^{-n} \cdot \frac{1-(1+i)^{-n}}{i}$ with

⁴⁸⁴ GDP weighted average of growth rate.

⁴⁸⁵ This is also roughly in line with the split used by the Bank of England, 2010 which is, instead, 75 % and 25 %.

⁴⁸⁶ The GDP variation at 2005 market prices (2009 versus 2008) is taken from AMECO, the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

$n = 5$, which is equal to 4.76; DF_{∞} is the permanent rent discount factor, defined as $\frac{1}{1+n}$ which is equal to 41.

Table 5: GDP change from 2008 to 2009, estimated initial (avoided) cost of a systemic banking crisis and estimated total (avoided) cost of a systemic banking crisis⁴⁸⁷.

	2009 GDP change	Initial cost of a systemic banking crisis (% GDP)	Total (avoided) cost of a systemic banking crisis (% GDP)
EU GDP weighted average	-4.49%	5.90%	98.59%

- The yearly benefits are obtained as the total (avoided) cost times the reduction in the *Systemic PD* estimated in SYMBOL, when moving from the baseline scenario to the alternative regulatory scenarios (see first and second row in Table 6 below):

$$YearlyBenefits = \Delta SystemicPD \cdot Total(avoided)cost,$$

where $\Delta SystemicPD$ is the reduction *Systemic PD*.

- Total macro-benefits are finally obtained applying the permanent rent discount factor (DF_{∞}) to the yearly benefits, as the reduction in *Systemic PD* is considered to apply every year in the future, originating a permanent stream of benefits (see third row in Table 6 below):

$$Benefits = YearlyBenefits \cdot DF_{\infty}$$

Table 6: Estimation of macroeconomic benefits

			Baseline vs Scenario 1	Baseline vs Scenario 2
1	Reduction in the <i>Systemic PD</i> when moving from the baseline scenario in p.p.	Buffers	0.58 p.p.	1.18 p.p.
		No Buffers	2.99 p.p.	3.83 p.p.
2	Yearly benefits when moving from the baseline scenario to the alternative scenarios. (% GDP)	Buffers	0.51%	1.07%
		No Buffers	2.98%	3.81%
3	Net present value of benefits when moving from the baseline scenario to the alternative scenarios (% GDP).	Buffers	20.75%	44.01%
		No Buffers	122.31%	156.39%

The results can be summarized as follows:

⁴⁸⁷ The estimate of total (avoided) costs of a systemic crisis is lower than the median cumulative impact estimated by models allowing for a permanent effect reported in the Basel Committee on Banking Stability 2010 Long Term Economic Impact exercise, which is 158 % (<https://www.bis.org/publ/bcbs173.pdf> Table 1). The Bank of England also uses a cost of the crisis equal to 138 % in its 2010 paper cited above, obtained by employing the same methodology employed here to calculate the cost of crisis, based on an initial cost of 10 % of GDP and a permanent share of 25 %

- Moving from baseline to Scenario 1 the reduction in *Systemic PD* ranges from 0.6 % to 3 % depending on whether buffers that banks hold on top of the MCR are considered or not. The yearly macroeconomic benefits of introducing CRD IV are between 0.5 % and 3 % of GDP and the net present value of benefits ranges from 21 % to 122 %.
- Moving from baseline to Scenario 2 the reduction in *Systemic PD* ranges from 1 % to 4 %. The yearly macroeconomic benefits of introducing CRD IV package are between 1 % and 4 % of GDP and the net present value of benefits ranges from 44 % to 156 %.

JRC performed the estimation of macroeconomic benefits considering also a lower total avoided cost of a systemic banking crisis equal to 50 %, instead of 98.6 % used above (as presented in table 6). Results are presented in Table 7 and show that considering a lower cost of crisis, the benefits are halved but remain substantial. In particular, the most conservative benefit estimation – calculated with the lower cost of crisis assumption and counting capital buffers – gives an yearly GDP benefit of 0.59 % when moving from the baseline to scenario 2.

Table 7: Estimation of macroeconomic benefits with 50 % costs of crisis.

		Baseline vs Scenario I	Baseline vs Scenario II
Reduction in the Systemic PD when moving from the baseline scenario in p.p.	Buffers	0.58 p.p.	1.18 p.p.
	No Buffers	2.99 p.p.	3.83 p.p.
Yearly benefits when moving from the baseline scenario to the alternative scenarios. (% GDP)	Buffers	0.29%	0.59%
	No Buffers	1.50%	1.92%
Net present value of benefits when moving from the baseline scenario to the alternative scenarios (% GDP).	Buffers	11.87%	24.10%
	No Buffers	61.35%	78.61%

Conclusions

This annex presents estimates of the benefits of introducing strengthened rules for capital requirements (CRD IV package) and safety net tools (bail-in and resolution fund as foreseen in BRRD).

Two different aspects have been considered when measuring benefits: (i) the decrease in losses left uncovered by available tools, which may potentially hit public finances, and (ii) the macroeconomic benefits due to reduction in the probability of occurrence of a systemic banking crisis.

The exercise has been conducted using the SYMBOL model, a simulation engine developed by the EC JRC, the Directorate General Internal Market and Services, academics and experts on banking regulation (see De Lisa et al., 2011).

Being based on a statistical model, results are estimates and they are sensitive to model assumptions. In particular, banks are described through an average risk measure of the portfolios they hold, and their resilience to shocks is assessed via the amount of their total capital. The model simulates the situation at one fixed point in time (end of the year). Moreover, the scenarios simulates extreme situations, like a full-contagion mechanism (where all banks in a country are affected by the default of

others), or zero-contagion (where no spill-over take place). The reality most probably lies in between these two extremes.

It has been assumed that the capital requirements are not enough to completely absorb losses in a severe crisis and to avoid contagion, while the introduction of the resolution tools set up in the BRRD can effectively stop it. The model has been run separately for the EU 27 MS using 2012 data from Bankscope for a sample of roughly 3,000 EU banks.

Benefits of introducing CRD IV package and BRRD have been assessed running SYMBOL for alternative scenarios. The baseline scenario reflects the situation where the Basel II is still in place; Scenario 1 introduces CRD IV increased quality and quantity of regulatory capital; Scenario 2 implements some of the tools set up in BRRD according to the agreement reached in the trilogue in December 2013 (a minimum bail-in to trigger RF intervention and RF funds up to a maximum of 5 % TA for each distressed bank).

Results show that the introduction of CRD IV package leads to a relative reduction in potential costs for public finances between 22 % and 33 %, depending on whether buffers that banks hold on top of the MCR are considered or not. When the BRRD tools (bail-in and resolution fund) are considered, contagion is stopped and the relative reduction in losses increases up to 92 %-94 %. Extra tools could become available to reduce losses further. As they are discretionary and depend on the judgement of supervisors they have not been considered in the present exercise. These tools include (i) full bail-in of unsecured debt; (ii) the full use of resolution fund; (iii) bail-in of eligible non-covered deposits (above EUR 100 000) and eventually, in the extreme case, DGS intervention.

The yearly macroeconomic benefits of introducing the CRD IV package are about 0.5 % of GDP (Scenario 1) if buffers that banks hold on top of the MCR are fully considered (and only counting adjustment from 2012). Introducing the BRRD tools, i.e. bail-in and resolution fund, on top of the CRD IV package raise these benefits to 1.1 % of GDP (Scenario 2).

REFERENCES

- Bank of England, 2010, 'Financial Stability Report', Issue 27
<http://www.bankofengland.co.uk/publications/fsr/2010/fsr27.htm>
- Basel Committee on Banking Supervision, 2005, An Explanatory Note on the Basel II IRB Risk Weight Functions <http://www.bis.org/bcbs/irbriskweight.pdf>
- Basel Committee on Banking Supervision, 2006, International Convergence of Capital Measurement and Capital Standards <http://www.bis.org/publ/bcbs128.pdf>
- Basel Committee on Banking Supervision, 2010 rev 2011, A global regulatory framework for more resilient banks and banking systems <http://www.bis.org/publ/bcbs189.pdf>
- Cannas G., Cariboni J., Kazemi L., Marchesi M., Pagano A., 2013, Updated estimates of EU eligible and covered deposits, JRC Scientific and Technical Report XXX
- Cannas G., Cariboni J., Naltsidis M., Pagano A., Petracco Giudici M., 2013, 2012 EU 27 banking sector database and SYMBOL simulations analyses, JRC Scientific and Technical Report
- Committee of European Banking Supervisors, 2010, Results of the comprehensive quantitative impact study
- Council of the European Union, Proposal for a Directive establishing a framework for the recovery and resolution of credit institutions and investment firms (BRRD) - final compromise text, 2013, 17958/13
- De Lisa R., Zedda S., Vallascas F., Campolongo F., Marchesi M., 2011, Modelling Deposit Insurance Scheme losses in a Basel II framework, Journal of Financial Services Research, Volume: 40 Issue: 3 pp.123-141
- European Banking Authority, 2013, Basel III monitoring exercise Results based on data as of 31 December 2012, September 2013 European Commission, Directorate-General for Competition, 2011 http://ec.europa.eu/competition/state_aid/studies_reports/expenditure.html#II
- European Commission, Directorate-General for Economic and Financial Affairs, 2011, Public finances in EMU 2011, European Economy 3—2011
- European Commission, Directorate-General for Economic and Financial Affairs, 2012, Fiscal Sustainability Report, European Economy 8—2012
- European Parliament and Council, Directive 2013/36/EU of the 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC, 2013, Official Journal of the European Union, L 176/338
- European Parliament and Council, Directive establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directives 77/91/EEC and 82/891/EC, Directives 2001/24/EC, 2002/47/EC,

2004/25/EC, 2005/56/EC, 2007/36/EC and 2011/35/EC and Regulation (EU) No 1093/2010, 2012, 280 final

European Parliament and Council, Final compromise text of the proposed Bank Recovery and Resolution Directive (BRRD), 2013

James C., 1991, The Loss Realized in Bank Failures, *Journal of Finance*, 46, 1223-42

Laeven L., Valencia F., 2012, Systemic Banking Crises Database: An Update, IMF Working Papers, WP/12/163,

Laeven L., Valencia F., 2013, Systemic Banking Crises Database, *IMF Economic Review*, 61, 225–270. doi:10.1057/imfer.2013.

Merton R.C., 1974, On the pricing of corporate debt: the risk structure of interest rates, *Journal of Finance*, 29, 449-470

Mistrulli P.E., 2007, Assessing Financial Contagion in the Interbank Market: Maximum Entropy versus Observed Interbank Lending Patterns, *Bank of Italy Working Papers* n. 641

Sironi A., Zazzara C., 2004, Applying Credit Risk Models to Deposit Insurance Pricing: Empirical Evidence from the Italian Banking System, *Journal of International Banking Regulation*, 6(1)

Upper C., Worms A., 2004, Estimating Bilateral Exposures in the German Interbank Market: Is there Danger of Contagion? , *European Economic Review*, 8, 827-849

Vasicek O. A., 2002, Loan portfolio value, Risk http://www.risk.net/data/Pay_per_view/risk/technical/2002/1202_loan.pdf

Vasicek O, 1991, Limiting Loan Loss Probability Distribution KMV Corporation <http://www.kmv.com>

Vasicek O, 1987, Probability of Loss on Loan Portfolio, KMV Corporation <http://www.kmv.com>

Zedda S., Cannas G., Galliani C., De Lisa R., 2012, The role of contagion in financial crises: an uncertainty test on interbank patterns, *EUR Report 25287*, ISSN 1831-9424, ISBN 978-92-79-23849-9

Appendix 1: Estimation of the IOPDs – Technical details

For each exposure l in the portfolio of bank i , the FIRB formula derives the corresponding capital requirement needed to cover unexpected losses⁴⁸⁸ over a time horizon of one year, with a specific confidence level equal to 99.9 % (see Figure 1):

$$CR_{t,l} = \left[LGD \cdot N \left(\sqrt{\frac{1}{1-\rho}} N^{-1}(PD_l) + \sqrt{\frac{\rho}{1-\rho}} N^{-1}(0.999) \right) - PD_l \cdot LGD \right] \cdot M(PD_l)$$

where PD_l is the default probability of exposure l , ρ is the correlation among the exposures in the portfolio, LGD is the Loss Given Default⁴⁸⁹ and $M(PD_l)$ a maturity adjustment

$$\rho = 0.12 \frac{1-e^{-\rho PD}}{1-e^{-\rho}} + 0.24 \left(1 - \frac{1-e^{-\rho PD}}{1-e^{-\rho}} \right)$$

and

$$M = \frac{1.06}{1 - 1.5(0.11856 - 0.05478 \cdot \ln(PD))^2}$$

MCR of each bank is obtained summing up the capital requirements for all exposures:

$$MCR_t = \sum_l CR_{t,l} \cdot A_{t,l}$$

where $A_{t,l}$ is the amount of the exposure l .

The average IOPD of a bank's asset portfolio can be derived as

$$IOPD_t \cdot CR(IOPD_t) \cdot \sum_l A_{t,l} = MCR_t$$

where MCR_t and **Error!** are the minimum capital requirement and the total assets of the banks, publicly available in the balance sheet.

⁴⁸⁸ Banks are expected to cover their Expected Losses on an ongoing basis, e.g. by provisions and write-offs. The Unexpected Loss, on the contrary, relates to potentially large losses that occur rather seldom. According to this concept, capital would only be needed for absorbing Unexpected Losses.

⁴⁸⁹ Set in Basel regulation equal to 45 %.

Appendix 2: The SYMBOL database

Description of the sample

Table 8 presents values of some selected variables used in SYMBOL simulations aggregated per MS. The third from last column of the table shows the sample ratio, i.e. the share of total assets that the sample covers compared to the ECB data (second to column). The sample ratio is used to move from the sample-based figures to an estimate of the country's population.⁴⁹⁰

Table 8: **Selected Bankscope variables for the sample of banks used for SYMBOL simulations** (the last columns show ECB aggregate total assets by country (foreign branches excluded) and coverage ratio for SYMBOL input sample)

	SYMBOL sample									ECB total assets	Share of covered deposits (***)_
	Banks	G1 ^(*) Banks	Total Assets	RWA	Customer Deposits	IB Credits ^(*)	IB Debts ^(*)	Capital	Sample Ratio		
BE	21	2	531	166	276	108	115	28	54 %	978	43 %
BG	17	0	34	25	26	2	2	4	81 %	42	63 %
CZ	16	0	120	55	80	13	13	9	69 %	174	53 %
DK	75	3	726	243	217	57	112	51	66 %	1,099	63 %
DE	1540	6	5,336	1,632	2,365	828	976	276	66 %	8,124	50 %
EE	2	0	8	6	6	1	1	1	62 %	13	49 %
IE	5	4	319	200	143	95	108	35	41 %	779	41 %
GR	6	0	30	25	21	1	4	4	8 %	397	60 %
ES	87	5	1,686	1,085	763	137	332	125	50 %	3,388	43 %
FR	174	15	6,886	2,323	2,002	790	779	325	89 %	7,753	70 %
IT	463	9	2,698	1,026	878	94	217	249	68 %	3,954	32 %
CY	3	0	10	7	9	2	0	0	8 %	118	50 %
LV	19	0	24	16	16	5	4	3	98 %	24	34 %
LT	8	0	18	12	12	2	4	2	96 %	19	50 %
LU	53	2	506	178	178	172	168	37	87 %	582	14 %
HU	13	1	37	21	19	4	8	4	36 %	104	50 %
MT	7	0	8	4	6	1	1	1	15 %	55	25 %
NL	22	3	1,786	701	631	445	277	119	75 %	2,390	52 %
AT	178	0	290	127	130	38	40	20	30 %	971	53 %
PL	34	2	237	163	158	7	31	24	69 %	345	37 %
PT	14	2	216	138	90	28	51	18	42 %	515	50 %
RO	15	0	57	35	34	1	13	6	69 %	83	43 %

⁴⁹⁰ see http://www.ecb.europa.eu/stats/money/aggregates/bsheets/html/outstanding_amounts_2013-10.en.html and a recent work of D. Schoenmaker <http://ec.europa.eu/economyfinance/publications/economicpaper/2013/pdf/ecp496en.pdf>

SI	15	0	35	28	20	1	9	3	69 %	51	63 %
SK	9	0	41	25	30	1	2	4	74 %	55	53 %
FI	8	0	89	34	37	18	10	6	16 %	545	57 %
SE	66	3	609	184	241	141	79	36	55 %	1,110	53 %
UK	86	10	7,029	2,056	2,563	1,382	1,550	332	98 %	7,205	42 %
Total	2,956	67	29,368	10,514	10,950	4,374	4,907	1,720		40,875	

Source Bankscope, ECB, JRC elaborations.

(*) Following the methodology adopted in the Impact assessment of BRRD Proposal, a correction factor for the volume of interbank debts/credits has been applied to the following MS to correct for the inclusion of some classes of debt certificate. The applied correction factors are the same as in the BRRD impact assessment (see appendix 4, Table 1, p.183).

(***) The share of covered deposits is taken from Cannas et al. 2013a and is an estimate based on data collected from EU DGS and ECB data.

Regulatory capital and risk-weighted assets under different scenarios

Table 9 shows the regulatory capital and RWA for the scenarios analysed, computed as described above starting from 2012 balance sheet data. For each country, amounts are referred to the sample, while the Total EU has been calculated by means of the sample to population ratio (see third from last column in Table 8).

Table 9: Regulatory capital and RWA in the various scenarios, 2012 data

Country	Regulatory capital no CRD IV (bn€)		Regulatory capital CRD IV (bn€)		RWA CRD IV (bn€)
	No buffers	Buffers	No buffers	Buffers	
BE	15	20	20	20	186
BG	2	3	3	3	27
CZ	5	7	6	7	61
DK	22	37	29	37	272
DE	145	204	190	214	1811
EE	1	1	1	1	7
IE	18	25	24	25	225
GR	2	2	3	3	28
ES	98	94	128	134	1219
FR	208	237	273	273	2598
IT	92	181	120	187	1145
CY	1	0	1	1	8
LV	1	2	2	2	17
LT	1	1	1	1	14
LU	16	27	21	28	198
HU	2	3	2	3	23
MT	0	1	0	1	5
NL	63	85	83	87	788
AT	11	15	15	16	140
PL	14	18	19	20	181

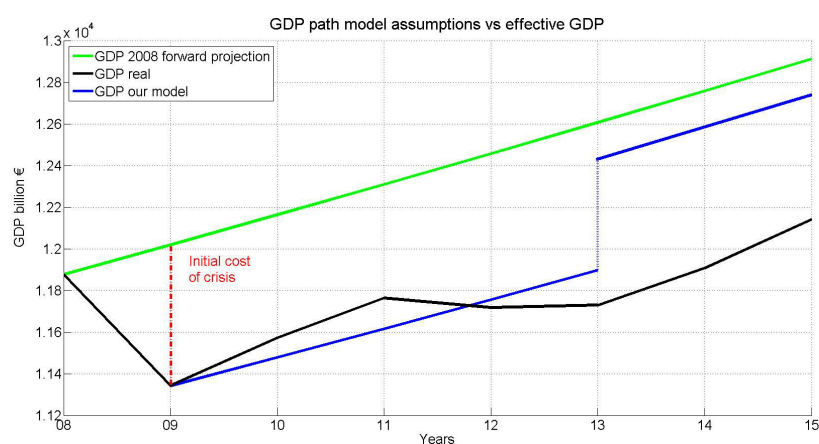
PT	12	13	16	16	154
RO	3	5	4	5	38
SI	2	2	3	3	31
SK	2	3	3	3	27
FI	3	4	4	4	38
SE	17	26	22	26	207
UK	185	237	243	244	2314
Total Sample	941	1,252	1,235	1,366	11,761
Total EU	1,386	1,822	1,820	2,023	17,330

Source Bankscope, EBA QIS exercise, JRC calculations.

Appendix 3: Technical details on the estimation of the cost of crisis

In the macro-benefit analysis, the initial cost of a systemic banking crisis is estimated following a stylized approach previously used also by the Bank of England (2010)⁴⁹¹. Using this methodology the cost is based on the initial drop in GDP at the onset of the crisis, i.e. from 2008 to 2009: part of this fall is assumed to be temporary in nature, and part of it is assumed to be a permanent fall in the level of GDP. In particular, actual GDP after the crisis is assumed to stay below pre-crisis trend GDP for 5 years, after five years from the inception of the crisis, 67 % of the initial drop in GDP is absorbed, while the remaining 33 % is a permanent level shift.⁴⁹² Taking the present value of the differences from pre-crisis trend GDP based on a 2.5 % discount rate, the cost of the crisis is estimated to be 98.64 %.⁴⁹³

Figure 3: GDP paths



Source: AMECO database, JRC elaboration, D'Auria et al. (2010)

In Figure 3, the green line is the 2008 GDP projected forward at average growth rates in the pre-crisis period. The growth rate is estimated at an average equal to 1.2 % for western European countries (for more details on the estimation procedure, see D'Auria et al. (2010)).⁴⁹⁴ The black line is the actual or forecast real GDP path as from AMECO. The blue line is the GDP as estimated in our stylized model.

Our projection for GDP path in case of crisis, seems to be in line with actual data, based on the Leven and Valencia (2013) measure of the cost of a crisis, which is based on cumulated losses for the crisis year and the three subsequent years. To calculate this indicator with actual data from the current crisis, we add up the yearly differences between the 2008 GDP projected forward at average growth rates in the pre-crisis period (green line) and the real GDP 2009-2012 (black line) to get a cost of the crisis of about 23 % under the Laeven and Valencia indicator. Instead, estimating this cost with our model, we obtain 24 %. As Laeven and Valencia estimate that the

⁴⁹¹ see BoE (2010), Box 7.

⁴⁹² In the Bank of England paper referred above, 75 % and 25 % are used, based on an initial fall of GDP of 10 %. See later for a discussion on the permanent part.

⁴⁹³ This estimate is obtained by using data on individual EU countries GDP growth rates weighted by GDP 2008 at constant prices. AMECO figures for EU-27 GDP slightly differ as they use a different weighting scheme.

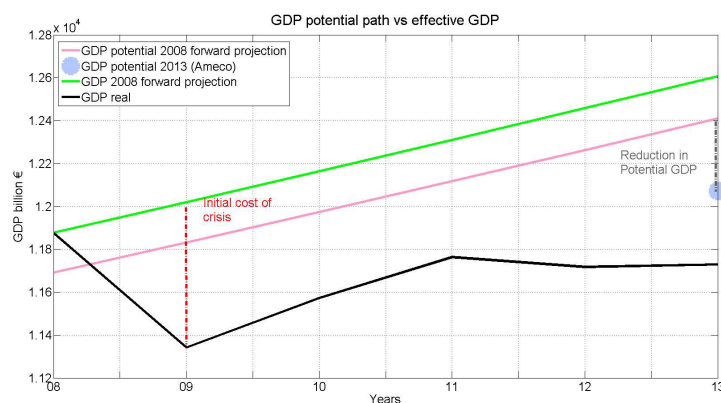
⁴⁹⁴ Actual trend growth rates for all countries from the same publication are used to obtain the figure.

typical cost of a crisis in advanced countries should be equal to 32 % for the first four years, we could also hypothesize that the current crisis is a “mild” crisis, and that a larger impact of the “typical” crisis could be used in the context of a cost-benefit analysis.

We also note that the hypothesis of assuming a permanent level shift in GDP is compatible with the analyses developed by Economic and Financial Affairs (ECFIN 2009 and ECFIN 2013). In particular in the latter publication, scenarios developed in 2009 for the GDP path after the crisis are tested and it results that a permanent loss in GDP has been realized.⁴⁹⁵

JRC tested the robustness of the assumptions regarding the share of the permanent loss on a set of alternative assumptions. Looking at the AMECO database, the difference between GDP potential 2013 and forward projection of GDP potential 2008 at pre-crisis trend growth can be considered as an estimation of the permanent loss (‘Reduction in Potential GDP’ in Figure 4). This permanent loss is around 58 % of the initial cost of crisis leading to a present value of total avoided cost of around 150 %. The overestimation of the permanent effect could be due to a decrease in real GDP from 2011 to 2012.

Figure 4: GDP potential paths



Source: AMECO database, JRC elaboration, D'Auria et al. (2010)

Finally, we also tested what would be the impacts of including or excluding the output gap 2008 from the estimate of the initial impact of the crisis. If we consider the output gap, the initial cost of crisis would be lower because in 2008 the real GDP was higher than the potential one. However, the permanent effect observed in absolute terms in 2013 would remain constant, and therefore the permanent part would be more than 33 % of the initial cost considering the output GAP, thus leading to a higher cost of crisis.

Our estimation of the total cost including the closing of the output GAP as part of the initial costs and based on a permanent effect of 33 % can therefore be seen as a lower bound. We have decided to be conservative in the estimation of crisis costs because in

⁴⁹⁵ Also, according to the same publications, the pre-crisis growth path should be considered an over-estimate of the long term trend due to the pre-crisis boom conditions. Accordingly, we use estimates developed in 2009 and 2010, which reflect a more realistic long term outlook.

this exercise they are positively correlated with the macro-benefits – i.e. the approach seeks to ensure that benefits are not overestimated.

ANNEX 5: QUANTITATIVE MODELLING OF COSTS

This annex presents QUEST results on the macroeconomic effects of bank regulation. The following measures are analysed: Increasing capital requirements, introducing a bank resolution mechanism (BRF) and a bail in scheme. The focus of these calculations is on the social cost of increased capital requirements from CRD IV as well as the major tools (Bail-in and resolution fund) in the Bank Recovery and Resolution Directive.

There is a controversy concerning the cost of bank regulation. Industry representatives (IIF 2010) have claimed that the increase in the capital requirement increases funding costs for banks because they have to use more equity to fund loans. This in turn increases capital costs for investors and slows down growth. This statement has been contested by some academic economists (e.g. Admati et al. (2011)), who make reference to the Modigliani Miller (MM) theorem (1958) which stipulates that the structure of corporate financing does not matter (if one disregards tax and subsidy considerations which may affect debt and equity differently) because a change in the composition of corporate liabilities only distributes the risk which must be borne by shareholders. Under the assumption that the change in capital requirements does not change the riskiness of bank operations, an increase in capital requirements leads to a proportional decline in the equity premium, because the same risk is distributed over a larger equity base.

This cost assessment follows a middle ground between these two extreme opposite views, a position which has been adopted by other policy institutions which have conducted macroeconomic assessments such as the Bank of International Settlements (BIS (2010a, 2010b, 2010c) or the Bank of England (Miles et al. (2013)). We present two scenarios which closely follow the assumptions made by these two institutions. In a first scenario we follow the BIS assessment and assume that stronger bank regulation does not lead to an increase in the risk premium on bank equity (i. e. leaves long run funding costs for banks unchanged) (i.e. 0 % MM offset). In a second scenario we follow the BoE assessment and allow for a 50 % MM offset. That there is a significant, but not a full MM effect seems to be the outcome of the empirical literature. The empirical evidence in Miles et al. (2013) and Kashyap et al. (2010) shows indeed that there is a systematic relationship between bank capitalisation and the equity premium. The risk premium effect is such that it offsets about 50 % of the increase of funding costs implied by a funding cost calculation where the equity premium is kept unchanged. That there is no or not a full MM offset can be justified in case there is an implicit bail out guarantee for banks. In this case, increasing bank capital effectively shifts insurance provided by the government to shareholders. Thus, the degree in which MM holds depends (inversely) on the stringency in which there is perceived to be a bail-out guarantee for banks.

This note is organised as follows. Section 1 and 2 briefly describes the model and the calibration. Section 3 presents the results for the individual measures and the cumulative impact. Section 4 shows results from a simple cost benefit analysis.

QUEST model with financial sector

We modify a closed economy version of the QUEST model,⁴⁹⁶ which has been calibrated to the EU aggregate economy by adding a banking sector with bank capital. In order to allow for a meaningful financial intermediation function of banks we disaggregate the household sector into savers and borrowers (entrepreneurs). In order to ensure a positive share of loans in the balance sheet of entrepreneurs it is assumed that they have a higher rate of time preference. In this case, solvency of entrepreneurs requires that banks restrict lending by imposing a collateral constraint. This specification closely follows Kiyotaki and Moore (1997).

Savers:

We follow van den Heuvel (2008) and assume that savers maximise an intertemporal utility function with consumption, liquidity services provided by deposits and leisure as arguments. Savers can hold wealth either in the form of government bonds, bank deposits or bank equity and receive interest income from bonds and deposits and dividends. Savers require an equity premium on bank stocks. Savers also offer labour services to entrepreneurs and receive wage income.

Entrepreneurs:

Entrepreneurs are assumed to maximise an intertemporal utility function over entrepreneurial consumption, subject to a budget constraint a capital accumulation constraint and a collateral constraint. They make pricing, labour demand, investment and financing decisions and use a Cobb Douglas production function.

Banks:

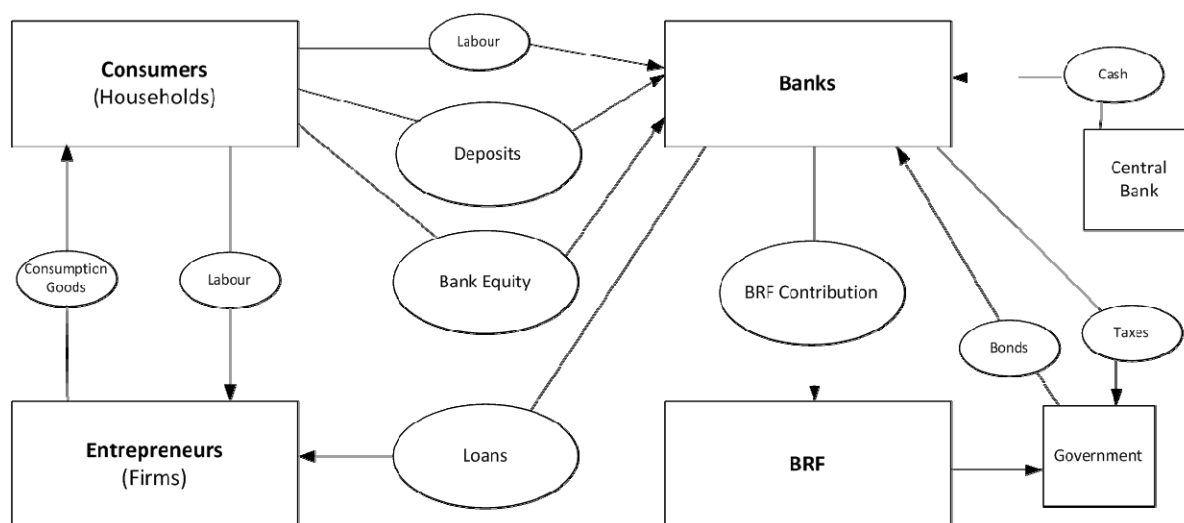
Provide loans to entrepreneurs and demand deposits from saver households. They maximise the present discounted value (PDV) of dividends or the stock market value of the bank subject to a capital and liquidity requirement constraint. The capital requirement demands from banks that the ratio of deposits to loans should not exceed a certain target ratio. Concerning liquidity requirements, banks are asked to hold liquid assets as a fixed share of loans. This imposes an opportunity cost for banks since liquid assets (government bonds and assets) yield a lower return. Banks can increase capital either by issuing new shares or via retained earnings. Both strategies yield identical results.

Monetary and fiscal policy:

The central bank follows a Taylor rule. Fiscal policy is constrained by a budget constraint. Government debt is held by saver households and banks (for liquidity purposes). Figure 1 summarises the economic linkages between the various sectors in a flow chart.

⁴⁹⁶ See Ratto et al (2008) for technical details of the model.

Figure 1: Sector linkages in QUEST III



Data and calibration

All parameters describing behaviour of the non-financial sector are taken from Ratto et al. (2009). We calibrate the model such that it can replicate the ratio of Tier1 capital to risk weighted assets. Since we only model an aggregate banking sector, we focus on the consolidated balance sheet of the EU banking sector. Based on ECB (2013), total assets amounted to EUR 35.5 trillion in 2012 (based on the ECB data). We distinguish between three asset categories, loans, government bonds and other assets, with risk weights of 60 %, 3 % and 70 % respectively. Total loans were 19.8 Trio. Euro in 2012. We assume that the share of government bond holdings in total assets in the EU is identical to the share in the EA, namely 8.5 % (or 3.0 trio Euro). Other assets amount to 12.7 Trio Euro.

As we are interested in measuring the costs of moving from Basel II to Basel III/CRD IV our starting point is the assumption that bank capital is 8 % of risk weighted assets in 2012, so that our estimate for consolidated tier1 bank capital is 1.68 Trio. Euro. The spread between loan rate and the deposit rate is set to 250BP and the rate of return on bank equity is set at 10 %. We assume that the spread between the loan rate and bank funding cost is entirely due to variable costs related to managing loans and deposits and not due to cost price margins.

Scenarios

We analyse the following regulatory measures similar to the scenarios for the benefits' estimations:

- **Scenario 1:** Increase of bank capital from 8 % to 10.5 % of risk weighted assets. (Immediate increase in 2014).

- **Scenario 2:** Bail in regulation implemented in 2016, resulting in an increase in the deposit rate of 15BP and the bank resolution fund of 77 Bio Euro phased in over 10 years and starting in 2016. In the model, this has the same effects as an increase in the capital requirement. The increase in capital requirement is calculated as follows: The BRF increases bank capital by 4.6 % (over 10 years, which is the time span to build the BRF). This increases the share of bank capital in risk weighted assets from 8 % to 8.37 %. Here it is assumed that the BRF increases bank capital and riskless bank assets (government bonds) by 77 Bio Euro. The increase of bank capital requirements from 8 to 10.87 % reduces total leverage (total assets/bank capital) of the banking system from 21.3 to 15.7.

We compare this result against the baseline (business as usual) scenario which is characterised by an unchanged capital requirement of 8 %, no bail in regulation and the absence of a bank resolution fund.

In scenario 1 and 2 we calculate the effects of increasing the capital requirement only under two alternative assumptions about the evolution of the bank equity risk premium, namely no change in the risk premium (zero MM offset) and a 50 % MM offset. In scenario 3 and 4 we calculate the joint effect of all three measures again under the two alternative assumptions about the MM offset. Concerning the MM offset we follow Miles et al (2013), they define a 50 % MM offset as a situation where the RoE is adjusted in such a way that the loan rate only increases by 50 % of the rate when the risk premium is kept unchanged. Miles et al., estimate this offset rate by using data on UK banks. In addition we assume that the bail-in also reduces the riskiness of bank capital. Given the MM offset definition, a 100 % MM offset would yield zero macroeconomic costs.

Results

In this section simulation results for scenario 1 and 2 with MM zero offset and 50 % are presented. The only transmission mechanism in the model is the credit channel. Banks shifts the higher funding costs onto the non- financial private sector in the form of higher loan rates (when MM does not fully apply). This increases capital costs for firms which partly finance their investment with loans. The cost increase related to higher capital requirements is partly offset by a reduction of the deposit rate for banks since the demand shift of banks away from deposits lowers the deposit rate. However, this effect is relatively small (a reduction of the deposit rate of about 2bp). A distinction must be made between the short and the long-term effects of the regulatory measures. An increase in capital requirement leads to a gradual reduction of output, which is linked to a slightly slower growth of capital and potential output (table 1). The same logic holds for the costs related to the resolution fund.

With bail-in, the short-term adjustment is slightly more complicated. Since the bail-in is announced to be implemented in 2016, it leads to an upward adjustment of consumption already in the first year, because households anticipate a lower savings rate (in deposits) and want to smooth consumption over time.

Capital buffers vs. no buffers

In line with the estimations of benefits, costs are estimated for two cases, with and without capital buffers, i.e. the actual capital that banks might hold above the MCR. Banks might hold these buffers because they want to hold a “cushion” of capital above regulatory minima, or they might hold it for reasons that may not be related to regulation and/or as part of a transition towards CRD IV rules.

Intuitively, not considering the buffers, i.e. the RWA increases by 2.5 percentage points (from 8 % to 10.5) for all banks, is a conservative estimation of costs. In reality, already hold capital above the regulatory minimum requirements, so they require less adjustment to the new minimum capital ratios. Not counting those existing buffers could overestimate the costs that can be attributed to regulation. However, the "no buffer" assumption may be deemed justified because using actual capital data as of 2012 may otherwise not account for any costs incurred in the transition before that date and in expectation of the higher capital requirements. Also considering the existing buffers in the baseline may lead to an underestimation of the cost, since it is not certain that banks currently holding a buffer will not maintain its size above the 10.5 % RWA new minimum. Given considerations, the costs are estimated for both cases, with and without the buffers, but more weight is given to the result without capital buffers to be conservative and not underestimate the costs.

Results for GDP

Tables 1 to 4 present estimation results for the conservative case, when no buffers are considered. On average, assuming 50 % MM offset, increasing capital requirements from 8 % to 10.5 % of RWA has a negative impact on the level of GDP (expressed as deviation from the output trend per year) by 0.13 % in the long term (table 2). Note that the costs are twice as high (0.27 % of EU GDP per year) without any MM offset (Table 1). In the second scenario that includes additional tools, i.e. bail-in and the introduction of the resolution funds, the results are as follows: the long-term deviation from the output trend equals 0.34 % EU GDP per year when 50 % MM offset is assumed. In the most conservative case, when no MM offset is assumed, the costs are 0.69 % of EU GDP per year. When capital buffers are considered in the estimations (see Appendix), the annual costs amount to 0.28 % of EU GDP when 50 % MM is assumed and to 0.55 % of GDP without the MM offset.

Results for other macroeconomic variables

Table 3 and 4 illustrate that investment is particularly sensitive to the different MM applicability assumptions. For 2020, investment is estimated to fall by 2.53 % below baseline, if the MM assumption does not hold and by 1.40 % below its baseline under the 50 % MM assumption. The long term impact on investment varies from -2.08 % with zero MM offset to -1.00 % with 50 % MM offset. This shows that any negative impact of higher capital requirements on investment is mitigated over the long run. As the cost of capital increases and firms shift to using more own resources to fund their investment projects, they reduce leverage and the rate of firm loan default decreases.

The bank credit risk goes down and the risk premium on the loan interest rate over the risk-free rate declines⁴⁹⁷.

The impact of increased capital requirements on employment is less pronounced than the impact on GDP and investment. Under the most plausible assumption (i.e. partial applicability of MM), employment falls 0.08 % below the baseline on average in the long term.

The positive effect on consumption in the short term can be explained as follows: capital costs for firms increase, which lowers investment and thus aggregate demand. This lowers the real interest rate (e. g. because inflation goes down and the central bank can lower the policy rate, because of excess capacity in the economy). The declining interest rates reduce savings of households and increase consumption. This is only a temporary effect and in the medium to long run the level of consumption declines (0.27 % in the long term when 50 % MM offset applies).

The stock of loans decreases as a result of changes in bank regulation, unless there is a 100 % MM offset in which case there is no macroeconomic impact. Disintermediation occurs because banks pass increased marginal costs on to customers through higher lending rates and stricter collateral constraints, and in this process they ration credit. The volume of loans is between 0.20 % below the baseline in 2020 and 0.34 % below the baseline in the long term in the case when only the capital requirement is modelled (with a 50 % MM offset). The volume of loans falls more as additional regulatory changes are implemented: in the long term loans are 0.86 % below the baseline when the BRRD measures are implemented.

Table 1: Increasing capital requirement from 8 % to 10.5 % (zero MM offset)

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	-0.05	-0.05	-0.06	-0.08	-0.12	-0.27
Investment	-0.68	-0.97	-1	-1.02	-0.99	-0.81
Consumption	0.09	0.17	0.16	0.13	0.07	-0.21
Volume of loans	-0.14	-0.32	-0.36	-0.34	-0.41	-0.69
Loan rate	-6.08	-3.42	17.94	10.09	9.38	10.13
Employment	-0.07	-0.05	-0.04	-0.05	-0.05	-0.03

⁴⁹⁷ The model does not explicitly include firm defaults on their loans from the banking sector. Providing for bank credit risk could produce an explicit result for this mitigation.

Table 2: Increasing capital requirement from 8 % to 10.5 (50 % MM offset)

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	-0.02	-0.02	-0.03	-0.04	-0.06	-0.13
Investment	-0.34	-0.48	-0.5	-0.51	-0.49	-0.40
Consumption	0.05	0.08	0.08	0.07	0.03	-0.11
Volume of loans	-0.07	-0.16	-0.18	-0.17	-0.2	-0.34
Loan rate	-3.01	-1.69	8.88	5	4.65	5.02
Employment	-0.04	-0.02	-0.02	-0.03	-0.02	-0.02

Table 3: Increasing capital requirement from 8 to 10.5 % (zero MM offset), resolution fund (EUR 77 billion), bail in (deposit rate up by 15bp)

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	0.01	-0.08	-0.15	-0.18	-0.28	-0.69
Investment	-0.71	-1.83	-2.51	-2.58	-2.53	-2.08
Consumption	0.2	0.33	0.39	0.38	0.21	-0.54
Volume of loans	-0.01	-0.24	-0.62	-0.85	-1	-1.75
Loan rate	-12.9	-9.36	-0.01	17.53	23.31	26.14
Employment	0.03	-0.09	-0.15	-0.12	-0.12	-0.08

Note: Resolution fund is phased in from 2016 to 2026. Bail-in starts in 2016.

Table 4: Increasing capital requirement from 8 to 10.5 % (50 % zero MM offset), resolution fund (EUR 77 billion), bail in (deposit rate up by 15bp)

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	0.04	-0.05	-0.11	-0.11	-0.17	-0.34
Investment	-0.23	-1.1	-1.68	-1.65	-1.4	-1.00
Consumption	0.11	0.19	0.25	0.24	0.1	-0.27
Volume of loans	0.07	-0.03	-0.36	-0.58	-0.59	-0.86
Loan rate	-6.33	-4.46	-8.85	12.53	15.37	12.57
Employment	0.06	-0.06	-0.13	-0.09	-0.07	-0.04

Note: Resolution fund is phased in from 2016 to 2026. Bail in starts in 2016.

Conclusion

QUEST gives a rough estimate of the macroeconomic costs of certain bank sector reforms, and the results are subject to significant modelling uncertainty. First, the transmission mechanism is based only on the lending channel. Secondly, there is a high uncertainty related to the MM offset (but zero MM offset is unlikely to be a realistic assumption). Third, these results are sensitive to the degree of substitution between capital and labour. In QUEST, a Cobb Douglas production function is used with adjustment cost for labour and capital. This technology implies a low elasticity of substitution (below one) in the short run but an elasticity of substitution equal to one in the long term. The BoE study assumes a long run elasticity of substitution which is equal to 0.5. Also note that the employment effects of the bank regulation measures are very small and contribute little to the fall in output⁴⁹⁸. This is the case because wages adjust to a decline in labour productivity, as implied by a fall in the capital stock, which stabilises employment. Moreover, as we are only interested in the effects of the regulatory measures, any changes the bank capital for other reason than those related to regulation are not considered.

Current macro models are not capable of properly incorporating effects of regulation on (excessive) risk taking of banks. Therefore, only a very limited cost benefit analysis can be provided. Nevertheless, it is instructive to compare the cost estimate obtained from QUEST with the benefits estimated via SYMBOL (as per annex 4). This is done in boxes 4.2.5 and 6.4.1, which show that the estimated benefits exceed the costs. This is also consistent with the findings in other studies (e.g. BIS (2010) and Miles (2013)).

References

Admati, A., DeMarzo, P., Hellwig, M. and Pfleiderer, P. (2010). “Fallacies, irrelevant facts, and myths in capital regulation: why bank *equity is not expensive*”. Stanford University Working Paper no. 86.

BIS (2010a). “An assessment of the long-term economic impact of stronger capital and liquidity requirements”, *Basel Committee on Banking Supervision*, Bank for International Settlements.

BIS (2010b). “Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements”, *Basel Committee on Banking Supervision*, Bank for International Settlements.

BIS (2010c). “Results of the comprehensive quantitative impact study”, *Basel Committee on Banking Supervision*, Bank for International Settlements.

Gerali, A., S. Neri, Sessa, L, F. Signoretti (2008) Credit and banking in a DSGE model. Banca d'Italia mimeo.

Institute for International Finance (2010). *Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in Banking Regulatory Framework*, Washington, DC: Institute for International Finance.

⁴⁹⁸ In the Miles et al (2013) study it is assumed that there is no effect on employment.

Kashyap, A, J Stein and S Hanson (2010): “An analysis of the impact of substantially heightened capital requirements on large financial institutions”, University of Chicago Booth School of Business and Harvard University, mimeo.

Kiyotaki, N. and J. Moore (1997) Credit Cycles, *Journal of Political Economy* 105, pp. 211-248.

Miles, D., L. Yang and G. Marcheggiano (2013), Optimal bank capital, *The Economic Journal* 123, pp. 1-37.

Modigliani, F. and Miller, M. (1958). “The cost of capital, corporation finance and the theory of investment”, *American Economic Review*, vol. 48(3), pp. 261-97.

Ratto M, W. Roeger and J. in 't Veld (2008) , QUEST III: An Estimated Open-Economy DSGE Model of the Euro Area with Fiscal and Monetary Policy, *Economic Papers No 33*.

Van den Heuvel, S.J. (2008): “The welfare cost of bank capital requirements”, *Journal of Monetary Economics*, vol 55, no 2, pp 298–320

APPENDIX

In the following estimations results for the case with capital buffers are presented.

Table 1: Increasing capital requirement from 8 % to 10.5 % (zero MM offset), considering actual capital buffers

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	-0.02	-0.02	-0.03	-0.04	-0.05	-0.12
Investment	-0.31	-0.44	-0.45	-0.46	-0.44	-0.37
Consumption	0.04	0.08	0.07	0.06	0.03	-0.10
Volume of loans	-0.06	-0.14	-0.16	-0.15	-0.18	-0.31
Loan rate	-2.73	-1.53	8.06	4.54	4.22	4.56
Employment	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01

Table 2: Increasing capital requirement from 8 % to 10.5 % (50 % MM offset), considering actual capital buffers

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	-0.01	-0.01	-0.01	-0.02	-0.03	-0.06
Investment	-0.16	-0.22	-0.23	-0.23	-0.22	-0.18
Consumption	0.02	0.04	0.04	0.03	0.02	-0.05
Volume of loans	-0.03	-0.07	-0.08	-0.08	-0.09	-0.16
Loan rate	-1.38	-0.77	4.08	2.3	2.14	2.30
Employment	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01

Table 3: Increasing capital requirement from 8 to 10.5 % (zero MM offset)
Resolution fund (77 Bio), Bail in (deposit rate up by 15bp)

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	0.04	-0.05	-0.12	-0.13	-0.22	-0.55
Investment	-0.35	-1.33	-2	-2.06	-2.02	-1.66
Consumption	0.15	0.25	0.31	0.31	0.17	-0.43
Volume of loans	0.06	-0.07	-0.43	-0.68	-0.79	-1.40
Loan rate	-9.74	-7.56	-9.45	12.29	18.45	20.85
Employment	0.07	-0.06	-0.13	-0.1	-0.1	-0.07

Table 4: Increasing capital requirement from 8 to 10.5 % (50 % zero MM offset)
Resolution fund (77 Bio), Bail in (deposit rate up by 15bp)

	2014	2015	2016	2017	2020	Long-term average 2030-2150
Impact on macro variables (deviation from baseline in bp for loan rate, in % for other variables)						
GDP	0.06	-0.03	-0.09	-0.09	-0.13	-0.28
Investment	0.01	-0.77	-1.36	-1.34	-1.16	-0.83
Consumption	0.08	0.14	0.2	0.21	0.09	-0.23
Volume of loans	0.12	0.09	-0.23	-0.47	-0.48	-0.71
Loan rate	-4.72	-3.81	-16.22	8.47	12.38	10.46
Employment	0.09	-0.04	-0.11	-0.07	-0.06	-0.03