



EUROPEAN CENTRAL BANK

EUROSYSTEM

# BANKING STRUCTURES REPORT

NOVEMBER 2013





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## ABBREVIATIONS

### COUNTRIES

BE	Belgium	LU	Luxembourg
DE	Germany	MT	Malta
EE	Estonia	NL	Netherlands
IE	Ireland	AT	Austria
GR	Greece	PT	Portugal
ES	Spain	SI	Slovenia
FR	France	SK	Slovakia
IT	Italy	FI	Finland
CY	Cyprus		

### OTHERS

CIs	Credit institutions
EA	Euro Area
EU	European Union
IMF	International Monetary Fund
RoW	Rest of the world (non-EU27 countries)
US	United States

## EXECUTIVE SUMMARY

This report reviews the main structural developments in the euro area banking sector in the period from 2008 to 2012, including the first half of 2013 where data are available, on the basis of a range of selected indicators.

The report reviews developments relating to the structure of bank intermediation – the capacity, consolidation and concentration of banking sectors and related changes over time. The main findings reflect efforts by banks to rationalise banking businesses, pressure to cut costs, and the deleveraging process that the banking sector has been undergoing since the start of the financial crisis in 2008. While country-specific structural and cyclical factors play an important role, comparable patterns can be observed in developments for most countries. For the euro area as a whole, at the end of 2012 banking sector assets (on a consolidated basis) had dropped by almost 12% compared with 2008, to €29.5 trillion, with the major part of the adjustment taking place in 2009. This was accompanied by a drop in the number of credit institutions, as well as bank restructuring and resolution processes in some countries. Merger and acquisition (M&A) activity dropped further in 2012, especially in terms of transaction values, and refocused on domestic deals. Developments in bank capacity indicators point to a more efficient use of resources in the sector.

Furthermore, the report documents developments in banking activity from a structural perspective, on the basis of aggregated data for euro area domestic banking sectors. In this regard, changes in banks' overall balance sheet structure and in the composition of specific assets and liabilities are reviewed for the years following the onset of the financial crisis. Developments in banking sector aggregate financial performance, cost structure, capital and leverage are reviewed. With bank profitability and asset quality indicators significantly affected by cyclical factors, over time improvements in cost efficiency and a gradual improvement in bank capital positions point to an enhanced capacity of the system to withstand shocks and to its being in a better condition to reap the benefits of economic recovery.

This publication includes one special feature article entitled “*Structural characteristics of the euro area and US banking sectors: key distinguishing features*”. The article draws attention to differences in the structure, role and activities of banks on both sides of the Atlantic, which help to explain disparities in banks' income sources, financial performance and capitalisation.

The report makes use of a number of different publicly available data sources. Aggregate banking sector statistics are compiled by the European Central Bank (ECB) with input from national authorities, and are published on an annual basis. Individual bank-level data derives from banks' published accounts or market data providers.



## I THE STRUCTURE OF BANK INTERMEDIATION

*This chapter provides an overview of the structure of bank intermediation in the euro area. It reviews the overall banking sector capacity by country, highlighting main developments over the five years to end-2012. This time period includes the beginning of the financial crisis and the time when some euro area countries entered programmes of financial assistance.*

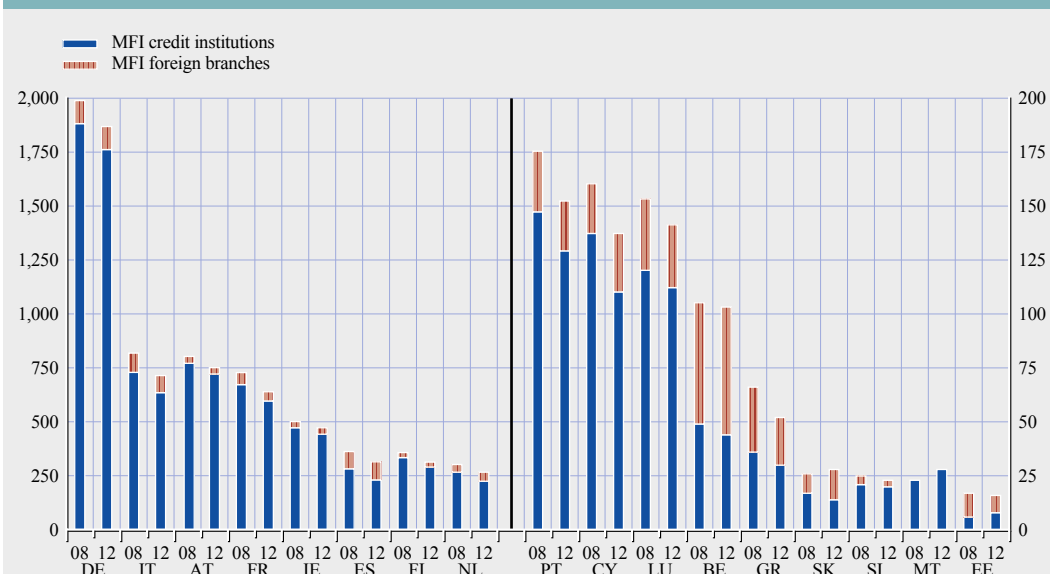
### I.1 BANKING SECTOR CAPACITY

Since the inception of the financial crisis in 2008, the euro area banking sector has been going through a rationalisation process which has resulted in a reduction of the overall number of credit institutions. Developments relate to pressures to achieve cost containment, deleveraging and restructuring of the banking sector in euro area countries more affected by the financial crisis.

At the end of 2012, the total number of credit institutions<sup>1</sup> in the euro area stood at 6,018, calculated on a non-consolidated basis, including foreign branches (see Chart 1).<sup>2</sup>

Developments over time reveal that there was a net decrease of 191 credit institutions (-3.1%) in the year to end-2012, and a net decrease of 592 (-9%) over the period 2008 to 2012. In 2012, with respect to the previous year, all euro area countries but Luxembourg and Malta recorded a decrease in the number of credit institutions. Since the onset of the crisis, Greece, Spain and Portugal have

Chart 1 Number of credit institutions and foreign branches in 2008 and 2012



Source: ECB monetary financial institution (MFI) statistics.

- 1 Credit institutions account for the bulk of monetary financial institutions (MFIs) as defined in ECB Regulation ECB/2008/32 of 19 December 2008 concerning the balance sheet of the monetary financial institutions sector (recast).
- 2 MFI statistics are residence-based and compiled on an individual (as opposed to consolidated) basis. Data on the number of credit institutions in each country includes foreign subsidiaries operating in that country (as these are legal entities supervised by the local authorities).

recorded the largest decrease. Pronounced declines have also been noticeable in France (where the number of credit institutions has been on a declining path since the 1990s), Italy, and Cyprus.

Reflecting countries' size, but also structural features, German, Austrian, Italian and French credit institutions account for about 65% of euro area credit institutions, a share broadly unchanged from that recorded in 2008. The share of foreign branches in the total number of euro area credit institutions remained broadly unchanged, at 10% for the euro area as a whole, between 2008 and 2012.

On a consolidated basis, the total number of credit institutions in the euro area amounted to 2645 (domestic banks and banking groups) at the end of 2012.<sup>3</sup> This also constituted a decline, from 2909 in 2008, and was accompanied by a reduction in the number of foreign subsidiaries and branches from 734 to 708 over the same period.

Focusing now on the resizing process, total assets of the euro area banking sector stood at €29.5 trillion at the end of 2012 on a consolidated basis, reflecting a year-on-year decline of 2.8% and a decline of 11.6% with respect to 2008. The major part of the adjustment, however, occurred in 2009, to a large extent driven by developments regarding large banks, as the financial crisis unfolded.<sup>4</sup> The largest reductions in the value of assets over this period, in relative terms, were recorded in Estonia and Ireland, amounting to drops in the order of 40%.<sup>5</sup> On the other hand, Finland and Malta recorded an increase in the total value of banking assets over the four years, of 55% and 22% respectively. At the end of 2012, Germany and France remained the largest banking sectors in the euro area, with total asset values of €7.6 trillion and €6.8 trillion respectively, and banking sectors in Spain and Italy stood at a considerable distance, with total assets amounting to €3.9 trillion and €2.9 trillion respectively. At the other end of the spectrum, Estonian and Slovenian banking sectors' assets stood at €21 billion and €49 billion respectively.

When measuring the size of the different euro area banking sectors in relation to GDP, the overall picture is radically different (see Chart 2). In terms of country GDP, Luxembourg stands out as the largest banking sector, with assets representing 1666% of GDP, followed by Malta, Cyprus and Ireland with banking assets representing 789%, 630% and 609% of GDP respectively. It is worth mentioning that in Luxembourg, Malta and Ireland the vast majority of the banking assets are held by foreign-controlled subsidiaries and branches.<sup>6</sup>

Banking sector asset sizes across euro area countries mask wide differences when it comes to the forms of presence of foreign banks (via bank branches or subsidiaries) and their relative weight with respect to domestic credit institutions (see Chart 3). Over the period 2009-2012, the size of domestic banking assets, as opposed to banking assets under foreign control, increased in Greece, Ireland and Portugal (under EU-IMF financial assistance programmes) as well as in Cyprus (which entered a financial assistance programme in 2013). It increased marginally in Spain (where

3 This figure refers to the number of credit institutions covered by the Consolidated Banking Data (CBD) statistics. In the case of some countries, the CBD statistics do not cover the entire banking sector (there are, notably, gaps in reporting on small banks). While this may raise concerns as to the accuracy of the total number of banking institutions, the coverage is very satisfactory in terms of banking systems' assets

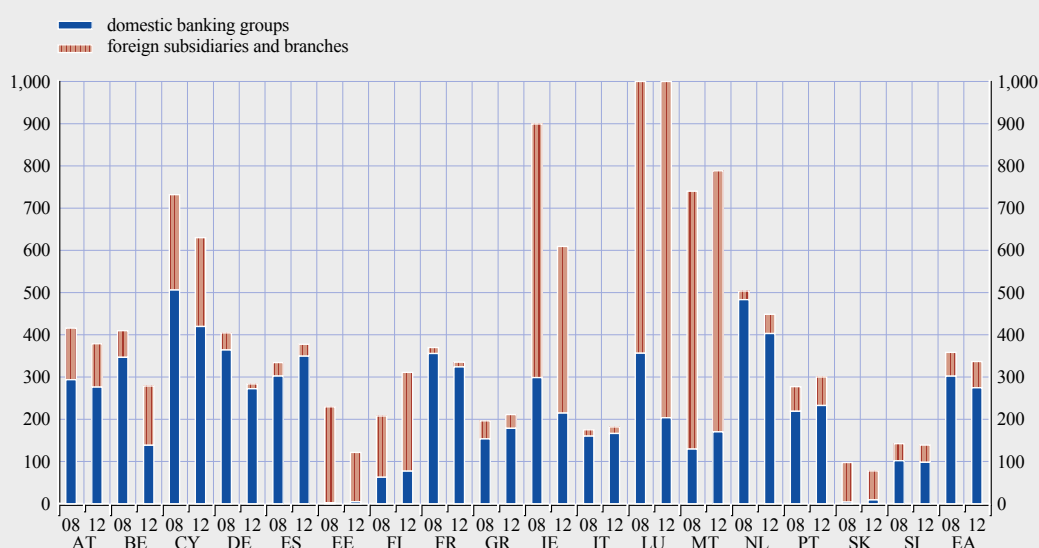
4 The adjustment was large in particular in Belgium and Germany. It is to a large extent explained by specific factors, such as the resolution of large banks and changes in the market value of derivative financial instruments.

5 In the case of Estonia, this was mainly on account of changes in the ownership structure of a foreign banking group in 2011.

6 In the case of Malta, the majority of foreign-controlled subsidiaries and branches have no or limited linkages with the domestic economy.



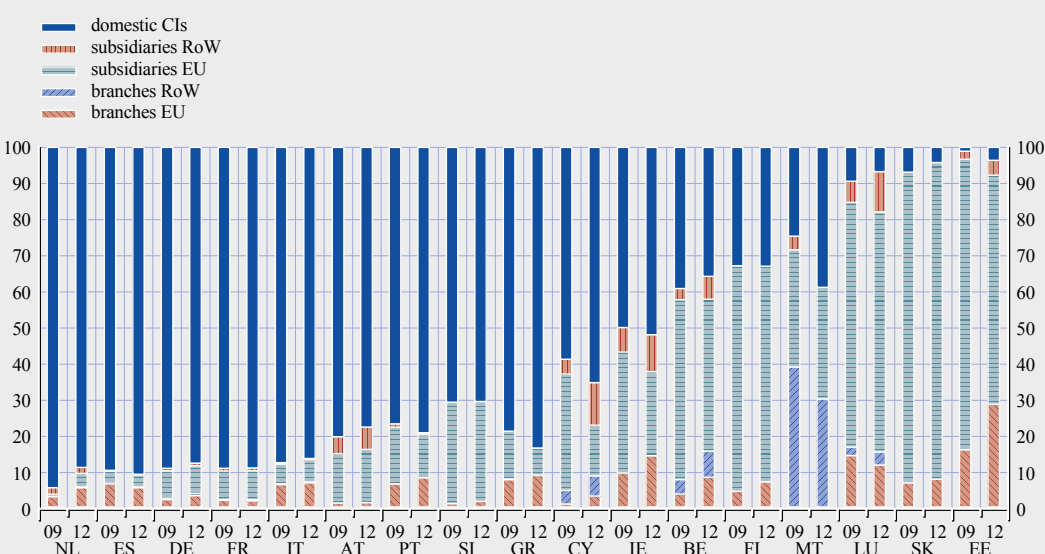
**Chart 2 Total assets of domestic banking groups and foreign-controlled subsidiaries and branches in relation to GDP in euro area countries in 2008 and 2012**



Sources: ECB/Financial Stability Committee (FSC) Consolidated Banking Data statistics and ECB calculations.

assistance is being provided to the financial sector only). These countries, like the bulk of euro area countries, are characterised by a predominance of domestic sector assets (from 50% to as much as 90% of all assets). Among the countries with predominantly foreign-controlled banking assets, Malta and Estonia recorded an increase in domestic banking sector assets over the period.

**Chart 3 The composition of banking sector assets in euro area countries by type of credit institution (CI) in 2009<sup>1)</sup> and 2012**



Source: ECB/FSC Consolidated Banking Data statistics and ECB calculations.

1) Data for 2008 are not available for all countries.

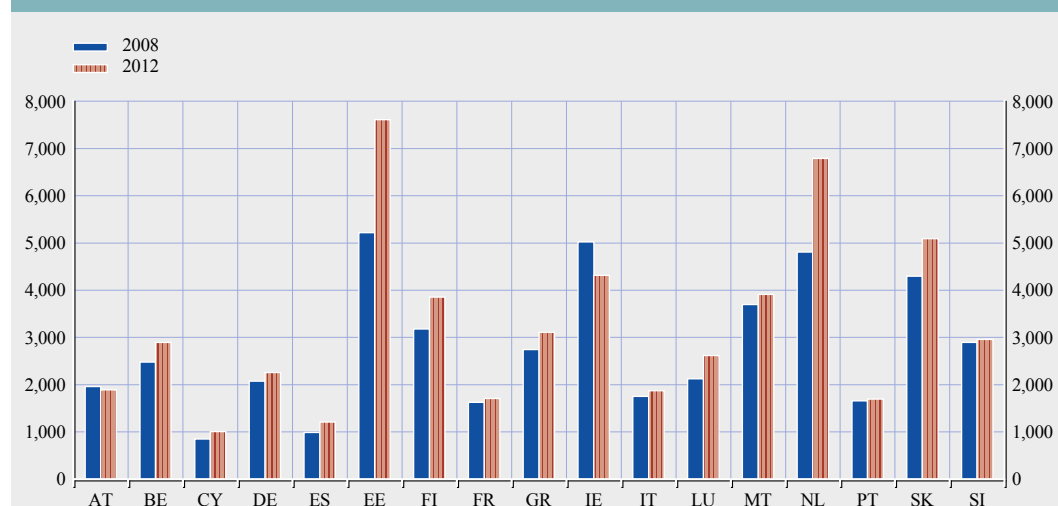
Foreign presence, in the form of bank subsidiaries supervised by the local authorities as opposed to foreign branches, clearly prevails in terms of euro area banking sector assets. However, activity conducted through bank branches remains significant in Malta (though almost entirely unrelated to the domestic economy), and has increased slightly in Belgium, Luxembourg and Cyprus.

The processes of rationalisation and resizing in the euro area banking system documented in this section suggest that the overall efficiency of the system was enhanced over the period 2008 to 2012, although there is some evidence of cross-country heterogeneity. During the period, the number of local bank units (i.e. local branches) in the euro area declined by 8.7%. This represented a net decrease in absolute terms of 16,294 local branches for the euro area as a whole (to 171,477 at end-2012).

This decline was reflected in the increase in the readings of two key banking system capacity indicators: population per local branch and population per banking employee (see Chart 4 and Chart 5). This increase was common to most euro area countries over the years 2008 to 2012, reflecting conjunctural factors such as pressure to reduce staff costs and branch networks in some countries. In particular, the increase in population per banking employee was more substantial in Ireland (33%) and Spain (21%), while the population per local branch indicator shows the largest increases in Estonia (46%) and the Netherlands (41%). Differences across countries reflect structural factors, relating to banks' business models (e.g. the relative importance of investment banking) and country-specific preferences with respect to banking services.

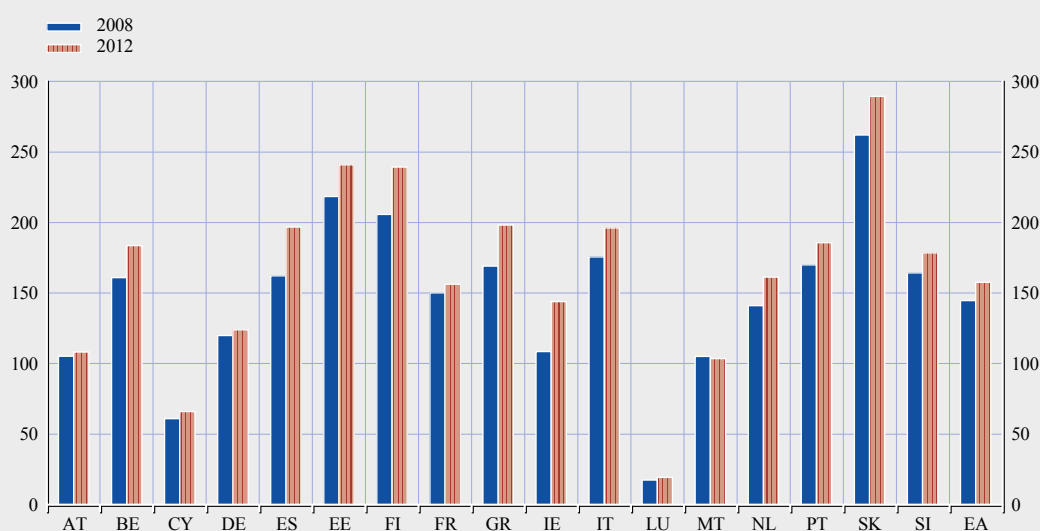
The table displays additional capacity indicators for the euro area and individual countries as at end-2012, in which structural and conjunctural factors play an important role. In the case of assets per employee, the increasing trend in the ratio for the euro area as a whole is the product of different results across countries: while the effect of the deleveraging process dominates in some, leading to decreases in the ratio in recent years (not shown), large decreases in the number of employees dominate in others (e.g. in countries under financial assistance programmes), which lead to significant rises in assets per employee.

Chart 4 Population per local branch in euro area countries in 2008 and 2012



Sources: ECB Structural Financial Indicators and ECB calculations.

Chart 5 Population per banking employee in euro area countries in 2008 and 2012



Sources: ECB Structural Financial Indicators and ECB calculations.

The developments of these indicators over time suggest a more efficient use of resources in the euro area banking sectors. This is in line with developments in efficiency indicators (such as cost-to-income ratios) relating to the financial performance of banks, as discussed in the next section.

Euro area banking sector capacity indicators in 2012

Country	Population per credit institution	Population per branch	Population per ATM <sup>1)</sup>	Population per bank employee	Assets per bank employee	Population density
BE	107,320	2,894	696	185	18,143	334
DE	43,829	2,260	971	124	12,470	229
EE	83,731	7,612	1,523	241	3,536	30
IE	9,725	4,314	1,434	144	27,463	65
GR	217,117	3,111	1,321	198	7,743	86
ES	147,016	1,210	806	197	15,255	91
FR	102,400	1,706	1,119	157	18,505	119
IT	85,247	1,871	1,171	197	13,604	202
CY	6,375	1,009	1,219	68	9,969	94
LU	3,770	2,618	1,078	20	27,800	206
MT	14,945	3,911	2,128	105	13,320	1,308
NL	62,976	6,793	2,140	162	24,080	410
AT	11,220	1,889	1,028	109	12,592	100
PT	69,752	1,694	616	185	9,692	115
SI	89,425	2,959	1,113	179	4,417	102
SK	193,080	5,095	2,245	290	3,201	110
FI	17,293	3,855	2,404	240	26,524	16
Euro area	55,504	1,945	1,035	158	15,076	127

Source: Calculations based on figures in the Annex, the ECB Blue Book and United Nations data.

Notes: Assets per employee are measured in EUR thousands. Population density is expressed as inhabitants per square kilometre.

1) 2011 data.

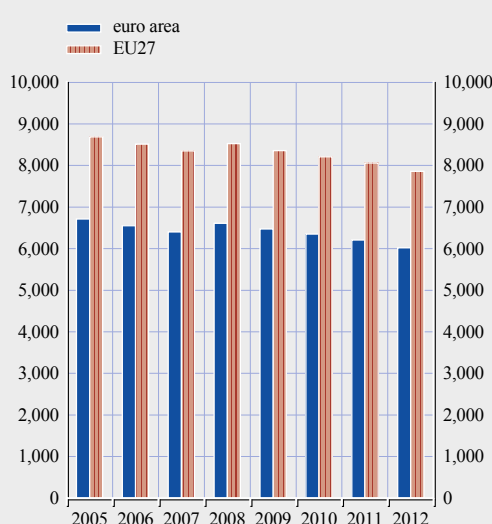
## 1.2 CONSOLIDATION AND MERGER AND ACQUISITION ACTIVITY

In this section, the review of developments in bank consolidation and merger and acquisition (M&A) activity is expanded to include all EU countries. This is to allow for a distinction between intra-EU M&A activity and that beyond the EU, as well as related developments. As emphasised in the previous section, consolidation of the euro area banking sector continued to progress between 2008 and 2012, with the number of credit institutions declining at a steady pace for both the euro area and the EU as a whole (see Chart 6).

Merger and acquisition activity in the EU banking sector has been on a declining trend since 2008, both in terms of number of transactions and total value. In terms of the number of transactions, M&A activity in the euro area has been falling almost consistently since 2000. In the last three years the downward trend accelerated, with cross-border transactions (within the euro area) and outward transactions (with euro area banks as acquirers) being most affected (see Chart 7). In 2012, the number of non-domestic transactions dropped to less than half the number recorded in 2008. More conservative expansion strategies, the uncertainties related to economic prospects, vulnerabilities in the banking sector and the efforts to strengthen capital positions and focus on risks have contributed to this decline. The number of domestic transactions<sup>7</sup> remained at roughly the same level, however, reflecting on-going consolidation – including in the form of intragroup transactions – in Italy and Germany, and the restructuring of the banking sector in the EU-IMF programme countries.<sup>8</sup>

The transaction value of M&A activity across all categories has decreased sharply since 2007 (see Chart 8). The peak in transaction values in 2007 reflected the acquisition of ABN Amro by the consortium of Royal Bank of Scotland, Fortis and Santander, as well as the merger of Sanpaolo IMI and Banca Intesa. From 2008 to 2012, the overall value of deals decreased fourfold to just €10 billion. Significantly, no large cross-border (intra-euro area) transaction or transaction with a buyer from another EU country (inward EU) took place in 2012 and 2013. The M&A activity involving non-EU acquirers also remained subdued, despite opportunities posed by banks' distressed equity prices. The low transaction value of domestic deals reflects the low market capitalisation and the fact that deals include bank restructuring and resolution processes and other transactions conducted for disinvestment or deleveraging purposes. Likewise, against the weak economic environment, the value of outward transactions of euro area banks (with these

Chart 6 Number of credit institutions

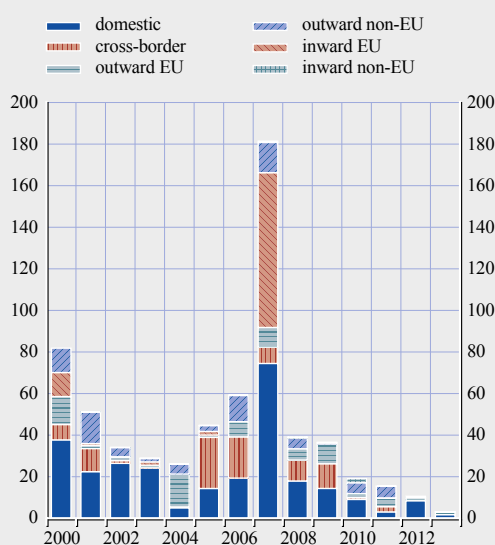


Source: ECB MFI statistics.

<sup>7</sup> Domestic deals denote deals that take place within national borders. In this report, deals within the euro area are referred to as cross-border M&A.

<sup>8</sup> The data assessed in this section do not cover the participation of governments or special legal entities in the restructuring or resolution of credit institutions.

**Chart 7 Bank M&As – number of transactions**

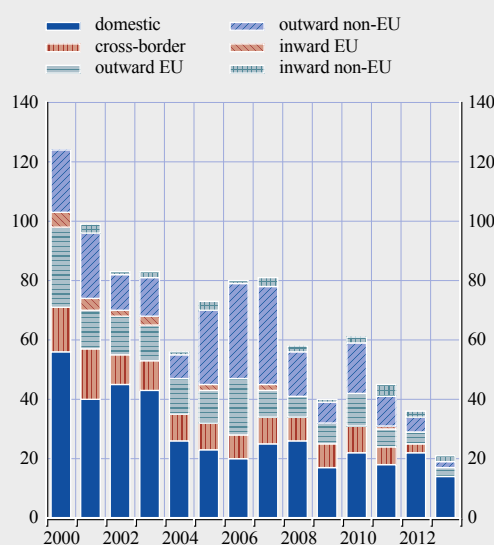


Source: Dealogic M&A.

Note: M&As include both controlling and minority stakes. For some of the deals, the value is not reported. Cross-border M&As refer to intra-EA17 transactions involving a non-domestic acquirer. Inward refers to M&As by non-EU or non-euro area EU27 banks in the euro area and outward indicates M&As of euro area banks outside the euro area. Figures for 2013 refer to the half of the year.

**Chart 8 Bank M&As – value of transactions**

(EUR billions)



Source: Dealogic M&A.

Notes: M&As include both controlling and minority stakes. For some of the deals, the value is not reported. Cross-border M&As refer to intra-EA17 transactions involving a non-domestic acquirer. Inward refers to M&As by non-EU or non-euro area EU27 banks in the euro area and outward indicates M&As of euro area banks outside the euro area. Figures for 2013 refer to the first half of the year.

banks as acquirers) in eastern Europe decreased considerably from the levels observed in 2008-2011. On the whole, the reduction in the overall number of credit institutions as a result of M&A activity appears to primarily reflect the results from within-group consolidation rather than actual mergers and takeovers.

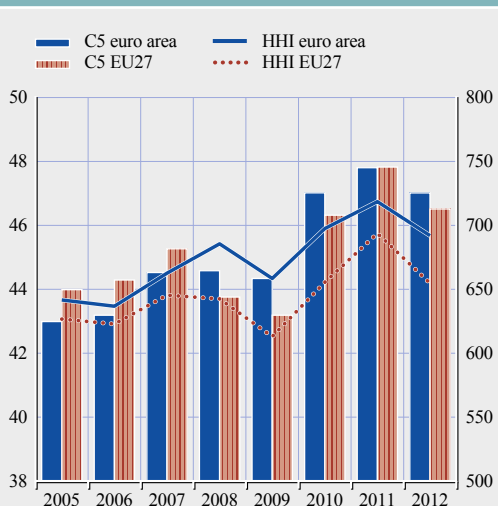
### 1.3 CONCENTRATION AND COMPETITION

Market concentration, as measured by the share of total assets held by the five largest credit institutions or by the Herfindahl index,<sup>9</sup> has increased both at euro area and EU level since 2010, and in comparison with the pre-crisis period. This primarily reflects the decline in the number of credit institutions, as M&A activity remained rather subdued (see Chart 9). For both the euro area and the EU as a whole, both indicators peaked in 2011 and fell slightly in 2012, while remaining well above the pre-crisis levels. The dip in 2012 was mostly driven by large banks' moves – especially in Germany, France, Belgium and the Netherlands – to reduce assets to comply with forthcoming regulations.

<sup>9</sup> The Herfindahl-Hirschman Index (HHI) is defined as the sum of the squares of the market shares of all firms within the industry, where the market shares are expressed as fractions. As a general rule, an HHI below 1,000 signals low concentration, while an index above 1,800 signals high concentration. For values between 1,000 and 1,800, an industry is considered to be moderately concentrated. Note that these indicators are calculated on a non-consolidated basis, meaning that banking subsidiaries and foreign branches are considered to be separate credit institutions.

With regard to individual countries, concentration indices reflect a number of structural factors. Banking systems in larger countries, such as Germany, France and Italy, are more fragmented, and include strong savings and cooperative banking sectors. Banking systems in smaller countries tend to be more concentrated, with the notable exception of Austria and Luxembourg. In the case of Austria, this is on account of a banking sector structure similar to the one characterising the larger countries, and in the case of Luxembourg it is due to the presence of a large number of foreign credit institutions. At the end of 2012, market concentration (measured by the share of assets held by the five largest banks) ranged from close to 90% in Estonia to just over 30% in Germany and Luxembourg (see Chart 10).<sup>10</sup> Regarding developments in the period from 2008 to 2012, the banking sector structure tended to become more concentrated in countries with relatively low concentration levels – such as Italy and Germany – owing to intra-group reorganisation, as well as in countries undergoing banking sector restructuring processes such as Greece, Spain or Ireland, as a result of bank resolution and to a lesser extent M&A activity.

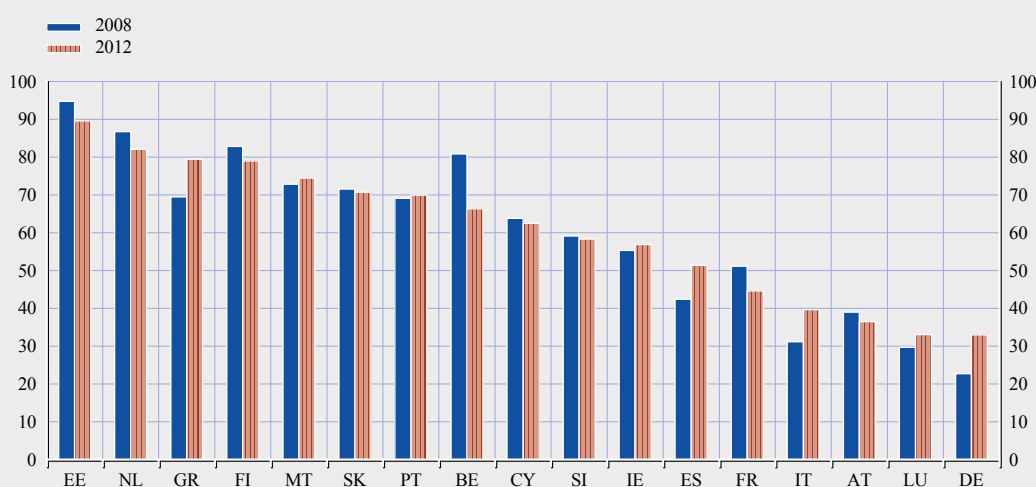
**Chart 9 Market concentration – Share of the five largest CIs in total assets (C5) and Herfindahl index (HHI)**



Source: ECB Structural Financial Indicators.  
Note: Bars refer to C5 (%), left-hand scale) and lines to HHI (right-hand scale).

**Chart 10 Share of the five largest credit institutions in total assets**

(percentages)



Source: ECB Structural Financial Indicators.

<sup>10</sup> Market concentration indices, calculated by bank total assets on an individual basis (as in Charts 9 and 10) produce lower results than concentration indices calculated on a consolidated basis.



## 2 STRUCTURAL DEVELOPMENTS IN BANKING ACTIVITY

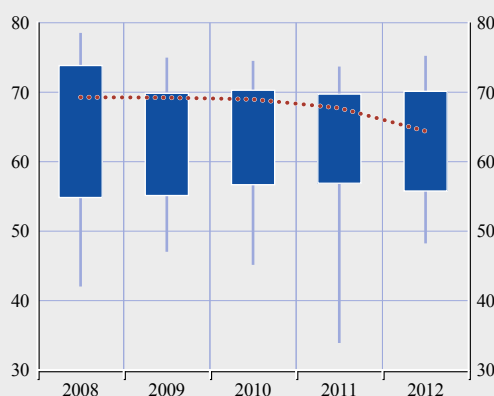
*This chapter reviews structural changes in the activity of euro area banks over the last five years and the broad implications for their balance sheet structure, financial performance, funding pattern, leverage and capital position. The focus is on the domestic banking sector – so findings need to be read with caution in the case of countries with a strong foreign bank presence, as identified in the previous section.*

### 2.1 BALANCE SHEET STRUCTURE

In the years from 2008 to 2012, the structure of euro area bank balance sheets was shaped by both cyclical and structural developments. On the asset side, the share of total loans in bank assets dropped in the majority of euro area countries, especially in 2011 and 2012 (see Chart 11) amid weakening macroeconomic conditions and increased pressure on banks to deleverage. In some cases, this was also due to transfers of distressed loans to asset management companies or “bad banks”. At the same time, following a marked increase in the period between 2008 and 2011, the median share of debt securities in bank assets rose only slightly in 2012 compared with the previous year, but this masked different patterns across euro area countries (see Chart 12). In the majority of

**Chart 11 Share of total loans in total assets of euro area banking sectors**

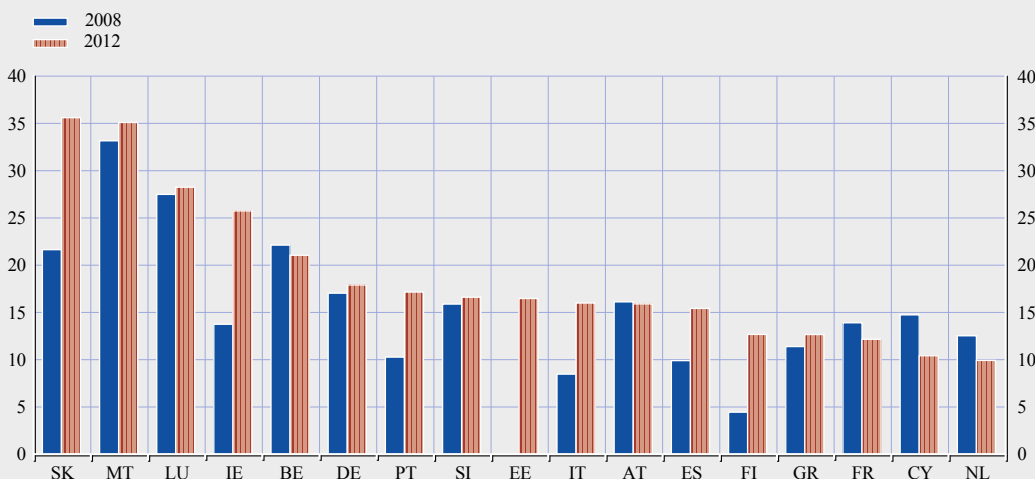
(all domestic banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Total loans include both interbank loans and loans to non-banks.

**Chart 12 Share of debt securities in total assets of euro area banking sectors**

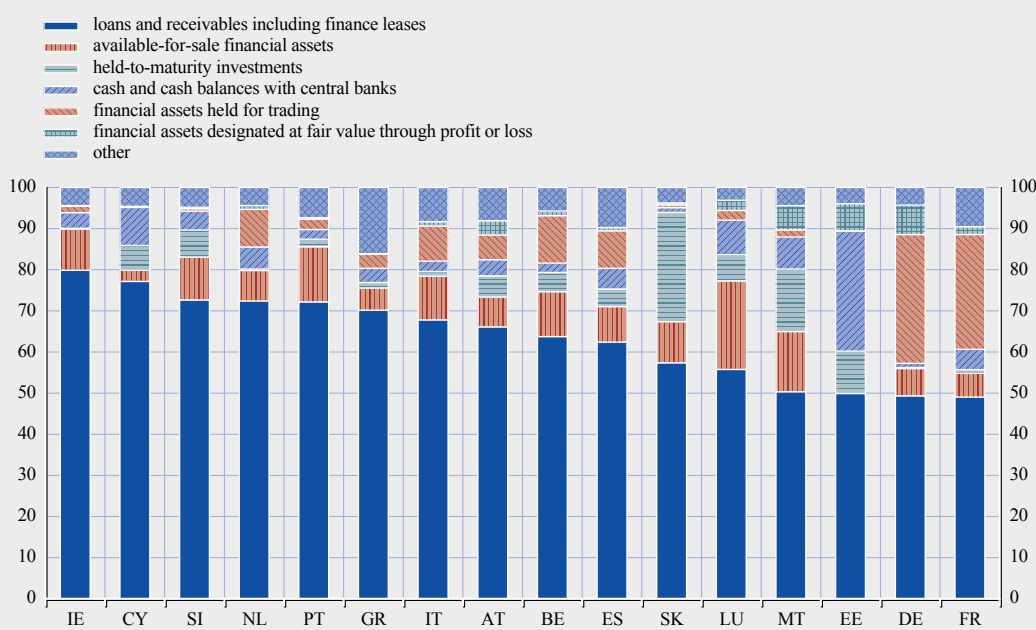
(all domestic banks; percentage of total assets)



Source: ECB/FSC Consolidated Banking Data statistics.

Chart 13 Asset breakdown of euro area banking sectors

(2012; all domestic banks; percentage of total assets)



Source: ECB/FSC Consolidated Banking Data statistics.

Notes: IFRS reporting banks only. Data are not available for Finland. Other assets include, for instance, derivatives used for hedging purposes, tangible assets (e.g. property), intangibles and investments.

countries, banks continued to increase their debt securities holdings (mainly government bonds) in line with general patterns observed during previous economic downturns. To a certain extent, the increase could be attributed to banks' efforts to build up liquid asset buffers, partly in preparation for new liquidity regulations. In some cases, however, the increase in these debt holdings may have been driven by banks' carry trade activities following the two three-year longer-term refinancing operations (LTROs).

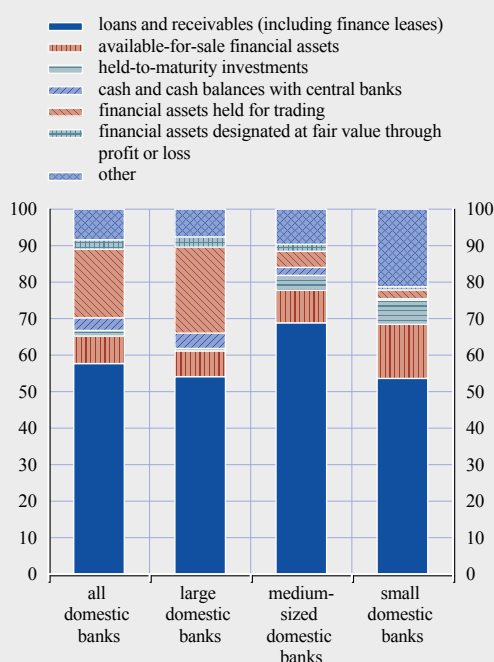
Focusing on the situation at end-2012, a more detailed breakdown of assets – available for International Financial Reporting Standards (IFRS) reporting banks only<sup>11</sup> – reveals large cross-country differences (see Chart 13). For instance, the share of loans and receivables in total assets ranges from 49% in France to 80% in Ireland. The share of trading assets in total assets is typically below 10%, with the notable exceptions of Germany and France where they amount to around 30% of total assets owing to the presence of some large banks with sizeable investment banking activities in these countries.

Differences in bank balance-sheet structure are also driven by bank size. In 2012, trading assets (including derivatives held for trading) accounted for 24% of large banks' assets, contrasting with only 4% and 2% for medium-sized and small banks respectively (see Chart 14). The asset structure of medium-sized banks is dominated by loans (69%), confirming that banks' business models in this size group tend to be more geared towards retail banking activities.

11 In 2012, IFRS reporting banks represented 89% of the full sample. However, cross-country comparisons should be made with care, as in two countries IFRS reporting banks represent only 66% (Germany) and 74% (Austria) of the total banking system in terms of total assets.

**Chart 14 Asset breakdown of euro area banks in different size groups**

(2012; all domestic banks; percentage of total assets)



Source: ECB/FSC Consolidated Banking Data statistics.  
Notes: IFRS reporting banks only. Other assets include, for instance, derivatives used for hedging purposes, tangible assets (e.g. property), intangibles and investments.

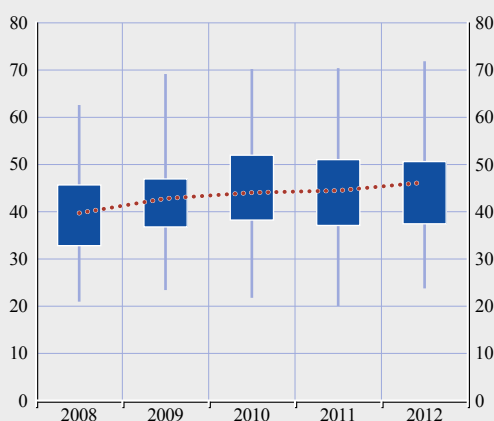
As regards banks' liabilities, the gradual shift towards deposit funding continued in 2012, bringing the median share of customer deposits in liabilities to 46%, from 40% in 2008 (see Chart 15). Euro area banks continued to reduce their dependence on wholesale funding in 2012, with the median share of wholesale funding in liabilities falling to 25%, from 29% a year earlier and 32% in 2008 (see Chart 16). Furthermore, growth in total assets appears to be positively related to the change in the share of wholesale funding as continued deleveraging by banks contributes to reducing their wholesale funding needs.

A more granular breakdown of liabilities – available for IFRS reporting banks only – also shows that, for some countries, the decline in the share of wholesale funding coincided with an increased share of central bank funding in the years from 2008 to 2012, mainly reflecting the impact of the two three-year LTROs in late 2011 and early 2012.

The increased reliance on central bank funding was most notable for medium-sized banks, with its share in total liabilities rising from 3% in

**Chart 15 Share of customer deposits in total liabilities of euro area banking sectors**

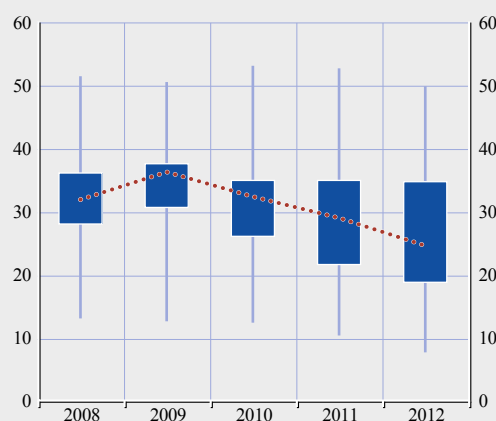
(all banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.

**Chart 16 Share of wholesale funding in total liabilities of euro area banking sectors**

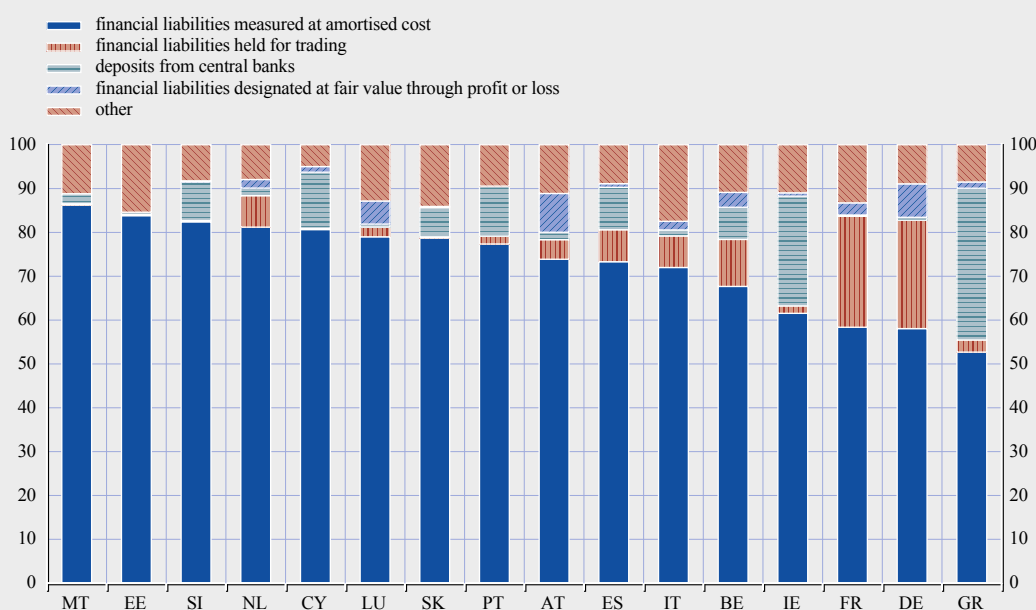
(all banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Wholesale funding includes interbank liabilities and debt securities.

Chart 17 Liability breakdown of euro area banking sectors

(2012; all domestic banks; percentage of total assets)



Sources: ECB MFI statistics and ECB calculations.

Notes: IFRS reporting banks only. Data are not available for Finland. Other liabilities include, for instance, derivatives used for hedging purposes, financial liabilities associated with transferred financial assets, provisions and equity.

2008 to 8% in 2012. Looking at cross-country differences in the structure of banks' liabilities, at end-2012 the share of financial liabilities measured at amortised cost – a category largely consisting of deposits – ranged from 87% in Malta to 53% in Greece (see Chart 17). Mirroring patterns on the asset side, the share of trading liabilities is the largest for banks in Germany and France, accounting for around a quarter of total liabilities. Finally, the reliance on central bank funds was the most significant in countries under EU-IMF financial assistance programmes.

## 2.2 BANK FUNDING

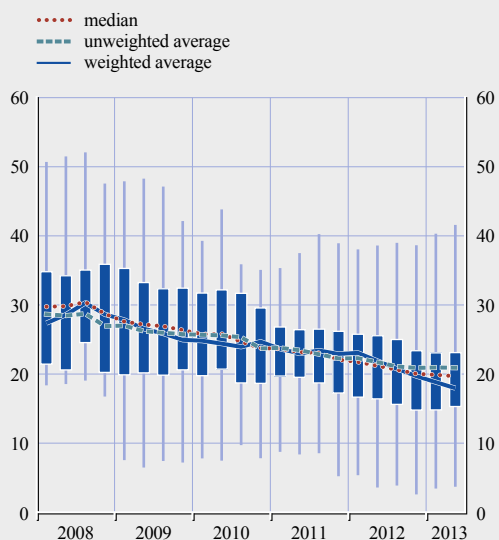
The use of monetary financial institution (MFI) statistics (on an unconsolidated basis) enables further drilling down on structural developments relating to the liability structure of euro area banks' balance sheets. This sub-section documents main changes in bank funding sources and strategies in the aftermath of the financial crisis. It focuses primarily on the euro area as a whole using average statistics; however, the cross-country dimension is also taken into consideration by showing the movements in distributions over time.<sup>12</sup> The quarterly frequency at which the data are available enables an analysis of the time span from 2008 to mid-2013.

As the financial crisis unfolded and interbank markets dried up owing to the increase in investors' risk aversion and the resulting precautionary liquidity hoarding of financial institutions, banks tried to increase their reliance on more stable funding, reducing their dependence on interbank liabilities. The median euro area value of interbank funding as a proportion of banks' total assets

<sup>12</sup> For a more comprehensive analysis of these data for the period 1999 to 2011 please see ECB, "Changes in Bank Funding Patterns", April 2012.

**Chart 18 Share of interbank liabilities in total assets**

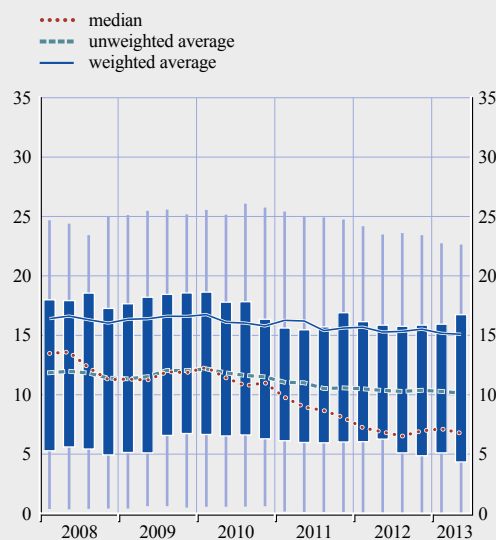
(percentages; maximum, minimum and inter quartile distribution across euro area countries)



Sources: ECB MFI statistics and ECB calculations.

**Chart 19 Share of debt securities in total assets**

(percentages; maximum, minimum and inter quartile distribution across euro area countries)



Sources: ECB MFI statistics and ECB calculations.

started to fall substantially after the third quarter of 2008 (see Chart 18), when it stood at about 30% (having hovered around this level in the pre-crisis period). This decline has continued steadily over time and in mid-2013, in the euro area, interbank funding represented on average 20% of banks' total assets.

The market turmoil constrained banks to also reduce their issuance of debt securities, in the case of some countries owing to market accessibility. At the beginning of 2008 (and in the period preceding the onset of the financial crisis), the median fraction of total assets funded by debt securities stood at just below 14%; however, during the crisis, owing to the fall in market confidence, banks experienced rising difficulties in issuing debt, in particular if unsecured (see Chart 19). Indeed, over the five years from 2008 to 2013 the median percentage of total assets financed through the issuance of debt securities fell by half to 7%.<sup>13</sup>

Euro area averages hide, however, substantial heterogeneity across banks and countries in the importance of debt securities as a source of funding.<sup>14</sup> Indeed, the role of debt securities as a source of funding is generally more prominent in the banking sectors of larger countries with more developed debt markets, whereas it is almost insignificant in the banking sectors of smaller countries. However, even among larger countries, banks vary considerably in their use of debt securities, with Italian<sup>15</sup> and Dutch banks depending far more on this funding channel than German, French and Spanish banks, according to the MFI statistics.

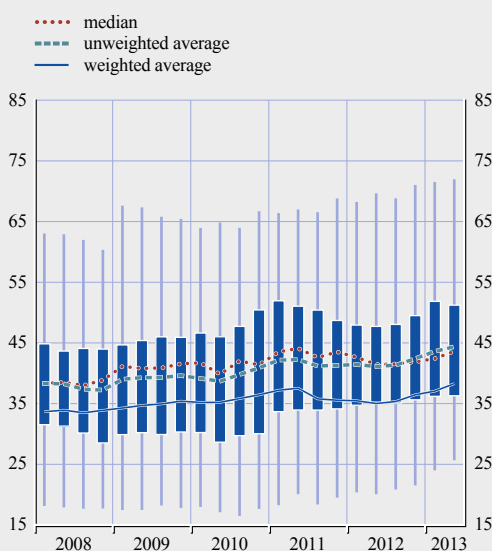
13 It should be noted that Chart 16 and Charts 18-19 rely on different data sources – consolidated and unconsolidated statistics, respectively – and are therefore not fully comparable.

14 Indeed, funding strategies depend both on bank-specific characteristics, such as size and business model, and on national features, such as legal institutions and financial development.

15 It should be noted that a significant share of Italian banks' debt securities (almost two-thirds) is held by households, and is therefore more akin to a stable retail funding source.

**Chart 20 Share of non-bank deposit liabilities in total assets**

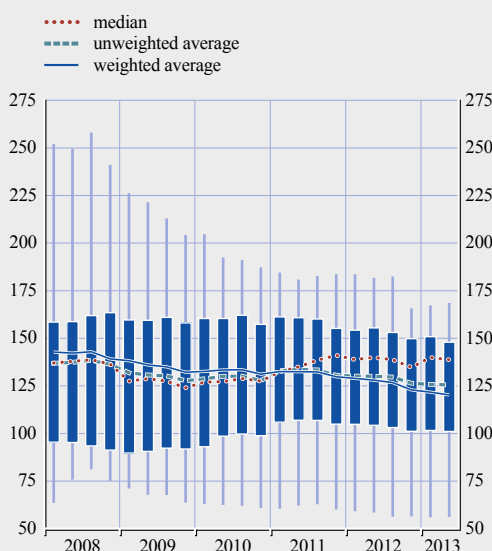
(percentages; maximum, minimum and inter quartile distribution across euro area countries)



Sources: ECB MFI statistics and ECB calculations.

**Chart 21 Loan-to-deposit ratio**

(percentages; maximum, minimum and inter quartile distribution across euro area countries)



Sources: ECB MFI statistics and ECB calculations.

Reflecting banks' efforts to increase their reliance on customer deposits, the share of non-bank deposit liabilities in total assets has increased since 2008 (see Chart 20) after having followed a slightly declining path in the previous years. Median values increased from 38% in the first quarter of 2008 to exceed 42% in the first quarter of 2013. However, it is worth mentioning that, even if this dynamic has been common to almost all euro area countries, the proportion of total assets accounted for by non-bank deposits largely varies across Member States. It ranged from 21.5% in Ireland to 71.5% in Slovakia in early 2013.

The growing reliance on retail deposits combined with a decline in the extension of credit to the economy has led to a decrease in the average euro area loan-to-deposit ratio from around 138% in 2008 (see Chart 21) to below 126% in mid-2013<sup>16</sup>. The steady decline in the euro area loan-to-deposit ratio points to a corresponding substantial reduction in the banking sector leverage.

As a result of the financial crisis, which severely impaired funding markets, the liquidity support provided for euro area banks by the Eurosystem – both through standard and non-standard monetary policy operations – became a more important source of funding, and recourse to central bank funding by euro area banks increased. The euro area unweighted average of the Eurosystem funding as a percentage of total deposit liabilities increased from about 5% at the end of 2008 to about 8.5% in the second quarter of 2012. It is worth mentioning that this rise was accompanied by an increase in the dispersion of the banks' reliance on Eurosystem funding across euro area countries, as shown by the widening of the gap between minimum and maximum over time, as shown in Chart 22. Indeed, mainly banks domiciled in countries under stress benefited from the

<sup>16</sup> However, it is worth noticing that in Chart 21 the median indicates that the loan-to-deposit ratio has started growing again in some euro area countries since 2010.



extended central bank funding support. The growing reliance on Eurosystem funding started to reverse in the second half of 2012 as euro area banks began to pay back the funds borrowed through the two three-year LTROs. In early 2013, the euro area unweighted average of the Eurosystem funding as a percentage of total deposit liabilities was down to around 6% – still above pre-crisis levels, which hovered below 3% (not shown).<sup>17</sup>

### 2.3 FINANCIAL PERFORMANCE AND COST STRUCTURE

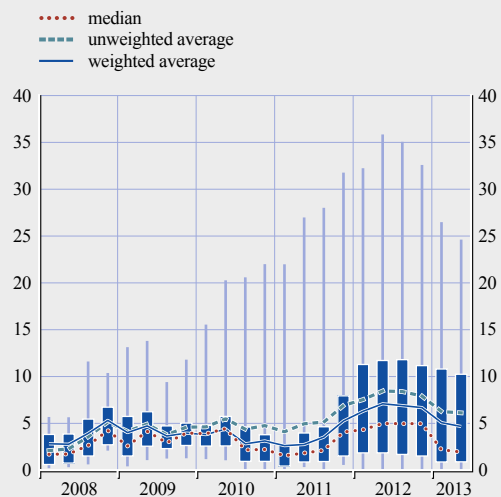
The financial performance of the euro area banking sector has remained subdued since the onset of the financial crisis, although with notable cross-country differences. The euro area banking sector has, in particular, been confronted with the second, more euro area-focused wave of the global financial crisis, including a weak economic environment in many countries. This has led to a deterioration of asset quality, which in turn has negatively affected profitability. Underlying income and cost developments have, however, been more stable, which suggests that, once the currently more cyclical challenges have been overcome, the euro banking sector should be able to return to more a stable performance. Amid unfavourable developments in income, some improvement can be observed in cost reduction across the euro area banking sector.

Profitability levels have remained low since the onset of the crisis in 2008 and have been characterised by a high degree of heterogeneity. Although median values for return on assets were slightly positive in all years but 2011, the distribution across countries has a significant negative skew (see Chart 23). Focusing on 2012, median values for return on assets turned positive again but seven banking sectors – in the euro area countries most affected by the financial crisis – reported aggregate losses.

Profitability has been weak in recent years, mainly owing to the effects of the deterioration in asset quality, which called for increases in

**Chart 22 Share of Eurosystem funding in total deposit liabilities**

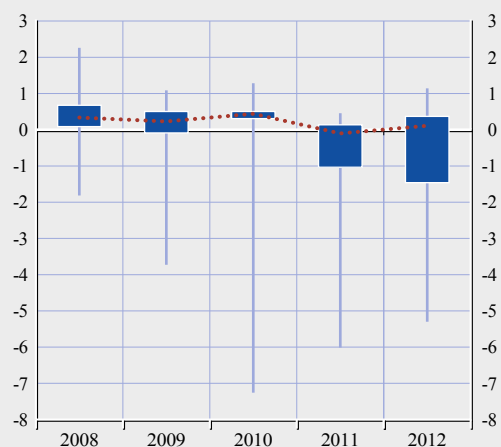
(percentages; maximum, minimum and inter quartile distribution across euro area countries)



Sources: ECB MFI statistics and ECB calculations.

**Chart 23 Return on assets of euro area banking sectors**

(all domestic banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)

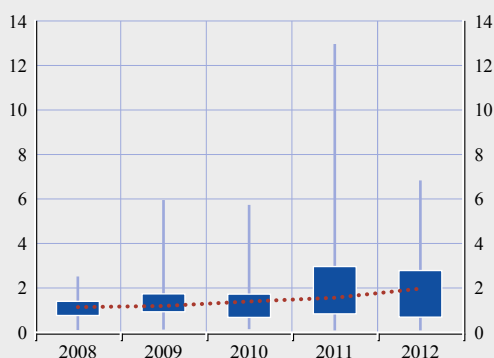


Source: ECB/FSC Consolidated Banking Data statistics.

<sup>17</sup> See ECB, “Financial Integration in Europe”, April 2013, and ECB, “Changes in Bank Funding Patterns”, April 2012.

**Chart 24 Impairments and provisions of euro area banking sectors**

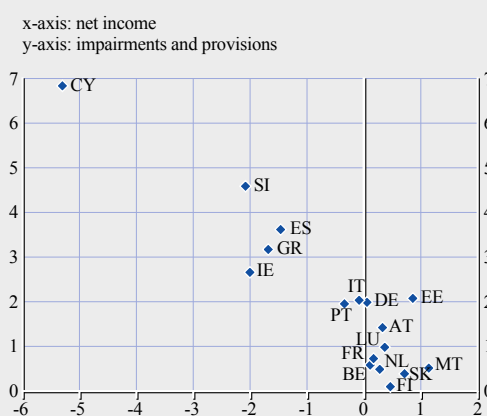
(all domestic banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.

**Chart 25 Net income and impairments and provisions of euro area banking sectors**

(2012; all domestic banks; percentage of total assets)



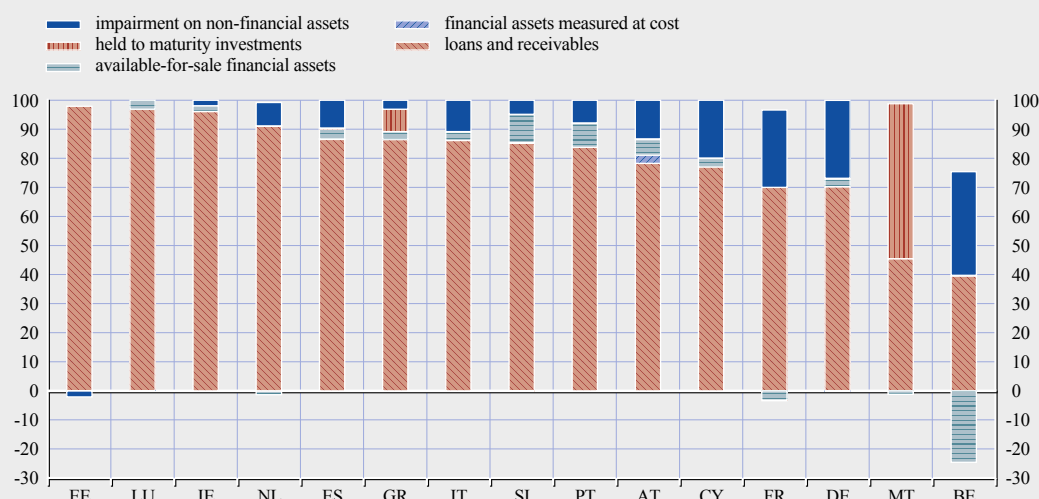
Source: ECB/FSC Consolidated Banking Data statistics.

impairment charges and provisions (see Chart 24), and restructuring costs. In individual cases, litigation costs also had a negative impact on profitability. Those banking sectors that made the highest levels of impairment charges and provisions were indeed also the ones that reported the highest losses in 2012 (see Chart 25).

Most of the impairment charges during 2012 were related to losses on loans and receivables, albeit with some notable cross-country differences (see Chart 26). In some countries, significant

**Chart 26 Impairment charges breakdown of euro area banking sectors**

(2012; all domestic banks; percentage of total impairments)



Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Data are not available for Finland or Slovakia.

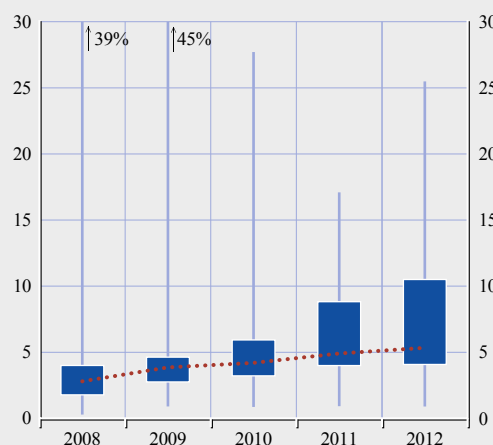
impairments were also incurred on other financial assets, for example on held-to-maturity investments affected by the private sector involvement in the Greek debt restructuring, and also on non-financial assets, with the latter mainly including goodwill write-downs often associated with divestments and restructurings.

The deteriorating loan quality in many banking sectors has been visible in a steady and broad-based increase in non-performing loans since 2008 (see Chart 27), with increases of over 50% in some cases during 2012. Cross-country comparisons should, however, be made with care, due to different definitions of non-performing loans across countries.

Higher loan loss provisioning did not keep pace with the increasing levels of non-performing loans between 2008 and 2012, as coverage ratios declined from around 50%, on average, to 45% during this period (see Chart 28).<sup>18</sup> In some countries, profitability developments would indeed have been more dismal during this period if coverage ratios had been kept constant. Coverage ratios did, however, remain broadly flat between 2011 and 2012.

**Chart 27 Gross total doubtful and non-performing loans of euro area banking sectors**

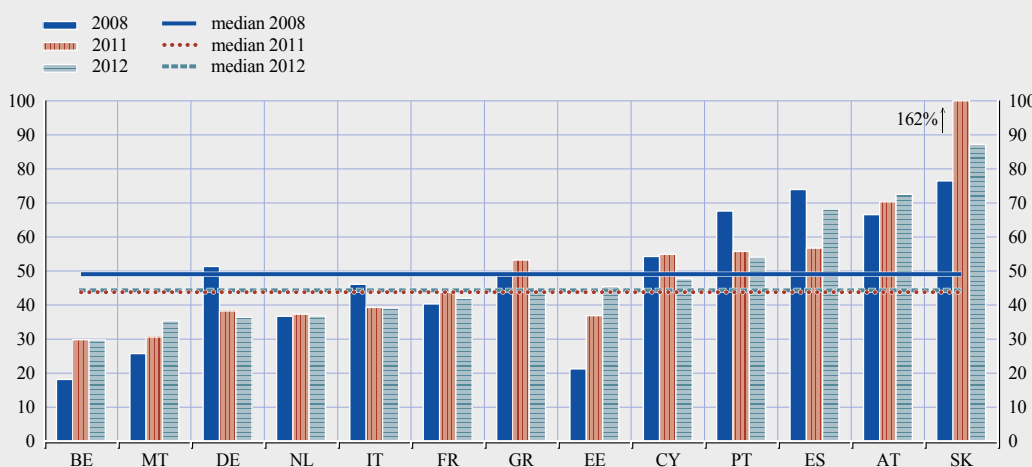
(all domestic banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Data are not available for Ireland, Luxembourg or Slovenia. Data are not fully comparable across countries owing to different definitions of non-performing loans across countries.

**Chart 28 Coverage ratios of euro area banking sectors**

(all domestic banks; total loan loss reserves as a percentage of total gross doubtful and non-performing loans)

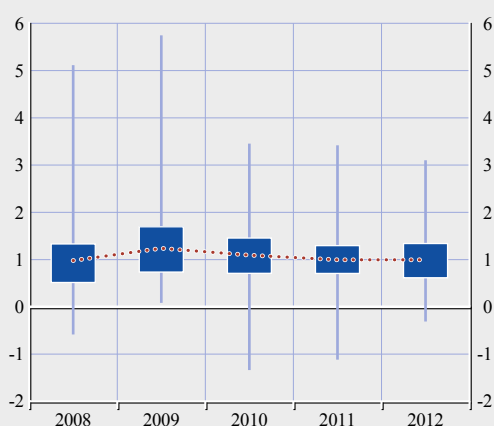


Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Data are not available for Finland, Ireland, Luxembourg or Slovenia. Data are not fully comparable across countries owing to different definitions of non-performing loans across countries.

<sup>18</sup> Data on coverage ratios of euro area banking sectors are not strictly comparable across euro area Member States owing to lack of harmonisation in the definition of non-performing loans.

**Chart 29 Operating profits of euro area banking sectors**

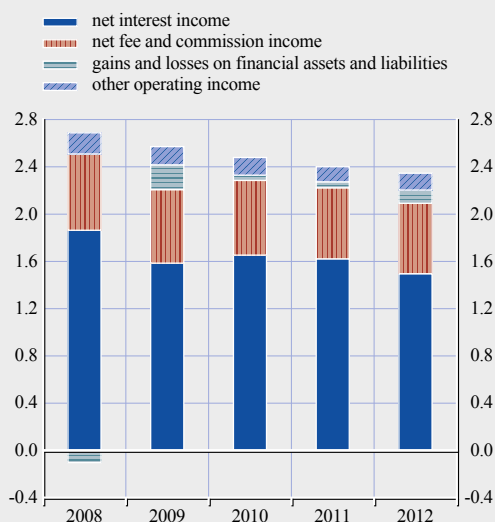
(all domestic banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.

**Chart 30 Operating income structure of the euro area banking sector**

(all domestic banks; percentage of total assets)

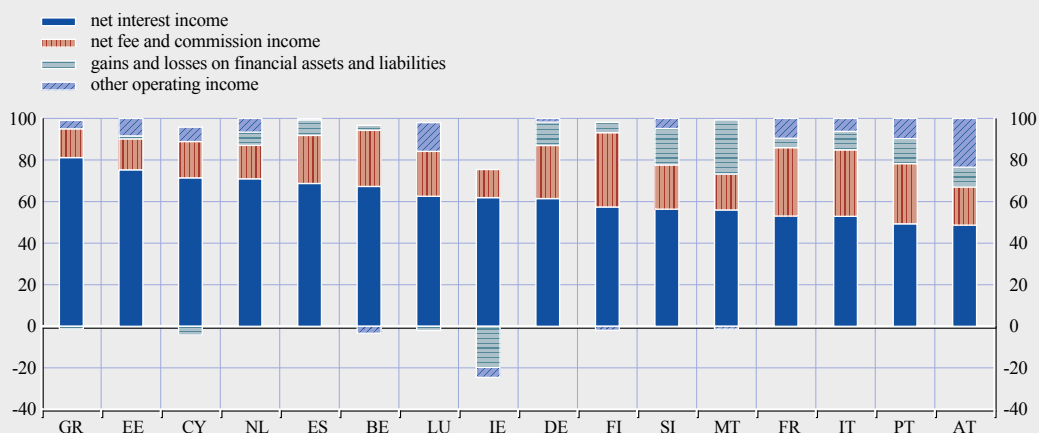


Source: ECB/FSC Consolidated Banking Data statistics.

The financial performance of the euro area banking sector in recent years has been characterised by broadly stable – albeit below pre-crisis levels – operating profits (see Chart 29). Operating income has steadily declined during the past five years but without any noteworthy change in the breakdown of operating income sources, with net interest income continuing to account for the largest share of income (see Chart 30). However, the operating income structure across countries differs greatly, with net interest income ranging from 50% to 80% of total operating income (see Chart 31).

**Chart 31 Operating income structure of euro area banking sectors**

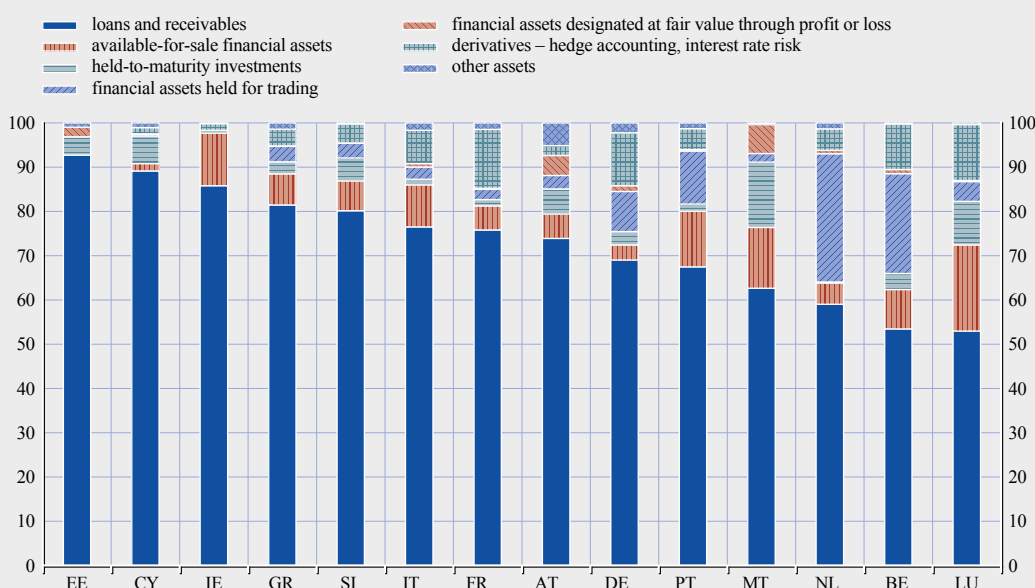
(2012; all domestic banks; percentage of total operating income)



Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Data are not available for Slovakia.

**Chart 32 Interest income structure of euro area banking sectors**

(2012; all domestic banks; percentage of total interest income)



These cross-country differences can be explained by factors such as the role of non-bank financial intermediation. For example, some countries have more developed corporate bond markets which generate higher fee and commission income for banks from bond underwriting activities. The role of other financial institutions (such as insurers) in providing credit to the economy has an impact on the share of interest income in the banking sector as well.

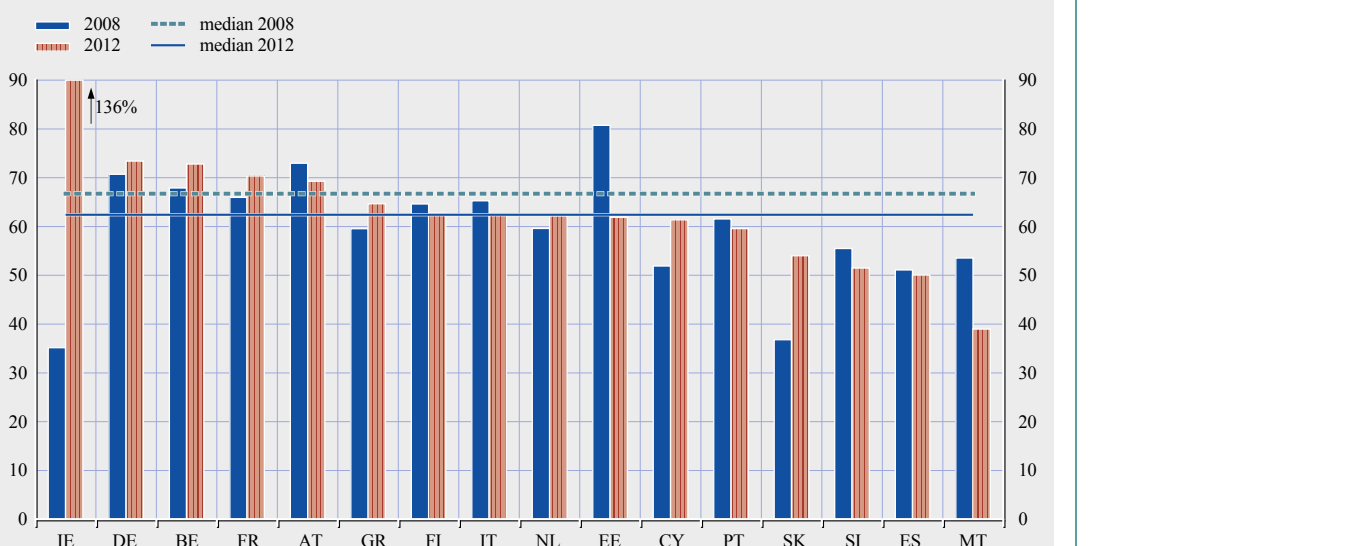
The operating income structure also varies according to the size of banks. Large banks with more substantial capital markets-related businesses, which are engaged in trading activities to a larger extent, on average generated some 59% of total operating income from interest-earning activities in 2012, compared with around 65% for small banks.

A deeper look into the sources of interest income in 2012 in different countries reveals notable differences across countries (see Chart 32). Although interest income from loans and receivables accounted for the majority of total interest income in all countries, the share varied from around 50% to over 90% of total interest income. In some countries, interest income from other financial assets – mainly bonds – was significant, as was, in some cases, interest income from derivative positions.

The median cost-to-income ratio for the euro area banking sector declined from almost 70% in 2008 to 62% in 2012 (see Chart 33). Given the drop in revenue, this development reveals considerable cost-cutting efforts by banks in general. Euro area banks' cost-to-income ratios remained stable, on average, during 2012 as banks' cost-cutting efforts were not enough to offset lower revenues.

**Chart 33 Cost-to-income ratio of euro area banking sectors**

(all domestic banks; percentages)



Source: ECB/FSC Consolidated Banking Data statistics.  
Note: Data are not available for Luxembourg.

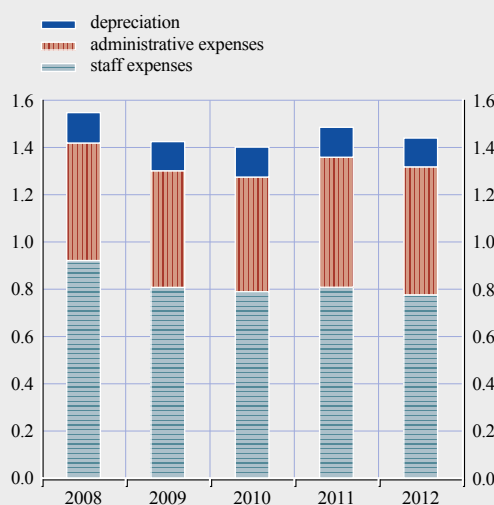
Operating costs, as a share of total assets, also declined slightly between 2008 and 2012 (see Chart 34), owing to restructuring and cost-cutting efforts. That said, staff costs – which account for the largest share of total costs – have remained broadly stable in recent years, suggesting that the banking sector as a whole has not made significant cost savings from lay-offs and declines in compensation. In fact, for large banks staff costs increased in 2012 to 0.70% of total assets, from 0.64% in 2011, or to 34% from 31% when measured as a percentage of total operating income. At the same time, staff costs for small banks remained lower than for large banks and were stable during 2012, as they remained at 0.15% as a share of total assets and at around 5% of total operating income.

## 2.4 CAPITAL AND LEVERAGE

The capital positions of euro area banks continuously improved in the years from 2008 to 2012. The median Tier 1 ratio increased from 8.7% in 2008 to 12.7% in 2012 (see Chart 35). For the years 2011 and 2012, the improvement was partly triggered by the European Banking Authority capital exercise and was helped by both capital increases and risk-weighted asset

**Chart 34 Composition of operating expenses of the euro area banking sector**

(all domestic banks; percentage of total assets)



Source: ECB/FSC Consolidated Banking Data statistics.



**Chart 35 Dispersion of Tier 1 ratios across national banking sectors in the euro area**

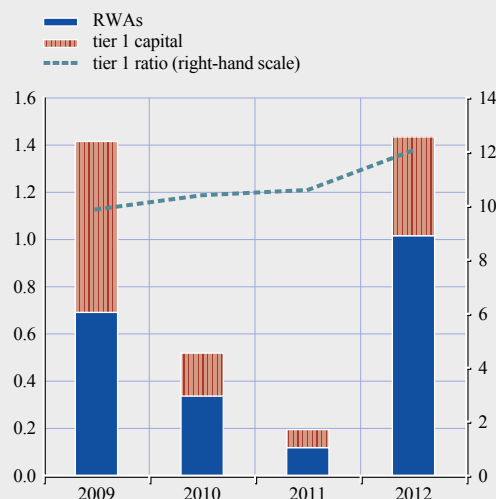
(all domestic banks; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.

**Chart 36 Decomposition of changes in the aggregate Tier 1 ratio of the euro area banking sector**

(all domestic banks; percentage point changes; percentages)



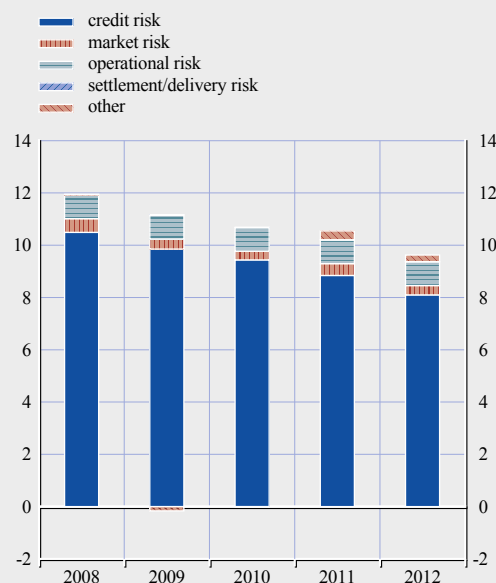
Source: ECB/FSC Consolidated Banking Data statistics.

declines. In fact, the decomposition of changes in Tier 1 ratios shows that an increasing share of the improvement was due to a reduction in risk-weighted assets that resulted from deleveraging and to the decrease in exposures with higher risk weights (see Chart 36).

The decline in risk-weighted assets (RWAs) in 2012 was primarily due to a decrease in credit risk-related RWAs and to a lesser extent market risk-related RWAs (see Chart 37), although the relative contributions varied across countries. In absolute terms, the largest decline in credit risk-related RWAs took place in Spain (-€223 billion), partly due to asset transfers to SAREB,<sup>19</sup> followed France (-€166 billion) and Italy (-€115 billion). The decrease in market risk-related RWAs in 2012, which followed a temporary increase in 2011 due to the introduction of Basel 2.5 requirements<sup>20</sup>, was more concentrated, with German and French banks accounting for around 85% of the overall decline. This suggests that banks

**Chart 37 Breakdown of risk-weighted assets of euro area banks**

(all domestic banks; EUR billions)



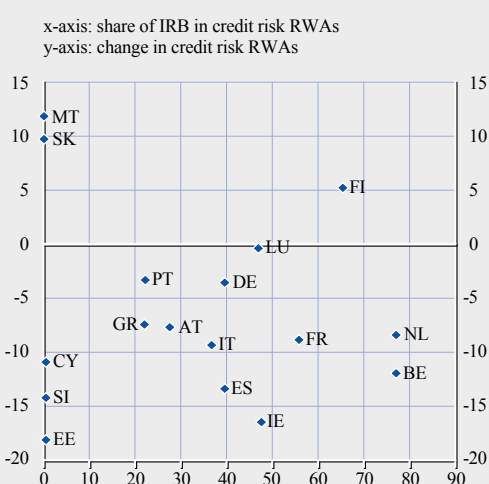
Source: ECB/FSC Consolidated Banking Data statistics.

<sup>19</sup> SAREB is the asset management company established in Spain to which banks transferred their problem assets in late 2012 and early 2013.

<sup>20</sup> The implementation of the Capital Requirements Directive III (CRD III), known as the “Basel 2.5” regulatory framework, on 31 December 2011 did result in higher capital requirements for banks, in particular by applying considerably higher risk weights both to securitisations in the trading book and to market risks measured via internal models.

**Chart 38 Changes in credit risk RWAs versus the share of banks following the IRB approach**

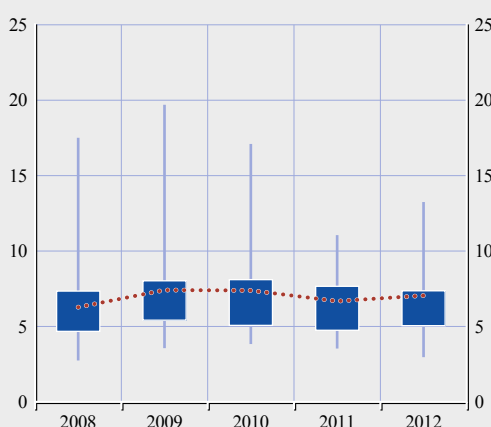
(2012; all domestic banks; percentages)



Source: ECB/FSC Consolidated Banking Data statistics.

**Chart 39 Leverage ratios of euro area banking sectors**

(all domestic banks; equity to total assets; percentages; maximum, minimum, interquartile range and median across national banking sectors)



Source: ECB/FSC Consolidated Banking Data statistics.

with significant investment banking operations scaled down some of their more capital-intensive activities, partly as a response to regulatory changes but also in an effort to further reduce their leverage.

Another factor contributing to the variation in RWAs was the use of the internal ratings-based (IRB) approach by some banks, which partly reduced their RWAs through, for instance, internal model modifications. In fact, a recent report by the Basel Committee confirmed that part of the variability in risk weights for credit risk is driven by differences in banks' modelling choices or in the supervisory approaches (e.g. adjustments made to reflect capital floors and partial use of the standardised approach).<sup>21</sup> The share of credit risk exposures treated under the IRB approach varies greatly across euro area countries, however, at country level it is difficult to detect any relationship between the share of credit risk exposures calculated using the IRB approach and the change in credit risk-related RWAs (see Chart 38).

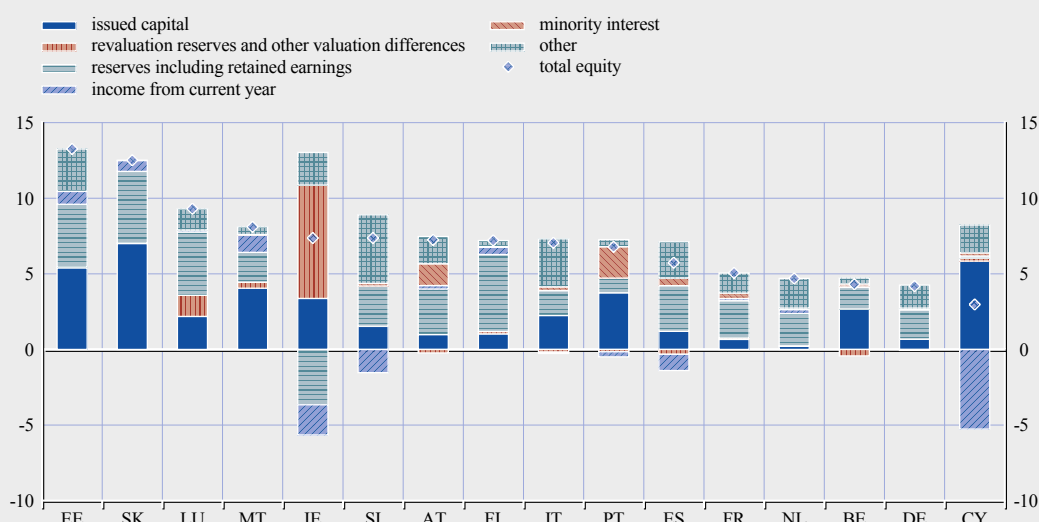
Banks in most euro area countries reduced their leverage in 2012, with the median equity-to-assets ratio increasing to 7.1% from 6.7% a year earlier (see Chart 39). For the aggregate euro area banking sector, this was driven both by an increase in total equity (6%) and, to a lesser extent, by a decline in total assets (-1.4%). Dispersion across countries remains very significant, with leverage ratios ranging from as low as 3% (Cyprus) to 13.3% (Estonia), suggesting that banks in some countries – in particular those in the lowest quartile (e.g. Belgium, Cyprus, Germany) – need to make further progress in enhancing their leverage ratio (in terms of equity to assets).

Looking at the composition of banks' equity, typically, issued capital and reserves including retained earnings constitute the largest components of total equity, but cross-country heterogeneity

<sup>21</sup> See Basel Committee on Banking Supervision, "Regulatory consistency assessment programme (RCAP) – Analysis of risk-weighted assets for credit risk in the banking book", July 2013.

**Chart 40 Main components of total equity of euro area banks by country**

(2012; all domestic banks; percentage of total assets)



Source: ECB/FSC Consolidated Banking Data statistics.

is significant in this respect as well (see Chart 40). A decomposition of changes in the components of euro area banks' equity shows that in 2012 capital increases and public capital injections (in particular in Greece and Spain) as well as an increase in revaluation reserves and other valuation differences (mainly in France, Italy and Germany) accounted for most of the improvement in total equity.

## SPECIAL FEATURE

## SPECIAL FEATURE

### STRUCTURAL CHARACTERISTICS OF THE EURO AREA AND US BANKING SECTORS: KEY DISTINGUISHING FEATURES<sup>22</sup>

*Comparisons are often made between euro area and US banks. Such comparisons can indeed be informative as they put regional banking sector developments into a global context, including by benchmarking internationally active banking groups against their global peers. It is, however, important to be aware of differences in the structure and activities of banking sectors and in the role they play in the economy when comparing them. This special feature discusses some of the key distinguishing features between the euro area and US banking sectors.*

#### INTRODUCTION

In recent years, comparisons between the euro area and US banking systems have often focused on the weaker performance of euro area banks with respect to US peers since 2011, the associated lower stock market valuations of euro area banks, and the stronger negative feedback loops between euro area banks and sovereigns during the latter part of the crisis.

US banks have indeed returned to healthier levels of profitability since the 2008-2009 sub-prime crisis period (see Chart A.1). This was achieved mainly thanks to lower loan losses, stable fee and commission income and higher trading income. Euro area banks, on the other hand, are still struggling with weak profitability and losses caused by the second, more euro area-focused, wave of the global financial crisis (see Chart A.1). The uncertainty surrounding the quality of euro area banks' assets has contributed to a persistent suppression of share prices of listed banks. The price-to-book ratios of euro area banks, in contrast to US banks, have therefore remained significantly below 1 since 2009 (see Chart A.2).

**Chart A.1 Return on equity of euro area and US banks**

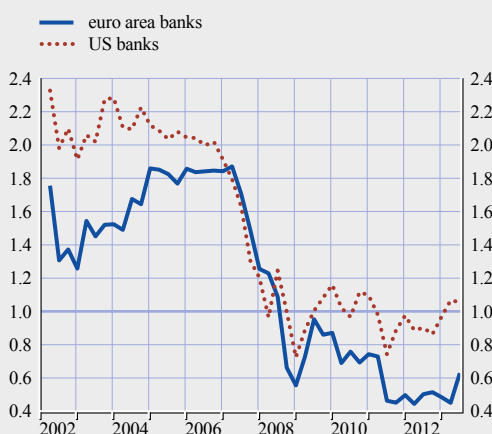
(Q1 2002 – Q2 2013; percentages)



Source: Bloomberg.  
Note: Median values for the Dow Jones EURO STOXX bank index and KBW bank index members.

**Chart A.2 Price-to-book ratios**

(Q1 2002 – Q3 2013; ratio)



Source: Bloomberg.  
Note: Median values for the Dow Jones EURO STOXX bank index and KBW bank index members.

22 Prepared by Csaba Móri and Stefan Wredenberg.

To some extent, the higher levels of uncertainty surrounding the outlook for euro area banks can be traced back to the continuing negative feedback loops between euro area sovereigns and banks. The close links between sovereigns and banks in the euro area have resulted in a much closer correlation between bank and sovereign credit default swap (CDS) spreads in the euro area than in the United States (see Chart A.3).

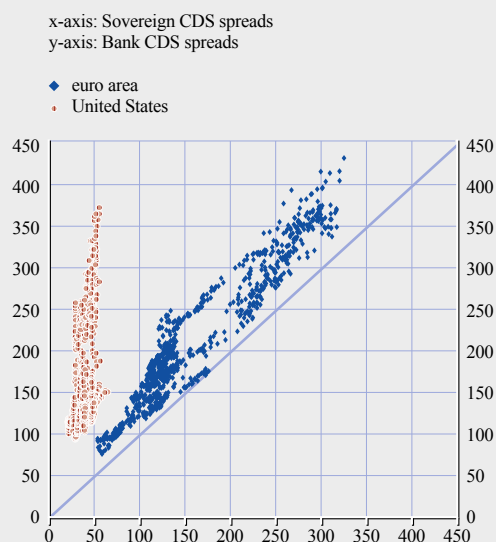
Comparisons like these can indeed be informative as they put country-specific banking sector developments into a global context, or, at individual bank level, they benchmark internationally active banking groups against global peers. Nonetheless, it is important to be aware of differences in, notably, the structure, role and activities of banks when comparing them. This special feature discusses some of the key distinguishing features between the euro area and US banking sectors.

#### DIFFERENCES IN STRUCTURE AND SIZE OF BANKING SECTORS

When comparisons are made between euro area and US banks it is important to bear in mind that the **size and structure of the domestic banking sectors** in the euro area and the United States differ quite substantially. In the euro area, domestic banking sector assets equal close to 270% of GDP, on average, although the dispersion across countries varies greatly, from 4% of GDP in Estonia to over 400% of GDP in Cyprus (see Chart A.4). The corresponding figure for the United States is around

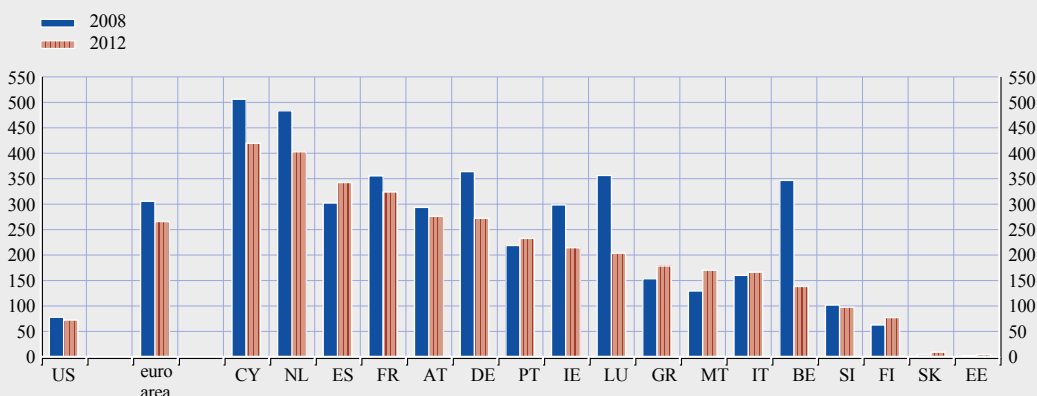
**Chart A.3 Sovereign and bank CDS spreads in the euro area and the United States**

(2010 – Sep. 2013; basis points)



**Chart A.4 Total domestic banking sector assets**

(percentage of GDP)



72%.<sup>23</sup> The size of the domestic banking sectors in the euro area has, on average, decreased as a percentage of GDP since 2008 (see Chart A.4). For example, the size of the Belgian, Dutch, Irish and Cypriot domestic banking sectors has declined owing to banking consolidation across borders and bank deleveraging.

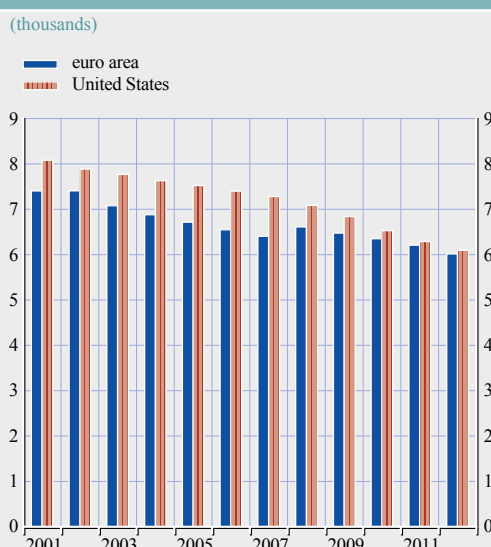
Although the euro area banking sector is larger than the US banking sector, the number of banks in the two economies is similar (see Chart A.5). The US banking sector has, however, undergone a steady process of consolidation during the past decade, with the number of banks declining from over 8000 in the early 2000s to just over 6000 in 2012 (see Chart A.5). The decline in the euro area during the same period was more modest and the number of banks even increased in 2008 before resuming its downward trend.

**The difference in size between the euro area and US banking sectors can be attributed to three main factors:** i) the relatively greater role of bank versus capital market-based intermediation in the euro area economy; ii) the relatively higher importance of the “shadow banking system” in the United States – particularly through originate-to-distribute lending practises, mainly via the government-sponsored enterprises (GSEs); and iii) differences in the accounting standards in use in the United States and the EU.

A traditionally **greater reliance on bank financing in the euro area contrasts with a more important role of non-bank intermediation in the United States.** In particular, the importance of capital market-based funding for non-financial corporations is higher in the United States.

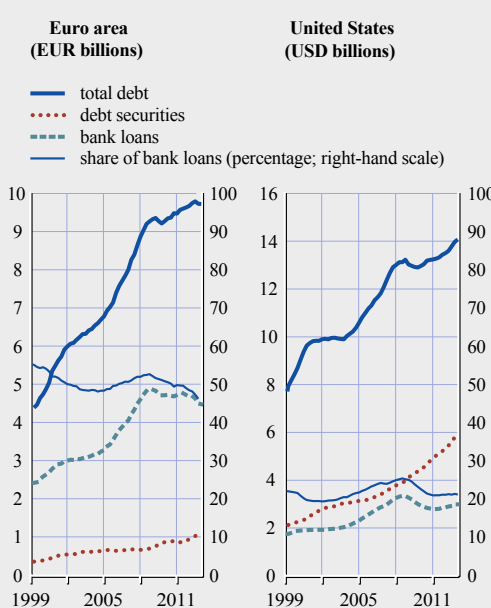
In the United States, bank loans account for only 20% of total corporate debt. This stands in stark contrast to the euro area where loans from monetary financial institutions (MFIs) account for close to 50% of total corporate debt (see Chart A.6). Corporate bonds, on the other

Chart A.5 Number of banks



Sources: ECB and Federal Deposit Insurance Corporation (FDIC).

Chart A.6 Total corporate debt and bank lending to non-financial corporations in the euro area and the United States



Sources: ECB, FDIC and Board of Governors of the Federal Reserve System.

<sup>23</sup> See also the report of the European Commission’s “High-level Expert Group on reforming the structure of the EU banking sector” (the “Liikanen report”), October 2012.



hand, accounted for around 40% and 10% of total corporate debt in the United States and euro area respectively in the first quarter of 2013. These differences can partly be explained by the higher prevalence of small and medium-sized enterprises (SMEs) in the euro area – companies that are often excluded from bond markets owing to their smaller size.

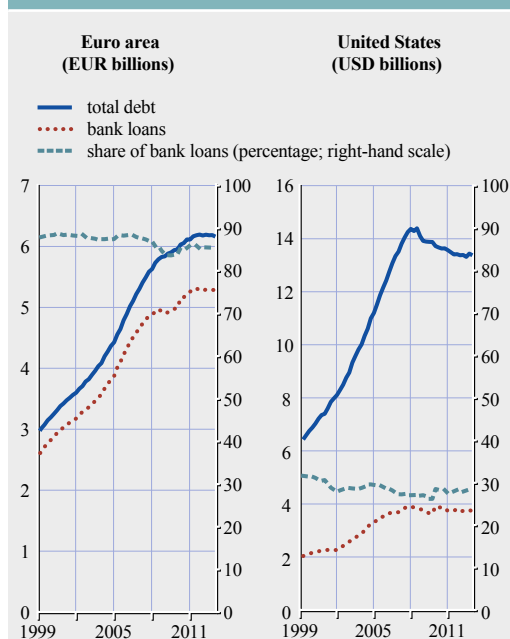
Deleveraging efforts by banks, together with capital market-based financing costs for corporates – often lower than for banks since 2009 – have resulted in some disintermediation in corporate financing since 2009 in both the United States and the euro area. Outstanding amounts of bank loans indeed remained broadly stable at the aggregate level during this period, whereas a notable increase in corporate bond issuance was observed (see Chart A.6).

The size of US banks' balance sheets is also affected by the relatively larger size of non-bank financial intermediation in the “**shadow banking system**” in the United States and, in particular, the use of originate-to-distribute lending models. This takes the form of direct issuance of asset-backed securities by banks, but mainly via transfers of loans to GSEs – mainly Fannie Mae and Freddie Mac. The GSEs buy mortgages on the secondary market, pool them, and sell them as a mortgage-backed security to investors. They also purchase mortgage-backed securities issued by banks. As a result, still today after the difficulties GSEs were confronted with during the sub-prime crisis, Fannie Mae and Freddie Mac account for more than half of the outstanding household mortgage debt, and purchase or guarantee about 90% of new mortgages.

Other financial intermediation within the shadow banking system – mainly performed by money market funds, finance companies, hedge funds and investment funds – also plays a larger role in the United States than in the euro area.<sup>24</sup> In the euro area, the total assets of these other intermediaries amount to some €10 trillion – one-third of the size of the banking sector.<sup>25</sup> In the United States, shadow bank liabilities are estimated to have been greater than those of the traditional banking sector from the late 1990s until 2010. After the eruption of the financial crisis in 2007 shadow bank liabilities declined from some \$20 trillion to below \$15 trillion today. At the same time, US banking sector assets grew from around \$13 trillion to \$17 trillion.<sup>26</sup>

The greater use of securitisation and the role of the US GSEs largely explain why loans to households on banks' balance sheets accounted for around 85% of total household debt in the euro area but only for 30% in the United States in the first quarter of 2013 (see Chart A.7).

**Chart A.7 Total household debt and bank lending to euro area and US households**



Sources: ECB, FDIC and Board of Governors of the Federal Reserve System.

<sup>24</sup> See also, H. S. Shin, “Global Banking Glut and Loan Risk Premium”, IMF Economic Review, Vol. 60, Issue 2, 2012”.

<sup>25</sup> See, ECB, “Enhancing the monitoring of shadow banking”, *Monthly Bulletin*, February 2013.

<sup>26</sup> See, Z. Pozsar, T. Adrian, A. Ashcraft, and H. Boesky, “Shadow banking”, *Federal Reserve Bank of New York Reports*, February 2012.

The reported sizes of the banking sectors in the euro area and the United States are also affected by **differences in accounting standards**. The main difference concerns the treatment of derivative positions, where banks reporting under the US Generally Accepted Accounting Principles (GAAP) only report the net value of derivative positions under a single master agreement with the same counterparty. The same treatment is also allowed for repurchase agreements and reverse repurchase agreements. This can have a significant impact on reported balance sheets. For example, the total assets of the eight US global systemically important banks (G-SIBs) amounted to just over \$10 trillion under US GAAP accounting in 2012 but would have been close to \$16 trillion under the International Financial Reporting Standards (IFRSs), which large euro area banks adhere to (see Chart A.8).<sup>27</sup>

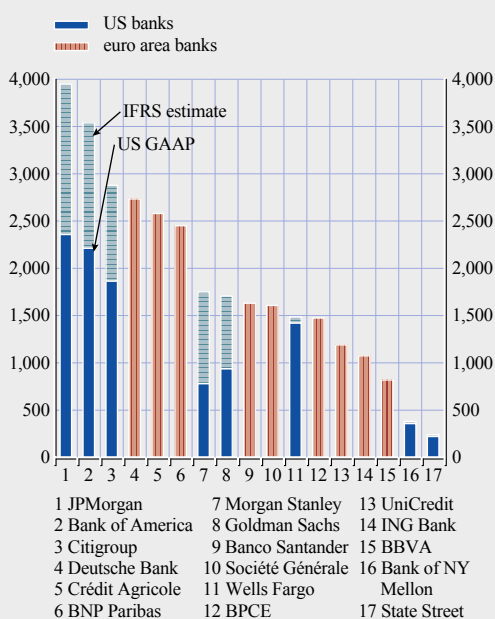
### DIFFERENCES IN BANK BALANCE SHEET STRUCTURE

The main differences between euro area and US banks' **balance sheet structures** can largely be explained by differences in accounting standards and the higher importance of the shadow banking system in the United States, in particular that of GSEs in mortgage lending. On the asset side, the significantly higher share of trading assets in euro area banks' assets (see Chart A.9) can be mainly attributed to the different treatment of derivatives under the IFRSs and the US GAAP, with derivatives representing a much smaller fraction of the balance sheet in the case of US banks for which netted values are reported. At the same time, the share of non-trading securities on euro area banks' balance sheets is significantly lower than for US banks. Turning to the liability side, another key difference between the balance sheet structure of euro area and US banking systems lies in how banks fund their activities. While non-bank deposits account for less than half of euro area banks' total liabilities, this share was above 70% for US commercial banks at end-2012 (see Chart A.10).

Looking at the **geographic breakdown** of assets and liabilities, another important difference relates to the significantly larger role of foreign activities in euro area banks' business compared to that of US banks. At the end of 2012, euro area banks' foreign claims accounted for about 40% of euro area banks' total assets, compared with 25% for US banks. In addition, foreign claims of US and euro area banks have followed rather different patterns in the last few years. Whilst euro area banks reduced foreign assets by over 20% between end-2009 and the first quarter of 2013 as part of their efforts to deleverage their balance sheets, US banks increased their international claims by over 10% in the same period. These differences notwithstanding, the main trends in the balance sheet structure of euro area and US banks since the beginning of the financial crisis have been broadly similar.

**Chart A.8 Total assets of selected large euro area and US banks**

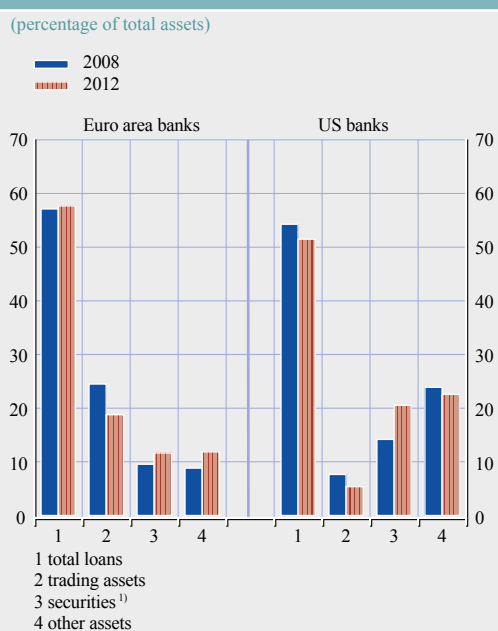
(2012; USD billions)



Source: FDIC.

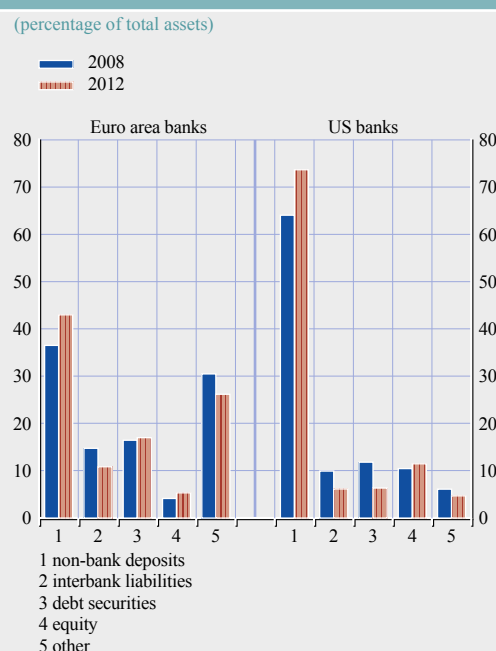
<sup>27</sup> See Thomas M. Hoenig, Vice Chairman of the Federal Deposit Insurance Corporation (FDIC), "Basel III Capital: A Well-Intended Illusion", speech at the 2013 International Association of Deposit Insurers Research Conference in Basel, Switzerland, April 2013.

**Chart A.9 Asset structure of the euro area and US banking sectors**



Sources: ECB/FSC Consolidated Banking Data statistics and FDIC.  
Notes: For euro area banks, the chart shows the asset structure of IFRS reporting banks only.  
1) excluding securities held for trading

**Chart A.10 Liability structure of the euro area and US banking sectors**



Sources: ECB/FSC Consolidated Banking Data statistics and FDIC.

**On the asset side**, since 2008 US banks have built up large cash balances and portfolios of highly liquid securities, mostly in the form of agency-backed mortgage securities and Treasuries. At the same time, the share of higher-risk assets, including loans and trading assets, has fallen. This was also complemented by a shift towards lower-risk loans due to the run-off in higher-risk loan types such as home equity, construction and commercial real estate. In the first half of 2013, however, US banks increased the share of loans in total assets, partly as a response to increasing pressure relating to their net interest margin in a low interest rate environment.

The share of total loans in euro area banks' assets remained broadly unchanged on a euro area aggregated level, despite drops in individual countries owing to the combination of demand- and supply-side effects, and reflecting also a drop in total assets from 2008 to 2012, while it decreased in the case of their US counterparts (see Chart A.9). At the same time, euro area banks significantly increased their holdings of government debt, albeit with differences across countries. The rise in cash and central bank balances partly reflects the effect of the Eurosystem's three-year longer-term refinancing operations (LTROs), as a number of banks re-deposited funds borrowed through these facilities with the ECB. More recently, however, the increasing trend in cash and central bank balances reversed in the first half of 2013, in particular owing to significant LTRO repayments that started in late January 2013.

**On the liability side**, more granular information points to a notable improvement in the funding profile of US banks since 2007-2008. In particular, the share of stable funding sources – such as customer deposits – has increased markedly while that of volatile short-term wholesale funding

(including commercial papers) has fallen (see Chart A.10). Similarly, from 2008 to 2012 there was a shift towards non-bank deposits in euro area banks' total liabilities and a reduced reliance on interbank funding. In contrast to US banks, however, the share of debt securities in 2012 remained broadly unchanged from 2008. Looking at the composition of banks' term debt, the traditionally important role of covered bonds in mortgage funding is a distinctive feature of the funding structure of euro area banks, which helped them to alleviate the negative impact of the financial crisis on wholesale funding. In fact, the outstanding amount of covered bonds issued by euro area banks declined by just over 10% between 2008 and June 2013, compared with close to a 20% decline in senior unsecured debt (see Chart A.11).

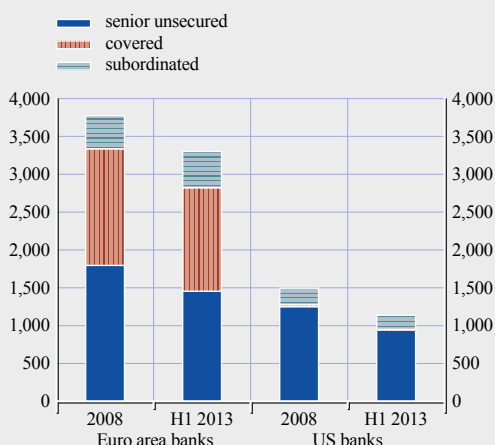
The difference in **wholesale funding dependence** between euro area and US banks remains, however, significant. This relates to the structural features highlighted above – notably the role of GSEs and non-bank intermediation – which lower US banks' funding needs and lead to aggregate loan-to-deposit ratios of well below 100%. The pace of adjustment towards more stable sources of funding, as indicated by the decline in loan-to-deposit ratios, has, however, been comparable across both sides of the Atlantic since the beginning of the crisis (see Chart A.12). This loan-to-deposit ratio path is in line with that observed in individual countries experiencing banking crises in recent decades. Structural features affecting the euro area, and the EU as a whole, explain the elevated loan-to-deposit ratios at the beginning of the crisis (around 120%) and the challenges posed by bringing the ratio to, and maintaining it at, levels close to 100% in the years following the crisis.

### DIFFERENCES IN INCOME STRUCTURE AND COST EFFICIENCY

The differences between the US and euro area banking sectors and banks' balance sheet structures help to explain **disparities in banks' income sources and financial performance**

**Chart A.11 Composition of euro area and US banks' term debt**

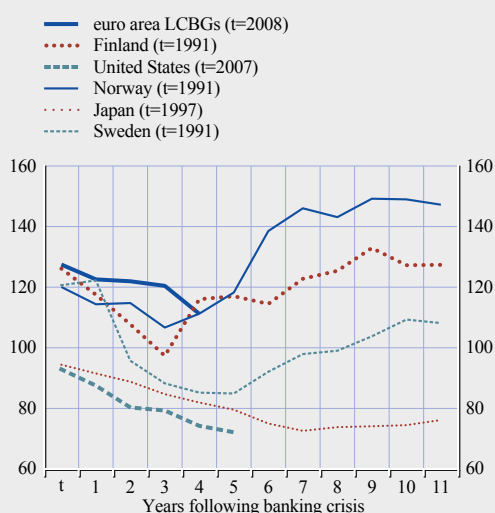
(USD billions)



Source: Dealogic.  
Note: Excludes retained deals.

**Chart A.12 Evolution of banks' loan-to-deposit ratios following banking crises**

(percentages; non-bank loans over customer deposits)



Sources: OECD, Federal Reserve System, FDIC, individual institutions' financial reports and ECB calculations.

Notes: Banking crises dates are based on Laeven, L. and Valencia, F., "Resolution of Banking Crises: The Good, the Bad, and the Ugly", *IMF Working Paper Series*, WP/10/146, 2010. Data for the euro area refer to large and complex banking groups (LCBGs).<sup>1)</sup>

1) For details on the methodology and criteria used for the identification of LCBGs, see ECB, "Identifying large and complex banking groups for financial system stability assessment", *Financial Stability Review*, December 2006, and ECB, "Identifying large and complex banking groups for financial system stability assessment: an update", *Financial Stability Review*, December 2007.

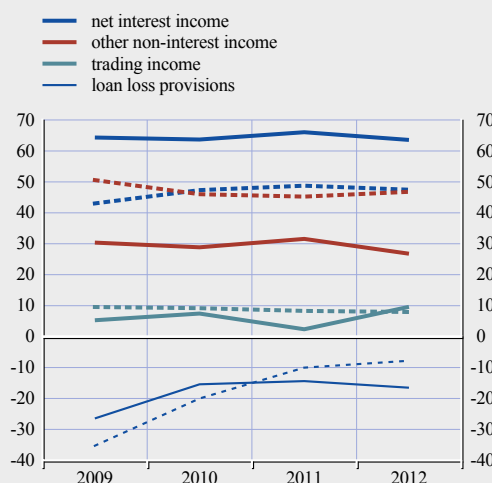
(see Chart A.13). Fee and commission income is as important as interest income for larger banks in the US capital market-based system, whereas interest income is the main source of revenue in the euro area banking sector. Larger US banks, which includes banks more focused on investment banking activities, have historically relied more on profits from trading activities to generate income.

Looking at recent trends for a sample of large banks in the euro area and the United States, net interest income dropped somewhat as a share of total operating income, in part owing to a low interest rate environment as well as more competitive lending conditions (United States) and deposit pricing (euro area). Recent patterns for fee and commission income, however, were somewhat dissimilar between large euro area banks and US banks, mainly owing to the more buoyant domestic capital markets in the United States and, to a lesser extent, to the increasing market share of US investment banks in European markets. As a result, according to Dealogic, the five largest US investment banks increased their market share of global investment banking fees to 35% in the first half of 2013 (up from 29% over the same period in 2012), compared with less than 20% for their largest five European peers.

Turning to the expenses side, loan loss provisions decreased substantially for US banks from 2009 to 2012, both in absolute terms and as a percentage of income, while they remained elevated in the case of euro area large players (see Chart A.13). Whereas historically US banks tended to have higher loss provisions than European banks,<sup>28</sup> partly owing to accounting differences,<sup>29</sup> the recent divergence in loan loss provisioning can be attributed to different cyclical developments

**Chart A.13 Main income sources and loan loss provisions of large euro area and US banks**

(percentage of total operating income; solid lines: euro area banks; dotted lines: US banks)

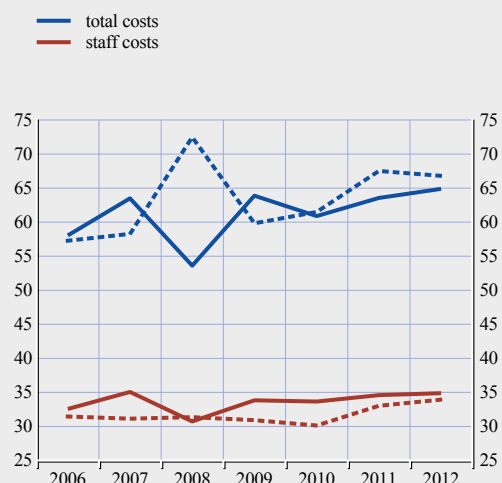


Source: SNL Financial.

Note: Based on data for 18 euro area large and complex banking groups and the 18 large US banks subject to the 2013 Comprehensive Capital Analysis and Review (CCAR).

**Chart A.14 Total costs and staff costs of large euro area and US banks**

(percentage of total operating income; solid lines: euro area banks; dotted lines: US banks)



Source: SNL Financial.

Note: Based on data for 18 euro area large and complex banking groups and the 18 large US banks subject to the 2013 Comprehensive Capital Analysis and Review (CCAR).

28 See, for instance, A. Blundell-Wignall and C. Roulet, "Bank Lending Puzzles: Business Models and the Responsiveness to Policy", *OECD Journal: Financial Market Trends*, Vol. 2013 – Issue 1.

29 See Financial Stability Board, "Report of the FSF Working Group on Provisioning", 2009.

in the two regions, with the US economy having shown increasing signs of recovery following the 2008-2009 sub-prime crisis period, in contrast with weakening economic activity in the euro area in the wake of the sovereign debt crisis.

As regards **cost management**, despite efforts to scale down non-core activities and to cut costs in certain business areas (e.g. investment banking), large banks in both the euro area and the United States seem to have made little progress in improving cost efficiency, at least when measured by average cost-to-income ratios (see Chart A.14). On average, large euro area and US banks' cost-to-income ratios remain elevated compared with their pre-crisis levels, and even showed an increase between 2010 and 2012, suggesting there is scope for further cost containment. In the euro area, beyond the set of large banks, and for the banking sector as a whole, the years 2008 to 2012 registered, however, an improvement in the median cost-to-income ratio, which declined from 70% to 62% – to efficiency levels formerly only achieved by large banks.

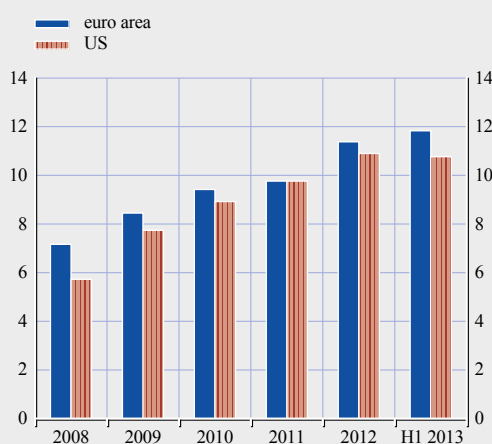
#### DIFFERENCES IN THE STRUCTURE OF CAPITAL POSITIONS AND LEVERAGE

The comparison of euro area and US banks' **capital positions** varies significantly depending on whether it is made on the basis of regulatory (risk-adjusted) capital ratios or balance sheet-based leverage ratios. On the one hand, on the basis of regulatory ratios such as core Tier 1 ratios, large euro area banks appear to be at least as well, or even better, capitalised as their US counterparts (see Chart A.15). A decomposition of changes in large euro area and US banks' core Tier 1 ratios (in line with Basel 2.5) also reveals that in the period between 2009 and 2011 the improvement in regulatory ratios was mainly the result of capital increases. In 2012, however, there was some divergence between the two groups of banks in terms of the drivers of improvement, with euro area banks increasingly relying on declines in risk-weighted assets (RWAs) (see Chart A.16), which could mainly be attributed to the higher pressure on these banks to **deleverage** their balance sheets.

Another factor contributing to RWA declines was the RWA optimisation by banks using internal ratings-based (IRB) methods, as also evidenced by recent regulatory reviews.<sup>30</sup> For instance, a recent report by the Basel Committee found that while much of the variability in risk weights for credit risk is driven by differences in underlying risk arising from banks' asset composition, there are also important "practice-based" drivers that contribute to the remaining RWA variation.<sup>31</sup> The differences in practices can result from supervisory choices at the national level (e.g. adjustments made to reflect capital floors and partial use of the standardised approach) or from banks' choices under the IRB framework (e.g. differences in banks' modelling

**Chart A.15 Core Tier 1 ratios of large euro area and US banks**

(percentages; median values)



Source: SNL Financial.

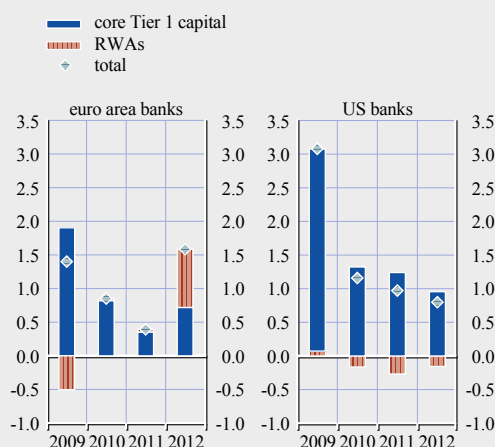
Note: Based on data for 18 euro area large and complex banking groups and the 18 large US banks subject to the 2013 Comprehensive Capital Analysis and Review (CCAR).

<sup>30</sup> See also Box 4 in, ECB, *Financial Stability Review*, May 2013.

<sup>31</sup> See Basel Committee on Banking Supervision, "Regulatory consistency assessment programme (RCAP) – Analysis of risk-weighted assets for credit risk in the banking book", July 2013.

**Chart A.16 Decomposition of annual changes in large euro area and US banks' core Tier 1 ratios**

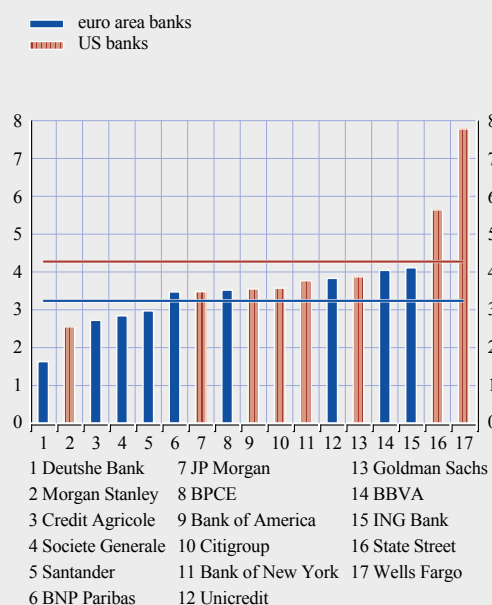
(changes in percentage points)



Sources: SNL Financial and ECB calculations.  
Note: Based on data for 18 euro area large and complex banking groups and the 18 large US banks subject to the 2013 Comprehensive Capital Analysis and Review (CCAR).

**Chart A.17 Leverage ratios of selected large euro area and US banks**

(Q4 2012; percentages; IFRS-equivalent estimates of adjusted tangible equity over adjusted tangible assets)



Source: FDIC.

choices).<sup>32</sup> Furthermore, another Basel Committee report<sup>33</sup> found that discrepancies in market risk-related RWAs across large investment banks can only be partially explained by banks' business models and risk appetite. Other important drivers include different supervisory practices and differences due to internal models.

Heightened concerns among analysts, investors and regulators about banks' **risk-weighted asset calculations** led to an increased focus on leverage ratios in recent months. This led to, for example, proposals for increased leverage ratio requirements in the United States<sup>34</sup> or the early implementation of Basel III requirements in the United Kingdom. In this context, for the sample of large banks (G-SIBs), bank capitalisation in terms of the accounting-based **leverage ratio** – approximated as tangible equity over tangible assets – of euro area institutions appears lower when compared with US peers. While some of this relates to accounting differences as explained above, the leverage ratios of large euro area banks still tend to be lower than those of their US peers, even on a comparable IFRS basis (see Chart A.17).<sup>35</sup> This is especially the case for euro area banks with large or significant

32 Similarly, a report by the European Banking Authority (EBA) found that around half of the differences in risk weights across large EU banks reflect banks' specific portfolio and risk management practices. See EBA, "Interim results update of the EBA review of the consistency of risk-weighted assets", August 2013.

33 See Basel Committee on Banking Supervision, "Regulatory consistency assessment programme (RCAP) – Analysis of risk-weighted assets for market risk", January 2013.

34 US regulators proposed a significant tightening of the existing binding leverage ratio for large banks, from the current level of 3% to 5% for bank holding companies and to 6% for subsidiaries with insured deposits. The increase is scheduled to come into effect in 2018.

35 According to the proposal advanced in the consultative paper "The revised Basel III leverage ratio framework" of June 2013, the calculation of exposure measure (the denominator of the leverage ratio) should not allow for the netting of exposure and collateral in repo and reverse repo transactions (as currently permitted under the US GAAP). Figures for US banks in Chart A.17 have been adjusted accordingly.



investment banking activities, including sizeable derivatives portfolios. The remaining differences between euro area and US banks' leverage ratios can be, to a certain extent, explained by the different frameworks for regulation on capital requirements. Indeed, there is some evidence that euro area/EU banks tended to have a higher share of assets with a low risk weight, allowing them to report strong capital ratios under Basel II rules. By contrast, US banks have traditionally been subject to binding leverage ratios and the less risk-sensitive Basel I requirements, which may have led them to focus on assets with higher returns.<sup>36</sup>

## CONCLUDING REMARKS

Although the number of banks in the United States and the euro area is similar, the size of the US banking sector is much smaller than that of the euro area. This difference can be attributed to the larger role of non-bank financial intermediation in the United States, the role of US government-sponsored enterprises, and accounting differences. The structure of banks' balance sheets varies as well, as a result of differences in the way US and euro area banks fund their activities.

The differences between the United States and euro area banking sectors and banks' balance sheet structures help to explain disparities in banks' income sources, financial performance and capitalisation. It is therefore important to be aware of differences in, for example, the structure, role and activities of banks when comparing them.

The performance of large US banks improved after the sub-prime crisis largely thanks to lower loan losses resulting from better economic conditions in the United States, whereas the performance of euro area banks lagged behind that of US peers.

Both US and euro area banks have made significant progress in balance sheet repair since the beginning of the financial crisis. While euro area banks still lag somewhat behind their US peers in reducing their balance sheet leverage and reliance on wholesale funding, related indicators cannot be expected to fully converge given the current macroeconomic conditions and the persistence of differences across the Atlantic largely driven by structural factors.

<sup>36</sup> See V. Le Lesle and S. Avramova, "Revisiting Risk-Weighted Assets", *IMF Working Paper*, No 12/90, March 2012.



