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PART 4/5

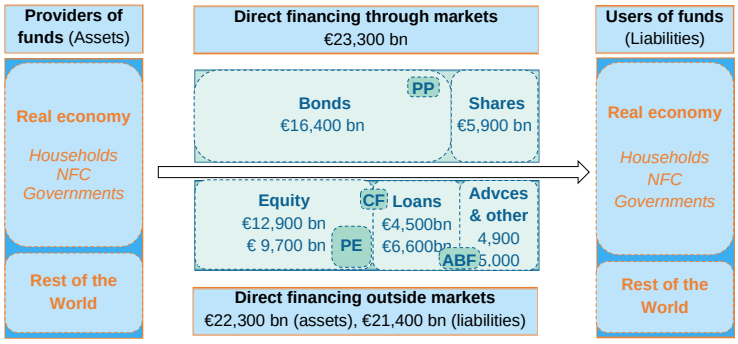
COMMISSION STAFF WORKING DOCUMENT

European Financial Stability and Integration Review, April 2015

5. DIRECT FINANCING THROUGH DEBT AND EQUITY CAPITAL MARKETS

Financing through public bond and equity markets is often labelled 'direct financing' because it occurs through direct exchange of securities between savers/investors and borrowers without the need of a financial intermediary. Economic agents can use organised markets to issue securities in the form of shares or bonds, or tap various other non-intermediated sources of funding such as trade credit and advances, company loans, loans from family and friends, and issues of issuance of equity other than quoted shares (Chart 51).

Chart 51: **Direct financing of the economy**, Outstanding amounts, euro area, 2014 Q3, € billion



Notes: PP: Private placement. CF: Crowdfunding. PE: Private equtiy. ABF: Asset-based finance. Advces & other: Advances and other financing (includes items such as trade credit, advances by different stakeholders, tax claims and similar items). For direct financing outside markets both the figure for assets and the figure for liabilities are provided. The reason for this is that relations are complex because both the rest of the world and the financial sector may also be involved in these operations as a providers or users of funds. Data for the EU as a whole are incomplete, but the relative size of the different subsectors are similar to those of the euro area.
Source: ECB, Eurostat and own calculations.

The focus of this section is on the organised public markets for bonds and quoted shares. In addition, private placements as an alternative route to bond issuance are also discussed. Section 6 discusses direct financing obtained through interaction between 'lenders' and 'borrowers' without recourse to organised markets[1].

Direct financing through debt and equity capital markets: an overview

The main advantage of financial markets is that they allow resources from numerous investors to be pooled. The two main instruments, bonds and (quoted) shares, are standardised products, which means that secondary markets can grow to enable these to be converted into liquidity at any time.

A market authority ensures the issuers seeking finance comply with a series of requirements, sucha as regularly releasing information about their financial situation. The European supervisory authority in charge of ensuring the integrity, transparency, efficiency and orderly functioning of securities markets is the European Securities Market Commission (ESMA), which replaced the former Committee of European Securities Regulators in 2011. ESMA is also responsible for improving investor protection EU-wide. It works very closely with the national competent authorities, which are members of the Board of Supervisors, its highest decision-making body.[2]

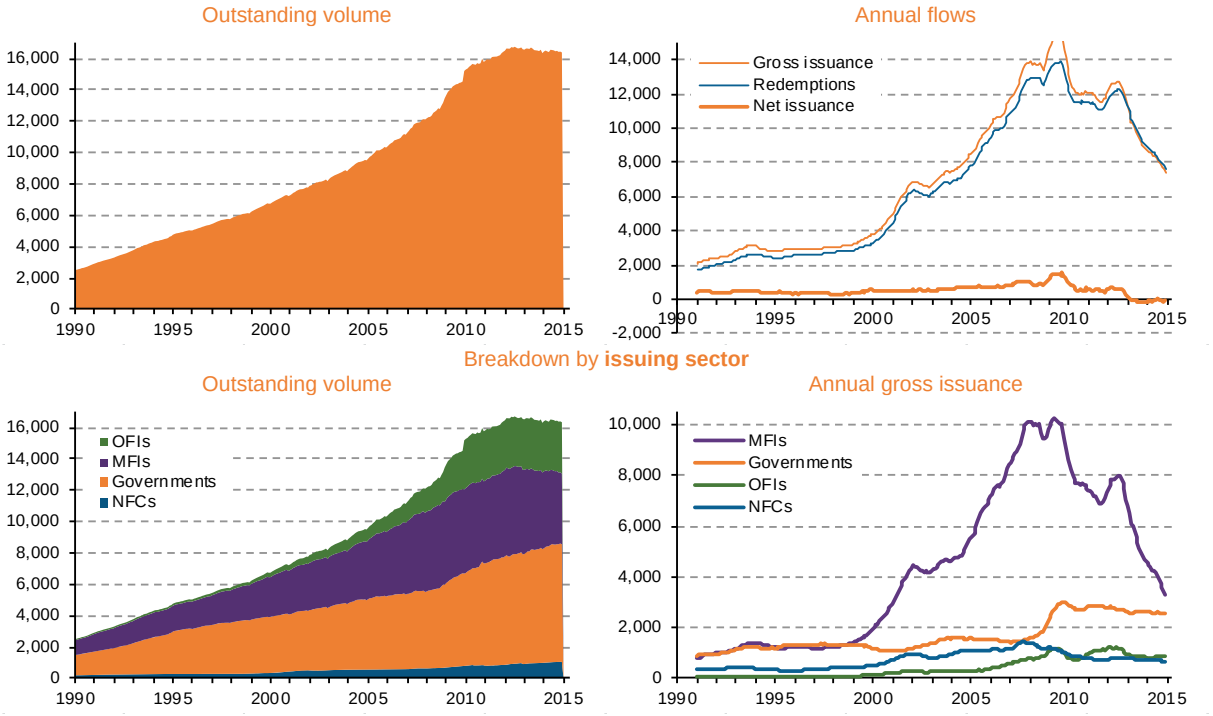
Besides a market authority, this type of direct financing requires a market infrastructure and financial institutions providing services such as investment advice, market-making and brokering. This can sometimes be offered by credit institutions (e.g. 'dark pools') or by independent institutions of the type classed as 'other financial institutions' (see Section 4).

While capital markets have existed for centuries, they grew rapidly in the 18th and 19th centuries during the industrial revolutions, when large amounts of money were needed to finance infrastructure (mainly railroads and canals) and the construction of large factories. In the last 30 years, markets have been boosted by three factors: (1) electronic settlement and clearing, (2) technological developments and (3) deregulation and harmonisation of rules across Europe. The combination of these developments fostered a quick expansion of capital markets. As Charts 52 and 59 show, between 1990 and 2008, both bond and equity markets multiplied seven-fold.

[1] Chart 51 includes private equity and asset-based finance. These sources of funding are discussed in Section 4.
[2] For further information, see www.esma.europa.eu.

Chart 52: **Bond markets**, euro area, € billion

euro area **totals**



Notes: Bonds issued by ICPFs are negligible (less than € 50 billion of outstanding volumes, i.e. less than 0.3 per cent of the total) and are therefore not included.
Source: ECB: securities statistics and own calculations.

5.1. Bond markets

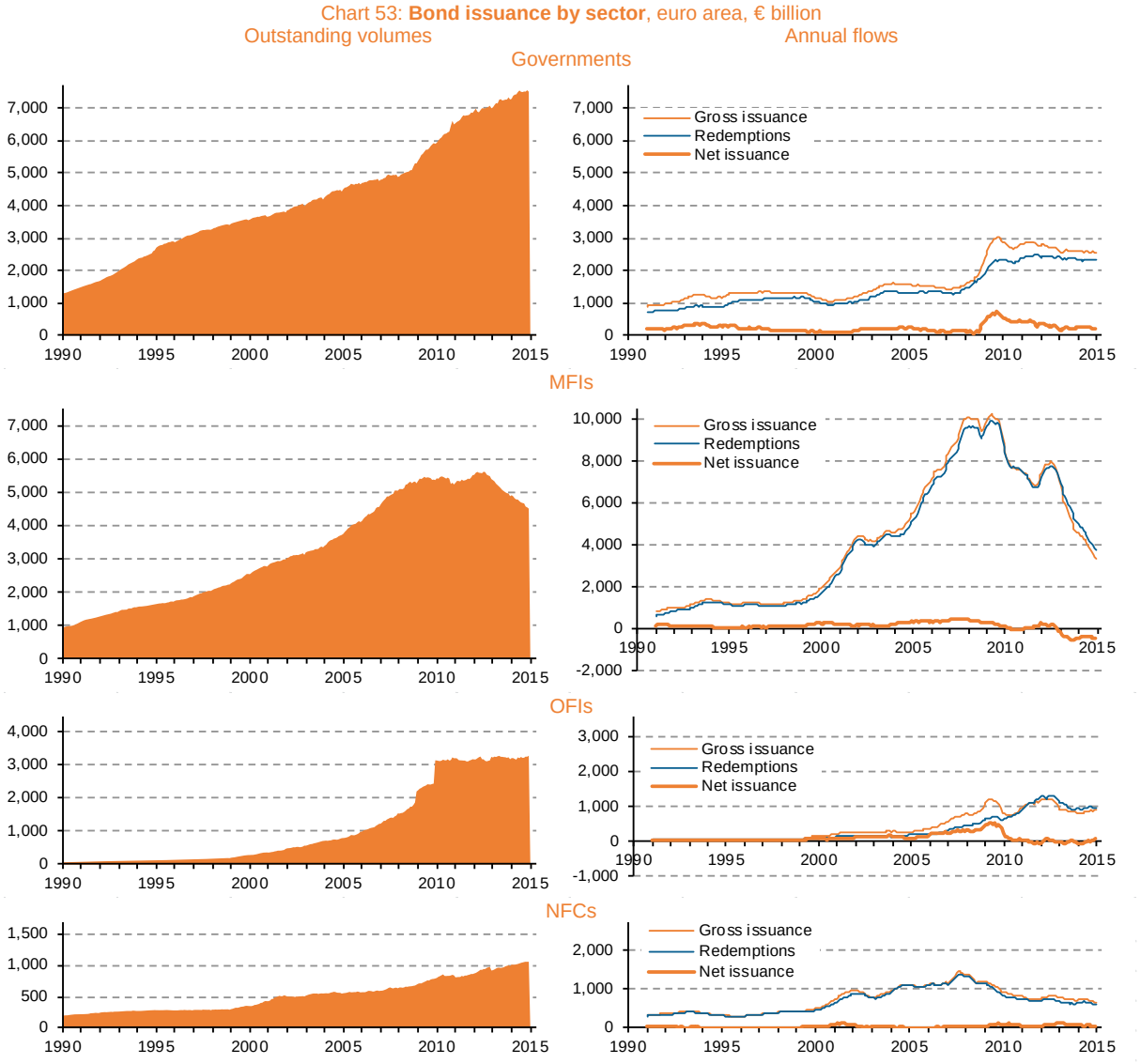
A bond is a debt instrument, i.e. the issuer has to reimburse the principal and pay interest. The need to reimburse the principal at nominal value (i.e. the same amount borrowed) makes bonds very different from shares in two respects. Firstly, fluctuations in bond prices are much more limited than those of shares. However, this can change when a company (or a State) is under stress and investors fear or expect a default. Secondly, bonds need to be rolled over regularly, what implying that they are somehow more liquid than of shares. Indeed, the outstanding volumes of bonds may be similar in size to the annual flows (gross issuance and redemptions). Both volumes and flows, therefore, reflect the liquidity of bond markets.

Bond markets in Europe are sizeable. They expanded steadily at an average of 8 per cent a year over the period 1990-2014. Growth accelerated in the first stages of the crisis, but the total volume has stagnated since early 2013 (Chart 52, top-left panel). By December 2014, the value of euro area bond markets was € 16,400 billion (or 170 per cent of euro area GDP).

The bond market is split between financial corporations (MFIs and OFIs) and governments. Non-financial corporations account for less than 7 per cent of total bonds outstanding. MFIs dominate gross issuances, issuing over 70 per cent of all euro area bonds during the peak of 2008-2010. This is because the maturity of MFI bonds is much shorter than that of other bonds so therefore, they are issued and rolled over more frequently.[3]

[3] Note that, in the financial sector, the term 'corporate bonds' refers to all bonds other than government bonds – in other words, mainly the 48 per cent issued by financial corporations. However, the term is also used sometimes to refer only to the 7 per cent of bonds issued by non-financial corporations. This ambiguity can be misleading.

Chart 53: **Bond issuance by sector**, euro area, € billion



Notes: Bonds issued by ICPFs are negligible (less than € 50 billion of outstanding volumes, i.e. less than 0.3 per cent of the total) and are therefore not included in the analysis.
Source: ECB: securities statistics and own calculations.

Throughout the 2000s, annual gross issuances, redemptions and outstanding volume were all similar in size. This,indicates that bonds had an average maturity of about one year. The fall in interest rates and steeper yield curve (see Chapter 1) made it more advantageous to issue bonds with longer maturities. By late 2014, the average implicit maturity of bonds had increased to two years. However, euro area aggregates conceal important differences between sectors, particularly in annual flows and average maturities.

Bond liquidity should be assessed against outstanding volume, which indicates the theoretical maximum size of the market, while flows can be used as a proxy for the actual amounts of bonds that being traded in the primary market.

Sector dynamics

Throughout the crisis, euro area **governments** continuously and significantly increased the volume and flows of bonds issued: outstanding volumes expanded by 50 per cent between 2008 and 2014, achieved through a significant expansion of net flows. Indeed, gross issuance increased significantly in the first stages of the crisis (2008-2010) and have since remained at very high levels compared with historical series. Redemptions followed with a certain lag. Although net annual issuance of bonds by governments has subsequently declined, they remain at relatively high levels (Chart 53).

This evolution of government bonds reflects the different dynamics in the euro area and the EU throughout this period. In the early stages of the crisis, governments had to step in to support financial institutions in difficulties; such bank bailouts were financed by issuing debt.[4] At the same time, economic contraction (or subdued growth) eroded public finances both on the income side (lower amounts of tax collected) and the expenditure side (higher social benefits spending linked, for instance, to unemployment). This situation has largely driven the continuous expansion of the total volume of bonds issued by Euro are governments.

At the same time, two factors constrained the expansion of government bonds and explain the relative reduction in net flows observed from 2011 onwards. First, governments carried out a number of structural reforms to improve their finances.[5] Second, the countries with the most acute financial problems (Greece, Ireland, Portugal and, later on, Cyprus) asked their European partners for support and therefore discontinued or significantly reduced their issuance of new debt in the market[6].

Bonds issued by **MFIs** show a totally different pattern. Their expansion, in terms of outstanding volumes, came to a halt with the outbreak of the crisis and a significant contraction occurred from late 2012, which reflects the process of deleveraging by banks. Indeed, banks face a number of pressures to reduce their balance sheets and leverage levels. When reducing the assets side of the balance sheet, banks need to reduce the liabilities side as well. One way of doing this is to not roll over a (significant) share of the bonds that reach maturity.

On the other hand, a dramatic expansion in annual flows is observed between the mid-2000s and the outbreak of the crisis and a significant drop thereafter. This is probably explained by the rotation of the yield curve. The very flat yield curves of the mid-2000s (see Chapter 1) forced banks to issue with very short maturities to obtain a sufficient margin from maturity transformation. With steeper yield curves and declining yields, banks may use relatively longer-term financing and still obtain a margin.

Bonds issued by **OFIs**, although initially of an order of magnitude lower than the bonds issued by governments and MFIs, significantly expanded in the run-up to the crisis. This mainly reflects the boom in securitisation (see Section 4.4.2). However, outstanding volumes of bonds issued by OFIs have stagnated since late 2009. Therefore, the contraction of FVCs and of securitisation, in general, seems to have been offset by an equivalent expansion by other institutions in the OFIs sector (see Section 4.4.3). The data on flows confirms this: although net annual flows have fluctuated around zero, gross annual flows and annual redemptions have remained at historical heights since 2010.

Finally, **NFC** bonds also followed an specific pattern. Although at much lower levels than any other sector,[7] they expanded significantly both before and during the crisis (Chart 53, bottom panel).. This partially reflects a certain switch from bank financing to bond financing by non-financial corporations (see Section 4.2 for further details about bank loans). Banks were particularly impacted by the crisis; declining central bank rates were translated into (declining) retail loan rates only to a limited extent and varied between countries. On the one hand, large corporations with investment-grade ratings could profit more from the low yield environment by issuing bonds than by recourse to bank credit. On the other hand, the slowdown in economic activity reduced the financing needs of non-financial corporations (because of its effect on demand). See also Box E for further discussion about the features of bonds and issuers.

Maturities

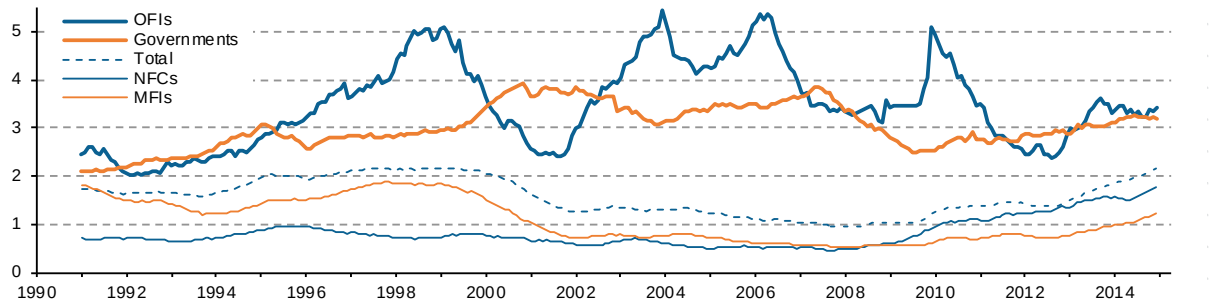
The difference in the implied maturity of the bonds issued by the different sectors also suggests they are also different in nature. Issuing bonds is governments' main source of financing other than tax collection (see Chart 13). To ensure their funding is reasonably stable, governments issue bonds with relatively long-term maturities.

[4] For an analysis of the capital injected in financial institutions by public authorities, see last year's review (European Commission, 2014a), Chapter 2 and European Commission (2014d).
[5] Countries that breached the Stability and Growth Pact were asked to take measures to restore public finances (see the various pages on economic governance at DG ECFIN webpage, www.ecfin.eu).
[6] Spain also received support from European partners, but this was a partial programme and Spain continued to issue bonds in the markets. For further details about support for European sovereign fiannces, see last year's review (European Commission, 2014a) Chapter 2 and the Commission's page on *Financial assistance on EU Member States* (http://ec.europa.eu/economy_finance/assistance_eu_ms/index_en.htm).
[7] Letting aside the negligible amounts of bonds issued by ICPFs.

At the other end of the scale, bank bonds have the shortest maturities. This is mainly explained by banks' roe in transforming maturities, which means they typically use short-term liabilities to finance long-term assets. In banks' balance sheets, bonds represent about 15 per cent of their liabilities (see Chart 13), so that they can manage them with more flexibility than governments.

Bonds issued by OFIs have also long-term maturities. This is because a large proportion of these bonds stem from FVCs' securitisation and similar activities (see Section 4 for details). The underlying assets have very long maturities (e.g. mortgages may have a maturity of 20 or 30 years), so that even issuing bonds with a maturity of 3 or 4 years entails some kind of maturity transformation.

Chart 54: **Implied maturity of bonds by issuer sector**, bonds outstanding, euro area, years



Notes: Implied maturity is calculated as the ratio between annual redemptions and outstanding volumes. It indicates how many years are needed to redeem the total volume of bonds outstanding assuming that redemptions continue at the same rate as in the year-to-date.
Source: ECB: securities statistics and own calculations.

Bonds are a marginal source of financing for NFCs (bonds represent less than 4 per cent of NFCs' liabilities, see Chart 13). This may explain the relatively short-term nature of these bonds; maybe NFCs use bonds as temporary financing at specific times or when they can obtain advantageous financing conditions (what is usually on the shortest part of the term structure of the yield curve).

After 2009, an increase in the maturity of bonds is observed across sectors. This can be explained by the decreasing interest rates charged on long-term bonds. Indeed, the persistence of close to zero short-term interest rates has also pushed down interest rates for longer terms, as illustrated by the declining yield curve (see Chapter 1).

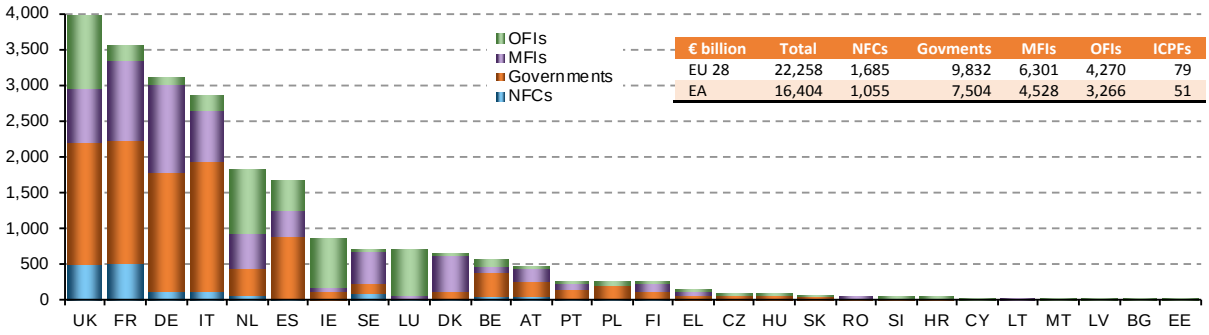
Country analysis

Four countries (the UK, France, Germany and Italy) account for over 60 per cent of bond issuance in the EU; this share goes up to over 75 per cent when the Netherlands and Spain are included, although this concentration stems from the size of those six countries (their combined GDP also represents over 75 per cent of EU GDP).

In most countries, as in the euro area as a whole, the government sector and the financial sector account for most bond issues. Issuance by financial institutions other than banks is particularly significant in Luxembourg, Ireland and the Netherlands in relation to their GDP. Luxembourg and Ireland are known to be attractive to international financial institutions as a point of entry to the EU market. In the Netherlands, pension schemes may boost the figure. By contrast, bond issuance by banks (MFIs) is particularly significant in Denmark, Sweden and Luxembourg. Bear in mind, though, outstanding volumes of bank bonds have fallen since 2011 (see Chart 53).

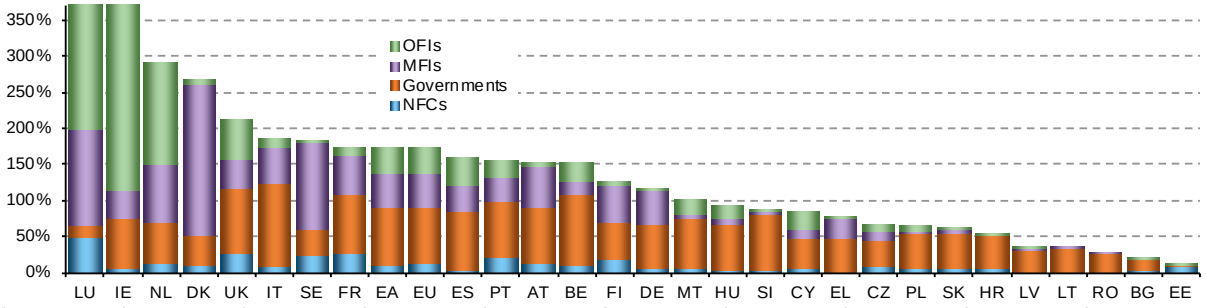
With a few exceptions, bonds issued by NFCs account for about 10 per cent or less of total issuance in each country and 10 per cent of GDP or less.

Chart 55: **Issuance of bonds by country and sector**, bonds outstanding, December 2014
€ billion



€ billion	Total	NFCs	Govments	MFIs	OFIs	ICPFs
EU 28	22,258	1,685	9,832	6,301	4,270	79
EA	16,404	1,055	7,504	4,528	3,266	51

Percentage of GDP

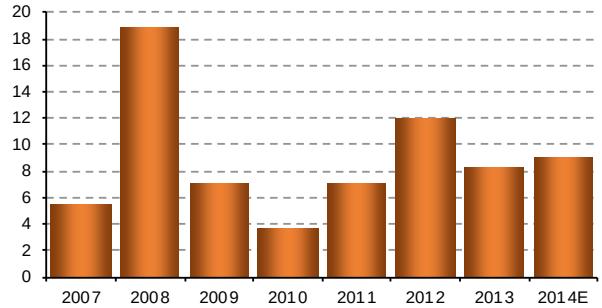


Notes: Data for non-euro area countries are for December 2013. Luxembourg: OFIs: 1,510 per cent of GDP; Ireland: OFIs: 390 per cent of GDP.
Source: ECB: securities statistics and own calculations.

Private placements

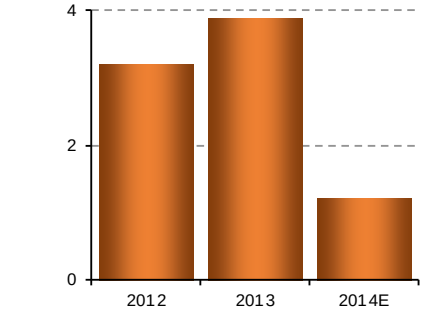
Private placements are used for purposes similar to those of bonds, and often on the same terms and conditions. They usually have medium- to long-term maturities. Such operations can take the form of either bond issues or bank loans,[8] based on ad hoc documentation. Unlike bonds, private placements are usually illiquid instruments, typically held by investors until maturity of the contract or, sometimes, traded over the counter (unlisted). Because the funds are provided by institutional and professional investors, private placements are not subject to some of the information needs and the laws and regulations designed to protect (retail) investors that apply to the issuance of bonds. In this context, they provide a source of funding without the need for a formal credit rating and reporting requirements common for other capital market debt products. On top of the issuer (financial and non-financial firms and public entities) and the institutional investors providing the funds, a banking institution is usually involved in private placements acting as intermediary.

Chart 56: **Schuldschein**, gross issuance, annual, € billion



Note: 2014: expected issuance
Source: IKB Deutsche Industriebank (German Market Outlook 2014)

Chart 57: **Euro PP**, gross issuance, annual, € billion



Note: 2014 expected issuance
Source: C/M/S Bureau Francis Lefebvre

Availability of regulatory frameworks has enhanced the development of private placement markets in some countries, particularly in Germany (*Schuldschein* market[9]), France (*Euro PP*) and the US (OECD, 2014a). While

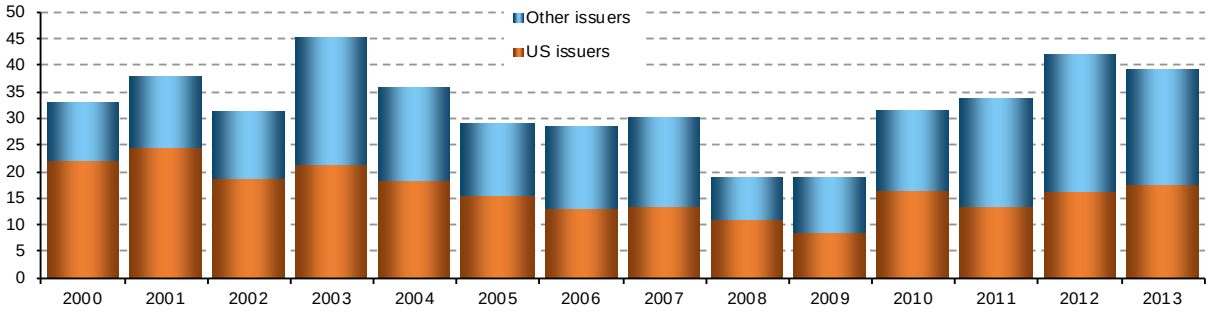
[8] While private placements in the form of loans are constructed as securities for economic purposes, they are not considered securities in legal terms (Koller, 2014).
[9] Schuldschein loans are also known as 'assignable loan agreements', 'debt notes' or 'debenture bonds'.

still a nascent market, there is high development potential on private placement markets (White & Case, 2014).

Annual gross issuance of *Schuldscheine* has ranged between € 6 billion and € 9 billion a year (Chart 36). Schuldscheine are particularly used in moments of higher financial turmoil, when access to other traditional funding sources is more constraint (e.g. 2008 and 2012). Since its creation in 2012, the French *Euro PP* has raised more than € 8 billion[10].

The US private placements market has been in existence longer than the European market, and is used by both US companies and companies from other countries. Annual issuance fluctuates around € 35 billion. US private placements have attracted increasing demand from European companies in the last three years, reflecting the protracted European financial crisis.[11]

Chart 58: **US Private Placements**, gross issuance, annual, € billion



Source: Thomson Reuters, OECD

Box E. **Bonds and bond issuers in the EU and the US: main features**

This box looks at the microstructure of corporate bonds by providing an overview of the main sectors, the maturity structures, the issuance dates, currencies, countries and the main individual issuers. Given the relevance and development of US markets, data for the EU are compared with those of the US.

Background

Financial and non-financial firms have different reason for choosing to issue bonds. In general, NFCs issue bonds to obtain financing from a large pool of investors, so virtually all their bonds are issued openly in the markets to reach as wide a public as possible. Financial corporations, by contrast, may issue bonds purely to obtain funding or for a range of other reasons such as to obtain liquidity (e.g. by issuing a covered bond directly pledged at the central banks), to comply with prudential requirements (e.g. banks need a minimum level of subordinated debt and bail-inable debt), to distribute risk (e.g. through securitisation), to conduct maturity transformation beyond the scope of deposits (e.g. by issuing short-term bonds to finance long-term loans), etc. Consequently, many of the bonds issued by financial corporations do not necessarily pass through the markets (i.e. they can be used in 'repo' operations, they can be securities retained by the originator, they can be directly bought by the central bank, they can be used for securitise financial transactions, etc.). This has two important implications. First, the buyers of such bonds are not a large pool of investors but rather a single market participant, or maybe a handful. Second, information about the features of these bonds is extremely limited and highly opaque.

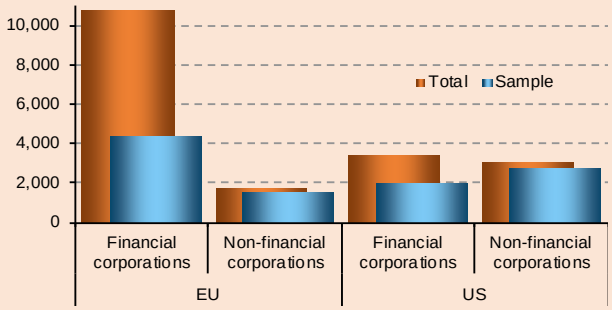
While all these bonds are called 'corporate bonds' (to distinguish them from sovereign bonds), bonds issued by NFCs are very different in kind from those issued by financial corporations. so, in this box we make a distinction between bonds issued by financial corporations and those issued by non-financial corporations where necessary.

Total volumes

In December 2014, the outstanding volume of bonds issued by EU companies (€ 12 400 billion) was twice as large as that of bonds issued by US companies (€ 6 400 billion). In the EU, the bulk of corporate bonds is issued by financial institutions (86 per cent); however, in the US, the distribution is more balanced between financial institutions (53 per cent) and non-financial institutions (47 per cent). Focusing exclusively on NFCs the volume of bonds issued by US companies (€ 3 000 billion) is about twice as large as the volume of bonds issued by EU companies (€ 1 700 billion) (Chart B8).

[10] For further details about private placements in Germany and France, see Linhart (2014) and Sapin and Montebourg (2014).
[11] See New York Life (2013).

Chart B8: **Bonds issued and sample,** outstanding volumes, 2014 December, € billion



Source: Eurostat, ECB, Federal Reserve, Bloomberg and own calculations.

This breakdown is based on a sample extracted from Bloomberg. The sample includes all bonds outstanding in December 2014 worth €0.25 billion or more at issuance (i.e. 10 200 bonds issued by European corporations and € 11,800 bonds issued by US corporations). The total sample (€ 10,500 billion outstanding) represents about 90 per cent of the bonds issued by NFCs and about 50 per cent of the bonds issued by financial corporations (Chart B8).

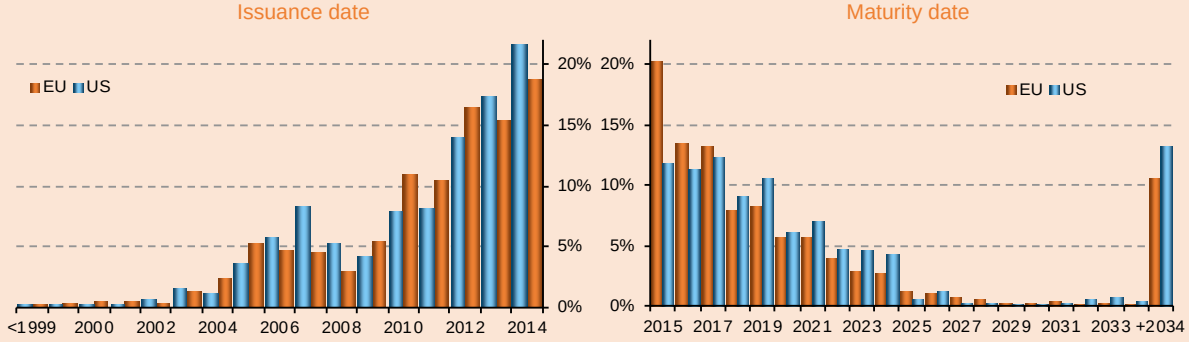
The lower coverage for financial corporations is not explained by the way the sample was taken, but is indicative of the widespread use of 'non-market' bonds discussed above.

Date of issuance and maturity

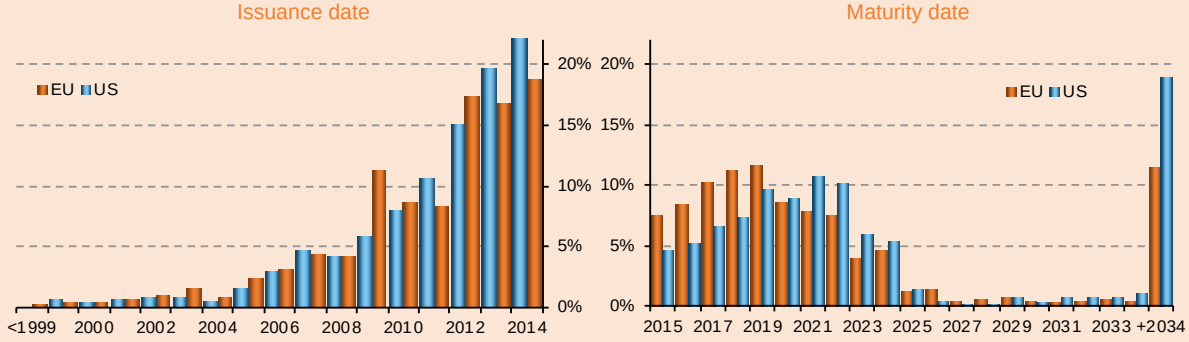
Given financial institutions' role in converting short-term into long-term maturities, their maturity profile is more skewed to shorter maturities than the maturity profile of NFCs (Chart B9, right-hand panel), which tend to work with medium-term to long-term maturities (see also Chart 54). Having said that, EU-issued bonds seem, in general, to have shorter maturities than US-issued bonds, both for financial and non-financial firms.

Chart B9: **Bonds by year of maturity**, percentage of value

Bond issued by **financial** corporations



Bond issued by **non-financial** corporations



Source: Bloomberg and own calculations.

Issuer sector and collateral

As stated above, issuance of bonds by the financial sector (including banks, special purpose vehicles and other financial firms) is very significant in both the EU and the US, but more so in the EU (86 per cent of all bonds) than in the US (53 per cent). Industrial companies issue significantly higher amounts of bonds in the US than in the EU. Utilities (electricity, telecoms and gas) and the transport sector issued much smaller amounts (Chart B10).

Chart B10: **Bonds by issuer sector**, percentage of value

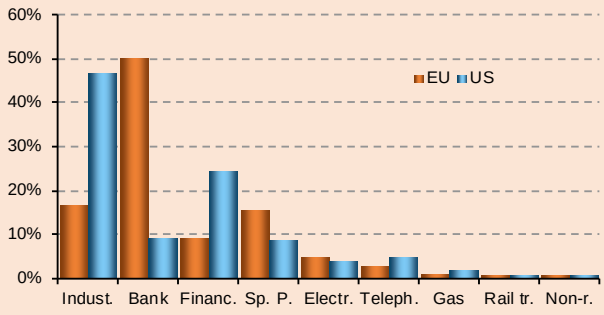
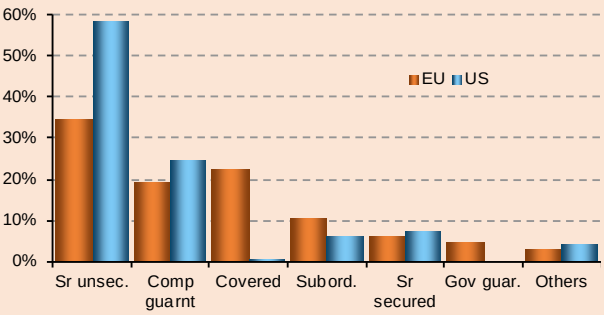


Chart B11: **Bonds by collateral**, percentage of value



Notes: Indust: industrial companies; Financ.: financial companies other than banks and SPVs; Sp. P.: Special purpose vehicles (SPVs); Electr.: electrical companies; Teleph.: Telephone operators; Rail tr: rail transport; Non-r.: transport other than rail.
Source: Bloomberg and own calculations.

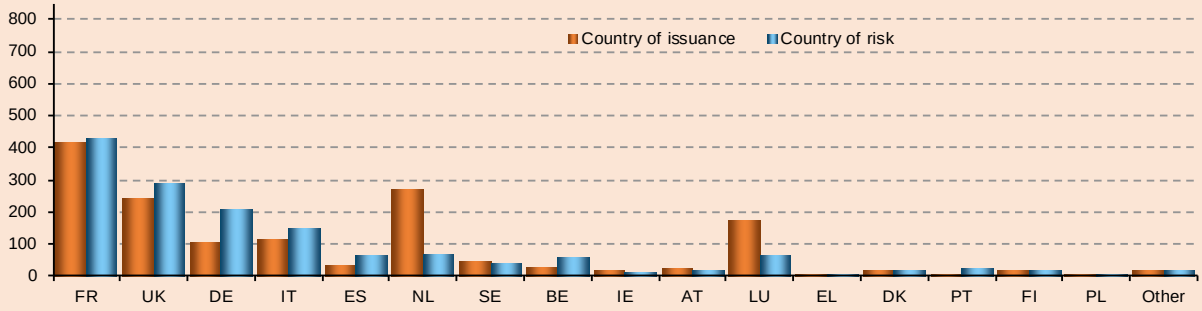
In the US, the majority of bonds have either senior unsecured status or are guaranteed by the company. In the EU, as well as those two categories, covered bonds are significant; this is explained, to a large extent, by the large proportion of bonds issued by banks. The other collateral categories are smaller, but note that in 2014, there was still € 240 billion in bonds issued under government guarantee (Chart B11)[12].

Geographical analysis and international dimension

As seen from the aggregate point of view (Chart 55), six countries (France, the UK, Germany, Italy, Spain and the Netherlands) account for about 80 per cent of all bonds by value.

International firms account for the difference between the distribution of the country of issuance and that of the country of risk. For example, subsidiaries may issue bonds in their host country, or firms may issue in countries where costs are lower or where they have access to investors. Countries like the Netherlands, Ireland and Luxembourg seem to attract a significant volume of bonds issued by firms operating from other EU countries (Chart B12).

Chart B12: **Distribution of bonds by country**, Non-financial corporations, € billion



Source: Bloomberg and own calculations.

About € 400 billion in bonds issued in EU countries were issued by firms operating from other countries. European firms from outside the EU (mainly Switzerland and Norway) issued up to € 190 billion in the EU. Total issuances of bonds in the EU by companies operating from outside Europe was € 180 billion. By contrast, US markets attracted € 340 billion of issuance from foreign companies (€ 170 billion of which were issued by EU corporations) (Chart B13).

Chart B13: **Cross border issuances**, € billion

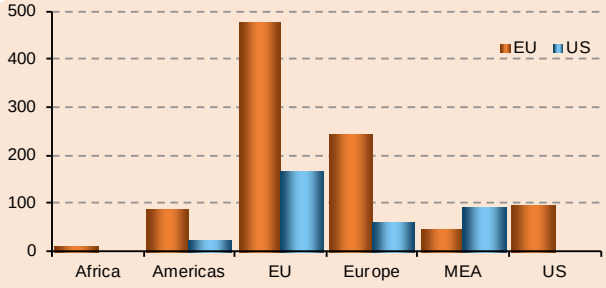
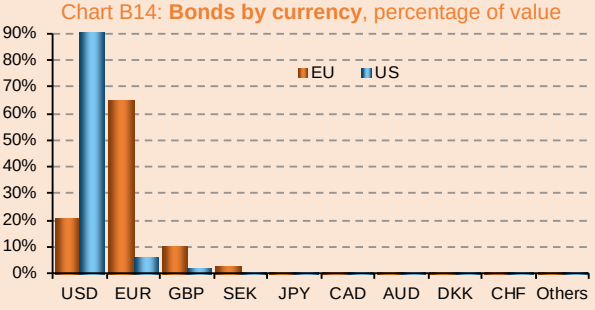


Chart B14: **Bonds by currency**, percentage of value



Notes: The chart plots the bonds issued by companies from Africa, America, the EU, Europe (non-EU), Middle East, Asia and Oceania (MEA) and the US cross border either and EU country or in the US. Cross border is defined as bonds issued in a country different from the country of risk.
Source: Bloomberg and own calculations.

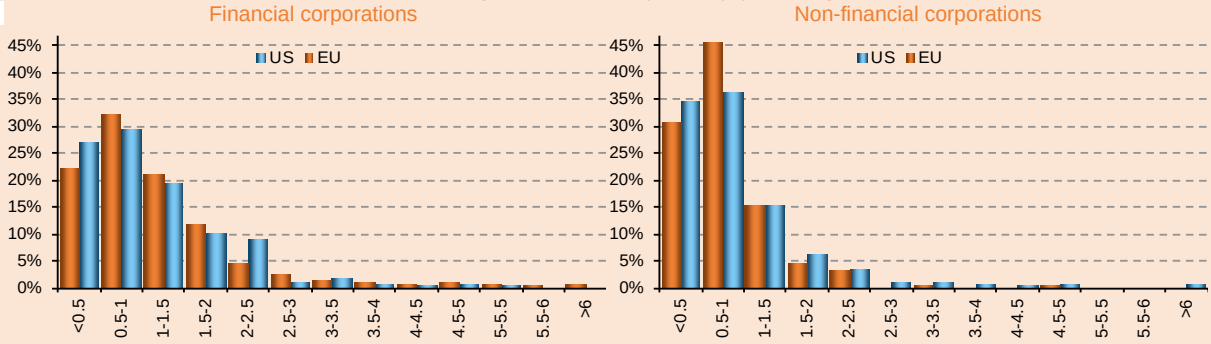
[12] For further details about guaranteed bonds, see European Commission (2014d).

In most cases, the currency of denomination is the local currency in the market where the bond is issued. The USD and the EUR are the main currencies used by US and EU issuer followed by the GBP and the SEK, but with a much lower share (Chart B14).

Issuance size

The great majority of bond issues by non-financial corporations are smaller than € 1 billion (almost 80 per cent in terms of value). For financial corporations, while bond issues smaller than € 1 billion are also predominant, bond issues of between € 1 and € 2.5 billion account for almost 40 per cent in value terms. There are very few bonds issues larger than € 2.5 billion (Chart B15).

Chart B15: **Bonds by issuance size** (€ billion), percentage of value



Note: The sample includes only bonds with a minimum size of €0.25 billion.
Source: Bloomberg and own calculations.

Concentration

The issuance of bonds is highly concentrated, particularly for financial firms (Table B1). The combined volume of bonds outstanding issued by the top 20 EU financial firms in December 2014 represented about 40 per cent of all bonds issued by financial firms (in the sample). Similarly, the top 20 US financial firms accounted altogether for over 60 per cent of all the bonds issued by US financial firms (in the sample). The top 7 firms alone issued 50 per cent of all financial bonds (see Chart A6 in the Annex).

Table B1: **Concentration in bond markets**

Sector	Bonds outstanding (€ billion)				Share of top 20 companies		Number of firms in the sample	
	Full sample		Top 20 companies					
	US	EU	US	EU	US	EU	US	EU
Financials	1,956	4,370	1,207	1,752	61.7%	40.1%	530	746
Non-financials	2,723	1,482	614	546	22.5%	36.8%	1,144	583
Total	**4,679**	**5,853**	**1,820**	**2,298**	**38.9%**	**39.3%**	**1,674**	**1,329**

Source: Bloomberg and own calculations.

Issuance by NFCs was also concentrated in the EU, and to a lesser extent in the US. The top 20 EU non-financial firms issued about 37 per cent of the bonds outstanding issued by non-financials corportions, while top 20 US non-financial firms issued 'only' 23 per cent.

Note that some industrial companies use a financial arm to issue bonds. This is more the case in the US (e.g. General Electric Capital, Ford Credit Europe, and Caterpillar) than in the EU (although Volkswagen, of the top 20 firms).

5.2. Stock markets

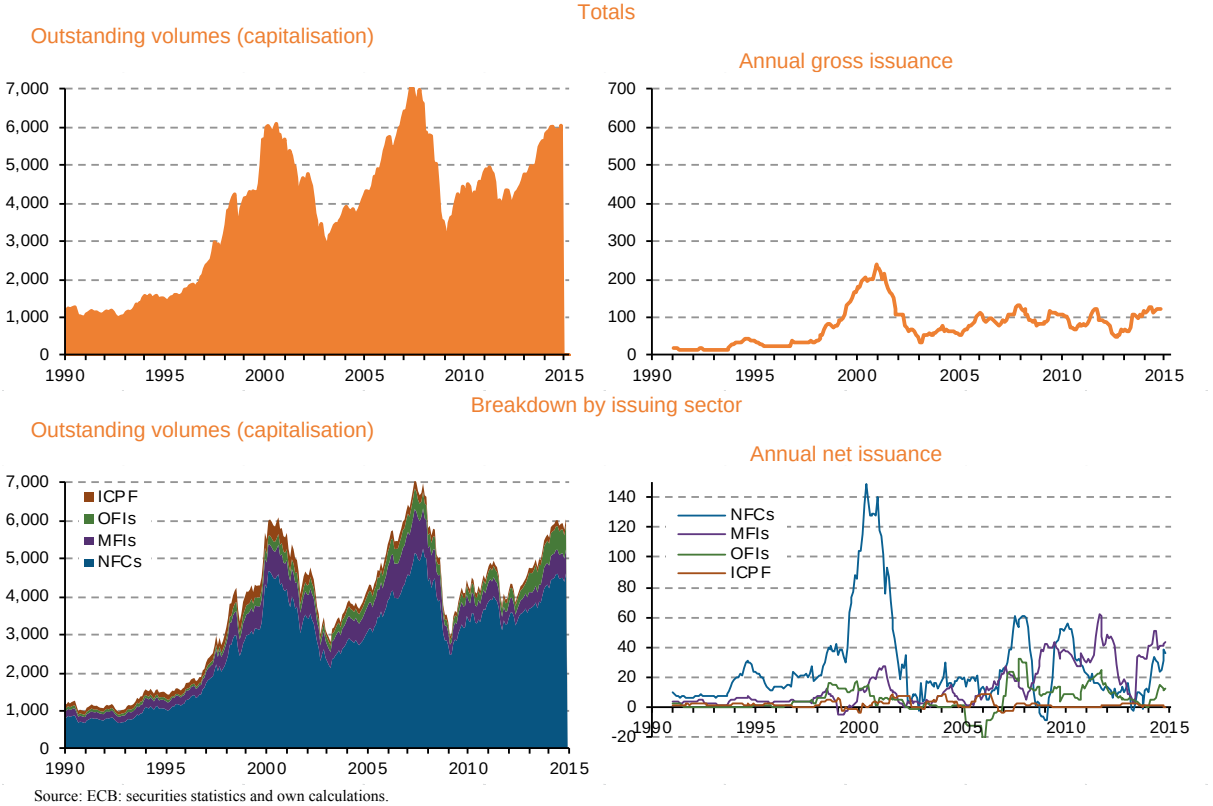
Stocks have very different features from bonds. Equity instruments are, in principle, permanent, so they do not need to be rolled over. Consequently, annual issuance of equity is much smaller than annual issuance of bonds and much smaller than the total outstanding volume of equity. Similarly, redemptions tend to be small. Market capitalisation is significantly affected by price fluctuations, which reflect actual income and losses but also other factors such as the outlook for the firm, investor confidence and other psychological factors.

They are different not only in kind but in size. Euro area equity markets (quoted shares) are three times smaller than bond markets (market capitalisation was € 6 000 billion in December 2014, or 65 per cent of euro area GDP, compared with over € 16 000 billion of outstanding bonds). The bulk of quoted shares are issued by NFCs, while the market capitalisation of banks and other financial institutions is much smaller (Chart 59, bottom-left panel). It appears that NFCs and financial corporations (MFIs and OFIs) have opposite preferences for quoted

shares (equity) and bonds. NFCs make extensive use of capital markets, in the form of quoted shares, and much more limited used of bond markets; while financial corporations use bond markets extensively and issue quoted shares to a much lesser extent (see Section 5.1 and Chart 13).

In this context, there is a debate about how the tax systems in Europe may be promoting debt financing against equity financing by allowing generally the deductibility only of the cost of debt. This is the so-called *debt bias in corporate taxation.*[13] The choice between equity financing and debt financing and the incentives implied by tax systems may in particular apply for companies of a certain size which feature generally a higher creditworthiness and easier access to outside finance, as compared to SMEs. As SMEs have a much less leeway in this regard; this may explain, to some extent, their relatively larger recourse to equity (other than quoted shares) in the non-financial corporate sector. However, the debt bias could particularly affect small innovative companies that rely more on funding from venture capitalists and angle investors. In a recent paper published by the Bank of England, Anderson et al. (2015, p. 10), plea for some caution with respect to the effect of tax regimes on the size of markets. Given the fact that the US has simultaneously the highest effective average corporate tax rates and the largest quoted stock markets in the world, it is not clear that a reduction in the tax advantages of debt financing would necessarily encourage more equity issuance in the EU.

Chart 59: **Equity markets**, euro area, € billion



Source: ECB: securities statistics and own calculations.

Dynamics and bubbles

Changes in net issuance of quoted shares are particularly relevant to the way the dotcom bubble burst in the early 2000s. Annual net issuance of shares by NFCs (mainly technology companies) skyrocketed to over € 140 billion a year. This went hand in hand with a widespread 'hype' and increasing demand, which multiplied the prices of these stocks and explains, to a large extent, the rise in capitalisation. However, at a certain point, (the 'Minsky moment'[14]) investors realised that this was not sustainable and stopped buying new shares. The artificially high stock prices were corrected and capitalisation went down to € 3 000 billion.

[13] See, for instance, Fatica et al. (2012), Zangari (2014), Langedijk et al. (2014), de Mooij (2011) , Keen and de Mooij (2012), de Mooij et al. (2014) and Cochrane (2014).
[14] The 'Minsky moment' refers to a sudden collapse of assets values following a long period of prosperity and increasing value of invesments.

The financial crisis that started in 2007 shows a similar evolution of capitalisation although the correction was not originated in excessive net flows of equity. The 2007-2008 bubble did not arise in the stock exchange but in credit: net flows of bank loans to households and firms as well as well as net interbank and inter-financial loans increased significantly throughout the early 2000s (see Chart 27 and Chapter 1). The values of net annual flows of loans (€ 400 billion for household loans, € 600 billion for corporate loans and € 3 000 billion for inter-financial loans) and its subsequent reversal are far higher than the values of net annual issuances of quoted shares (€ 140 billion). This may explain, to some extent, why the more recent crisis was more severe and why it took longer to be absorbed. As mentioned in Chapter 1 and given the dynamics observed in Chart 59, it cannot be discarded that equity markets could be affected by a new correction somewhere down the near future.

Another important difference between the dotcom bubble and the financial bubble of 2007-2008 is the availability of capital buffers to accommodate the burst. Non-financial corporations finance up to half of their activities with their own resources (equity) (see Chart 13). This means that they have a large buffer to absorb losses whenever problems arise and that those losses are borne by the investors directly involved in the management of the companies with problems. This allowed problematic balance sheets in the dotcom bubble to be cleaned up quickly without significant contagion to other economic agents.

The buffers available in bank balance sheets (and those of financial institutions in general) are much smaller. Section 4 shows that the balance sheet of the financial sector is as large as the balance sheet of the non-financial sectors of the economy taken together, but the amount of equity available in financial institutions is much more limited.

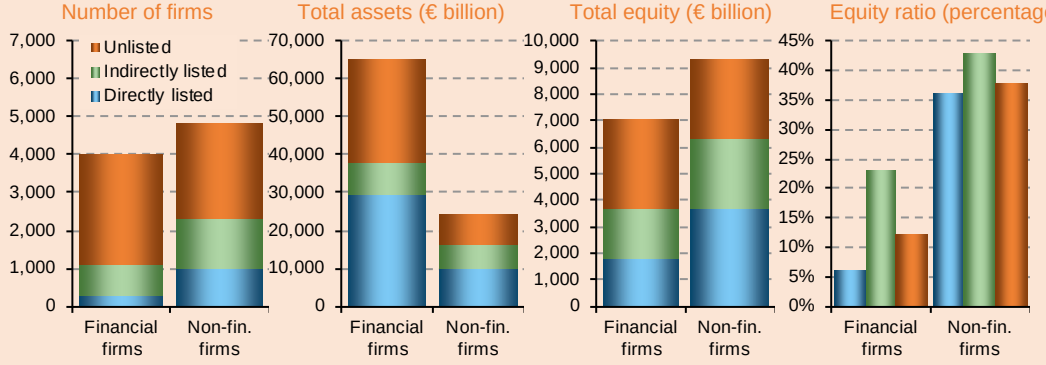
The 2007-2008 credit bubble's much larger size than the 2000-2001 equity bubble and the small amount of equity available in the financial sector to absorb the slump contribute to explain why the current financial crisis has lasted so long. Given the lack of buffers, the excesses cannot be corrected through prices and losses but by issuing new equity. This explains the high levels of issuance of quoted shares, particularly by banks, observed since the outbreak of the crisis (Chart 59). Having said that, public authorities and analysts should certainly take care that a new bubble is not in the making.

While issuance of quoted shares during the crisis was high compared with historical data, it is still considerably lower than that of bonds (see Chart 52) and smaller than the credit boom that drove the bubble.

Box F. **Quoted vs non-quoted companies. Main features**

The aim of this box is to analyse the features of listed companies and to compare them with non-listed companies. In particular, it focuses on the sector of activity, the country of incorporation and the size of the companies. The analysis is based on a sample extracted from the Orbis database containing the largest 10 000 firms in the EU. The companies with access to stock markets has been split into 'directly listed' companies, when the firm itself has issued quoted shares; and 'indirectly listed' companies, when it is the parent company the one who has issued quoted shares. The analysis is done at the highest level of consolidation at EU level, except for the country distributions, where the highest level of consolidation at country level is used.

Chart B16: **Main features of listed and unlisted companies**, EU 28, 2013



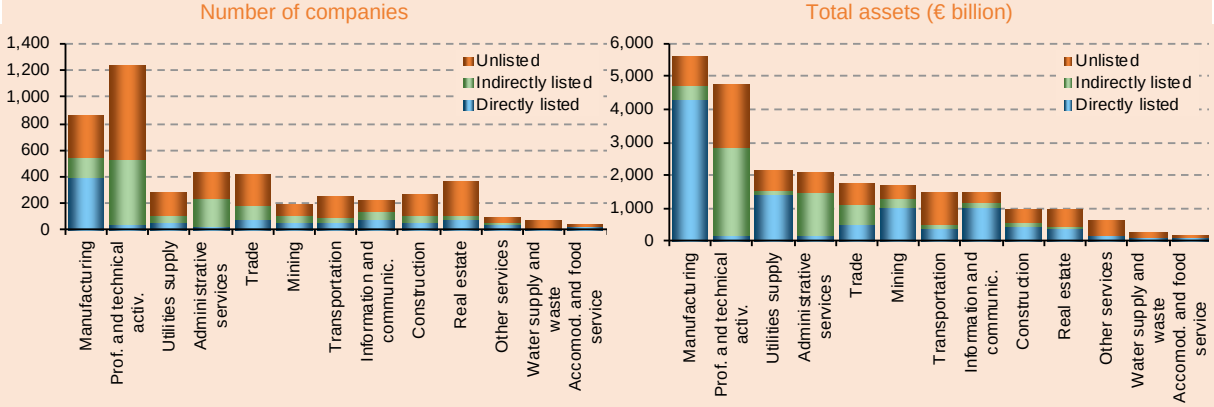
Notes: Analysis based on the 10 000 largest EU companies. For groups only the entity at the highest consolidating level is taken into account. 'Indirectly listed' refers to subsidiaries of listed companies (which have indirect access to equity markets).
Source: Orbis and own calculations.

Sector of activity

A distinction should be made between financial firms and all other firms. Almost half of the largest EU companies are financial firms, but they hold over 70 per cent of total assets of the sample (Chart B11). However, given the lower capital ratios of financial firms, their total equity (i.e. capitalisation for listed companies) is lower than for non-financial firms.

Over 60 per cent of the large EU firms are non-listed, but they hold only about 40 per cent of total assets of the sample. This indicates that listed companies tend to be larger than non-listed companies. Unlisted companies tend to have similar capital levels than directly listed companies, while indirectly listed companies (both for financial and non-financial firms) tend to have larger capital ratios. This indicates that subsidiaries rely heavily on the financing provided by their parent company.

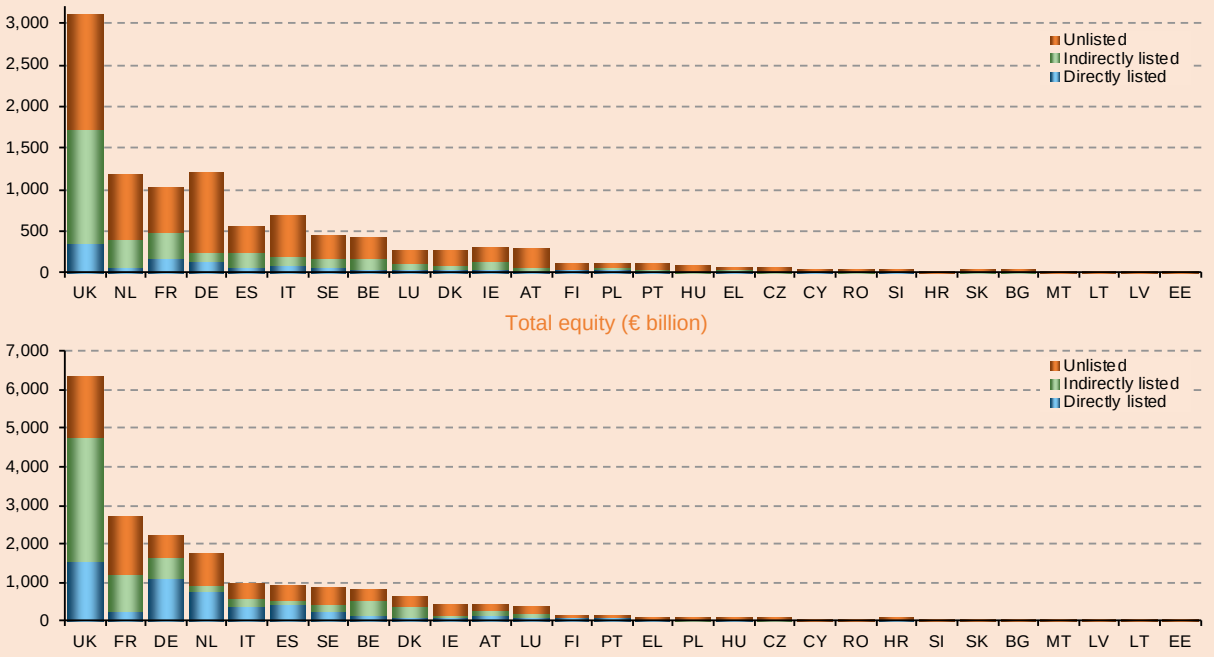
Chart B17: **Listed and unlisted companies by sector of activity**, non-financial firms, EU 28, 2013



Notes: Analysis based on the 10 000 largest EU companies extracted from the Orbis database. For groups only the entity at the highest consolidating level is taken into account. 'Indirectly listed' refers to subsidiaries of listed companies (which have indirect access to equity markets). The combined number of firms in the sectors that are not listed (Public administration and defence, compulsory social security; human health and social work activities; arts, entertainment and recreation; agriculture, forestry and fishing; and education) is lower than 100.
Source: Orbis and own calculations.

Data show that there are both listed and unlisted companies across all sectors. However, manufacturing and the category of professional, scientific and technical activities concentrate almost half of the firms (within non-financial corporations) in terms of both number of companies and total assets (Chart B17).

Chart B18: **Listed and unlisted companies by sector of activity**, non-financial firms, EU 28, 2013



Notes: Analysis based on the 10 000 largest EU companies extracted from the Orbis database. For groups only the entity at the highest consolidating level is taken into account. 'Indirectly listed' refers to subsidiaries of listed companies (which have indirect access to equity markets).
Source: Orbis and own calculations.

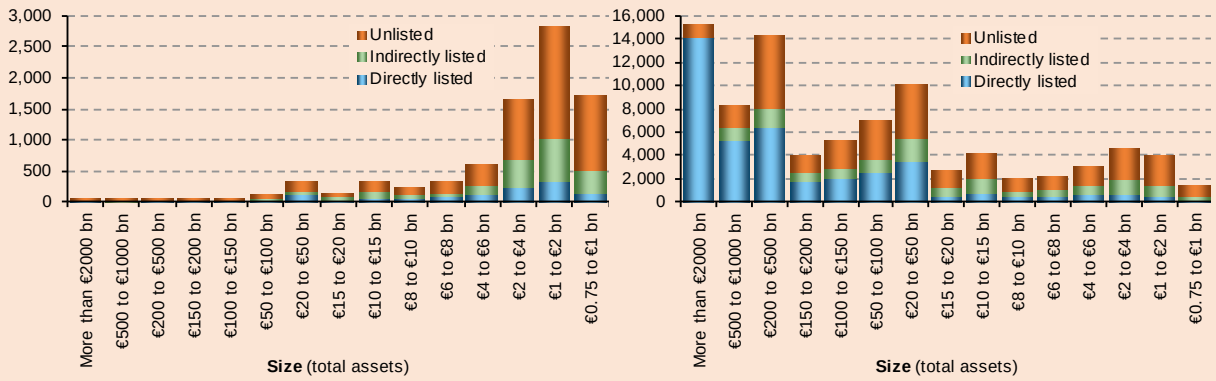
Country

The UK accounts for the largest number of firms and the largest amount of equity. The Netherland, France and Germany follow in importance. In general, unlisted firms are more numerous than listed ones, but the total size of listed firms is larger. Indirect access to markets of subsidiaries through a parent company is very relevant in most of the countries (Chart B18).

Company size

There are listed and unlisted companies across the whole range of company size. However, larger companies in the sample are more likely to be listed (Chart B19).

Chart B19: **Listed and unlisted companies by size**, non-financial firms, EU 28, 2013

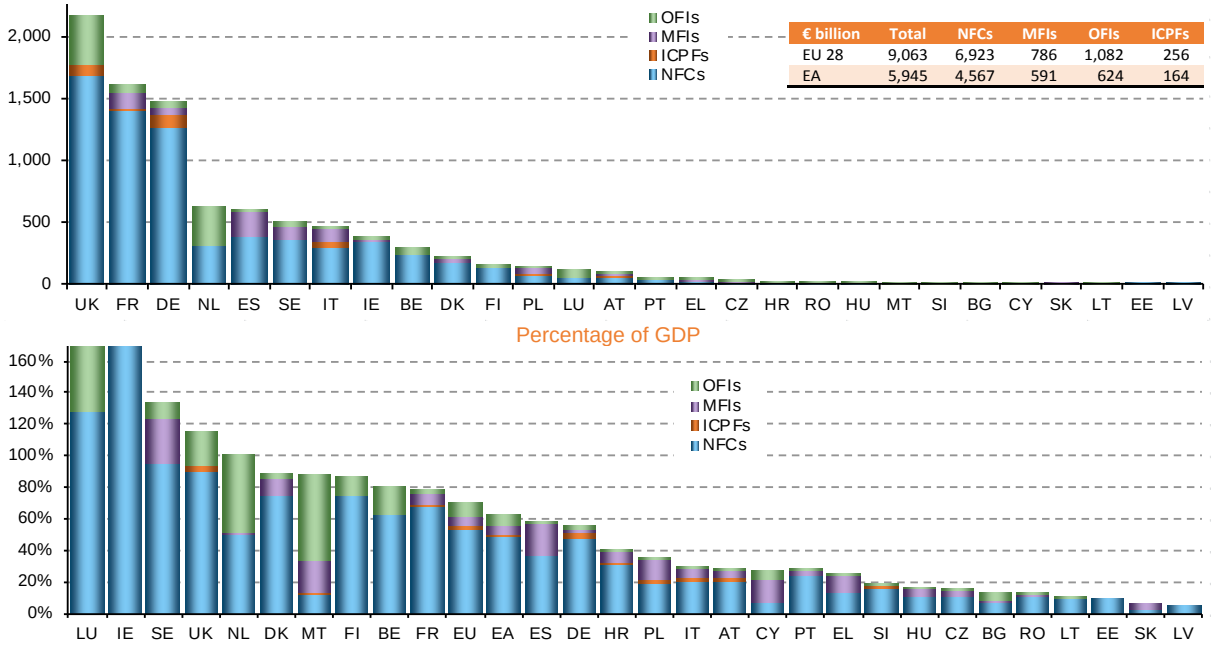


Notes: Analysis based on the 10 000 largest EU companies extracted from the Orbis database. For groups only the entity at the highest consolidating level is taken into account. 'Indirectly listed' refers to subsidiaries of listed companies (which have indirect access to equity markets).
Source: Orbis and own calculations.

Country analysis

The largest stock markets, in absolute terms, are in the UK, Germany and France, where almost 60 per cent of all EU shares were issued (Chart 60). However, the largest markets relative to GDP are those of Luxembourg, Ireland, the UK and the Netherlands. In the majority of countries, most quoted shares were issued by NFCs. In a few countries (Malta, Cyprus, Luxembourg, Netherlands or Bulgaria), OFIs issued a large proportion of quoted shares, and in a few other countries (Sweden, Malta, Spain, Greece or Poland) MFIs are relatively significant.

Chart 60: **Issuance of quoted shares by country and sector**, capitalisation outstanding, December 2014



€ billion	Total	NFCs	MFIs	OFIs	ICPFs
EU 28	9,063	6,923	786	1,082	256
EA	5,945	4,567	591	624	164

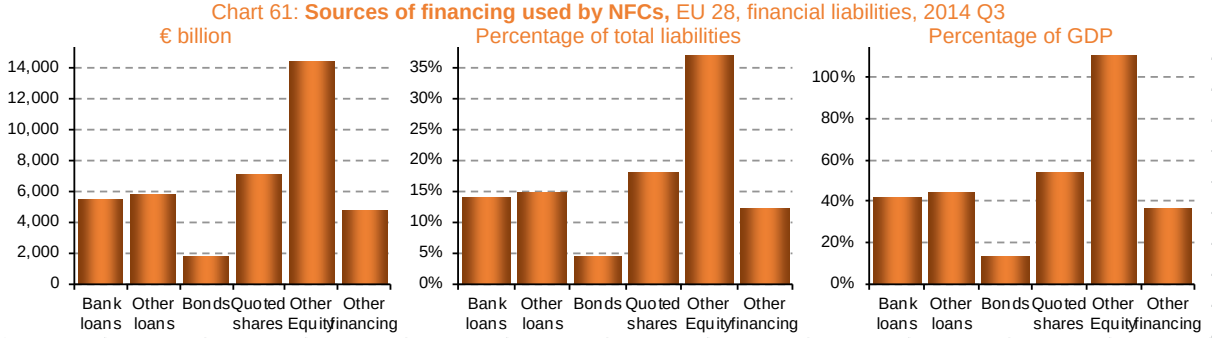
Notes: Luxembourg: OFIs = 156 per cent of GDP. Shares issued in Luxembourg by MFIs and ICPFs are nil; this indicates that (listed) banks and ICPFs with subsidiaries in Luxembourg issue their shares in their country of origin. Ireland: NFCs: 202 per cent of GDP; MFIs = 13 per cent of GDP; OFIs = 11 per cent of GDP; ICPFs = 0 per cent.

Source: ECB: securities statistics and own calculations.

6. DIRECT FINANCING BEYOND CAPITAL MARKETS

Financial intermediation and capital markets are used to different degrees by the different institutional sectors (e.g. NFCs, governments, households and financial institutions).[15] NFCs, representing the productive branch of the economy, use financial intermediation and capital markets for about one third of their funding (bank loans: 14 per cent; bonds: 4 per cent; quoted shares: 18 per cent) and other sources for the remaining two thirds (Chart 61).

Chart 61: **Sources of financing used by NFCs,** EU 28, financial liabilities, 2014 Q3



Source: European Commission (SWD-2015/13), ECB, Eurostat and own calculations.

Financial authorities both at EU and national level have taken a series of unprecedented measures to stabilise markets and restore confidences (see Section 2.2). In his presentation to the European Council in February 2015, Commission President Jean-Claude Juncker (2015a and 2015b) argues that in order for the EU to deliver the goals set out in the Treaties (particularly inclusive and sustainable growth and high levels of employment), there is a need not only to restore confidence in financial markets but also to rebuild trust among citizens and the broader economy.

In this context, it is critical to understand the implications for confidence, financial stability, growth and jobs stemming from the strain that the financial crisis has put on the economy. An overview of funding from various sources other than capital markets and financial intermediation is given Section 3, so this section focuses on how those other sources of funding for non-financial corporations may affect the smooth functioning of the economy and on how they have been affected by the financial crisis. It also looks at *crowdfunding* as a nascent source of funding.

6.1. The financing mix of non-financial corporations

The funding provided by financial intermediation and capital markets is crucial to improving the capacity of the productive economy to generate growth and jobs. But a number of other stakeholders besides investors are critical to businesses' existence and to economic production in general: employees, customers, input suppliers, public authorities, services providers, educational systems, etc. All these stakeholders interact with firms through economic and financial relationships.

Economic transactions between suppliers and clients, and between companies and employees, imply intrinsic financing resources that can be provided neither by capital markets nor by the financial sector. While they are mostly short-term, they are still critical for a well-functioning economy. These sources of funding arise from the difference between the 'continuous' accrual of economic value and the 'point-in-time' nature of payments and settlement. Wages, trade credit, utilities and tax claims are common examples. Although they entail direct financing between two economic agents, the financial sector can still provide some services linked to these bilateral positions (such as asset-based lending, factoring and leasing, as discussed in Section 4.4.3). These sources of finance are covered by the 'other financing' category and account for 12 per cent of the financing used by NFCs (Chart 61).

[15] See Section 3 for further details.

Other sources and forms of financing for the economy are intercompany loans, government subsidies, internal funding, and equity provided by family and friends. About half of the financing of NFCs takes the form of equity other than quoted shares. This is usually the initial contributions needed to start a family business and subsequent profits ploughed back into the firm (see Section 3 for further details).

6.2. Interconnections within the economy

Firms and stakeholders are closely interconnected. Significant financial difficulties for one group of stakeholders can have a major impact on the economy: e.g. government and local authorities in financial difficulties will pay their suppliers late, firms under stress will pay their employees late, unemployed people or employees paid late will postpone their spending, etc. The various parts of the economy interact with each other and turmoil can quickly spread throughout the system leading to a vicious circle. One way out of this situation is to build a virtuous circle from a robust foundation.

Europe has been practising economic integration for over 60 years through the 'four freedoms': free movement of goods, services, people and capital. Any economic relations (e.g. trade in goods, provision of services, an employment contract or buying a bond) usually implies a financial relation. The different nature of the four freedoms, particularly in terms of mobility, affects the financial relations arising from economic interactions.

Distance in the economic relationship and debt ranking

There is a clear distinction between equity instruments and debt instruments. Equity investors maintain a very close relationship with the firm: they can scrutinise all the activities of the firm and they participate and are responsible for the day-to-day management of the company. Consequently, they take great interest in the performance of the company as their rewards, in the form of returns, are closely linked to the income from the business. On the other hand, debt investors maintain a distant relationship with the company. They do not participate in its management and they are only interested in the company's performance insofar as it will ensure their investment is repaid with the agreed interest. Most other stakeholders fall between these two positions.

Of the firm's other relationships with various stakeholders, its relationship with its employees is usually one of very close ties, a long-term relationship and mutual trust. In many countries, large firms are legally required to involve employees (through representatives) in important decisions involving the firm. In this context, staff interests are very close to those of shareholders. In companies that take the form of cooperatives, the employees are in fact the shareholders.

Given this framework, whenever a firm is in difficulty, employees may accept some sacrifices (e.g. a delay in the payment of wages for a couple of months) in the hope of contributing to its survival and, therefore, to that of their own job in the long run. The relationship between a firm and its long-term suppliers and customers has similar features. A supplier may agree to be paid later if a customer is facing temporary difficulties, because the supplier is more interested in the continuation of a long-term commercial relationship than in a specific order. However, if such delays go on too long or the amounts are too great, employees and suppliers may suffer financially and this will have knock-on effects (e.g. on their own suppliers or employees).

In other words, salaries and trade credit are, in general, 'subordinated' to other types of debts that are more 'senior'. It is usually said that the mortgage is the last thing one stops paying and, indeed, bank loans are more senior than other types of debt. Debt materialised in the form of bonds is also of the senior type: companies have high incentives to pay their bonds on time, as otherwise all their debt will be downgraded to default by rating agencies and they will be excluded from the markets. However, the same issuer has much more leeway to 'stretch' the payments to suppliers and employees, which are therefore more junior.[16] The rationale behind this ranking is that markets provide the advantage of pooling large amounts of funds from 'anonymous' sources, but this arm's length relationship implies that investors lack an insider's view of the company (although this is

[16] This ranking refers to the effective priority given to payments by a going concern firm. Debtors may have a different legal rank in bankruptcy proceedings when a company is liquidated.

partially mitigated by greater transparency requirements for companies issuing in the markets). As compensation, investors receive a senior treatment.

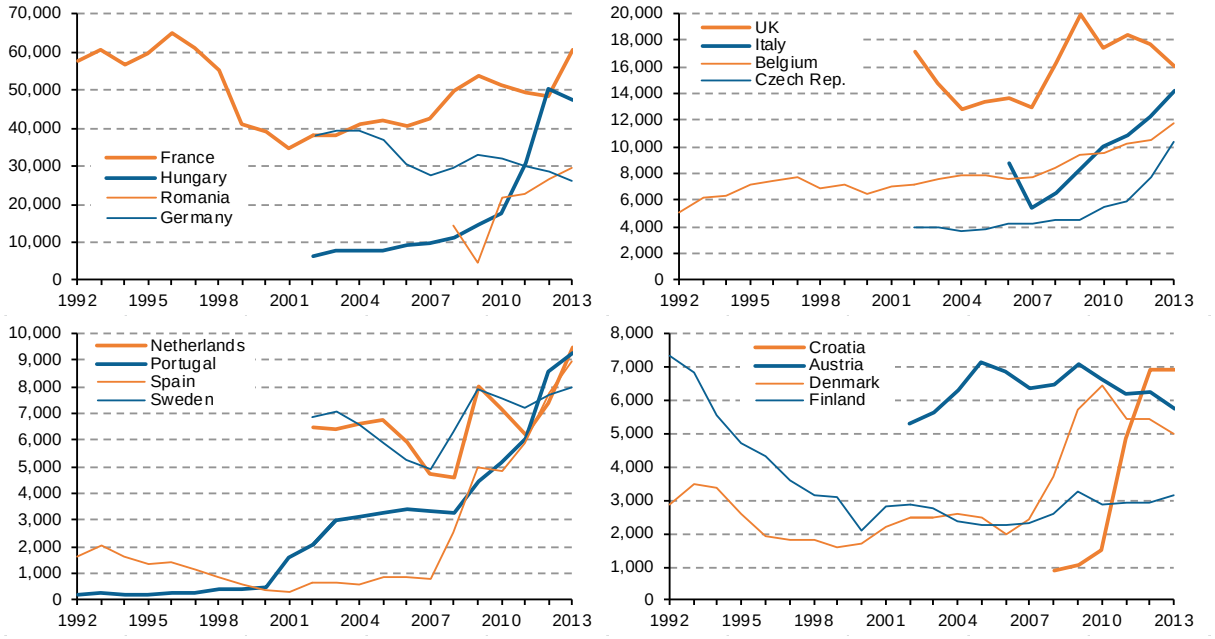
The consequences of these two types of approach are clearly explained by Bolton et al. (2013) for banking. They compare relationship banking (based on long-term relationship between the bank and the customer) with transaction banking (linked to the 'originate-to-distribute' model): *'In our model […], a key result is that relationship-banks charge a higher intermediation spread in normal times, but over continuation-lending at more favourable terms than transaction banks to profitable firms in a crisis'.*

Impact of the crisis on 'junior' stakeholder

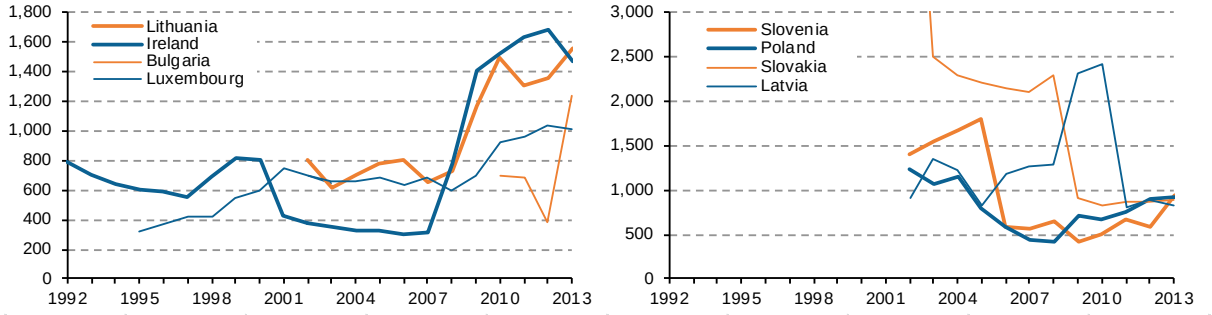
Data on the impact of the crisis on all these junior creditors are scarce; however, it is possible to capture the main trends through a series of indirect indicators. For instance, financial investors look at high levels of non-performing loans (NPLs) in banks to assess the robustness of the financial system (see Chart 17 in Chapter 1). These same NPLs implicitly point to the financial strain that debtors are experiencing, especially since bank loans are senior to other claims (so if a company stops paying the bank it means that it has probably already stretched payment to its suppliers and owes pay to its employees).

Another example could be the financial stress experienced by some governments. Public finance was under stress in many European countries and this incontestably impacted junior creditors (e.g. suppliers, workers). Difficulties reached such levels in some Member States that they had to apply for support from European partners,[17] but many other countries were also affected, as reflected in the increasing costs of their debt (see Chart 10 in Chapter 1). Although no government defaulted during the crisis on their bonds (even the private sector involvement in Greece was a voluntary exchange of debt), they stretched payments on other instruments.

Chart 62: **Insolvencies in selected countries**. Number of companies



[17] Latvia, Romania, Hungary, Greece, Ireland, Portugal, Spain and Cyprus. For further details, see Chapter 1 and last year's review.



Notes: The definition of insolvency and the moment of computation (e.g. filing, opening, closing, etc.) may vary across countries.
Source: Credit reform and own elaboration.

The late payment Directive 2011/7/EU established the need to paid suppliers within 60 days. However, given that enforcement of contracts takes at least 300 days (in Lithuania, the best performing country) and costs about 50 per cent of the amounts claimed, compliance with the directive relies on the willingness (or capacity) of firms to abide by those limits.[18]

The junior character of wages appears clearly in the fact that salaries were reduced in many countries (even though these reductions may in some cases have been declared void by constitutional courts). In other words, public employees and suppliers have contributed to (or have borne the cost of) alleviating the burden of the increasing cost of financing in many Member States.

Similarly, many bank borrowers were unable to repay their debts and defaulted on their loans, as reflected in figures for non-performing loans (see Chart 17 in Chapter 1). There is a high probability that a company or a household that has defaulted on a bank loan has also stretched payments to other (more junior) debtors.[19] So one can expect pressure on junior debtors, such as employees or suppliers providing credit through trade credit, to be at least as high as that implicit in the trend in non-performing loans.

Unemployment figures (Chart 2 in Chapter 1) and the number of bankruptcies (Chart 62 and Chart A7 in the Annex) also provide an indirect indication of the pressure on junior debtors . During the most acute phases of the crisis, there were many demonstrations, mainly in the countries most affected by the financial turmoil. In many cases, they were linked to situations where companies confronted with financial difficulties had postponed payment of wages for months before eventually filing for bankruptcy, probably involving large layoffs. Data show how, with the outbreak of the crisis, the number of insolvencies increased significantly in many countries, although they have started to recede.

Second round effects: erosion of confidence and shrinking demand

The financial turmoil put pressure on both senior and junior debtors. On top of the consequences in the long run of this debt overhang (see Chapter 3),[20] there are two important effects in the short run: the erosion of confidence and a negative impact on demand. Many analysts have pointed out how the recent financial crisis has been linked to the erosion of confidence in wholesale markets.[21] With the outbreak of the so-called 'subprime crisis' in 2007, doubts emerged about the actual value of the assets booked by the banks that had bought CDOs and other products linked to the US subprime mortgages. The failure of Lehman Brothers in September 2008 exacerbated and generalised the 'mistrust' mode in the markets (see Chart 27, right-hand panels). Against this collapse in markets, public authorities had to step in with financial support to financial institutions and governments.

The erosion in confidence also spread to junior relationships (e.g. employees, suppliers and customers) as their financial capacity started to be affected when payment delays became prolonged. For instance, in many cases, businesses started to ask for advance payment before delivering supplies to customers. This loss in confidence has affected the economy. It has also turned into a broader malaise, as reflected in the general rise of populist

[18] For further details about the cost, duration and recovery rate of bankruptcy procedures, see Chapter 3. In this context, the UK government launched a public consultation on *'Late payment. Challenging grossly unfair terms and practices'* in February 2014.
[19] Loans are usually classified as non-performing if they are over 90 days past their due date.
[20] See also Chapter 4, on longevity risk.
[21] See, for instance, Cœuré (2013), Krugman (2013), Gorton and Metrick (2012), Varoufakis (2011), Abbassi and Schnabel (2009) or Cochrane (2014). See also Chart 7 in Chapter 1.

and extremist parties both at national level and in the European Parliament. In economic terms, stretching the financial capacity of junior stakeholders can have a marked negative feedback effect by reducing aggregate demand which can become a vicious circle. What can seem a solution for the difficulties of an isolated company may have devastating consequences at macroeconomic level if this is generalised.

People's general economic 'mood' translates into demand for goods and services. Ordinary citizens who feel the outlook for them and their families is bright are more likely to embark on economic projects. When the outlook is gloomy, they will be more cautious with their spending. One important indicator of the economic mood of the public and consumers is provided by figures for car sales. Cars are long-term assets and need to be replaced after a few years. But when times are hard, replacement can be postponed. Because cars are usually purchased against a loan, trends in car sales tell us about the current economic situation (e.g. access to credit) and economic outlook, from the perspective of both credit institutions and prospective buyers.

In the recent crisis, car registrations fell by 25 per cent from peak to trough, three times more than in the aftermath of the dotcom crisis, when they fell by 8 per cent (see Chart 3 in Chapter 1). Car registrations fell back to the absolute levels of the crisis of the mid-1990s; however, in 2014 there were more people living in Europe (and needing cars). In addition, after the initial hit of the crisis in the mid-1990s, car registrations started to recover very soon. This did not happen in the recent crisis, when the fall in car registration was prolonged. Car registrations seem to have started to pick up since mid-2013 (more for non-euro area countries than for the euro area), but they still have a long way to go to reach pre-crisis levels.

Retail sales figures give a similar picture (Chart 4 in Chapter 1). Spending, even on basic articles such as food and clothing, fell sharply from a peak in the mid-2000s. Positive macroeconomic indicators (e.g. GDP growth picking up) and improving financial conditions in financial markets (e.g. declining yields) are preconditions for a robust recovery. But overall financial stability will only be restored when junior creditors are not financially stressed.

A number of studies have analysed and discussed the phenomenon of housing bubbles and financial bubbles in general.[22] The main message is that, in the long run, they generate very volatile economic growth, if any, as observed in the developments after the 2007-2008 bubble burst.

Building a robust recovery

In recent years, a debate about increasing inequality and its impact on growth has emerged[23]. Fostering the median citizen's economic capacity could be seen as a solid foundation for the economic system. Data on retail sales show how the standards of living of Europeans have systematically increased since the mid-1990s. The recent financial crisis ended this trend and has even eroded the living conditions of Europeans; however, this retail sales have also picked up again since early 2013 (Chart 4 in Chapter 1).

To tackle the consequences of the crisis on the demand side of the economy, the European Commission proposed setting up a *European Fund for Strategic Investments* (EFSI) in November 2014. The goal of the EFSI is to provide the financing needed to support economic growth based on solid foundations and to contribute to definitively overcoming the crisis. [24]

Although there is some leeway for stretching one component or the other of an economic system, an appropriate balance between all components is essential for the system to function smoothly. One should bear in mind that the economy is ultimately financed by households' savings (see Section 3), while financial institutions and financial markets are just intermediaries and do not provide additional financing resources to the economy in net terms. If households are unable to generate resources and savings, even the most advanced financial sector cannot intermediate or efficiently channel funding to projects in need of investment.

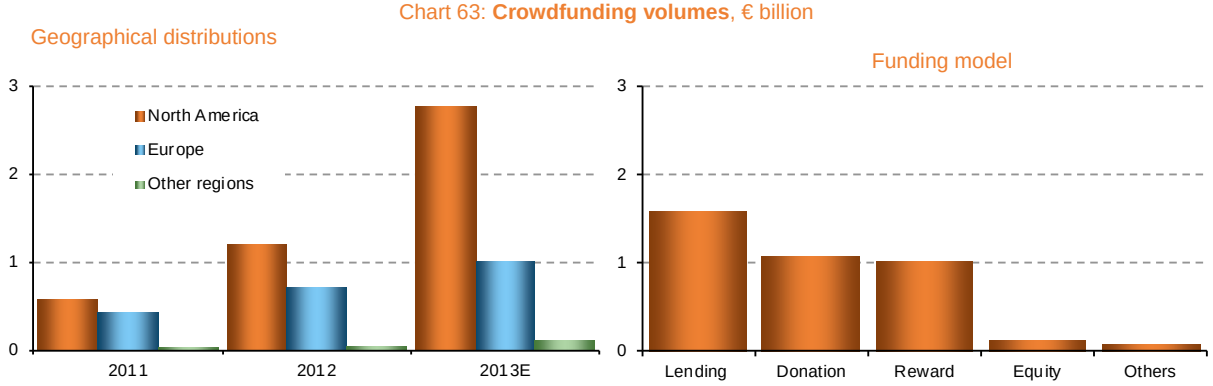
[22] See for instance Mian and Sufi (2014). See also the discussion in Section 5.2.
[23] See, Frank and Cook, 1996; OECD, 2011 and 2014; Galbraith, 2012; Stiglitz, 2012; Lakner and Milanovic, 2013; and Piketty, 2014.
[24] See Box A for further details.

6.3. Crowdfunding

Private pooling of funds for a specific purpose has always existed. Many of us have contributed to a charity or have been involved collecting funds. Information technology has provided a new boost for this source of financing by way of what is usually called crowdfunding. While still a nascent channel, crowdfunding could, in some cases, become an alternative to other traditional funding sources given the constraints and frictions that have emerged as a consequence of the financial crisis. Examples of recourse to crowdfunding could include consumers borrowing relatively small amounts of money to renovate their homes or finance studies, or businesses borrowing to finance some new operations.

Crowdfunding has similarities with organised financial markets: it implies pooling funds from a large number of contributors and it directly connects the source of funds with the final investment. But there are also major differences, particularly in the overall size of the operations. Crowdfunding may involve hundreds or sometimes thousands of euros, while bond and share issues involve millions or even billion of euros. Consequently, there is much less information disclosed and much less supervision by the authorities for crowdfunding projects than for capital markets. Because they are so small, secondary markets where one contributor could sell on a crowdfunding investment are generally not available.

Chart 63: **Crowdfunding volumes**, € billion



Note: China is not included.
Source: Massolution, SpaceTec Capital Partners.

Crowdfunding initiatives may raise concerns in terms of fraud (by the platform or the project owner), money laundering, project failure (investment risk), investor protection, legal uncertainty, etc. and some countries have started to regulate this kind of activity. In 2014, the Commission (2014b) adopted a communication on crowdfunding which discussed the issues at stakes and whether or not there was a need for further harmonisation or action at European level.

In 2013, financing raised through crowdfunding was estimated at € 1.0 billion in Europe and € 3.0 billion in North America (ESMA, 2014). The UK is by far the largest European market for crowdfunding (€0.8 billion in 2013 and € 2.75 billion in 2014 according to NESTA, 2014). Crowdfunding in China is estimated at € 1.4 billion (IOSCO, 2014). In Europe, over 600 crowdfunding platforms provide the market structure needed to connect contributors with projects.

Crowdfunding can be divided into two broad categories. One is crowd sponsoring, in which donations, rewards and pre-sales models do not entail any financial return to contributors; the other is based on profit-sharing models, or crowd lending, also called peer-to-peer lending (P2P lending), and crowd investing (equity based).

While crowdfunding platforms are generally independent companies, traditional banks and financial firms are recently taking an interest in some crowdfunding segments, either in providing infrastructure or in offering securitisation services[25].

[25] See Jenkins and Alloway (2015).

7. CONCLUSIONS

This chapter provides an overview of the structure of the financial sector in the European Union. In particular, it provides a quantitative overview of the role of the financial system in channelling funding across the economy. The analysis presented here deals with questions such as who is providing credit, who is using this credit, in which form the credit is formalised or through which channels financial resources flow. Besides the size of the different institutional sectors (e.g. households, non-financial corporations) in terms of assets and liabilities, the chapter also reviews the preferences of markets participants as reflected in the mix of products they choose to invest in or to use as a source of funding. These customer preferences in the provision and use of funding determine the importance and role that the financial sector, and its different segments, is to play in the European economy.

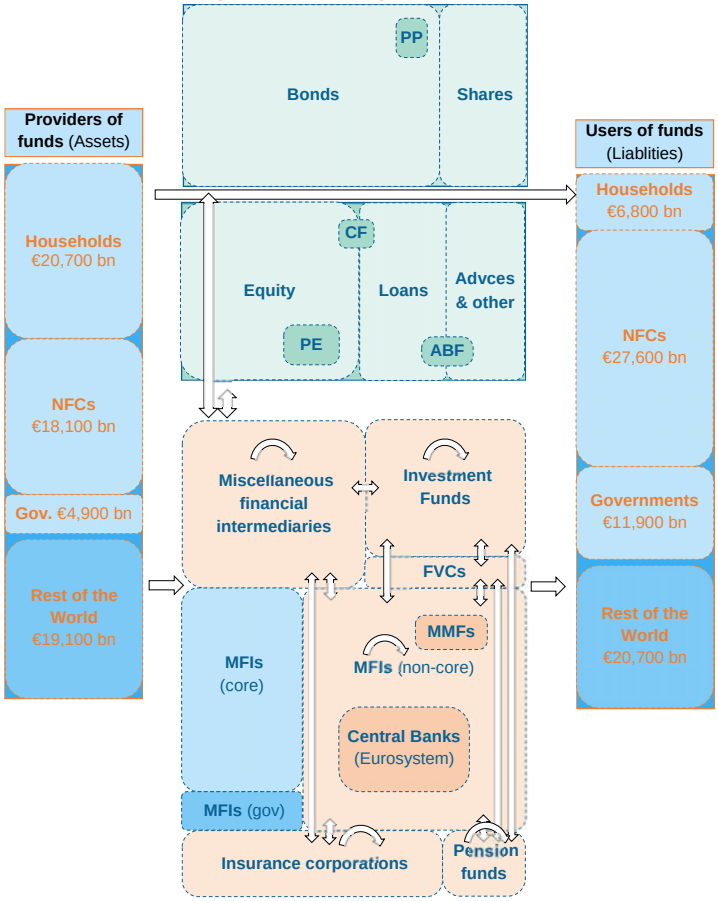
The chapter also analyses the three main channels that the European economy uses for financing its activities, with their respective sub-segments (Chart 44). First, organised markets: issuance of bonds, quoted shares or private placements. Secondly, financing channelled through the direct interaction of a firm with its stakeholders (i.e. customers, local and national authorities, employees, supplier, etc.) in the form of equity, loans or advances.

Direct financing requires both the providers and the users of funding to have the same preferences and to interact with each other. However, this is not always possible. Consequently, the third channel of financing is provided by financial institutions, which provide an intermediation service by connecting the resources of savers and depositors with those of borrowers and investors and by adapting the features of savings to the needs of investors through what is called maturity transformation. Although financial institutions do not generate net additional financial resources, they play a crucial role in allowing savings generated by the economy to be mobilised so they can be allocated to investment projects[26].

Note that the combined size of funds directly circulating among economic actors or channelled through financial intermediation is actually much larger than the (financial) balance sheet of the non-financial sectors of the economy. This is explained by the operations occurring within the financial sector such as interbank loans, the issuance of shares and bonds by banks or other financial institutions, etc. Once credit within the financial sector is netted out (e.g. interbank credit or the interactions of banks with the shadow banking) these three channels have broadly the same size, providing about one third of the total financing of the economy each.

[26] The financial sector also runs payment systems; however, this is beyond the scope of this chapter, which focuses on financing channels.

Chart 64: **Financing of the economy: connections across sectors**



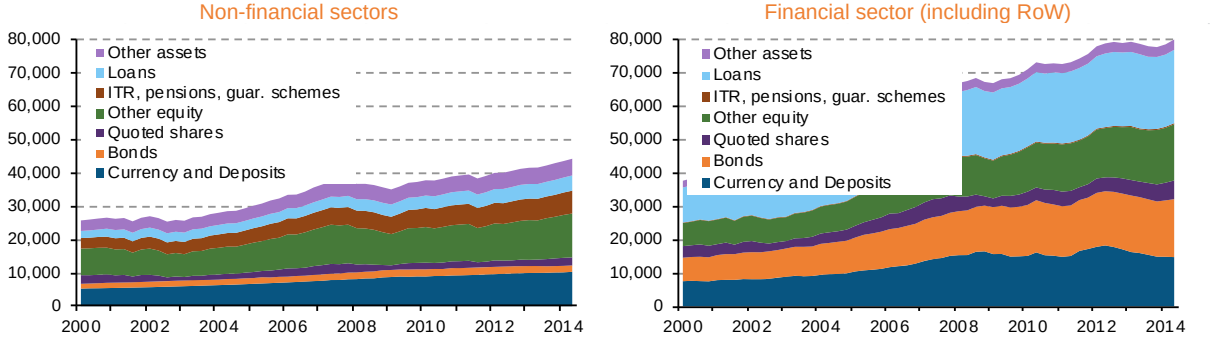
Notes: NFCs: Non-financial corporations. PP: Private placement. CF: Crowdfunding. PE: Private Equtiy. ABF: Asset-based finance. Advces & other: Advances and other financing (it includes items such as trade credit, advances by different stakeholders, tax claims and similar items). FVCs: Financial vehicle corporations. MMFs: Money market funds. MFIs: Monetary financial institutions. MFIs core assets: credit provided by banks to households and NFCs through loans or the purchase of securities. MFIs government assets: loans to governments and holdings of sovereign bonds. MFIs non-core assets are calculated as the residual factor with respect to total assets. Data refer to the balance sheet of euro area institutional sectors as of 2014 Q3.
Source: ECB, Eurostat and own calculations.

The chapter also highlights the high level of interconnection and interaction between the different economic agents which can lead to high levels of complexity and interdependence.

The information gathered and the discussion presented throughout this chapter can be a useful background for a number of Commission policies including the on-going work on developing capital markets union and for the investment plan for Europe.

ANNEX: ADDITIONAL CHARTS AND TABLES

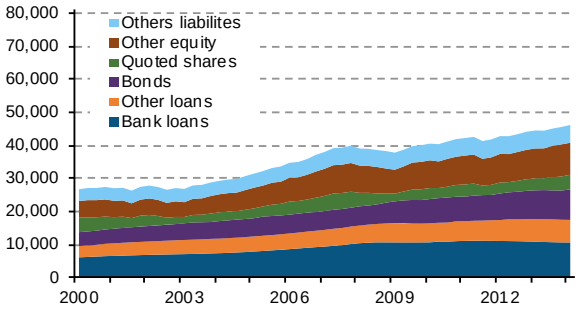
Chart A1: **Provision of funds (financial assets)**, breakdown by instrument, euro area economy, € billion



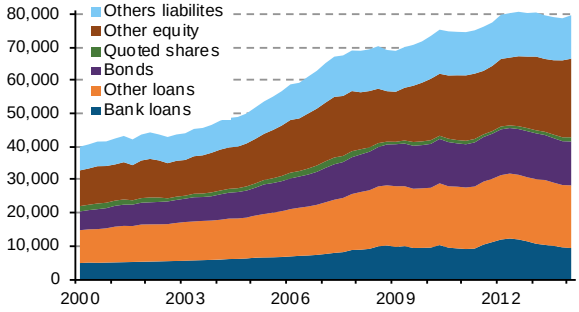
Notes: Real economy includes households, NFCs and governments. The financial sector includes MFIs, OFIs and ICPFs. RoW: Rest of the World; NFCs: Non-financial corporations. ITR: Insurance technical reserves. Non-financial assets (such as buildings, machinery, land, etc.) are not reported. For the financial sector, 'currency and deposits' includes interbank lending provided. Holdings of investment fund shares are included in 'Other equity'.
Source: ECB, Eurostat and own calculations.

Chart A2: **Source of funding** (financial liabilities), euro area, € billion

Non-financial sectors



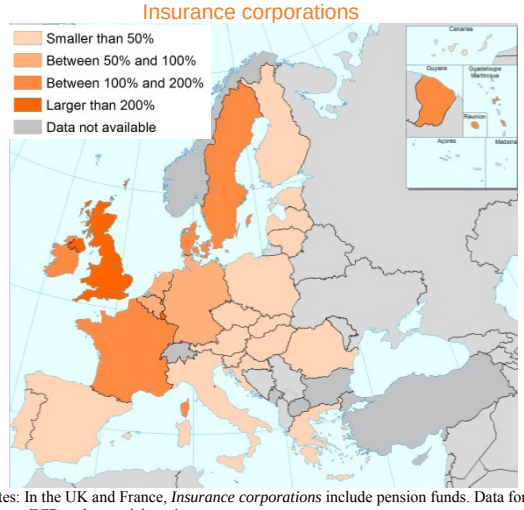
Financial sector (including RoW)



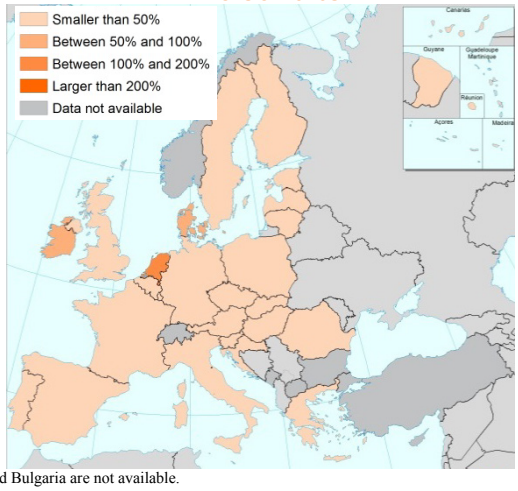
Notes: Real economy includes households, NFCs and governments. The financial sector includes MFIs, OFIs and ICPFs. RoW: Rest of the World; NFCs: Non-financial corporations. Deposits received by banks are included under the category 'Banks loans' (interbank deposits) or 'Other loans' (deposits other than interbank). Investment fund shares and mutual fund shares are included in other equity.
Source: ECB, Eurostat and own calculations.

Chart A3: **Size of insurance corporations and pension funds**, percentage of GDP, 2014 Q3

Insurance corporations



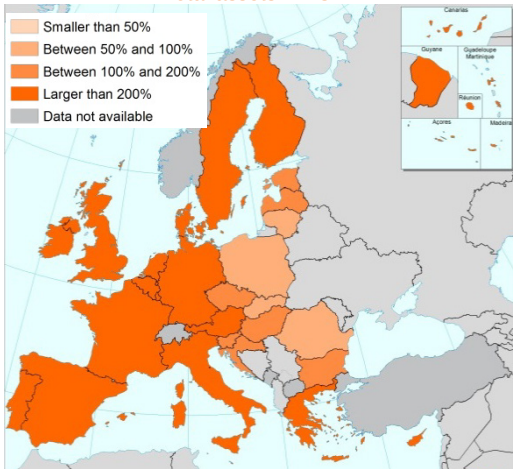
Pension funds



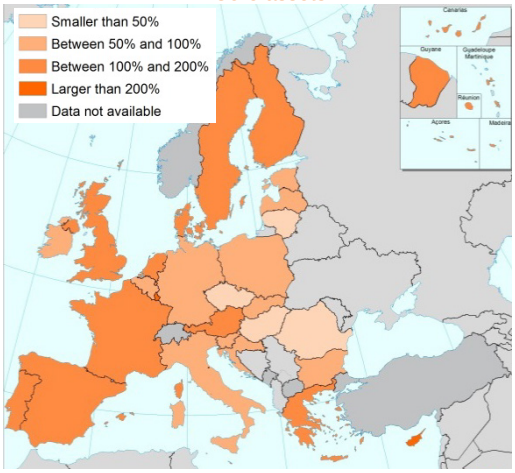
Notes: In the UK and France, *Insurance corporations* include pension funds. Data for Cyprus and Bulgaria are not available.
Source: ECB and own elaboration.

Chart A4: **Size of MFIs and their components**, percentage of GDP, 2014 Q3

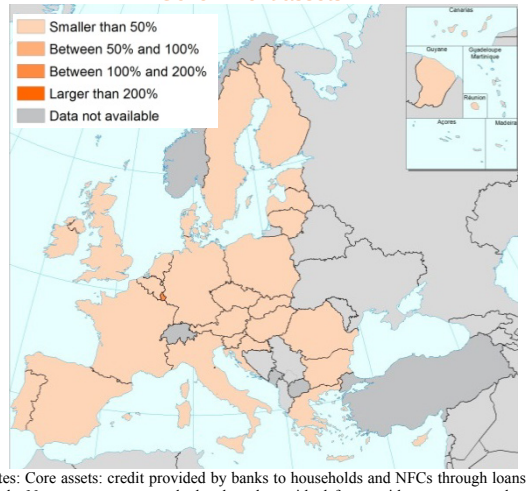
Total assets MFIs



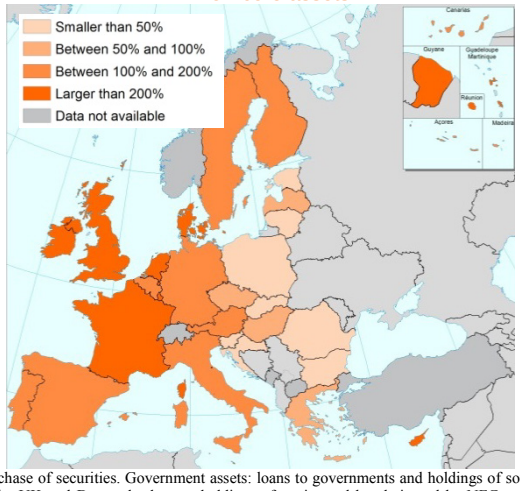
Core assets



Government assets



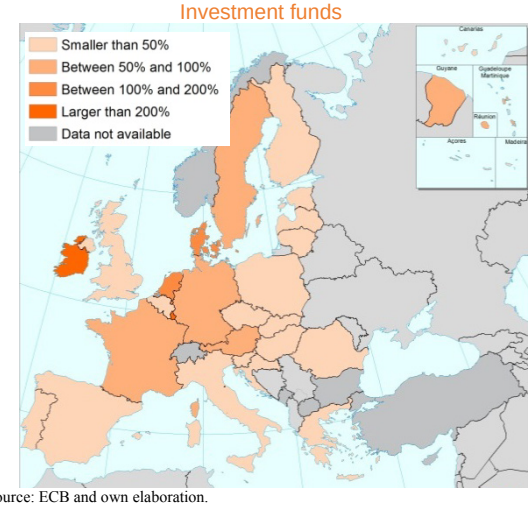
Non-core assets



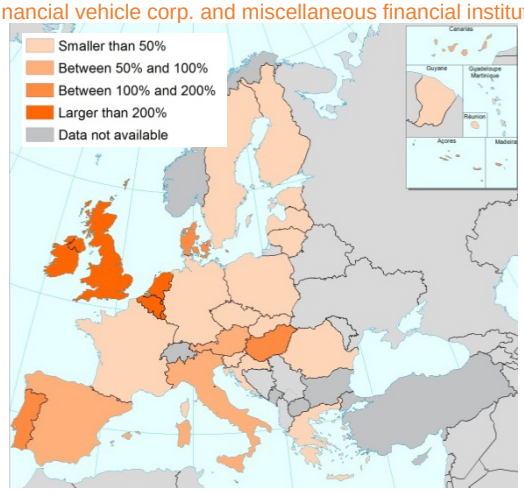
Notes: Core assets: credit provided by banks to households and NFCs through loans or the purchase of securities. Government assets: loans to governments and holdings of sovereign bonds. Non-core assets are calculated as the residual factor with respect to total assets. For the UK and Denmark, data on holdings of equity and bonds issued by NFCs were not available.
Source: ECB and own elaboration.

Chart A5: **Size of other financial institutions**, percentage of GDP, 2014 Q3

Investment funds

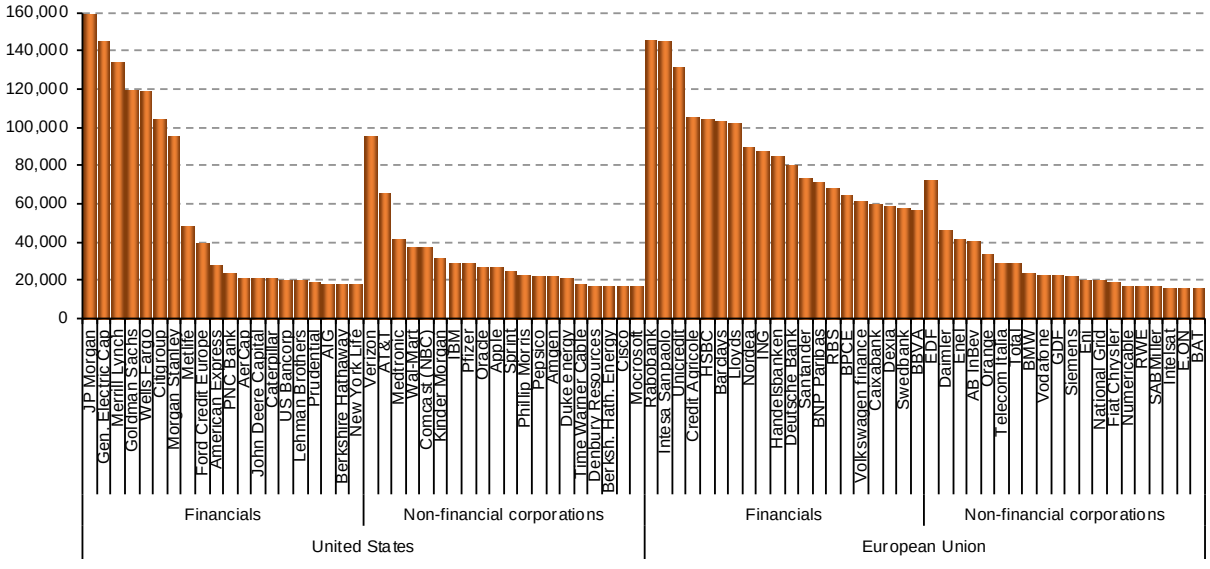


Financial vehicle corp. and miscellaneous financial institutions



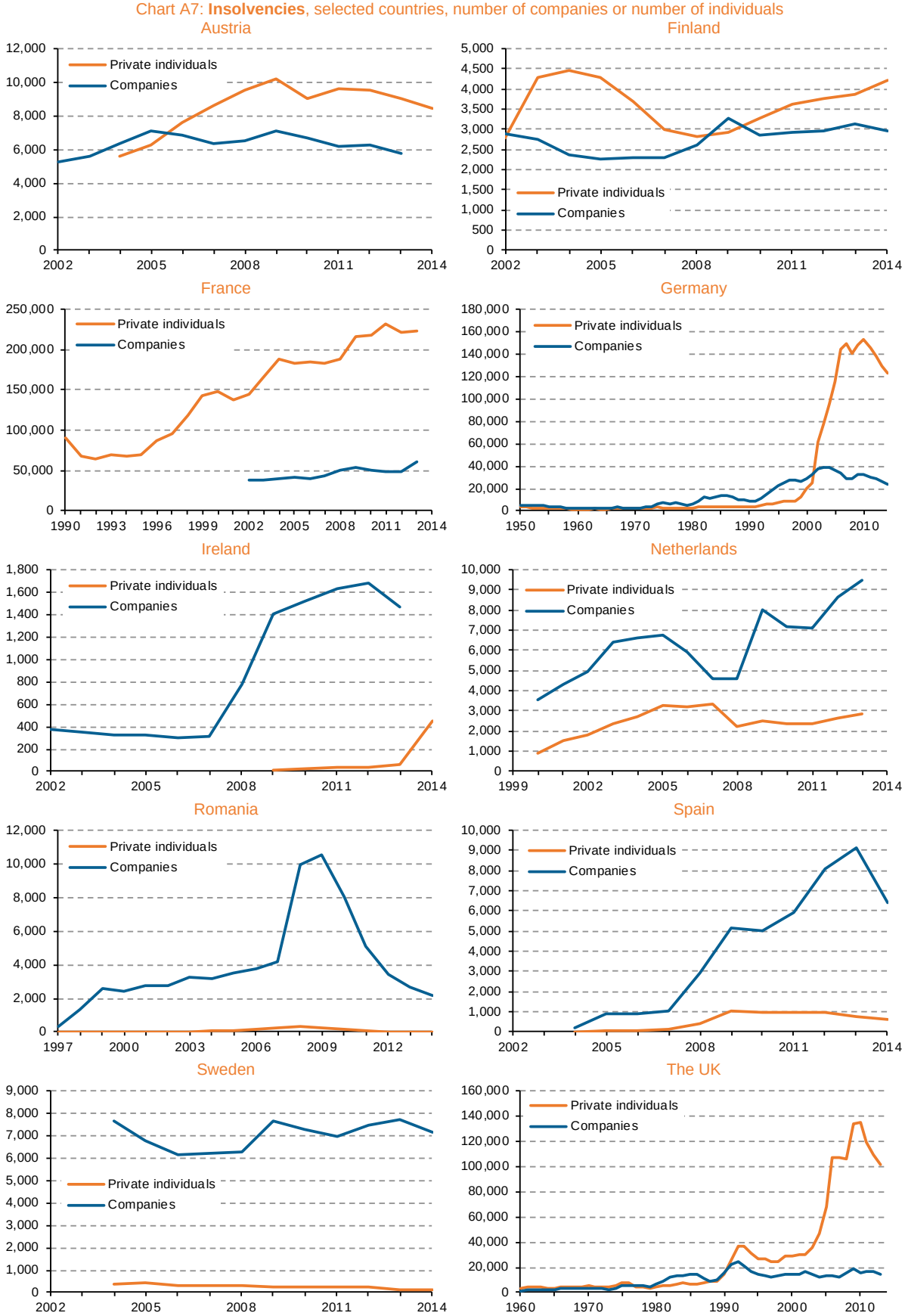
Source: ECB and own elaboration.

Chart A6: **Larger issuers of bonds**, amount outstanding, December 2014, € billion



Source: Bloomberg and own calculations.

Chart A7: **Insolvencies**, selected countries, number of companies or number of individuals



Notes: Data for the UK include only England and Wales. The definition of insolvency and the moment of computation (e.g. filing, opening, closing, etc.) may vary across countries.

Source: Credit reform, Banque de France, Statistischen Bundesamt, Insolvency Service of Ireland, Statistics Netherlands, National Bank of Romania, Instituto Nacional de Estadística, Growth Analysis (SE), The Insolvency Service (UK) and own elaboration.

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Chapter 3. Special focus on private debt overhang[1]

1. INTRODUCTION

This chapter delves into the private-sector debt overhang problem in the European Union. This problem is particularly relevant for policy purposes, since we cannot understand the length and depth of the crisis and its weak recovery without analysing the role played by debt.[2] The first objective of the chapter is to analyse the empirical evidence in order to make a diagnosis of the magnitude of the problem. The second objective is to use this diagnosis to look at useful policy measures that could alleviate the existing problem and/or avoid the problem in the future.

The chapter focuses on two institutional sectors: households and non-financial corporations. The empirical evidence indicates that an excessive level of debt ('debt overhang') at the corporate and household levels may damage macroeconomic performance in terms of actual growth and growth potential.[3] Nevertheless, the possibility to take on debt is one of the basic features of finance, as it allows an agent to move resources over time, widen its financial possibilities and finance productive investments. However, when a situation of debt overhang arises, the over-indebted agent has no other option than to try to reduce its indebtedness. A firm may be forced to give up profitable investments because of excessive debt. At the household level, debt overhang refers to a situation in which over-indebted households suppress consumption or the supply of labour because of excessive debt.[4] Although the debt overhang problem is specific to each firm and household, when it becomes widespread across the agents in the economy, its economic impact will be felt far beyond the individuals and the firms directly affected. Then, it is extremely relevant for policy makers.

Since debt is the anticipation of future income, which in turn will have to be repaid, debt sustainability is a central concern in finance. In this light, Box A clarifies some relevant definition and measurement issues about indebtedness and its sustainability.

Box A. High indebtedness: definition and measurement

Several publications base their analyses on the financial conditions of the private sector on a narrow definition of indebtedness. Considering the ESA10 classification for sectoral consolidated accounts provided by Eurostat, this narrow definition encompasses F3 and F4 items only (respectively, debt securities and loans). Instead, this chapter relies on a broader definition of indebtedness, including all the external means of financing. Therefore, in this analysis, besides the ESA10 F3 and F4 items, the following items are included into the indebtedness definition: F6 (insurance, pensions and standardised guarantees), F7 (financial derivatives and employee stock options) and F8 (other accounts payable).

Although this choice might limit the comparability with other studies, it can provide a more thorough picture of the private sector funding needs. Indeed, a proper, longer-term assessment of the financing needs of non-financial corporations and households should go beyond debt securities and loans. The inclusion of three more categories into the indebtedness definition necessarily ends up in higher indebtedness levels with respect to other publications, but the developments across time do not show significant differences.

Categories F6 and F7 are relevant for NFCs only, and the latter is almost negligible. Category F6 (insurance, pensions and standardised guarantees) is significant only for a small subset of countries (particularly the UK, Germany, and Italy).[5] Category F8 (accounts payable) is relevant for both NFCs and HHs indebtedness.[6] Concerning the former sector, it is significant for every country in the sample, but ranks higher for NFCs in CEE countries. As regards the latter, it shows a high degree of variability across countries and ranks higher for Cyprus, Malta, the Netherlands and Portugal.

[1] Authors: Boris Augustinov, Sergio Masciantonio and Gundars Ostrovskis.
[2] CEPR (2014).
[3] See, for instance, Brown and Lane (2011), Laeven and Laryea (2009), Laryea (2010).
[4] Olney (1999); Mulligan (2008); Melzer (2012).
[5] Actually, Eurostat consolidated sectoral accounts data for the UK are not available and are estimated relying on non-consolidated data.
[6] The introduction of this liabilities category among the indebtedness definition is not completely non-controversial. Indeed, it encompasses short-term liabilities, often with a recurring nature (e.g. bills). They are typically relevant for cash management purposes and they are usually matched with accounts receivable. However, since they will ultimately have to be repaid, they may add further stress to an over-indebted agent. Therefore, their size appears to be significant to determine the overall indebtedness and the fragility of private agents.

Although there is no consensus in the academic literature on an optimal level of debt in the economy, high debt by itself constitutes a vulnerability as it makes agents more fragile in the face of changes in economic conditions.[7] However, determining whether a certain level of debt is sustainable or 'excessive' is by no means easy, as it ultimately depends on a multiplicity of variables and definitions. This chapter will mainly rely on consolidated debt-to-GDP metrics. Indeed, this is a key metrics to assess debt sustainability, since GDP is a proxy of a country capacity to repay. Since debt-to-GDP ratio also reflects the amount of external funds owed by the chosen sector, it offers a picture of its effects on aggregate demand.[8] However, to broaden the analysis, this chapter will also gain evidence from other indicators. Indeed, short-term developments on the asset side of each agent, or the debt service burden, may be as important in the short-term as the future expected income.

Section 2 briefly analyses the macro-financial background that caused the crisis and the debt overhang problem. Section 3 dissects the main features of household and corporate indebtedness. Data suggest that current levels of private sector indebtedness are still too high in several EU countries and a significant cross-country heterogeneity emerges. Furthermore, debt overhang affected different parts of the population of individual countries in different ways, hitting subsets of population with reduced debt capacity harder and potentially destabilising distributional effects. Section 4 deals with the feedback loop between on the one hand, a weak economic recovery, low inflation and zero interest rates, and on the other hand, the debt overhang. Macroeconomic policy measures taken so far have largely been exhausted, and have not sufficiently mitigated the problem of high indebtedness. Section 5 reviews these macroeconomic policies measures, while also dealing with microeconomic measures that could help resolve the current debt overhang problem. Section 6 takes a longer-term perspective, identifying potential avenues for action that could limit the reappearance of any future problem of this kind once the current debt overhang has been resolved.

2. HISTORICAL BACKGROUND AND MAGNITUDE OF THE PROBLEM

The debt overhang and the financial cycle

In the years preceding the crisis, the growth of indebtedness (as measured by several indicators) of the households (HHs) and non-financial corporations (NFCs) sectors was massive and common to the great majority of advanced economies. One possible explanation relies on the 'financial cycle' concept. This involves self-reinforcing interactions between perceptions of value and risk, attitudes towards risk and financing constraints.[9] Moreover, credit and property prices tend to vary in quite a similar way.[10]

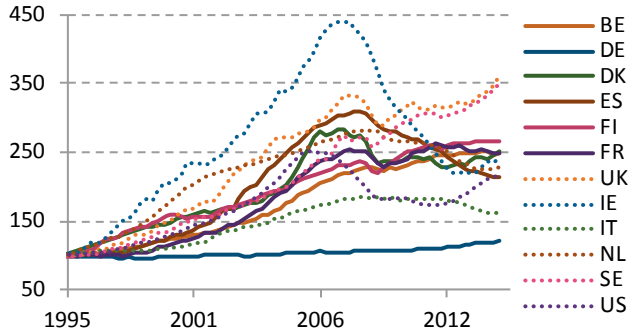
The debt overhang and the housing sector

Credit plays an important role in financing the construction and purchase of property. In the expansionary phase of the financial cycle, credit plays a facilitating role, as the relaxing of financing constraints allows more expenditure to take place and assets to be purchased. This increased borrowing and leverage fuel demand, providing self-justifying evidence that income prospects are higher. Property prices in a selected subset of advanced economies had been on a sustained upward trend since the mid-1990s, with Germany being the only notable exception (Chart 1). For the sample of EU countries surveyed, property prices increased on average by about 160 % from Q4-1995, reaching a peak in Q3-2007. The same phenomenon could be observed in the US, where house prices climbed by 67 % nationwide in the eight years preceding the peak in mid-2005.[11]

[7] ECB (2012).
[8] See EC (2014a), Cuerpo et al. (2013).
[9] See Borio (2014). The financial cycle coexists with the business cycle, however the former has a much lower frequency than the latter. Individual phases also differ between both cycles. The contraction phase of the financial cycle lasts several years, while business cycle recessions generally are much shorter and do not exceed one year.
[10] Drehman et al. (2012).
[11] The volume of house sales increased as well, and housing starts nationwide climbed by 53 % from 1995 to 2005 (Financial Crisis Inquiry Commission, 2011). However, US nationwide average measures give a somewhat more nuanced picture of the developments in its housing market. In fact, the housing bubble was concentrated in some specific states (e.g. California, Florida, Georgia), where the increases in housing prices and starts were sharpest.

Jordá, Schularick and Taylor (2014) highlight the increasingly relevant role that real estate, particularly residential real estate, has come to play in advanced economies. According to their calculations, the proportion of mortgage lending relative to total lending in a sample of 17 advanced economies has increased dramatically (from about 40 % during the mid-1980s to 60 % when the crisis started). This shift was associated with a great boom in household borrowing and in the average loan-to-value ratio of new mortgages. Increased property prices and the belief that the bonanza would have lasted forever fuelled an ever-increasing demand that reinforced the upward trend and the complacency about taking on more debt. The size of mortgages and households indebtedness grew to keep pace with property prices.

Chart 1 – **Property Prices** (base year 100: 1995)



Source: Bank for International Settlements and authors' calculations

General increase in indebtedness…

The EU average debt-to-GDP ratio of the household sector had been on an increasing trend since the mid-1990s for most of the EU countries. The ratio increased on average by 13 percentage points from 1995 to 2003. The trend then accelerated, with an average increase of about 17 percentage points over the following five years. Alternative metrics highlight the same path. The debt-to-financial asset ratio increased on average by three percentage points during years 1995-2003, and by 11 percentage points in years 2003-08[12]. The debt accumulation for the households sector peaked in 2009 for the majority of Member states.

NFCs also accrued extra debt over the same period. Similarly to the household sector, the corporate debt-to-GDP ratio – as defined in Box A – increased on average by about five percentage points during the period 1995-2003. The debt-to-GDP ratio of NFCs started to climb from 2003, showing an average increase of 21 percentage points in 2008. The debt-fuelled demand blurred and inflated the estimates of potential output, leading to misallocation of productive resources.[13] However, the debt-to-asset ratio offers a more nuanced picture.[14] According to this metrics, the corporate sector experienced a deleveraging phase during the late nineties. The increase observed in the debt-to-asset ratio for many countries until 2008 was more restrained than debt-to-GDP developments may suggest. However, the moderate debt-to-asset growth can underestimate the overall growth in indebtedness thanks to a significant upward trend in the market value of corporate assets.

…and its causes

In hindsight, a significant amount of the pre-crisis private-sector borrowing could be considered as not sustainable. However, households and NFCs cannot be held responsible alone for these situation, which resulted from a combination of factors worldwide.

[12] This metric however has its caveats. The share of financial assets held by households is usually only a fraction of their total assets. The picture, once the real wealth is included, could look very different, but reliable time-series data of this kind are scarcer. Anyway, the increase in the debt-to-financial assets ratio during the years 2003-2008 is particularly significant once the valuation effect is taken into account: the aggregate value of financial assets increased during those years, highlighting an even higher increase in debt.
[13] Borio (2014).
[14] Corporate assets are proxied by the level of corporate financial liabilities (item F) of ESA10 corporate balance sheet data. This proxy is more accurate than only relying on data about corporate financial assets from the same source.

The deregulation of the financial sector – particularly apparent from the early 2000s – paved the way for relaxed credit standards and increased risk-taking by financial institutions. The increased international capital mobility made liquidity more widely available.[15] The Great Moderation further favoured these developments, through a level of interest rates and volatility that remained low by historical standards across many countries for most of the decade before the crisis.[16] The financial sector then played a dominant role in the process of extending the lower cost of financing to the borrowing sector, allowing a broader access to external financing than ever before.[17] This process went hand in hand with the gradual weakening of credit standards, which led to the expansion of new credit to riskier segments of borrowers. These factors all led to the development of a credit bubble.

These dynamics paved the way for highly asymmetrical developments in the EU, because the level of indebtedness and the macroeconomic conditions varied widely from country to country, and because of the large external imbalances that had built-up in the run-up to the crisis. For example, the average current account deficit of Ireland, Portugal, Spain, Greece and Cyprus increased from 3.8 % of GDP in 2003 to 11.7 % in 2008 and their net investment position worsened.[18] These sustained net financial inflows helped to finance a sustained housing boom in most of these countries.

During the same years, other EU countries (e.g. Germany, Austria, and the Netherlands in the euro area, Denmark and Sweden outside the bloc) experienced continued and sustained current account surpluses, averaging 5 % of GDP in 2008. These countries featured, on average, a slower pace of growth in the debt-to-GDP ratio. These data confirm the view that the excess savings of these countries financed the housing boom and the major leveraging in the peripheral countries of the euro area in the run-up to the crisis.[19]

The crisis

The first signals of a turning point in the financial cycle were experienced in the US, where housing prices stopped growing in the second quarter of 2006. By mid-2005, nearly one quarter of all US borrowers were taking out interest-only loans that allowed them to defer the payment of principal. Then, subprime and other risky mortgages began to default at unexpected rates. The subprime securitization market collapsed and the contagion spread to the broader financial system. The crisis effectively became global with the bankruptcy of Lehman Brothers in September 2008.

Financial institutions faced unprecedented losses. They had to shore up their capital base and were forced to deleverage. This, associated with a sharp increase in risk aversion, produced a widespread credit crunch that triggered a balance sheet recession, in line with a downward trend of the financial cycle.[20] Credit standards became tighter and debt became a binding constraint also for households and companies. Grimmer perspectives on the sustainability of the external position of the peripheral countries of the euro area, provoked a sharp contraction of net capital flows.[21] Asset and property prices started to deflate significantly also in many EU Member States. A severe fragmentation in financing conditions across the euro area followed.

The level of private sector debt across many advanced countries was no longer seen as sustainable, given the tighter financing conditions and the lower potential output. Households and non-financial corporations were forced into a prolonged period of balance sheet repair through deleveraging. Not surprisingly, the number of defaults increased sharply in many Member States. Peripheral countries implemented significant fiscal adjustment. Together, these developments increased the deleveraging pressures on the private sectors of these countries.

[15] Masciantonio and Tiseno (2013).
[16] Ongena and Peydró (2011).
[17] See FCIC (2011). It should come as no surprise that the financial sector experienced the same leveraging-up as other sectors. The pro-cyclicality of its leverage had been even more apparent than that of NFCs or households (Adrian and Shin, 2011).
[18] A similar pattern, although less pronounced, could be observed for the central and eastern European countries that joined the EU in 2004. Their average current account deficit to GDP ratio increased from 6.6 % in 2003 to 10 % in 2008.
[19] This situation is very similar to that between China and the US, as highlighted in several contributions (see, for instance, Bernanke, 2005).
[20] Koo (2011).
[21] Significantly, the reversal in private capital flows was much larger than the overall reversal, since private outflows were partly substituted by official inflows (Centre for Economic Policy Research, 2014).

The aggregate effort to deleverage was at the root of the subdued growth in demand, only partially offset by a fiscal expansion in some economies. Given the role of leverage in financial crises, an important marker of a complete end to the crisis would be a significant unwinding of excess pre-crisis leverage.[22]

However, macroeconomic variables do not necessarily offer a sufficiently accurate picture of the scale of the problem in different sections of society and of the distribution of the debt overhang problem across the underlying population in each country. A deeper analysis of this kind, presented in the following section, is of paramount importance if we want to fine tune the appropriate policy responses.

[22] Lo and Rogoff (2015); Bornhost and Arranz (2014) also find that the impact of debt on growth in any given sector is worsened when other sectors also hold high debt.