RISKS FROM LOW INTEREST RATES – OPPORTUNITIES FROM THE CAPITAL MARKETS UNION

This is a translated version of the original German-language chapter "Risiken durch Niedrigzinsen, Chancen durch die Kapitalmarktunion", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

THE KEY DETAILS IN BRIEF

Low interest rate environment threatens financial stability

The low interest rate environment harbours **risks to financial stability**. Persistent low interest rates will undermine the business models of banks and insurance companies in the medium term, erode their capital and create incentives to take on greater risks. In spite of the delayed effect of low interest rates it should not be overlooked that the longer the low rates persist, the more risks will accumulate.

A sharp rise in interest rates after an extended period of low rates poses the greatest risk of a renewed financial crisis. This could put the solvency of large parts of the banking system at risk and bring about a rise in the cancellation rates of life insurance policies. A strong decline in asset prices would also be likely, which could be exacerbated by reduced market liquidity.

A comprehensive capital regulation of interest rate risks would be needed in the **banking system**. The prompt introduction of loan-to-value ratios for residential and commercial properties is also advisable. The protection measures already implemented in the **life insurance sector**, such as the additional interest reserve, should be complemented by macroprudential instruments. In the event of a systemic crisis, automatic resolution mechanisms could be useful to prevent bailouts at the expense of taxpayers that would not even be necessary from the viewpoint of financial stability.

Macroprudential policy alone cannot guarantee the stability of the financial system. Therefore, the relationship between **monetary and macroprudential policy** should be clarified to avoid any delay in exiting loose monetary policy. A timely exit could effectively prevent further risks from building up.

Important elements of a European Capital Markets Union

With the **European Capital Markets Union** the European Commission aims to overcome existing barriers to corporate financing and thereby boost investment and economic growth. The most important potential barriers to corporate financing are an excessive reliance on bank-based financing, unsustainable financial market integration, excessive debt levels of non-financial corporations and a low capitalisation of banks.

Given the empirical evidence, it is doubtful that a financial system which relies more on capital market financing, would contribute to higher economic growth. **Strengthening capital market financing** may nevertheless be reasonable in order to increase the diversification of companies' financing sources. However, banks will continue to play a central role in corporate financing in Europe in the future. The primary aim of economic policy should thus be to reduce frictions in corporate financing.

Stronger **integration of European capital markets** would be a desirable move as it has the potential for welfare-increasing risk-sharing. At this juncture, sustainability and loss absorption capacity of cross-border financing are of particular significance.

The **debt overhang of European companies** and the continued **low capitalisation of banks** are not least the consequence of distortions, particularly from the tax bias towards debt financing and the implicit guarantees in the banking system, which should be eliminated. Without private-sector deleveraging, the success of the European Capital Markets Union is likely to remain limited.

I. STABILITY RISKS FROM LOW INTEREST RATES

379. The **European financial system** has been in a state of continuous change since the financial crisis. For one thing, it has to adjust to the **changed regulatory and supervisory framework**, resulting from the new regulations (Basel III, Solvency II) and the new supervisory structure (in the context of the banking union in particular). This entails considerably more stringent rules, particularly relating to capital requirements, as well as new reporting obligations and regulatory procedures.

380. For another, **new risks** are emerging from the **sustained period of low interest rates**, which is not least a consequence of the European Central Bank's (ECB) extremely expansionary monetary policy. This puts pressure on the earnings of banks and insurance companies and promotes excessive risk-taking, which manifests itself in higher asset prices. The longer low interest rates prevail, the more risks are created for the financial system. A particularly threatening future scenario is a quick rise in interest rates after an extended period of low rates.

1. Consequences of low interest rates for banks and insurance companies

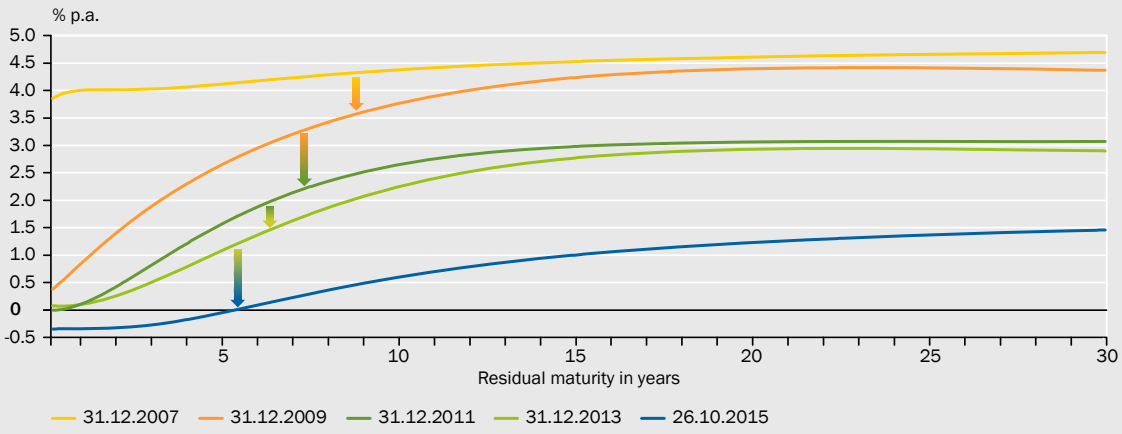
381. The ECB has been gradually lowering the key policy rate to a historically low level since 2008 in reaction to the global financial crisis. The main refinancing rate has not exceeded 1.5% since March 2009; it has stood at 0.05% and thus close to the **zero lower bound** since 10 September 2014. The monetary policy measures initially resulted in lower short-term rates and thus a steeper yield curve. However, as time went on they increasingly affected long-term rates and caused the **yield curve to flatten**. ↘ CHART 58 This flattening was further reinforced by the quantitative easing measures, despite a certain countermovement recorded in spring. ↘ ITEMS 292 F., 298

382. A sustained period of low interest rates puts pressure on the earnings of banks and insurance companies (particularly life insurance companies) and **jeopardises** their **business models** (see ↘ BOX 14 for a schematic representation of the role of banks and insurance companies in the financial system). It becomes more difficult to accumulate capital through retained earnings.

The low slope of the yield curve is problematic for **banks** in particular, as their business models are largely based on profits generated from maturity transformation. Furthermore, negative interest rates for short-term maturities can hardly be passed on to depositors. Thus an extended period of low interest rates results in the **medium term** in a **threat to banks' profitability**. Empirical studies confirm a positive correlation between the level of interest rates and banks' profitability (Alessandri and Nelson, 2015; Borio et al., 2015).

↘ CHART 58

Euro area yield curve[1]



1 – Spot rate based on AAA-rated government bonds. For further information see: https://www.ecb.europa.eu/stats/money/yc/html/index.en.html.

Source: ECB

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383. The effect of low interest rates, however, has so far barely been noticeable on bank balance sheets. A narrowing of interest margins has not been evident in Germany. ↘ CHART 59 LEFT Lower interest rates actually had a slightly positive impact on earnings, as average portfolio lending rates (largely fixed-rate loans) adjusted more slowly than average deposit interest rates. New business became initially also more attractive as a result of the steeper yield curve. In new business, however, declining margins as compared to 2008 were clearly recognisable. ↘ CHART 59 RIGHT The effects of the low interest rate environment thus appear with **considerable delay**. Busch and Memmel (2015) arrive at a similar result.

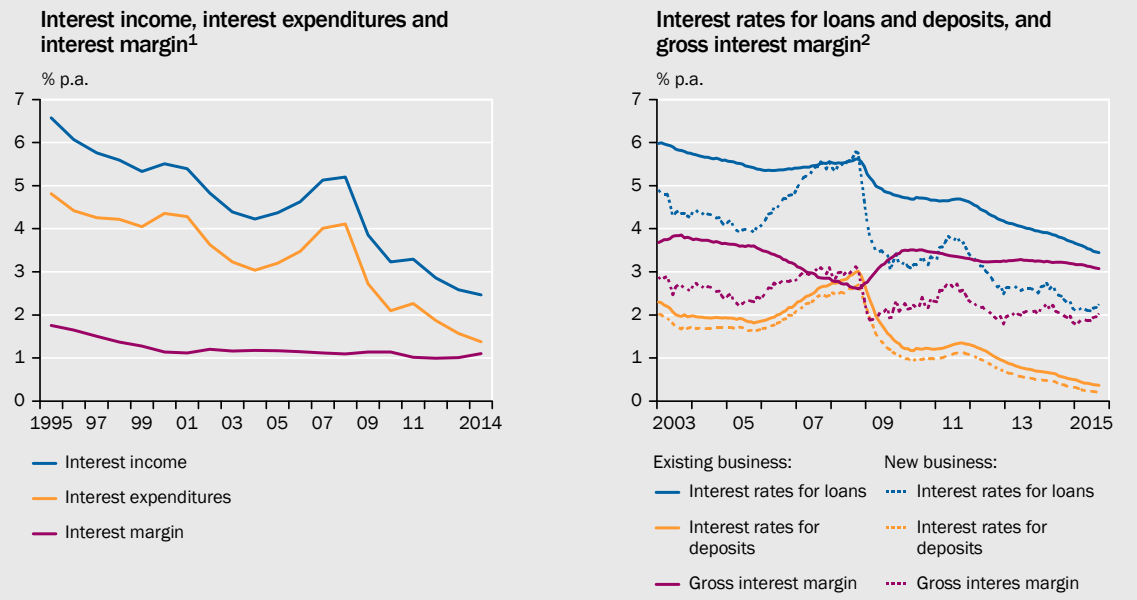
384. The extent to which individual banks have been hit by the low interest rate environment depends on the **significance of a bank's interest business**. In Germany, savings banks, *Landesbanken* and credit cooperatives, for which interest income constitutes 80%, 78% and 77% of total earnings, respectively, were harder hit. For the large private banks and central cooperative banks, this share is only 57% and 63%, respectively (Deutsche Bundesbank, 2014a).

A survey by the Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht*, BaFin) and Deutsche Bundesbank among around 1,500 small and medium-sized German banks ("less significant institutions") points to a considerable decline in profitability in an environment where interest rates remain low or drop even further (BaFin and Deutsche Bundesbank, 2015). Depending on the interest rate scenario and the assumptions made, a drop in pre-tax results of 25% to 75% is predicted from 2014 by 2019. The analysis also shows that banks can counter this fall-off in revenues only to a limited extent through balance sheet adjustments.

385. German **life insurance companies** are particularly affected by the low interest rate environment. Their business focus has traditionally been on long-term **interest guarantees** (BaFin, 2015), which will become increasingly difficult to fulfil in a low interest rate environment. The Federal Ministry of Finance fixes a maximum interest rate (*Höchstrechnungszins*), which is typically equal to the

↘ CHART 59

Interest income, interest expenditures and interest rates of German banks



1 – The interest margin is defined as the difference between interest income and interest expenditure. In % of average total assets, until 1998 in % of average business volume. In 2011, total assets rose by 10 % due to accounting changes (Bilanzrechtsmodernisierungsgesetz).
2 – Volume-weighted average interest rates for loans and deposits. The gross interest margin is defined as the difference of rates for loans and deposits.

Source: Deutsche Bundesbank

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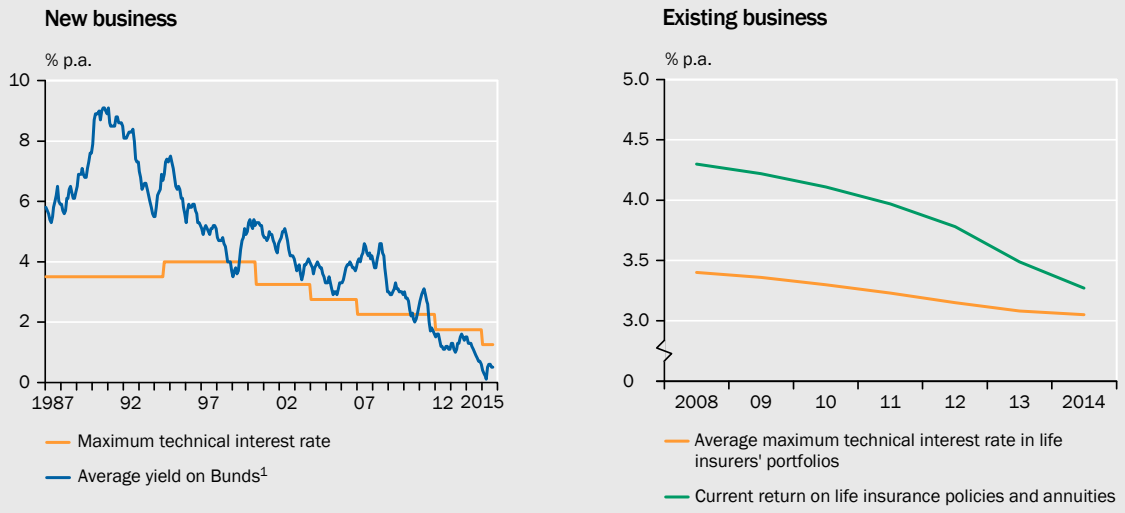
interest rate that insurers guarantee in new business. Despite the maximum technical interest rate having gradually been lowered to the current level of 1.25%, it has still been above the average return on government bonds (*Umlaufrendite*) since Q3 2011, which casts doubt on the profitability of new business. ↘ CHART 60 LEFT

The average maximum technical interest rate in overall portfolios in 2014 was 3.05%, the current return (guaranteed interest, direct credit amounts and current profit participation shares) was as high as 3.27%. ↘ CHART 60 RIGHT Both rates have declined in recent years, although far less than investment income to be earned at low risk.

386. As high-yield assets are only gradually replaced by lower-yielding ones, the period of low interest also has a **delayed effect** on German insurance companies. In fact, they realised considerable valuation gains due to their large holdings of fixed-income investments in 2012 and 2013 (Deutsche Bundesbank, 2013, 2014a). However, this effect loses importance over time, as the portfolio of high-yielding securities shrinks and additional valuation gains are unlikely in view of the already low level of interest rates.

The European Insurance and Occupational Pensions Authority (EIOPA) stress test in 2014 already revealed considerable risks at German insurance companies (EIOPA, 2014). These appeared particularly vulnerable in a scenario with an extended period of low interest rates due to a combination of high guaranteed returns and a high maturity mismatch (IMF, 2015a).

↘ CHART 60
Life insurers' key interest rates



1 – Listed German government issued bonds, monthly averages.

Sources: Assekurata, Deutsche Bundesbank

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387. The decline in banks and insurance companies' profitability in a low interest environment creates incentives for **increased risk-taking** in order to counteract shrinking profits. This is discussed under the term **risk-taking channel** in the academic literature on monetary policy (Borio and Zhu, 2012).

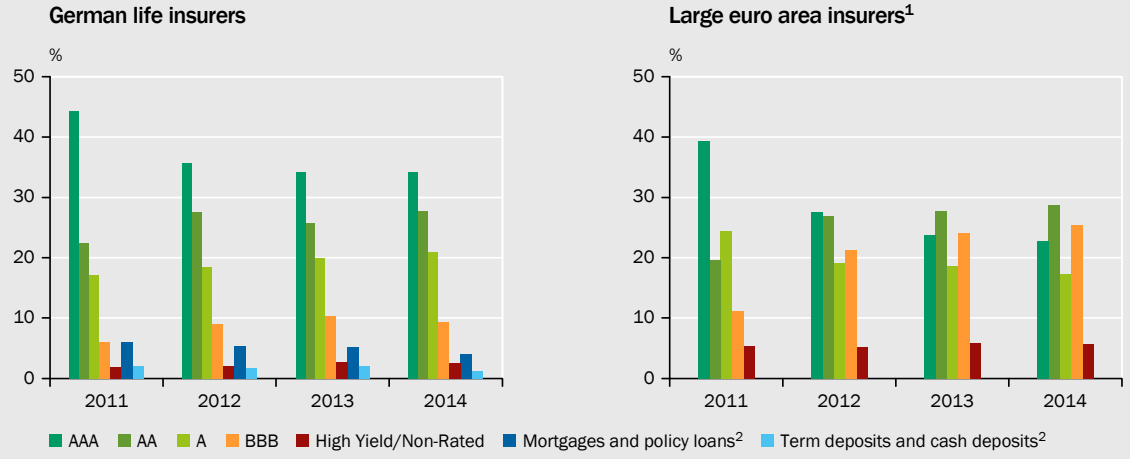
Borio and Zhu name three channels through which expansionary monetary policy can affect risk appetite: firstly, lower interest rates boost asset values, which can reduce risk perception. Secondly, rigid target rates of return on the part of investors, as found for example for life insurance policies offering guaranteed returns, can give rise to a **search-for-yield** behaviour and thus result in a higher demand for riskier projects ("Search for Yield", Rajan, 2005). Thirdly, the expectation of central bank interventions in crises (i. e., of lower rates) can increase risk appetite ("Greenspan-Put", Farhi and Tirole, 2012). Shrinking margins result in a drop in banks' charter values, which further increases the incentive to assume excessive risk (Stiglitz and Weiss, 1981; Keeley, 1990).

388. Empirical studies confirm the **existence of a risk-taking channel** for banks. Using loan-level data, Ioannidou et al. (2015), Bonfim and Soares (2014) and Jimenéz et al. (2014) provide evidence of such a channel for Bolivia, Portugal and Spain, respectively. Buch et al. (2014) further support the existence of the risk-taking channel with aggregated bank data for the USA. Altunbas et al. (2014) conclude that, for the euro area, an extended period of low interest results in increased risk-taking in the banking sector.

389. More indications of **increased risk-taking on the part of financial institutions** have emerged recently. According to the survey conducted by BaFin and Deutsche Bundesbank (2015), banks have rebalanced their portfolios of liquidity reserves toward lower ratings and higher maturities. A shift in bond portfolios toward riskier rating categories can be observed among German life

↘ CHART 61

Bond investments of insurers split by rating category
Share of total bond portfolio



1 – Data for 15 large insurers and reinsurers in the euro area. 2 – Considered for German life insurers only.

Sources: Assekurata, ECB

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insurers and major European insurance companies. ↘ CHART 61 However, it cannot be determined whether these are actively induced or the result of downgrades in the portfolio. Moreover, German life insurance companies expanded the share of long-term bonds in their portfolios in 2014 in order to reduce duration gaps (Domanski et al., 2015). This, however, increases the susceptibility to a positive interest rate shock because such long-term investments are made at relatively low interest rates with the threat of valuation losses in the future (lock-in effect).

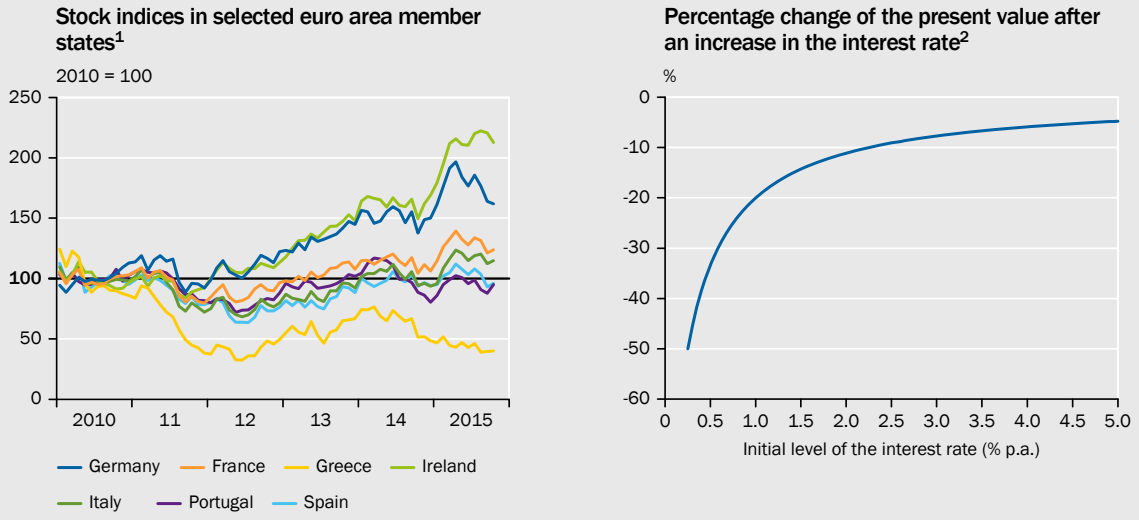
390. The ECB's monetary easing appears, due to the risk-taking channel, to have the very effect that was ultimately intended through monetary policy. ↘ ITEMS 284 FF. The longer the period of low interest persists, the more risks are created in the financial system.

391. Overall the low interest rate environment can be expected to significantly impact the earnings of banks and life insurance companies and thus undermine their business models in the medium term, even if this has hardly been evident on balance sheets thus far. The erosion of capital and the incentive to take increased risks jeopardise financial stability and make the system vulnerable to shocks, such as an interest rate hike or a decline in asset prices. At the same time, the difficulty in building up capital could dampen lending and thus counteract some of the desired effects of monetary policy.

2. Asset prices: signs of a bubble?

392. Periods of low interest rates are typically accompanied by **rising asset prices**. But this need not imply the existence of "bubbles", as the decline in interest rates fundamentally justifies a price increase since future earnings are not as heavily discounted. However, even interest-related high asset prices bear risks because interest rate changes can trigger significant market corrections. ↘ ITEM 300

↘ CHART 62
Stock indices and present value changes after an interest rate hike



1 – Level of respective leading indices. 2 – Present value of perpetual coupon bond, assumed increase of the interest rate by 25 basis points. Correction as of January 2016.

Sources: national stock exchanges

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393. Recent years have seen rather **mixed** developments in asset prices. **Equity prices have risen** in many European countries, particularly following the ECB's announcement of quantitative easing. ↘ CHART 62 LEFT Since 2010 euro area equity price indicators have been exceeding thresholds that, in conjunction with other indicators, could signal heightened risks of a financial crisis (Borio and Drehmann, 2009; GCEE Annual Economic Report 2014 box 14).

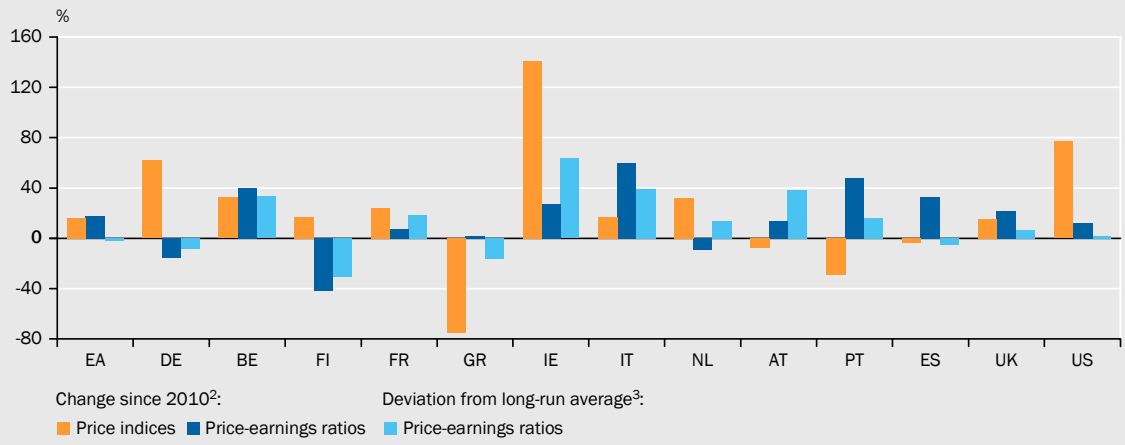
If one additionally takes into account corporate profits, signs are mixed with regard to potential exaggerations. Profits of major euro area companies (Euro Stoxx 50) have lagged behind price increases. Price-earnings ratios are below the long-term average in some countries, such as Germany; however, in other countries they are significantly above it, for example in Ireland, Italy and Austria ↘ CHART 63

394. Econometric tests currently **do not show any signs** of prices deviating from fundamentals. ↘ BOX 13 Instead, price developments can largely be explained by declining interest rates. These tend to drive up valuations of stocks and other assets since falling rates result in higher present discounted values. The sensitivity to interest rate changes is much higher at low interest rate levels. ↘ CHART 62 RIGHT

395. The long-lived upward price trend on **government bond markets** of most euro member states continued until the beginning of 2015. A trend reversal was evident in spring – at times accompanied by strong price fluctuations, which could indicate lower market liquidity. ↘ ITEMS 397 FF. Price developments of corporate bonds with high credit ratings largely followed government bonds. Low-rated bonds, in contrast, decoupled in 2014, with their yields rising. ↘ CHART 64 LEFT Yield differences between strong and weak credit ratings in a ten-year comparison are, however, still low. This indicates a persistently **high risk appetite**

↘ CHART 63

Stock prices and price-earnings ratios in selected countries[1]



1 – Levels and price-earnings ratios of the respective main indices. If data of a main index were not available, levels and price-earnings ratio of the Total Market Country Index were taken (FI, GR, IE, IT, PT). EA-Euro area, DE-Germany BE-Belgium, FI-Finland, FR-France, GR-Greece IE-Ireland, IT-Italy, NL-Netherlands AT-Austria PT-Portugal, ES-Spain, UK-United Kingdom and US-United States. 2 – Change with respect to the average of the year 2010. As of : 15 October 2015. 3 – Deviation to the average of the years 1990 to 2014, for the euro area: June 2001 to 2014 and for United Kingdom: June 1993 to 2014. As of: 15 October 2015.

Source: Thomson Financial Datastream

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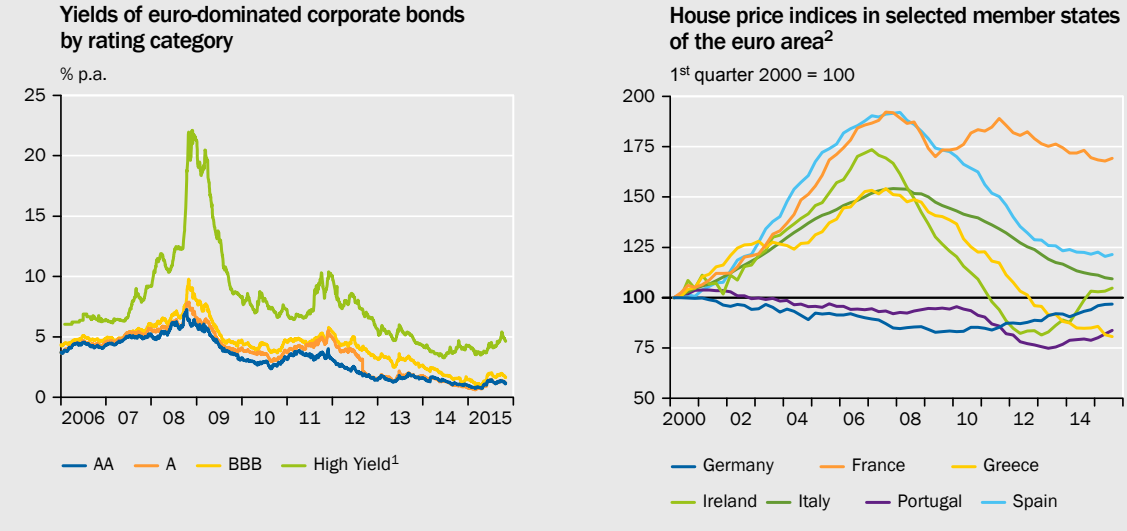
among investors, which is likely connected to the low interest environment and the ECB's monetary policy. ↘ ITEMS 387 FF.

396. Prices of **residential real estate** in many euro-area countries have been declining for some time now, other than those on stock and bond markets. The price decline has, however, slowed in some countries or, as in Ireland, even reversed its trend. ↘ CHART 64 RIGHT In only **a few euro-area member states** – including Belgium, Germany and Austria – have **noticeable price increases** been observed since 2010. ↘ CHART 65

↘ CHART 64

Corporate bond yields and house price indices



1 – Rating of BB+ or below. 2 – Deflated by the respective consumer price index.

Sources: OECD, Oxford Economics, Thomson Financial Datastream

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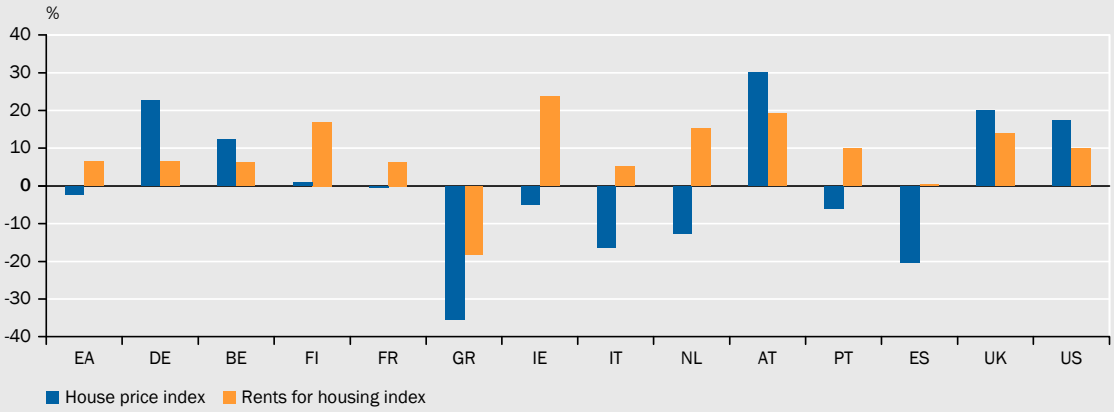
↘ CHART 65

House prices and rents for housing in selected countries[1]
Change since year 2010[2]



1 – EA-Euro area, DE-Germany BE-Belgium, FI-Finland, FR-France, GR-Greece IE-Ireland, IT-Italy, NL-Netherlands AT-Austria PT-Portugal, ES-Spain, UK-United Kingdom and US-United States. 2 – Change of the indices in 2nd quarter 2015, for the euro area and Austria in 1st quarter 2015 and for Belgium in 4th quarter 2015, with respect to the annual average of the year 2010

Sources: Eurostat, Oxford Economics

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Though **rents** in these countries **have also risen**, their rates of increase have lagged behind price developments. Moreover, as price increases within member states vary considerably from region to region, country-level data can mask regional developments. In Germany's larger cities, price increases lie significantly above the nationwide average. Deutsche Bundesbank assumes that in such instances prices are 10 to 20% above those justified by fundamentals (Deutsche Bundesbank, 2015). Larger cities in Ireland and Austria are also experiencing rate increases far above the average (ECB, 2015a). There is less information available on commercial property than on residential property. However, ECB indicators point to an increasing overvaluation of prime commercial real estate since the end of 2009 (ECB, 2015a).

↘ BOX 13

Econometric tests to identify asset price bubbles

Econometric testing for asset price bubbles starts from the principle of **no-arbitrage** (Gürkaynak, 2008), according to which the price corresponds to the present value of expected future dividends (**fundamental price**) plus a **bubble component**. The latter is based on the premise that even rational investors may acquire over-priced assets if they expect to be compensated by future price increases (**rational bubble**).

Econometric procedures test whether the price development observed is in line with theoretically derived time series characteristics. The null hypothesis that no bubble exists is rejected if **structural breaks** can be identified, for example, if the time series following a random walk pattern turns into an explosive process. Earlier test procedures by Shiller (1981), LeRoy and Porter (1981), West (1987), Diba and Grossman (1988) and Froot and Obstfeld (1991) were recently further developed by Homm and Breitung (2012) and Phillips et al. (2013).

Applied to price-dividend ratios of the US S&P 500 stock market index since 1871, Phillips et al. (2013) have identified several periods with price exaggerations, including the “dot-com bubble” of 1995 till 2001, using the Generalized Supremum Augmented Dickey Fuller (GSADF) test. The period

prior to the outbreak of the global financial crisis is not identified as a period with exaggerated prices. The SADF test statistic briefly exceeds the critical value at the end of the 1990s in a test on the DAX 30 Index for the period from 1980 to 2015. This is insufficient, however, to identify a price bubble based on the GSADF statistic. If one varies the estimation period, the test process indicates a price bubble in some cases for Germany as well at the end of the 1990s. No bubble is diagnosed for Germany, other euro-area countries, the UK or the US in the period from January 2010 to October 2015. An application of the fluctuation detector test (FLUC) of Homm and Breitung (2012) produces the same result. ↘ TABLE 18

↘ TABLE 18

Tests for price bubbles in stock markets of selected countries[1]

Test decision: Can the null hypothesis (no bubble) be rejected? Significance level: 5 %

	EA	DE	BE	FI	FR	IE	IT	NL	AT	PT	ES	UK	US
GSADF[2]	No	No	No	No	No	No	No	No	No	No	No	No	No
(p-value, %)	(17.9)	(7.0)	(23.0)	(37.7)	(24.1)	(22.1)	(6.2)	(22.2)	(48.8)	(6.8)	(16.0)	(67.8)	(25.5)
FLUC[3]	No	No	No	No	No	No	No	No	No	No	No	No	No

1 – Time series tested: price-dividend ratio of the respective main indices. If the data for the price-dividend ratio of a main index were not available, price-dividend ratio of the Total Market Country Index were taken (IE, PT and FI). EA-Euro area, DE-Germany, BE-Belgium, FI-Finland, FR-France, IE-Ireland, IT-Italy, NL-Netherlands, AT-Austria, PT-Portugal, ES-Spain, UK-United Kingdom and US-United States.
2 – Generalized supremum augmented dickey fuller test of Phillips et al. (2013). 3 – Fluctuation detector test of Homm and Breitung (2012).

Sources: own calculations, Thomson Financial Datastream

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However, econometric testscan only provide an indication of the presence of an asset price bubble. They can merely assess whether the observed price movements are in line with the underlying price model. Structural breaks in the fundamental price model could thus distort the test result (Gürkaynak, 2008). Nor do the tests provide any information on the size of the bubble component or on the date when it may burst.

397. The observed asset price increases in bond markets were accompanied by a **decrease in market liquidity**. Liquid markets are characterised by a high supply of, and a high demand for securities – and thus small differences in ask and bid prices. Liquid markets lower transaction costs and ensure that even large portfolios of securities can be traded without noticeable price changes (IMF, 2015). Low market liquidity thus limits the functioning of capital markets and can result, particularly in times of crisis, in excessive price spikes.

398. The data increasingly indicate a **liquidity bifurcation** for bonds (BIS, 2015a); this means that liquidity increases in market segments that already exhibit high liquidity, while it decreases in others. Recently, however, even highly liquid markets have been subject to an occasional rise in volatility. For example, prices of US Treasuries spiked dramatically on 15 October 2014 and those of German government bonds on 7 May 2015 (ESMA, 2015; BIS, 2015b).

399. The IMF (2015) lists potential reasons for a **structural decline in market liquidity** in the USA, most of which are likely to apply to Europe as well. These include in particular the increasing relevance of algorithmic traders and high frequency traders who could suddenly withdraw from trade during a crisis; stricter regulation, primarily the restrictions on proprietary trading and more stringent capital adequacy for market making activities; as well as a change in

the composition of market participants, such as the greater role of asset management companies accompanied by the withdrawal of traditional traders (banks and insurance companies).

The effects of the **central banks' security purchasing programmes** on market liquidity are unclear. On the one hand, central banks are ready to buy securities, and on the other, such purchases reduce the supply of tradable bonds (IMF, 2015). The latter argument is cited as a potential reason for the rise in volatility in highly liquid markets (BIS, 2015b).

400. Overall, there have only been isolated **signs of bubbles** on asset markets to date. In certain bond and real estate markets there are indications of exaggerated price developments. In contrast, a large part of equity price developments can be explained on the basis of fundamental factors, including the lowering of interest rates. Abrupt market corrections therefore cannot be ruled out in the case of a rise in interest rates. Such price movements could be reinforced by to the observed decline in market liquidity.

3. Risks to financial stability

401. If the **low interest rate environment** persists over the next few years and the **yield curve** remains flat, the solvency of banks and life insurers will be under threat in the medium term. As the interest rate development affects the entire financial system at the same time, the arising problems are systemic in nature.

The delayed effects of low interest rates make the outbreak of a financial crisis in the near future unlikely and give players time for adjustments through cost cuts, tapping new sources of income, amending contracts or raising capital. However, the changes in the balance sheets of banks and insurance companies are going to manifest themselves more and more dramatically the longer low interest rates prevail.

402. It is likely that **interest rates will remain low for the foreseeable future**, given that the ECB has signalled it will further extend quantitative easing if necessary to fulfil its mandate. ↘ ITEM 266 The ECB believes that financial stability risks should not be addressed by monetary policy but by **macroprudential policy** (Draghi, 2015). This means that the ECB is not including the risks to financial stability in its monetary policy decision-making at the moment.

This is a highly **risky strategy** given the major uncertainty regarding the effectiveness of macroprudential measures, which were established only recently (GCEE Annual Economic Report 2014 items 389 and 393) and which, moreover, are only focused on banks and not on insurance companies. In any case, macroprudential measures do not help market participants to escape the low interest environment. Ultimately, this raises the question of whether the ECB can maintain its position of ignoring risks to financial stability if such risks become acute.

403. Due to weak earnings prospects, the scope for financial institutions to build up capital or raise it on the market are limited. Increases in capital ratios, for example in response to micro- or macroprudential requirements, can then only be achieved by reducing risk positions (**deleveraging**). This is not a major problem in Germany in view of the current relaxed situation on credit markets. In other euro area countries, however, it could result in a noticeable restriction on lending. This would ultimately run counter to monetary policy objectives.

404. The biggest risk of another financial crisis emerging lies in a future normalisation in interest rates being delayed for too long. If risks in the financial system become visible, exiting loose monetary policy will become increasingly difficult as the impact on financial stability can no longer be ignored at that point. Ultimately, however, an increase in interest rates cannot be permanently prevented if the underlying factors demand a market correction. ↘ ITEM 307 This could eventually make a **sharp and fast rise in interest rates** necessary.

405. **Banks** would be particularly hard hit by such an increase in interest rates, as they have to immediately adjust deposit interest rates due to intensive competition and cannot offset directly the quick rise in deposit rates via higher rates on loans, at least not in Germany where fixed rate loans are common practice. The problem is particularly dramatic if the interest rate increase was preceded by a prolonged period of low interest in which long-term fixed-rate loans were issued at very low rates.

Indeed, most financial crises historically occurred in an environment of rising interest rates. One example is the **savings and loan crisis** that occurred in the USA in the 1980s, in which many US savings and loan institutions became insolvent. They had issued long-term mortgage loans that were financed with short-term savings deposits. As a result, they could not keep up with the rapid rise in interest rates after the Volcker disinflation and the end of government restrictions on interest rates. The problems were disguised for a time by taking higher risks and pocketing the associated risk premiums. Ultimately, however, this only served to delay the collapse of the institutions – not prevent it.

406. This scenario is very relevant for **Germany**, as a considerable part of the banking sector lives primarily from interest business. In this type of crisis scenario, the protection systems, including the **institutional protection scheme** might not be able to absorb the shock, as the crisis would hit all institutions at the same time, severely hampering the system of mutual protection.

Among German **life insurers**, it is possible that individual market participants will no longer be able to meet solvency requirements in a prolonged period of low interest. However, an analysis of the systemic relevance of life insurance companies shows that **contagion effects** in the insurance sector are likely to be rather **low**. ↘ BOX 14 The financial interdependencies between insurance companies are relatively insignificant. At the same time, the danger of an abrupt rise in cancellation rates is rather low due to relatively restrictive termination and redemption rules. For this reason, systemic risks in the insurance sector are attributed primarily to non-traditional insurance business, such as credit protection transactions (Eling and Pankoke, 2014). Nevertheless, an abrupt rise in

cancellation rates cannot be completely ruled out, above all in the event of a **sharp rise in interest rates** after a prolonged period of low interest rates (Feodoria and Förstemann, 2015).

↘ BOX 14

A comparison of the systemic importance of banks and life insurance companies

Banks and life insurance companies act as **financial intermediaries**. Banks pass on relatively short-term deposits to borrowers in the form of longer-term loans, in Germany typically with a fixed loan rate of several years. Life insurers conclude long-term policies, in Germany typically with interest guarantees, and invest the insurance premiums largely in fixed-income securities. Unlike with banks, the maturity of liabilities is longer than the maturity of assets, which means that interest rate changes affect banks and insurance companies differently. While banks tend to suffer when rates rise, as higher short-term deposit rates are pitted against loans with long fixed rates, insurance companies benefit, as they are able to earn the long-term guaranteed rates more easily.

Although the banking sector clearly dominates in terms of size, life insurance companies are important financial intermediaries. The aggregate total assets of German life insurers stood at around €1,100 billion as of March 2015, which corresponds to about 13% of the aggregate total assets of German banks (monetary financial institutions, MFIs), although the latter figure is inflated by interbank loans.

While the **systemic importance** of banks is widely recognised, this is less clear for insurance companies. D**irect contagion effects via institutional interconnections** between insurers are considerably weaker than between banks. ↘ TABLE 19 The latter operate as part of an interbank market that serves to protect them against liquidity shocks (Allen and Gale, 2000). The difficulties experienced by a single institution can thus spread rapidly to the entire banking system. Insurance companies, in contrast, are institutionally interconnected to a much lesser extent (IAIS, 2011; Thimann, 2014).

↘ TABLE 19

Differences between banks and life insurance companies with regard to systemic importance

	Banks	Life insurance companies
Contagion via institutional interconnections		
- within the sector	High, significant interconnections via the interbank market	Low, little institutional interconnection with other insurance companies
- between the sectors	Contagion effects of banks on life insurance companies high: financial infrastructure; significant bank exposures to insurers	Contagion effects of life insurance companies on banks comparatively low; bank business model relatively independent of insurance companies; possible in case of greater financial interconnection
Liquidity risks	High, as interbank and client deposits can be withdrawn at short notice; information asymmetries	Tend to be low due to restrictive termination and redemption rules But: danger of runs in the event of a sharp rise in interest rates following an extended period of low interest rates
Fire sales	Relatively high risk of fire sales as a result of runs	Rather low risk of fire sales, but conceivable in the event of a sharp rise in interest rates
Economic functions	Credit provision, creation of book money, provision of payment systems	Important role in retirement provision

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Insurers are dependent on the financial infrastructure provided by banks, while the bank business model is comparatively independent of the traditional insurance business. Consequently, banks' contagion effects on the insurance sector are likely to be much stronger than vice versa. Moreover, insurance companies in Germany invest a sizable portion of their assets in bank bonds (Deutsche Bundesbank, 2013; 2014b), which creates an additional risk transmission channel from banks to insurers. This could be exacerbated through the introduction of TLAC for banks (Total Loss-Absorbing Capacity; GCEE Annual Economic Report 2014 item 356). However, it is also conceivable that insolvencies in the insurance sector result in financing bottlenecks in the banking sector. Further contagion effects from insurance companies to banks could arise from the **non-traditional insurance business**, for example, from trade in credit derivatives. One such case was the collapse of the American International Group (AIG), which became insolvent due to the Lehman Brothers collapse and which was bailed out because of fears of further contagion effects.

A further difference concerns **liquidity risk** (BIS, 2011; Kessler, 2014). Banks are subject to considerable liquidity risk due to maturity transformation, as the liquidation value of assets is insufficient to satisfy all creditors. This harbours the risk of self-fulfilling runs (Diamond and Dybvig, 1983). Life insurance policies, in contrast, have much longer maturities and are thus subject to considerably lower risk of being withdrawn in the short term. There is the option of surrendering life insurance contracts, however, they are subject to relatively restrictive termination and redemption rules. Problems of asymmetric information are ultimately less relevant than for banks.

Due to less pronounced liquidity risk, insurance companies are subject to a lower risk of runs (i. e., a sharp rise in cancellation rates) and **fire sales**, and thus destabilising price spirals are less likely. Nonetheless, it cannot be ruled out that life insurance companies will see a spike in cancellation rates – particularly in the event of a **sharp rise in interest rates** after an extended period of low rates (Deutsche Bundesbank, 2014a; Feodoria and Förstemann, 2015). After all, re-investment of the surrender value at higher interest rates may be more advantageous than continuing the old contract.

Beyond their financing functions, banks ultimately fulfil additional **critical functions for the financial system** (Thimann, 2014) – particularly in the area of payment systems. Life insurers, on the other hand, are themselves dependent on payment systems provided by banks.

It is therefore clear that the business model of German life insurance companies jeopardises financial system stability to a lesser extent than that of banks. Empirical analyses based on data on international insurance companies support this result. There is empirical evidence of a reciprocal risk transfers between the two sectors; however the impact of the risk transfer from the banking to the insurance sector is much stronger than vice versa (Chen et al., 2014). Morever, Podlich and Wedow (2013) demonstrate that risks are transferred to the banking sector primarily by major insurance companies.

These findings are reflected in the regulation on global systemically important insurers (G-SIIs), which was established in collaboration with the Financial Stability Board and the International Association of Insurance Supervisors (IAIS) (FSB, 2013). The IAIS (2011, 2013a) does not consider the traditional insurance business as inherently systemically important. The criteria for global systemically important institutions are instead focused on non-traditional and non-insurance business, such as trade in derivatives and the degree of financial interconnectedness to the entire financial system (IAIS, 2013b).

407. An additional risk is a **decline in asset prices**. Due to the higher sensitivity of prices to interest rate changes in a low interest rate environment, ↘ ITEM 394 even small absolute interest rate changes can cause considerable price changes. The price spikes are intensified by the **reduction in market liquidity**. ↘ ITEMS 397 FF.

Financial stability is most of all at risk if investors are under a **liquidity illusion**, i. e., they believe that markets themselves will remain liquid in times of crisis (BIS, 2015a), but then liquidity suddenly evaporates (IMF, 2015). The significant rise in correlations across different security classes (IMF, 2015), furthermore, leads to the fear of a **stronger synchronisation of markets**, particularly in times of crisis. A slump in individual asset markets could thus trigger a broad decline in asset prices.

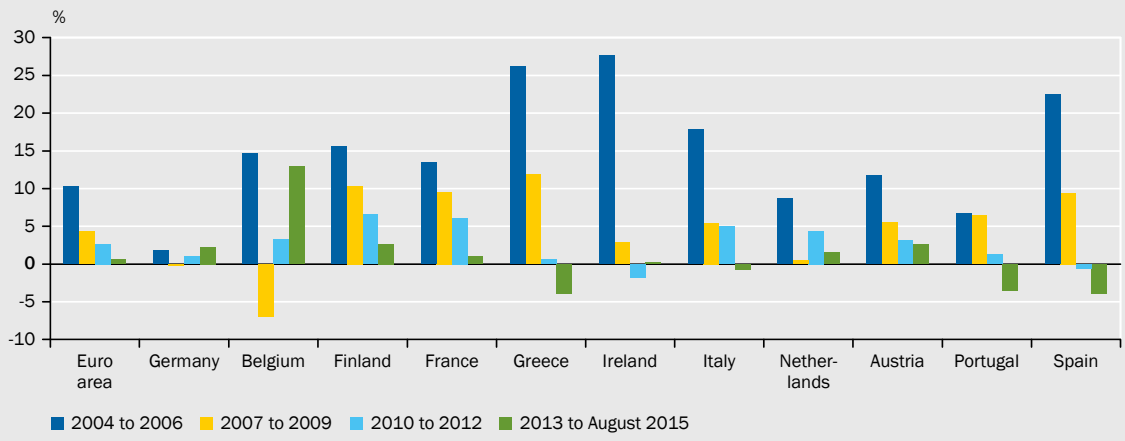
408. The observed asset price movements in the euro area ↘ ITEMS 392 FF. are not primarily driven by **credit growth** at current times, which is positive from the viewpoint of financial stability. Past asset price booms have proven particularly dangerous when they were accompanied by a dramatic rise in lending. In contrast, non debt-financed asset price booms historically only had negligible real impacts (Brunnermeier and Schnabel, 2015).

409. Euro-area bank lending has been subdued for some time. However, with the exception of mortgage loans, there is no data available on whether certain assets were purchased through debt-financing. The volume of mortgage loans of private households has hardly changed anyway. Moderate growth rates have been reported in Germany, Finland and Austria. Only Belgium has recorded a surge in credit growth. ↘ CHART 66 It is noticeable that countries with higher real estate prices also report relatively high credit growth. ↘ ITEM 396

410. **Lending standards** for mortgage loans, at the same time, **have not been significantly eased** (ESRB, 2015). Survey data for 24 cities in Germany up to 2013 show that debt financing for residential real estate purchases has not expanded. But the credit amount of around one third of all loans issued exceeds the mortgage lending value of the real estate, i. e., the expected value for the duration of the loan (Deutsche Bundesbank, 2014a). This results in banks being vulnerable in a scenario in which borrowers come under pressure and real estate prices fall at the same time.

↘ CHART 66

Loans for house purchase of monetary financial institutions (MFI) to private households[1]



1 – Average of monthly year-on-year growth rate.

Source: ECB

SVR-15-250

411. An asset price slump has a direct impact on banks and insurance companies if they are holding the assets on their own balance sheets. They could then be forced to resort to fire sales of securities to meet capital ratios demanded by the market or regulatory authorities. This can exacerbate price slumps. Destabilising price spirals cannot be ruled out, particularly if mark-to-market accounting is used.

Households' adjustment reactions also come into play, which can cause overall economic demand to weaken, particularly if the assets in question constitute a significant portion of total assets as is typically the case with real estate.

412. In the bigger picture, a **sharp rise in interest rates after an extended period of low rates** poses the greatest risk of a renewed financial crisis. This would jeopardise the solvency of banks, and even for life insurers an abrupt rise in cancellation rates cannot be ruled out. The rate hike could also result in collapsing asset prices, which would directly impact banks and insurance companies.

The longer interest rates remain low, the greater the risks to financial stability will be. A delay in exiting loose monetary policy would thus become self-reinforcing as increasing risks to financial stability themselves become more and more an obstacle to a normalization of interest rates. This is all the more true given that the ECB is also responsible for banking supervision (GCEE Annual Economic Report 2012 item 304). A **delay in the exit from loose monetary policy** thus creates considerable risk to financial stability in the euro area.

4. Regulatory responses to the low interest rate environment

413. Regulating the risk of **interest rate changes** falls under macroprudential regulation because it concerns macroeconomic risks that affect the entire financial system at the same time and thus represent a systemic risk. Interest rate risks cannot be fully diversified or hedged in aggregate, meaning that someone in the economy must bear these risks (Hellwig, 1995). Consequently the counterparty risk of a hedging instrument against interest rate risks correlates with the risk to be hedged, as the hedge provider is frequently subject to the same risk. A bank cannot fully protect itself either, for example by issuing variable-rate loans, as the interest rate risks may return to the bank in the form of a credit risk. Regulation cannot eliminate interest rate risks, but merely shift them.

Appropriate regulation thus requires a **systemic approach**. A regulatory approach focused on individual sectors that ignores the effects on other parts of the financial system may contribute to the creation of new risks and to a shift in risks to less regulated areas of the financial system (regulatory arbitrage).

414. Interest rate risks are among the most important risks in the banking industry. And yet they are **not covered by fixed minimum capital requirements under Pillar 1** of the Basel Accord if they are in the banking book. Instead they

fall **under Pillar 2** (Supervisory Review Process, SREP) in accordance with the *2004 Principles for the management and supervision of interest rate risk*. A scenario of a parallel shift of 200 basis points upwards and downwards in the yield curve is generally assumed here.

415. Current regulation is **unsatisfactory** in many respects. Firstly, the scenarios do not adequately reflect risks, resulting in insufficient capital backing. For example, changes in the slope of the yield curve are not taken into account. Secondly, there is a risk of regulatory arbitrage, because assets in the trading and banking books are regulated differently. Ultimately, regulation in Pillar 2 makes it more difficult to ensure a transparent process that is consistent across borders. In the Consultative Document published in June 2015, a Basel Committee working group for internationally active banks, the *Task Force on Interest Rate Risk*, recommends **more comprehensive regulation of interest rate risks**, either in Pillar 1 or in the context of an expanded Pillar 2 approach (BIS, 2015c).

416. Dealing with risks arising from the **asset price boom** is also the responsibility of macroprudential supervision. Supervision should not fight such booms per se, but only take action if they generate risks to financial stability. In the past, asset price booms proved particularly dangerous when they were accompanied by credit growth and rising debt (Brunnermeier and Schnabel, 2015). For this reason it makes sense that macroprudential measures do **not** address **prices**, but rather **financial institutions**. The objective is to strengthen institutions' resistance to an asset price collapse and cut back the incentives for excessive lending, which would reduce the procyclicality of the financial sector (GCEE Annual Economic Report 2014 item 364).

417. The euro area's newly created macroprudential toolkit so far has **hardly been used**. The counter-cyclical capital buffer has not yet been activated in any euro area member state. Measures in Germany have been limited to the classification of Deutsche Bank as a global systemically important institution, which means it is obliged to maintain an additional capital buffer. Other euro area member states have also named global or otherwise systemically important institutions.

Some countries introduced capital conservation buffers early on and raised risk weights in the real estate sector. The capital conservation buffer increases the resilience of the banking sector via a mandatory increase in capital, with the possibility of reducing the buffer in a crisis (GCEE Annual Economic Report 2014 item 384). Increased risk weights are intended to protect against risks from the real estate sector. To this same end, a number of countries also took advantage of the opportunity to introduce borrowing limits (maximum **loan-to-value ratios**, LTV ratios) and other credit-specific instruments (GCEE Annual Economic Report 2014 item 389), such as the limit on borrowing relative to income (maximum **debt-to-income ratios**, DTI ratios). These are not part of the Basel Accord but can be introduced on the basis of national legislation.

The literature on the effectiveness of **borrower-specific policy instruments**, particularly maximum LTV and DTI ratios, finds based on comparative data of different countries that the application of these instruments is associated with significantly lower growth in housing credit, in some cases also in house prices (IMF, 2012; Kuttner and Shim, 2014), and that it reduces the procyclicality of credit growth (Lim et al., 2011). On the basis of loan-level data in Ireland, Hallissey et al. (2014) find a positive correlation between the LTV and loan-to-income ratios and the default probability of loans. Other country-specific studies are more sceptical regarding the effectiveness of LTV ratios. For example, Ono et al. (2014) doubt the effectiveness of LTV ratios after assessing Japanese microdata. In the case of Hong Kong, Wong et al. (2014) judge LTV ratios to be suitable for limiting borrowing, however less so for stabilising credit growth and house prices.

418. The introduction of **borrower-specific macroprudential instruments** is now also being discussed in Germany. For example, the Financial Stability Commission issued a recommendation to the Federal Government in June 2015 to create the statutory basis for the introduction of borrower-specific instruments by the end of March 2016 (AFS, 2015). These include in particular maximum **LTV** and **DTI ratios**. According to empirical literature, these instruments can effectively combat credit growth related to real estate bubbles. The Financial Stability Commission explains its recommendation with the rationale that a suitable toolkit needs to be readily available in case of warning signals, even if no need for immediate action has yet been determined (AFS, 2015). The German Council of Economic Experts subscribes to this view.

419. The tools are, however, only proposed for loans to finance residential property; **commercial property** is not taken into account. As both types of credit are subject to similar mechanisms, a greater level of stability in commercial properties cannot be assumed. One reason given for the restriction is that data would first have to be collected to identify a potential need for action. The planned credit register AnaCredit (short for analytical credit dataset) could be of help here.

The ECB plans to gradually implement an **euro area-level credit register** (analytical credit dataset, **AnaCredit)** from 2018. This provides for the registration of loans starting at a volume of €25,000 per borrower; for non-performing or impaired loans from as little as €100. In Germany such data is to be recorded by Deutsche Bundesbank, which aims for early implementation, particularly in the area of private real estate financing. AnaCredit has been heavily criticised by financial institutions and data protection advocates because it is said to generate disproportionate costs and because the ends do not justify the means of the extensive data collection. The German Council of Economic Experts supports the introduction of AnaCredit in principle. It advocated the introduction of an European credit register already some years ago (GCEE Annual Economic Report 2010 item 156; GCEE Annual Economic Report 2007 items 231 ff.). A European credit register is necessary above all from the viewpoint of financial stability, in oder to identify emerging risks early, such as in the real estate sector. In order to address data protection concerns, data collection should be limited to the information needed for this purpose.

420. Capital requirements for **life insurers** play a central role in dealing with interest rate risk, similar to the role they play for banks. The dominating regulatory motive in this case is less system stability ↘ BOX 14 but more the **protection of insurance policyholders**. A number of new tools intended to ensure the long-term solvency of life insurers were introduced in reaction to the low interest rate environment.

421. Since 2011, German life insurers have been obligated to create an additional annual reserve in the form of the **additional interest reserve** (*Zinszusatzreserve*) . This is intended to create a safety buffer so that life insurers can meet their interest obligations in the long term. The total additional interest reserve had grown to around €21 billion by the end of 2014, thus corresponding to approximately 1.5 times German life insurers' balance sheet equity (Assekurata, 2015).

Moreover, the German **Life Insurance Reform Act** (*Lebensversicherungsreformgesetz* - LVRG) came into effect in August 2014. One of its core elements is that departing policyholders can only participate in the valuation reserves of fixed-income securities if the amount needed to ensure that guarantee obligations can be met in the future is secured. Similar restrictions are in place for payouts of profits (Deutsche Bundesbank, 2014c; Assekurata, 2015).

422. The additional interest reserve and the Life Insurance Reform Act should be considered as steps into the right direction. Both measures prevent an early outflow of **solvency capital** from companies that might be required in the future. Thus, insurance company owners and creditors of existing policies share the burden generated by the low interest rate environment. However, the quick build-up of the additional interest reserve in the low interest environment poses major challenges for insurance companies, resulting in a call for a recalibration (GDV, 2015a). This, however, requires the safeguarding of long-term solvency to be carefully weighed against the avoidance of overburdening of insurance companies.

423. The introduction of **Solvency II** will bring about a regime shift for insurance companies from 2016. The major innovation is a stronger reliance on fair value principles (Gründl, 2015). This results in risks ensuing from the low interest rate environment being recognized more quickly. Therefore it is to be expected that some life insurers will face considerable challenges in fulfilling the Solvency II requirements. A sixteen-year transition period will enable insurance companies to adjust to the new regulatory regime gradually, unless markets force an early adjustment to the new rules before.

Solvency II does not provide for any **macroprudential measures** that permit a regulation of systemic risks. It is therefore currently not possible – aside from the special rules for GSIIs – to more stringently regulate individual insurance companies due to their systemic importance. However, such measures would be a welcome addition to the regulatory toolkit and could help to bring to life the idea of macroprudential integrated financial supervision.

424. The insurance sector's **protection schemes** play a crucial role by protecting policyholders of an insolvent company from losses. All life insurance companies active in Germany have been obliged to belong to a guarantee fund since 2004. Protektor Lebensversicherungs-AG is the statutory guarantee fund for German life insurers. This company reported fund capital totalling €855 million in 2013, which could be doubled by means of extra premiums. Should the funds prove insufficient to meet the claims of policyholders at an institution that has become distressed, the BaFin may lower the guaranteed payments by a maximum of 5%. Insurance companies may provide additional funds under a voluntary self-obligation scheme. The overall expected guarantee funds, including premium payments, currently total up to €8.6 billion (Protektor Lebensversicherungs-AG, 2015). As a further measure, BaFin can declare a temporary ban on cancellations.

425. In the event that one relatively **small insurance company** is at risk of **insolvency**, existing schemes are likely to be sufficient to protect policyholders, especially in view of the fact that life insurers can be wound up over a period of many years due to their long-term contracts.

Given the risks arising from the low interest rate environment – which could cause a **large number of insurance companies** to enter financial difficulties at the same time – the guarantee schemes would reach their limits. Additional payment obligations on the part of the insurance sector should be viewed critically in such cases as they would weaken other insurance companies as well. The schemes would presumably reach their limits as well if a major insurance company were to become insolvent.

426. There is a risk that in such cases policymakers would feel obliged to conduct a **governmental bailout** even if not warranted from the viewpoint of financial stability. For one thing, German policymakers themselves offered tax incentives for private pensions in the past and for taking out life insurance policies, in particular. And for another, at 88.3 million policies, life insurance is very popular in Germany (GDV, 2015b). In such cases, **rule-based resolution mechanisms** could be advisable as they could generate a certain binding effect on policymakers with the result that losses would be borne by shareholders and insurance company creditors and not by taxpayers.

427. It is questionable whether a **business model based on guaranteed interest rates** is still appropriate. This decision should nonetheless be left to insurance companies. There is already evidence of a move in the German insurance sector away from the life insurance model featuring classical guaranteed interest rates (Kullrich, 2015). The plan of the Federal Ministry of Finance's (*Bundesministerium der Finanzen* - BMF) to dispense with a requirement for a maximum technical interest rate in the future when life insurers are subject to regulation under Solvency II (BMF, 2015), is to be welcomed, as it would counteract the impression that policymakers favour the guaranteed interest rate model.

428. In the regulation of banks and insurance companies, the effects on **market liquidity** are to be taken into account. Price spikes are likely to be more dramatic the lower market liquidity. For this reason, regulations should be reviewed as to

whether they limit market liquidity and thus increase market volatility. This cannot be ruled out, for example, with a financial transaction tax (IMF, 2010; JG 2010 Ziffer 273) and restrictions on activities in order to separate the banking system (Duffie, 2012). The capital adequacy requirement on banks' market-making activities is, in contrast, vital for adequately reflecting risks.

429. The most important point is the clarification of the **relationship between monetary and macroprudential policy**, the aims of which do not appear to be aligned at present. While monetary policy is attempting to counteract deflationary trends with extremely low interest rates, macroprudential policy is focused on the impact of low interest rates on financial stability. If, after weighing macroeconomic aspects and considering the impact on financial stability, monetary policy is too loose, it would be advisable to adjust monetary policy measures with a view to financial stability. ↘ ITEM 307

The task of macroprudential policy in this regard is to increase financial institutions' resilience to potential consequences of exiting the loose monetary policy and thus, ultimately, to facilitate the exit. Macroprudential policy can also react to heterogeneous developments in euro-area financial stability risks, since macroprudential measures can be applied differently in different countries. The only way to effectively limit the creation of further risks in the financial system is to **exit from the loose monetary policy in time**. Macroprudential policy alone is likely to be overburdened with this task (GCEE Annual Economic Report 2014 item 394).

5. Conclusion

430. The period of low interest rates, which is a consequence, not least, of the ECB's expansionary monetary policy, may have a **considerable impact on financial stability**. It will undermine the business models of banks and insurers in the medium term, erode capital and create incentives to take on greater risks. As low interest rates have a delayed effect, the risks are, as yet, barely visible on the balance sheets of banks and insurance companies. In view of this it should not be overlooked that ever more risks are accumulating, the longer low interest rates persist.

431. A new financial crisis may be looming when a **sharp hike in interest follows a long period of low rates**. This could put the solvency of large parts of the banking system at risk and bring about an abrupt rise in cancellations of life insurance policies. Furthermore, even a small change in interest rates can trigger a major slump in asset prices. As this would directly hit banks and insurance companies, there is a potential for price spirals to occur that could destabilise the economy. The recently observed decline in market liquidity may further intensify price movements.

432. Comprehensive **capital regulations to cover the interest rate risks** are therefore a major priority for the **banking system**. Regulation in Pillar 1 would have the advantage of creating maximum transparency and consistency across

countries. Early introduction of borrower-specific macroprudential instruments, such as loan-to-value ratios for both retail and commercial mortgage loans, represents a sensible approach to be able to respond rapidly to growing lending if necessary. Measures that reduce market liquidity, on the other hand, should be viewed more critically.

433. A series of measures have already been taken at microprudential level to regulate risks for **life insurers** arising from the low interest rate environment. The additional interest reserve and the Life Insurance Reform Act prevent an early outflow of solvency capital from the companies in a period of low interest rates. It would make sense to complement these measures with **macroprudential instruments** in order to be able to regulate systemic risks. In the event of a systemic crisis, **rule-based resolution mechanisms** can be a reasonable move to prevent the state from rescuing weak insurance companies in cases where this is unnecessary from a financial stability perspective.

434. Finally, the **relationship between monetary policy and macroprudential policy** needs to be clarified in order to avoid conflicting signals. Macroprudential policy alone cannot guarantee the stability of the financial system. The ECB must therefore consider the impact of monetary policy on financial stability in its decisions. This could prevent a delayed exit from loose monetary policy and a further build-up of risks to financial stability.

II. EUROPEAN CAPITAL MARKETS UNION: REMOVING BARRIERS TO FINANCING

435. **Boosting investment and growth** in Europe is a stated aim of the European Commission. It is assumed that the current relatively low level of investment is attributable to **barriers to financing**, particularly in the countries that were particularly hard hit by the crisis. Corporate lending has declined sharply in these countries in recent years, and European financial markets have become more fragmented at the same time. The **European Capital Markets Union** is a major political project to remove these barriers in the long term. It is designed to strengthen the European internal market for capital.

436. The European Commission's plans for the design of the Capital Markets Union ↘ BOX 15 indicate that it suspects **structural problems** in the European financial system (Europäische Kommission, 2015a). For instance, it considers certain market segments, such as start-up financing, to be underdeveloped and also calls for **less dependency on bank financing**. The debate initiated by the European Systemic Risk Board's Advisory Scientific Committee (ASC) on the appropriate structure of the European financial system (ASC, 2014) is heading in a similar direction (see also OECD, 2015).

1. Aims of the European Capital Markets Union

437. The European Commission conceives the Capital Markets Union as a package of measures to tackle specific developments on European capital markets that it deems problematic. The aim is to exploit potentials for improvements. ↘ BOX 15 It is intended as a **long-term project**, with the foundations to be laid by 2019. It is becoming apparent that the European Commission is not only aiming for deeper financial integration, but is also seeking to promote capital market-based corporate financing and foster particular market segments.

In contrast to the banking union, which primarily transferred responsibility for banking supervision and resolution to European level, the Commission does **not yet plan to centralise decision-making competencies** in the Capital Markets Union (European Commission, 2015a, 2015b). However, the Five Presidents' Report goes further than the Commission's statements on this issue and describes centralised capital markets supervision as a long-term objective of the Capital Markets Union (Juncker et al., 2015).

438. It is clear from the timeline for the Capital Markets Union alone that it will be unable to solve any of the acute problems in the financial sector. The economic policy debate on the European financial system is focused on longer-term **structural aspects**, and primarily on obstacles to corporate financing. Three such potential barriers are being discussed in particular:

- **Excessive importance of bank financing**: The European banking sector is inflated and there is too much dependency on bank financing. This leads to companies suffering financing bottlenecks in times of banking crises.
- **Unsustainable integration of European financial markets**: Cross-border financing declines markedly in times of crisis. Moreover, certain segments fail to attain critical mass.
- **Excessive debt**: The high level of debt in the corporate sector in some countries and the still low capitalisation of banks are hindering investment.

439. In terms of economic policy, the **desired policy actions** depend on the diagnosis. Excessive bank financing would suggest reducing the size of the banking sector and boosting capital market financing. A shortage of sustainable cross-border financing would imply the need to strengthen the free movement of capital. If excessive debt is the main problem, policy approaches should focus on tightening banks' capital regulation, reducing implicit guarantees for banks and tackling tax distortions that favour debt financing. ↘ ITEMS 728 FF.

↘ BOX 15

The European Capital Markets Union: Objectives and measures

The European Commission has presented its ideas on the development of a Capital Markets Union in a Green Paper and recently substantiated these further in an action plan (European Commission, 2015a, 2015b). The Commission's long-term goal is to increase investment in businesses and infrastructure. It plans to achieve this by **deepening the internal market for capital and strengthening capital market-based forms of financing.**

Given the areas discussed, ↘ TABLE 20 it can be concluded that the European Commission regards the "capital market" primarily as **non-bank based forms of financing**. By **strengthening** non-bank financing, the Commission hopes to generate positive spillover effects on financial stability. From its perspective, the term "Union" points to a "classic single market project" (Hill, 2015) to deepen the internal market. However, some of the areas earmarked for action, such as venture capital, are not directly related to the internal market. Moreover, the EU is not solely interested in reducing possible barriers within the EU, but also in raising the EU's attractiveness to international investors.

In addition to promoting capital market-based financing in general, the European Commission is also considering **specific market segments and financing instruments**. Examples include capital market access for small and medium-sized enterprises (SMEs), financing of infrastructure projects, venture capital, private placements and securitised loans. However, the action areas affect not only the institutional framework for financial instruments and intermediaries, but also the **general legal framework** that influences financing and investment decisions by financial market participants. Examples include insolvency law and certain aspects of securities and tax law. The Commission wants to see greater convergence of national supervisory authorities, to be encouraged by the European supervisory authorities.

The European Commission has already presented **legislative proposals** for securitised loans and changes to insurance regulation in the area of infrastructure investments, and has announced that it will be publishing proposed changes to the Prospectus Directive. It is not yet clear what the Commission will suggest to achieve its objectives in other action areas. Possible options range from boosting private initiatives, at the moderate end of the scale, to extensive harmonisation with directives and regulations as the strongest form of action. Many areas of capital market law have already been Europeanised (Veil, 2014), meaning that the Commission has existing regulations to work with.

↘ TABLE 20

European Commission Action Plan on a Capital Markets Union

Action area	Measures initiated and planned
Capital market financing of companies	- Improved access to public capital markets - Encouraging venture capital and equity financing - Promoting innovative forms of financing - Strengthening Europe-wide approaches to SME financing
Long-term investment, primarily in infrastructure	- Changes to regulation of banks and insurance companies - Review of cumulative impact of regulatory reforms to date
Investment opportunities for retail and institutional investors	- Preparation of a Green Paper on cross-border competition between insurance companies and for financial services aimed at retail customers - Reviewing possibility of an EU-wide market for pension products - Introduction of a European fund passport
Bank lending	- Creation of a market for simple, transparent and secure securitisations - Examining the possibility of permitting credit unions operating outside EU capital requirements framework - Examining an EU-wide framework for covered bonds
Barriers to integration in the internal market for capital	- Corporate insolvencies: identifying major barriers and removing these as part of a legislative proposal aimed at harmonisation - Securities markets: reducing uncertainty concerning ownership rights, improving clearing and settlement - Taxes: code of conduct for relief-at-source from withholding tax procedures, study on tax discriminations for cross-border investments by life insurers and pension funds - Financial supervision: strengthening convergence, further developing macroprudential toolkit

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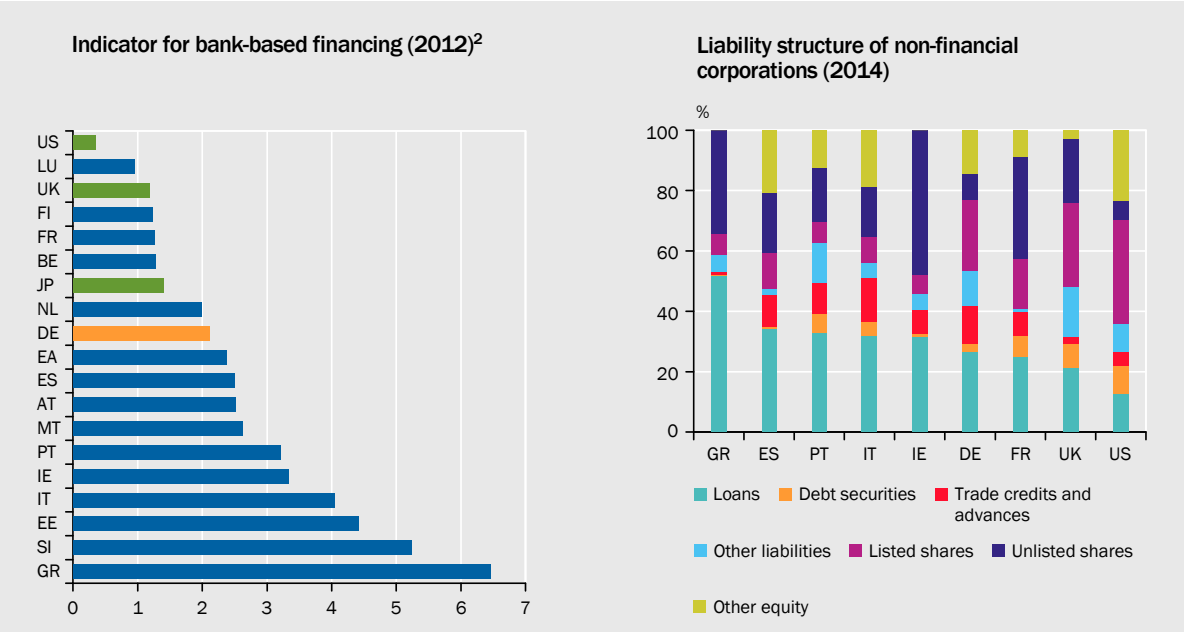
2. Better diversification of financing sources needed

440. The first barrier to corporate financing in Europe is **over-reliance on banks**. Strengthening market-based forms of financing is therefore a core element of the Capital Markets Union. ↘ BOX 15 The Advisory Scientific Committee (ASC) of the European Systemic Risk Board (ESRB) believes such action is necessary to correct a **distortion of financial structure**, which places too much emphasis on bank-based financing over market-based financing (ASC, 2014). Among other things, it cites distorted incentives caused by implicit guarantees as a cause of excessive growth of the banking sector. In the ASC's view, excessive bank-based financing is having a negative impact on growth and financial stability in Europe (likewise Langfield and Pagano, 2015).

441. A typical measure of the extent of bank-based financing is the ratio of domestic bank lending to the **private sector** (non-financial corporations and private households) to the total market capitalisation of listed companies and bonds issued by non-financial corporations. Using this measure, the **euro area** is indeed **strongly reliant on bank-based financing** compared to other countries. However, the heterogeneity within the euro area is large. ↘ CHART 67, LEFT

442. A comparison of the **liability structure of companies** in different countries shows a similar result. ↘ CHART 67, RIGHT Bank loans make up a particularly large share of financing in the peripheral countries of the euro area. Debt securities and listed shares play a lesser role here.

↘ CHART 67
Financial structure[1]



1 – US - United States, LU - Luxembourg, UK - United Kingdom, FI - Finland, FR - France, BE - Belgium, JP - Japan, NL - Netherlands, DE - Germany, EA - euro area, ES - Spain, AT - Austria, MT - Malta, PT - Portugal, IE - Ireland, IT - Italy, EE - Estonia, SI - Slovenia, GR - Greece. 2 – Indicator for bank-based financing = Domestic credit to private sector by banks / (Market capitalization of listed companies + Debt securities issued by non-financial corporations).

Sources: BIS, IMF, OECD, World Bank

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443. The effects of the financial system's structure have been extensively highlighted in the literature from both theoretical and empirical perspectives. The findings suggest that there is **no clear negative effect from bank-based financing**. ↘ BOX 16 It is more likely that the financial structure best suited to promote growth depends on the characteristics of the country concerned (Levine, 2005). Empirical studies also show that the country-specific financial structure is the result of endogenous factors such as the strength of property rights (La Porta et al., 1997), the industrial structure (Allen et al., 2007) or the national culture (Kwok and Tadesse, 2006). The dominance of bank-based financing in Europe could thus be a symptom of adjustment to the specific circumstances rather than a problem in itself.

Moreover, banks and capital markets **complement** each other in many areas (e. g., securitisation and market making), which makes it impossible to clearly distinguish between bank and market-based systems.

↘ BOX 16

Financial structure and economic growth

The theoretical literature presents a range of arguments as to why either bank or capital market-based financing is supposedly more beneficial to economic growth. **Banks** have an advantage over capital markets in terms of dealing with **asymmetric information**, which can lead to adverse selection and moral hazard (Stiglitz and Weiss, 1981). By assessing borrowers' creditworthiness and monitoring companies as part of their lending activities, banks help to improve the allocation of resources (Diamond, 1984; Boot and Thakor, 1997). As the problem of asymmetric information is particularly pronounced when it comes to **small firms**, banks have an especially important role there.

However, banks are also vulnerable; given that deposits may be withdrawn at any time, there is a risk of bank runs. Extensive safety nets were created to provide stability, but these also generate incentives to take excessive risks (Demirgüç -Kunt and Detragiache, 2002; GCEE Annual Economic Report 2014 item 299). This can lead to a misallocation of capital and threaten financial stability. The pro-cyclical behaviour of banks contributes to the build-up of systemic risks and endangers financial stability (GCEE Annual Economic Report 2014 item 364). On the other hand, building long-term customer relationships has a stabilising effect, especially in times of crisis (Bolton et al., 2013). However, loans can be maintained for too long and rolled over again and again in order to avoid write-downs ("Zombie bank" problem, Levine, 2005; ASC, 2014).

The main advantage of **capital markets** is their ability to efficiently aggregate information on market participants. They are prone to a free-rider problem, however (Grossman and Hart, 1980; Grossman and Stiglitz, 1980). As investor behaviour reveals which companies are worth investing in, each investor has an individual incentive to leave it to others to gather price-relevant information. This means that capital markets can lead to a misallocation of capital in the presence of asymmetric information.

Capital markets carry risks to stability and are pro-cyclical. Stressful situations can see market liquidity suddenly dry up, leading to a collapse of the market as in the financial crisis of 2007 to 2009 (Acharya et al., 2011). The main reason for a market collapse is the asymmetry of information, which results in adverse selection (Kirabaeva, 2010; Malherbe, 2014).

The empirical literature offers no indication of whether market- or bank-based financing is more likely to promote **growth**. Nor do older studies based on country-level data (Levine, 2002), industry-level data (Beck and Levine, 2002) or firm-level data (Demirgüç -Kunt and Maksimovic, 2002) allow clear

conclusions to be drawn as to which structure is more beneficial. However, two more recent studies based on country-level data and including the financial crisis find a significant negative correlation between bank-based financing and overall economic growth (ASC, 2014; Langfield and Pagano, 2015).

Meanwhile, an **analysis by the German Council of Economic Experts based on sectoral data** for the manufacturing industry and including the financial crisis largely confirms the findings of the earlier literature. ↘ APPENDIX I The study looks at a country-industry cross-section during the observation period 2000 to 2011. As the financial crisis potentially constituted a structural break, the study also examines a pre-crisis and post-crisis period with the time periods chosen as a compromise between maximising the number of observations and achieving the longest possible observation period. It can be seen that the coefficient for **financial structure is positive or insignificant**. ↘ TABLE 21 In interpreting the positive coefficient, it makes sense to look at the differences in growth between industries that require different levels of external financing and are based in countries with different weights on bank-based financing. The difference in average annual growth between industries that require external financing to a greater or lesser extent (75th percentile versus 25th percentile) is between 0.3 and 0.5 percentage points higher in countries with more bank-based financing (75th percentile) than in countries with less bank-based financing (25th percentile), depending on the measure chosen for financial structure and the period examined.

There has been little empirical investigation of whether more bank-based systems increase **macroeconomic volatility**. Gambacorta et al. (2014) examine countries' decline in growth in "normal" recessions and financial crises, distinguishing between primarily bank and capital market-based countries. Their results show that bank-based systems are more resilient in "normal" recessions on average. If, however, the recessions are associated with financial crises, countries with stronger bank-based systems are hit particularly hard. This finding underscores the importance of shock absorption through the banking system, which is drastically reduced in financial crises.

↘ TABLE 21

Relationship between financial structure and economic growth[1]

	2000 - 2011	2000 - 2007	2009 - 2011
External dependence*financial structure			
External dependence*log(bank loans/stock market capitalisation)	+**	+**	+
External dependence*log(bank loans/stock market total value traded)	+	+**	+

1 – The table shows only the signs of the key regression coefficient and its statistical significance. The complete regression results are provided in the appendix. ** indicates significance at 5 % level.

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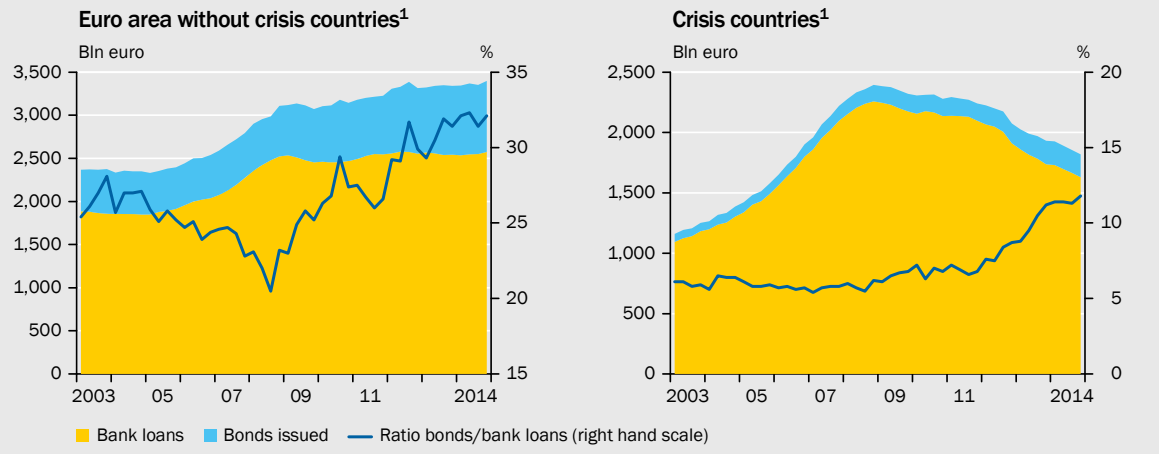
444. Since the financial crisis, **bank loans have been substituted to a moderate degree by corporate bonds**. Aggregate data for the euro area shows an increase in the ratio of corporate bonds to bank loans in recent years. There are clear differences between crisis and non-crisis countries; while the growth in bond financing further boosted the overall financing volume in non-crisis countries, the moderate increase in bond financing was unable to offset the sharp drop in lending in crisis countries. ↘ CHART 68

Microeconometric studies confirm this substitution at large companies in both the US (Becker and Ivashina, 2014) and Europe, as well as the finding of a weaker effect in crisis countries (de Almeida and Masetti, 2015). Although no ev-

↘ CHART 68
Financing of non-financial corporations



1 – Crisis countries: Greece, Ireland, Italy, Portugal and Spain.

Sources: Own calculations, BIS, ECB

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idence is available, it is likely that small companies find such substitution more difficult compared to large companies.

445. In summary, the **euro area** retains a **relatively high dependency on bank-based financing**. Whether this has a positive or negative effect on economic growth remains an open question given the empirical evidence available. During the financial crisis, the ability to substitute capital market financing for bank-based financing was especially limited in Europe's crisis countries. The associated decline in financing volume may have affected investment activity in these countries.

Expanding capital-market based financing would increase the **diversification of financing sources** for European companies and thus improve the system's resilience. Given the importance of small businesses to the European economy, **banks** will continue to play a **central role in corporate financing**.

3. Sustainable financial integration desirable

446. A second potential barrier to financing in the euro area is the **lack of integration of European financial markets**. Financial integration in the euro area increased continuously from the late 1990s until the trend reversed during the financial crisis. Integration began to increase again gradually from the mid-2012 (ECB, 2015b). This shows that the integration that had taken place before the crisis was **unsustainable**; the flow of financing dried up when it was most needed (Schnabel and Seckinger, 2015). An effective **risk-sharing across national borders** requires a certain durability of lending relationships and the ability to absorb losses. Deeper integration could bring advantages in terms of growth and efficiency.

447. In a strongly bank-based system **integration of the banking sector** is particularly important. In the past, financial institutions in the euro area largely

held foreign government bonds and claims against foreign banks. Here, absorbing losses hindered by frictions due to potential systemic effects or is not enforceable given the possibility of rapid withdrawal.

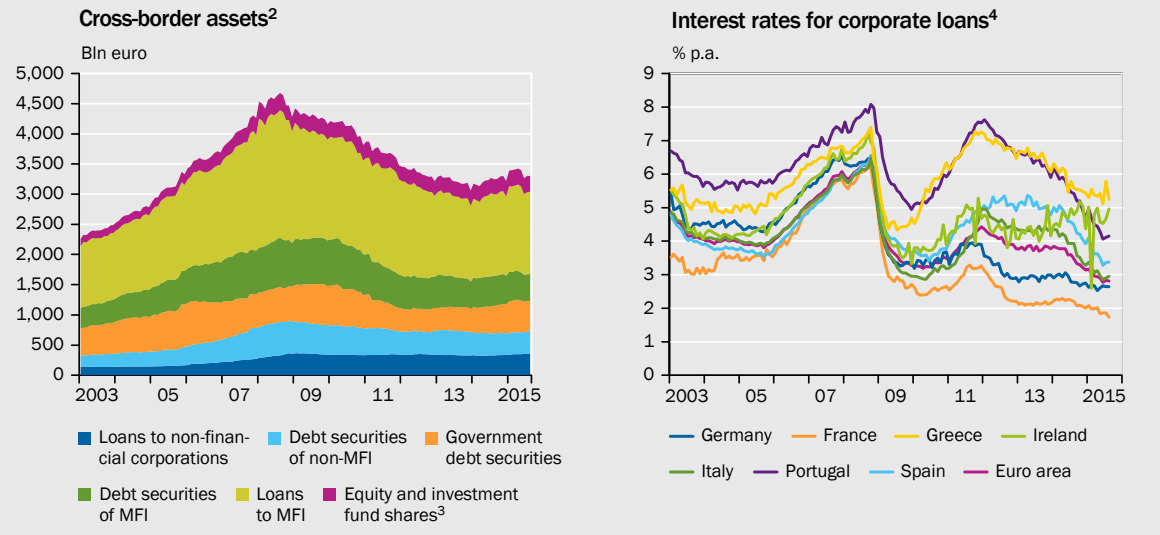
Interbank claims are by far the most important asset class. ↘ CHART 69, LEFT They grew rapidly in the run-up to the crisis and fell just as quickly once the crisis broke out. **Government bonds** are in second place, and have also seen much less cross-border holding since the crisis began. Corporate bonds and direct lending to companies makes up a much smaller share. Unlike corporate bonds, cross-border lending remained largely stable during the crisis.

448. Like the quantity-based measures, **price-based measures of integration**, such as interest rates on corporate loans also show integration increasing in the lead-up to the crisis and then beginning to fall afterwards. ↘ CHART 69, RIGHT However, barriers to integration are not the only cause for differences in interest rates. They are also the result of **country and business-specific risks**. This is one of the reasons why price-based measures are less conclusive than quantity-based techniques (Kose et al., 2009).

449. An increase in financial integration is also evident in **capital-market based financing forms**. Since the euro was introduced, foreign investors, particularly from other euro area member states, have increased their holdings of equity securities from euro-area issuers (de Santis and Gérard, 2009). Cross-border holdings of equity securities within the euro area continued to increase as a proportion of total equity securities from euro-area issuers during the crisis, amounting to approximately 42% in 2013 (ECB, 2015b). On the other hand, the available evidence points to a decline in the proportion of intra-euro area cross-border holdings of debt securities (government and corporate bonds) during the crisis. ↘ CHART 69, LEFT

↘ CHART 69

Cross-border assets of MFI[1] and interest rates in the euro area



1 – MFI = Monetary Financial Institutions. 2 – Cross-border assets held within the euro area. 3 – Without money market funds. 4 – New loans to non-financial corporations with a maturity of up to one year and with a volume of up to 1 million euro.

Source: ECB

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450. The potential from greater financial integration is highlighted in the literature on the **risk-sharing in federal states**. The financial system is typically well integrated across all constituent parts of the state as there are very few cultural, legal or institutional barriers to overcome. Studies on US states, German *Länder*, Canadian provinces and Swedish regions show that the financial system makes a substantial contribution to consumption smoothing (Asdrubali et al., 1996; Andersson, 2008; Balli et al., 2012; Hepp and von Hagen, 2013). This means that fluctuations in economic activity do not fully feed through to private consumption. The effects of local shocks are mitigated and welfare losses limited.

The contribution of factor and credit markets found in these studies is notable particularly when compared to that of fiscal transfers, which contribute much less to consumption smoothing (GCEE Annual Economic Report 2013 item 329). Other studies confirm the relatively low significance of fiscal insurance mechanisms (Buettner, 2002; Melitz and Zumer, 2002).

451. However, studies for the **European Union** show that international financial markets make only a minor contribution to risk-sharing between member states (Sørensen and Yosha, 1998; Kalemli-Özcan et al., 2005; Balli, Kalemli-Özcan, et al., 2012; Kalemli-Özcan et al., 2014). Although a trend towards increased risk sharing can be seen since the 1990s, which could be explained by increasing financial integration in Europe, its overall contribution to consumption smoothing remains small. The findings of a more recent study (Kalemli-Özcan et al., 2014) also suggest that the contribution in the countries particularly hard hit by the euro crisis has actually become smaller. This suggests that **financial integration in Europe remains incomplete**, despite the progress in various sub-markets. The result is that country-specific shocks cannot be absorbed by other countries to the extent that they would if financial markets were deeply integrated.

452. Important steps towards deeper integration have been taken in the **banking system** in the form of the **Single Rulebook** and the **banking union**. Increasing harmonisation and the standardised application of supervisory rules, an improved framework for bank resolution and a single resolution fund are limiting the build-up of risks in the banking system and have the potential to improve international risk sharing within the euro area (GCEE Annual Economic Report 2013 item 335). This is particularly important in a monetary union, where adjustments via the nominal exchange rate are not possible, removing an important mechanism for mitigating country-specific shocks. A focal point of the Capital Markets Union should be to further increase the potential for risk sharing by means of a targeted **strengthening of sustainable cross-border financing**.

4. Debt overhang hinders investment

453. High levels of corporate debt are discussed as a third barrier to financing in some euro-area countries (IMF, 2015). In the run-up to the financial crisis, banks massively expanded lending thereby increasing their leverage. This was

reflected in an **increase in corporate debt** relative to GDP ↘ CHART 70, LEFT and equity (GCEE Annual Economic Report 2013 item 386).

High levels of corporate debt and a low capitalisation of banks are likely to have been fostered, in part, by **structural factors**, which make debt financing more attractive than equity financing. These include implicit government guarantees for banks (GCEE Annual Economic Report 2014 item 299) and tax advantages for debt financing (GCEE Annual Economic Report 2012 items 385 f). ↘ ITEM 779 FF. The latter is increasingly regarded as a factor further elevating the already high level of debt financing in the banking sector (de Mooij, 2012; Admati et al., 2013; Langedijk et al., 2014).

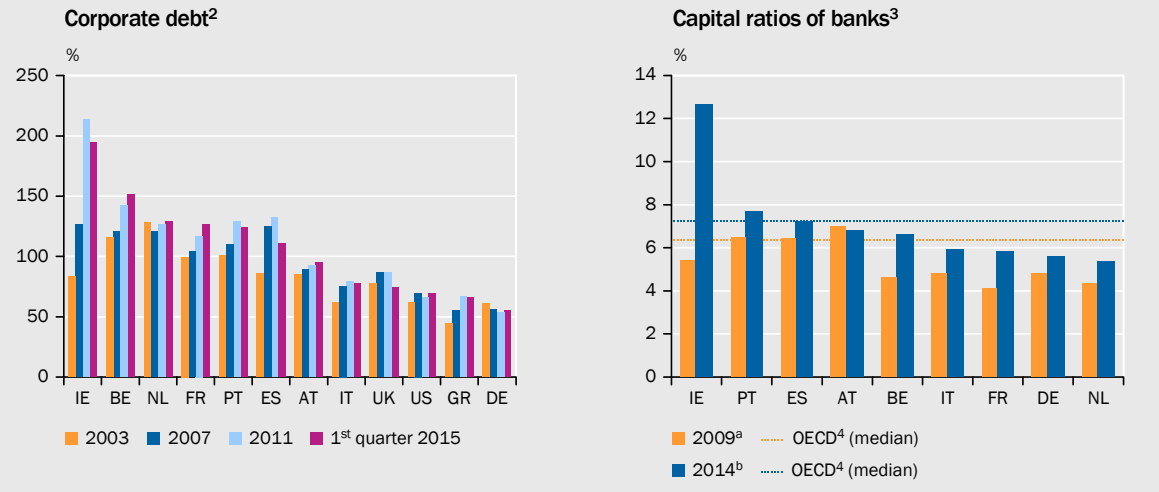
454. **Excessive debt financing** is problematic from a macroeconomic perspective. High corporate debt (**debt overhang**) creates an incentive to neglect profitable investments (Myers, 1977) and take excessive risks (Jensen and Meckling, 1976). Empirical evidence shows a negative association between high levels of debt and corporate investment (Hennessy, 2004; Hennessy et al., 2007; Kalemli-Özcan et al., 2015). A recent study illustrates this relationship for Spanish and Italian firms (IMF, 2015).

Moreover, low capital ratios make companies more vulnerable to economic shocks (GCEE Annual Economic Report 2012 item 401). A debt overhang also reduces incentives to raise new capital, delaying the consolidation of balance sheets following a crisis. Such periods in the past were associated with low rates of economic growth (Ruscher and Wolff, 2012; Chen et al., 2015).

455. When banks are weakly capitalised, even small shocks may create stress and reduce lending (Admati et al., 2013). In crisis times, these institutions have an incentive to roll over loans to insolvent companies in order to keep firms alive

↘ CHART 70

Corporate debt and capital ratios of banks in selected countries[1]



1 – If not otherwise reported, data refer to the 4th quarter. AT-Austria, BE-Belgium, DE-Germany, ES-Spain, FR-France, GR-Greece, IE-Ireland, IT-Italy, NL-Netherlands, PT-Portugal, UK-United Kingdom, US-United States. 2 – Credit of all sectors to non-financial corporations in percent of nominal gross domestic product. 3 – Capital and reserves in percent of total assets. 4 – Without Chile, Iceland, New Zealand, Norway, Slovenia, Sweden and Hungary. a – France and Ireland: 2009 (annual value). b – France: 4th quarter 2013, Italy: 2nd quarter 2014.

Sources: BIS, IMF

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(**evergreening**). This enables them to avoid writing down loans or running into problems of compliance with regulatory capital requirements (Sekine et al., 2003; Giannetti and Simonov, 2013). The result in Japan, for example, was that fewer loans were granted to healthy companies and investment activity consequently fell (Caballero et al., 2008).

456. Banks **increased their capital ratios** after the onset of the financial crisis. ↘ CHART 70, RIGHT This was due to growth in equity and a reduction in assets. However, despite extensive reforms to capital requirements and the comprehensive assessment in 2014 (GCEE Annual Economic Report 2014 items 308 ff.), euro area banks still remain weakly capitalised in an OECD comparison. **Companies** in some euro area countries such as Germany, Italy and Spain, have increased their **capital ratios** (Bach, 2014) since the crisis began. However, debt in the corporate sector remains higher than before the crisis in most countries. ↘ CHART 70, LEFT

457. The increase in capital ratios is only partially attributable to a reduction in systematic distortions to the benefit of debt financing. Banks have increased their capital ratios primarily in response to large-scale government rescue measures and increased regulatory capital requirements. There has been progress in removing implicit guarantees. First and foremost, the resolution framework for banks has been reinforced, making rescue measures that favour creditors less likely. This has been reflected in worsening credit assessments from rating agencies (Fitch Ratings, 2015). However, there is still **room for improvement in the resolution regime**, particularly with regard to the discretionary leeway with respect to creditor bail-ins and the resolution of major globally active banks (GCEE Annual Economic Report 2014 items 357 ff.).

458. **Companies'** rising capital ratios are also a consequence, among other things, of stricter capital requirements for banks, introduced before the crisis in the form of Basel II. It is also likely that they are a product of banks' stricter lending standards following the outbreak of the crisis (GCEE Annual Economic Report 2014 items 424f.). For Spain, it has been empirically demonstrated that companies' capital ratios became a more significant factor in the approval of loan applications after the crisis broke out (Jiménez et al., 2014).

459. However, tax incentives for excessive debt financing remain. The German Council of Economic Experts has repeatedly proposed an allowance for corporate equity in Germany in order to achieve **funding neutrality in taxation** (GCEE Annual Economic Report 2014 item 48; GCEE Annual Economic Report 2012 items 407ff., ↘ ITEM 728 FF.). Such a policy could help to reduce leverage ratios among banks and non-financial companies.

5. Conclusion

460. With the Capital Markets Union the European Commission aims to overcome existing **barriers to corporate financing** and consequently boost investment and growth. The most important potential barriers to corporate financing are an

excessive reliance on bank-based financing, unsustainable financial market integration, excessive debt levels of non-financial companies and a low capitalisation of banks.

461. Given the empirical evidence, it is doubtful that moving to a system more strongly focused on capital markets would contribute to higher economic growth. The **strong focus on bank-based financing** might in fact represent an appropriate response to the prevailing industrial structures in Europe. The main aim of economic policy should therefore be to **remove frictions** that distort the choice of financing forms. These primarily include the implicit guarantees still present in the banking system (GCEE Annual Economic Report 2014 items 338 f.).

Strengthening capital market financing may be desirable in order to increase the **diversification of companies' financing sources**. Access to the capital markets must be improved for small and medium-sized businesses in particular. The measures being sought in the area of securitisations, information on creditworthiness and prospectus obligations could play an important role here.

462. The experience of the crisis has shown that **there has not been enough sustainable cross-border financing** in Europe, and particularly in the euro area. There is a considerable potential to improve social welfare by greater **risk sharing through financial integration**. The Capital Markets Union's aim of strengthening the internal market for capital is therefore a welcome move. Particular attention should be paid to financing forms that are sustainable and able to absorb losses. The lack of these during the crisis prevented effective risk sharing.

463. Further integration will require **standardisation and harmonisation**. Europe-wide standards for securitisation of corporate loans and greater convergence of financial market supervision, for example, are advised. However, it must be borne in mind that existing national institutions may in fact represent an efficient response to national circumstances. The advantages of greater integration through standardisation and harmonisation must therefore always be weighed up against the disadvantages of less custom-fit solutions.

464. Greater integration is likely to boost capital market financing by increasing the **size and depth of the market**. In some markets, the Capital Markets Union could enable a critical mass to be reached for the first time. This latter factor is likely to be particularly important in **start-up financing**. ↘ ITEM 684 FF.

465. The fact that **corporate debt** remains high and banks weakly capitalised in some European countries is the source of the third barrier to financing. As a long-term programme aimed at improving the institutional framework, the Capital Markets Union cannot be expected to make a substantial contribution to reducing private debt. Particularly in the crisis countries of Europe, however, reducing corporate debt is likely to be key to reviving corporate investment activity. Without it, the European Capital Markets Union is likely to have limited success.

Where inadequate national insolvency regimes delay private sector deleveraging (Aiyar et al., 2015), **reforms to national insolvency law** would seem an appropriate first move. This notwithstanding, greater convergence may help to reduce barriers in the internal market for capital in Europe.

466. The financial structures are not least the product of **distortions**, primarily those arising from the tax system and implicit guarantees in the banking system. Reducing debt bias in taxation would particularly benefit young companies, which are typically more reliant on equity. ↘ ITEM 686 In the banking sector, a further increase in regulatory capital ratios and continued reduction in guarantees could create a more stable financial system and stimulate lending in the medium term.

467. Based on the analysis, one can formulate some expectations regarding the **concept for the European Capital Markets Union**. A well-designed Capital Markets Union should reduce frictions in capital market financing, improve the size and depth of particular market segments, improve risk sharing between countries and increase the diversification of funding sources for companies. The aim should not be to favour certain forms of financing, but rather to reduce the distortions that influence financing decisions.

APPENDIX

1. Financial structure and economic growth

468. The effects of financial structure on economic growth have been examined in an empirical analysis based on a country-industry cross-section, using the **Rajan and Zingales** (1998) method with the following estimated equation:

$$y_{ik} = \alpha_i + \beta_k + \gamma \cdot size_{ik} + \delta_0 \cdot ext.dep_i \cdot fin.dev_k + \delta_1 \cdot ext.dep_i \cdot fin.dev_k^2 + \delta_2 \cdot ext.dep_i \cdot fin.struc_k + \varepsilon_{ik},$$

where the variables are as follows:

- y_{ik}: average real geometric growth in value added in industry i in country k over the period observed
- α_i and β_k: industry and country-specific dummies
- $size_{ik}$: size of industry i in country k in relation to the manufacturing sector as a whole in country k at the beginning of the period observed
- $ext.dep_i$: external dependence of industry i
- $fin.dev_k$: measure of financial development of country k
- $fin.struc_k$: measure of financial structure of country k

As is common practice in the literature, we use a fixed effects estimator with robust standard errors.

469. The coefficient δ_2 is of particular interest. The **financial structure**, i. e., a country's level of bank-based financing, is interacted with an industry's dependence on external financing. If the estimated coefficient of the interaction term is **positive**, then industries with greater reliance on external financing grow more strongly, in relative terms, in countries with more bank-based financing. The analysis also controls for country- and industry-specific growth effects, for the relative size of the industry and for the financial development of the country. The relative size is used in order to reflect catch-up processes of young industries. The coefficient γ is expected to be negative. The quadratic term of financial development takes account of recent literature, which suggests a negative correlation between financial development and economic growth once the financial system exceeds a certain size (Arcand et al., 2012; Cecchetti and Kharroubi, 2012; Manganelli and Popov, 2013).

470. The **data** on the nominal value added by individual industries were taken from the United Nations Industrial Development Database (UNIDO) and comprises 125 industries in the manufacturing sector (INDSTAT4, Revision 3 and 4). This data is translated into real value added using the GDP deflator (World Bank, World Development Indicators). Industry-specific real growth rates have been adjusted for outliers (Winsorising at the 1st and 99th percentiles).

For financial structure and financial development, we use measures commonly applied in the literature. Financial development takes into account both bank-based and capital market-based financing. The data is taken from the World Bank's Financial Development and Structure Dataset (Beck et al., 2000). Financial development is measured by the sum of loans from financial intermediaries to the private sector and the market capitalisation of listed companies in relation to GDP.

Two measures are used to measure financial structure: firstly, the ratio of bank loans granted to the private sector to the market capitalisation of listed companies. And secondly the ratio of bank loans granted to the private sector to the trading volume of equities. Calculation of financial structure and the degree of financial development is based on the average of the years 1995 to 2000. This period prior to the observation period is used in order to reduce endogeneity problems.

To assess industry-specific dependence on external financing, we use the measure proposed by Rajan and Zingales (1998), which has been updated by Laeven and Valencia (2013). Both research articles are based on 36 industries from Revision 2 of the UNIDO data, which means that the industries in Revision 2 must be matched with those in Revision 3. The two revisions are matched in accordance with Friedrich et al. (2013). As most countries switched from Revision 3 to Revision 4 around 2008, it is also necessary to match Revision 3 and Revision 4.

471. The financial crisis may represent a **structural change**. In order to improve the robustness of results, the following analysis looks at three observation periods. The time periods were chosen to strike a balance between the largest possible number of observations in the cross-section and the longest possible observation period.

– Growth rate from 2000 to 2007, calculated with data from Revision 3 only

– Growth rate from 2000 to 2011, calculated with a combination of data from Revision 3 (2000 to 2007) and Revision 4 (2008 to 2011), or – if possible – exclusively with data from Revision 3 (2000 to 2011)

– Growth rate from 2009 to 2011, calculated with data from either Revision 3 or Revision 4 (depending on availability)

The sample comprises industries from up to 48 countries depending on the period chosen.

472. The **results** do not confirm recent studies that found a negative impact on economic growth (ASC, 2014; Langfield and Pagano, 2015). The financial structure is either insignificant – as in the pre-crisis literature (Beck and Levine, 2002) – or significantly positive. ↘ TABLE 22 In interpreting the positive coefficient, it is helpful to examine the **growth differential** of industries and countries in different percentiles. The difference in average annual growth between industries that require external financing to a greater or lesser extent (75th percentile versus 25th percentile) is between 0.3 and 0.5 percentage points higher in countries with more bank-based financing (75th percentile) than in countries with less bank-based financing (25th percentile), depending on the measure chosen for the financial structure and the period examined.

↘ TABLE 22

Regression results[1]

	2000 - 2011		2000 - 2007		2009 - 2011	
	Dependent variable: average industry- and country-specific growth					
Relative size of the industry	-0.238**	-0.245**	-0.577***	-0.574***	-0.461**	-0.509**
	(0.038)	(0.036)	(0.000)	(0.000)	(0.046)	(0.038)
External dependence* (private credit + stock market capitalisation)/GDP	-0.001	-0.004	0.007	0.007	0.03	0.030
	(0.888)	(0.700)	(0.462)	(0.431)	(0.331)	(0.406)
External dependence* [(private credit + stock market capitalisation)/GDP]^2	0.011	0.011	-0.004	-0.004	-0.019	-0.020
	(0.224)	(0.272)	(0.505)	(0.486)	(0.446)	(0.454)
External dependence* log(bank private credit/stock market capitalisation)	0.008**		0.012**		0.014	
	(0.030)		(0.015)		(0.241)	
External dependence* log(bank private credit/stock market total value traded)		0.002		0.009**		0.008
		(0.670)		(0.035)		(0.450)
Number of observations	1904	1904	3357	3557	2967	2958
R^2	0.400	0.399	0.339	0.339	0.203	0.203
Adjusted R^2	0.345	0.344	0.305	0.305	0.154	0.154

1 – Fixed effects estimator with robust standard errors. p-values in parentheses.
, * indicate significance at 5 % and 1 % levels, respectively.

Source: own calculations

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2. Calculations on the removal of privileges for sovereign exposures in banking regulation

473. The GCEE proposes the introduction of risk-adjusted limits for large exposures and risk-adequate capital requirements. ↘ ITEMS 52 FF. To assess its impact, data on individual banks have been analysed, which was collected by the **European Banking Authority (EBA)** as part of the **2014 stress test**. The data refer to 31 December 2013. A total of 123 banks participated in the stress test, of which 122 were from the European Union and one from Norway. The latter bank is excluded from the following analysis.

The calculations focus on countries from the **Euro-12 Group**, which are home to 95 of the stress test participants. The aggregated assets of these banks comprised 77.3% of total bank assets in the Euro-12 Group in 2013. For Germany, France, Italy and Spain, the ratios were 67.4%, 99.1%, 86.6% and 89.3%, respectively. These figures are based on the ECB's Comprehensive Assessment and Consolidated Banking Data in the "Domestic banking groups and stand alone banks, foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches" category.

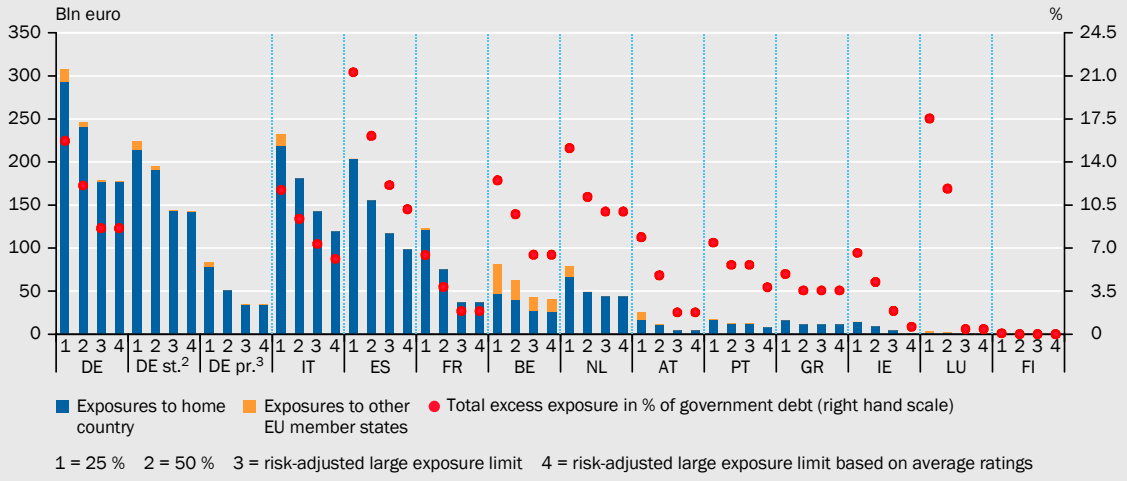
474. Information on **banks' exposures to individual countries** ("net direct positions" variable) and **banks' own funds** ("own funds" variable) was taken from the EBA dataset. The "net direct positions" variable comprises loans to and bonds of central, regional and local government borrowers. Short positions with the same maturity have been deducted. Exposures to other sovereign borrowers and exposures covered by sovereign guarantees are not included.

In all 95 of the banks included, own funds consisted entirely of eligible capital, since the upper limit for tier 2 instruments was not exceeded. The EBA data is complemented by country ratings from the rating agency Standard & Poor's for debtor nations within the European Union (long term, local currency) and Eurostat data on the Euro-12 countries' gross debt.

475. For the large exposure limits, the introduction of an EU-wide regulation has been assumed, covering all EU banks and member states. Accordingly, for each of the 121 banks in the sample, the exposures that would exceed the large exposure limits of the respective sovereign borrowers has been calculated. **Risk-adjusted large exposure limits** ↘ BOX 3, PAGE 28 were based on the EU country ratings as at 31 December 2013, the same date as for the EBA data used. Risk-adjusted large exposure limits have also been calculated using **average ratings over a five-year period**. The rating scale was converted into a linear numerical scale, before calculating averages for the period from 31 December 2008 to 31 December 2013. We then rounded to the nearest whole number and assigned the corresponding rating level to the resulting figures. In addition to the risk-adjusted large exposure limits, we also performed calculations for fixed large exposure limits of 25% and 50% of own funds. This involved analysing a total of four scenarios. ↘ CHART 71

↘ CHART 71

Sovereign exposures exceeding risk-adjusted large exposure limits[1]



1 – Own calculation based on data from the 2014 stress test of the European Banking Authority (EBA); data as of 31 December 2013. For details see item 473 ff. and Chapter 1, Box 3. DE-Germany, IT-Italy, ES-Spain, FR-France, BE-Belgium, NL-Netherlands, AT-Austria, PT-Portugal, GR-Greece, IE-Ireland, LU-Luxembourg, FI-Finland. 2 – State-owned banks. 3 – Private banks.

Sources: EBA, Eurostat, Standard & Poor's

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476. **Two aggregate figures** were calculated for each of the Euro-12 countries; firstly all exposures of domestic banks which were above the large exposure limit were added up. In doing so, it was differentiated between exposures to sovereign debtors in the country of domicile and exposures to other EU member states. ↘ CHART 71, BARS Secondly, all the exposures of the 121 banks in the sample to each Euro-12 member state that exceeded the large exposure limit were added up. Then the total to the gross debt of the relevant member state in 2013 was compared (the Cypriot Co-operative Central Bank Ltd, which had negative own funds as of the date applied, was excluded from these calculations). ↘ CHART 71, DOTS

477. In most member states, excess assets are **considerably less** when risk-adjusted exposure limits are used than when the calculation is based on fixed exposure limits. Greece and Portugal were the exceptions, which were assigned a risk-adjusted exposure limit of 50% based on their ratings as at 31 December 2013. Excess assets also proved lower in Portugal when average ratings were used, and lower excess assets compared to the calculation using ratings on a specific date can be found in Ireland, Italy and Spain.

When looking at all 121 banks in the sample and all EU member states as debtors, **excess assets** amount to €1,194 billion (25% limit), €857 billion (50% limit), €604 billion (risk-adjusted large exposure limit) and €553 billion (risk-adjusted large exposure limit based on average ratings).

478. Calculation of the hypothetical **capital shortfall** was also based on the assumption of an EU-wide rule. A bank's capital requirement for an EU sovereign exposure is the product of the exposure amount, the member state's risk weighting based on the **Basel risk weights for countries** ↘ BOX 3, PAGE 28 and the regulatory capital requirement of 8%. The calculation only included positive net positions and was based on ratings as at 31 December 2013. The total capital

requirement of a member state's banks is calculated from the total capital requirements across all of the EU sovereign debtors and all of the member state's banks included in the sample. This total capital requirement was compared to the total own funds of the member state's banks. ↘ CHART 7 RIGHT, PAGE 29

A total **capital shortfall of €36.2 billion** arises for all banks included in the sample. Around €11.4 billion of this is attributable to Italian banks, €10.7 billion to Spanish banks, €2.9 billion to German banks and €1.9 billion to French banks in the sample. When interpreting the figures, one should take into account that banks can react differently to the capital shortfall. For example, they may choose to increase their own funds or to offload their exposures to member states. It is also conceivable that banks might already hold own funds in excess of the minimum requirement and use these to satisfy additional capital requirements.

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