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PART 2/2

COMMISSION STAFF WORKING DOCUMENT

European Financial Stability and Integration Review (EFSIR)

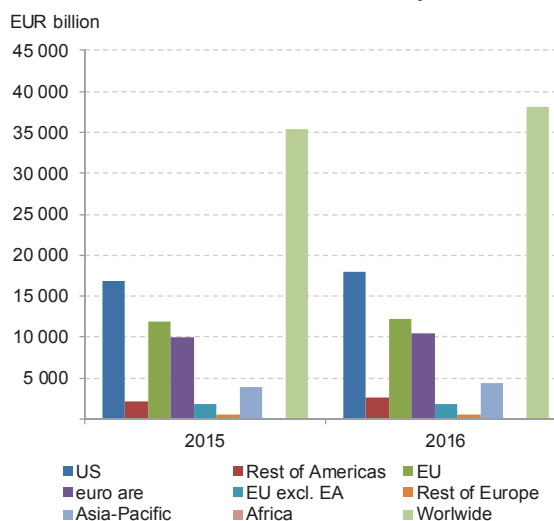
3.3 Investment funds, exchange-traded funds and pension funds

3.3.1 Global importance of EU investment funds industry

Globally, the investment fund industry held assets of almost EUR 40 000 billion in 2016 (see Chart 3.23), an increase of 7.5% over the previous year. However, this growth is not evenly spread across economic regions. The economic areas with the largest stock of investment fund assets — the US and the EU — had growth of 6.4% and 4.0% in 2016. The areas where the volume of assets is low were growing at a higher rate of 22% in the rest of Americas, and 15% in Asia and the Pacific.

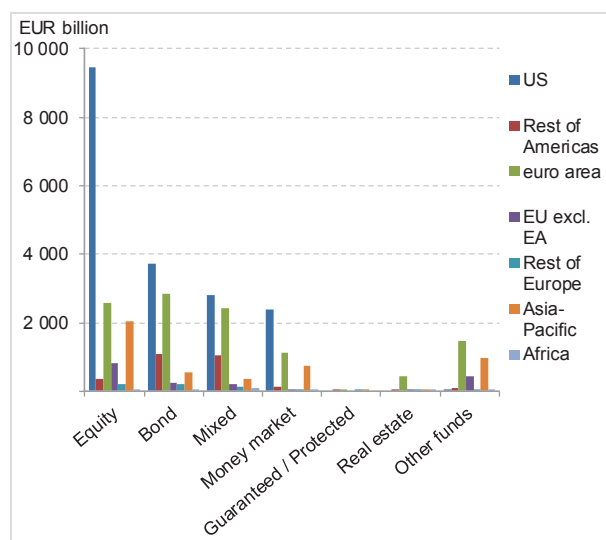
The investment fund industry is dominated by US asset managers, who managed almost half (47%) of the globally outstanding assets at the end of the third quarter of 2016. EU asset managers are in second place with almost EUR 13 000 billion in assets, which represent 32% of outstanding assets worldwide. The Asian and Pacific countries account for 12% of assets worldwide.

Chart 3.23: Investment fund assets by area



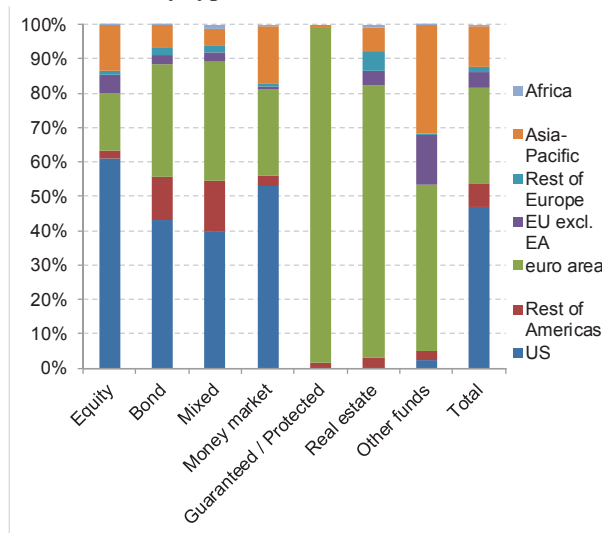
Source: ECB, ICI, EFAMA

Chart 3.24: Assets by type of investment fund, 2016



Source: ECB, ICI, EFAMA

Chart 3.25: Geographic distribution of assets by type of fund



Source: ECB, ICI, EFAMA

Investors behave differently in the US and the EU. EU investors prefer a more balanced mix between equity and fixed income assets, while US investors have a preference for equity (see Chart 3.24). The share of equity fund assets located in the US is 61% of the total worldwide, contrasts with 22% in the EU (see Chart 3.25). In the EU, the amounts invested in equity, debt

or mixed funds are quite similar, even though equity funds (EUR 3 387 billion) hold more assets than bond funds (EUR 3 085 billion) or mixed funds (EUR 2 624 billion). These amounts represent 27%, 24% and 21% respectively of investment fund assets in the EU. In contrast, US equity funds hold more than 51% of US investment funds' assets, or EUR 9 472 billion (see Chart 3.24).

3.3.2 UCITS and other investment funds

Undertakings for collective investment in transferable securities (UCITS) funds are the most widely used investment funds within the EU. The advantage of these funds is that they can be sold to any investor within the EU under a harmonised regulatory regime. Money market, equity, and bond investment funds are the funds that have relied the most on the UCITS status. Some 96% of all money-market funds in the EU are UCITS funds, while almost 90% of all equity and 75% of all bond funds are UCITS. At the end of 2016, almost 66% of all mutual funds in the EU take advantage of the benefits that UCITS provide (see Table 3.1).

Table 3.1: 2016 UCITS and non-UCITS assets by type of funds, EUR billion

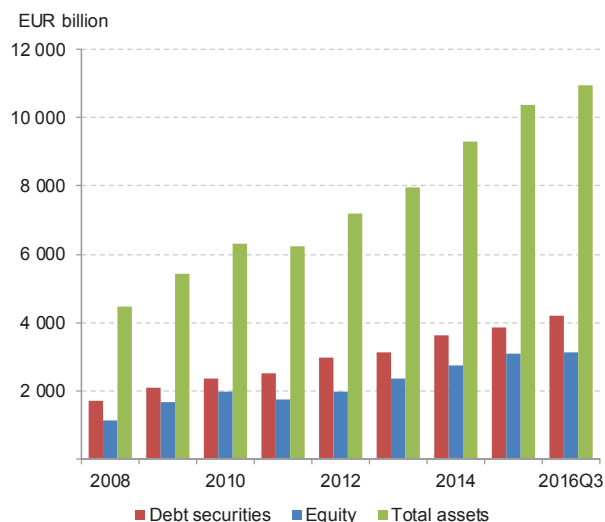
	UCITS	UCITS (%)	Non-UCITS	Total
Equity	3 178	89.34	379	3 557
Bond	2 326	75.71	746	3 072
Mixed	1 423	53.14	1 255	2 678
Money market	1 179	95.62	54	1 233
Guaranteed/ protected	13	21.07	49	62
Real estate	0	0.00	473	473
Other	503	24.98	1 510	2 013
Total	8 622	67.89	4 079	13 089

Source: ECB, EFAMA and ICI

3.3.3 Investment funds in the euro area

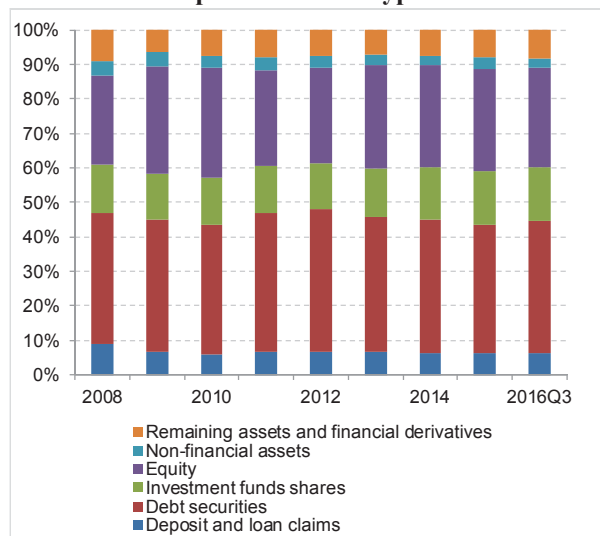
The investment fund industry in the euro area has been growing steadily since 2008. At the end of the third quarter of 2016, investment funds managed assets worth almost EUR 11 trillion, an increase of 5.4% on the previous year. Since 2008, the stock of assets managed by investment funds has gone up almost 2.5 times (see Chart 3.26). Except for 2011 and 2016, assets managed by investment funds grew each year by double digits.

Chart 3.26: Outstanding assets



Source: ECB

Chart 3.27: Proportion of each type of assets



Source: ECB

Investment funds hold most of their assets in bonds and equity, 39% and 28% respectively (see Chart 3.27). The remainder includes shares in other investment funds (16%), financial derivatives (8%), deposits and loan claims (6%), and non-financial assets (3%). Furthermore, the shares of total assets invested in bonds and equity have been stable over the years, ranging between 38-41% for bonds and 25-32% for equity. Bond funds, equity funds and mixed funds account for almost 90% of total assets held by investment funds. Bond funds account for 30% of the investment funds; the proportion was higher during 2011, 2012 and 2013. Equity funds represented about 28% in 2016, with a maximum of 30% in 2010 and a minimum of 24% in 2008. Finally, mixed funds held 27% of the total euro-area investment fund assets. The vast majority of investment funds are open-end funds (98%).

In 2008, more than 70% of the debt securities and 50% of shares held by investment funds in the euro area were issued by issuers located within the euro area. However, by 2016 these proportions had fallen to 48% and 36% respectively as investment funds diversified into US and EU securities originating from Member States other than those in the euro area. The exposure to both US debt and equity has increased by 10 percentage points. There is also an increase in the exposure to other parts of the world.

At Member State level, there are large differences in the size of the investment fund industry, partly determined by differences in tax systems. Luxembourg, Ireland and Malta are the Member States with the largest investment fund industries in relation to GDP. Luxembourg hosts the largest investment fund industry in the euro area, with a market value of EUR 3 785 billion in 2016, accounting for more than one third of all outstanding investment fund assets in the euro area and almost 63 times Luxembourg's GDP. Germany accounts for 19% and Ireland for 17% of total managed assets in the euro area. Investment funds in Germany, Ireland and France manage assets with values of EUR 2 000 billion, EUR 1 867 billion and EUR 1 332 billion respectively. However, growth rates among these four countries are rather different, with the French fund industry growing most slowly among the four. Ireland increased its volume of assets by more than 400% in the period 2008 to 2016, whereas Germany and Luxembourg increased their volume of assets by about 100% in the same period.

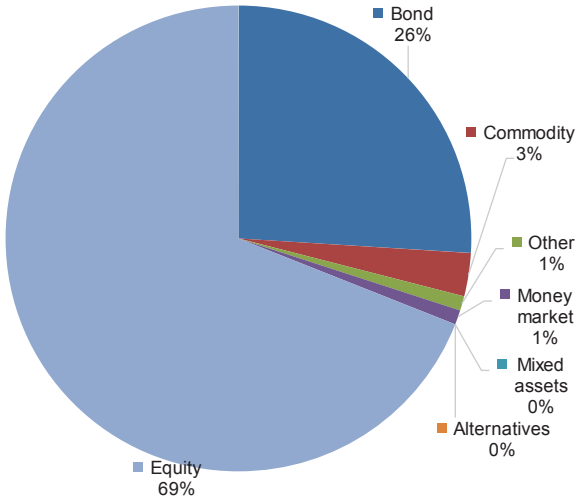
In 2016, in Cyprus, Slovenia and Estonia more than 50% of the investment fund assets were equity securities, whereas investments in debt securities represented less than 20%. The proportions are almost reversed in Austria, Germany, Latvia and Spain, where investments in debt securities were above 40% of total assets and equity less than 20% on average. It is interesting to note that in Portugal, Slovakia and Greece, more than 50% of investment fund assets are neither debt nor equity securities, but rather deposit and loan claims, non-financial assets, derivatives and shares on other investments funds.

Cross-border activity by investment funds remains underdeveloped. According to Harvey et al. (2014), the main barriers to cross-border investments are legal and regulatory barriers rather than organisational issues or a discouraging investment climate. Establishing a proper Capital Markets Union should ease constraints on cross-border activity, and spread investments more evenly across the EU by reducing the uncertainties related to insufficient protection of investors’ rights, taxation, differences in state authority, and policy autonomy.¹

3.3.4 Exchange-traded funds

An exchange-traded fund (ETF) shares many of the principal features of a mutual fund, but ETFs are traded on a stock exchange and generally have lower expense ratios. Cost efficiency is therefore one of the main drivers of ETF market growth. ETF markets have grown rapidly in recent years. In the EU the amount of assets managed by ETFs has been growing by approximately 40% per year since 2000. The industry is expected to sustain high growth rates in the future.² This growth has also triggered concerns about low liquidity of thinly-traded ETFs and the fact that (leveraged) ETFs³ may shift the focus to short-term investments and speculation.

Chart 3.28: Market share of European ETFs by asset type



Source: Thomson Reuters Lipper

Globally, ETFs had about EUR 2 851 billion of assets under management in 2016. With a market share of about 16%, the EU is the second largest market in the world, preceded by the US with its 75%. By asset type, virtually all assets in European ETFs are held by equity ETFs and bond ETFs, which have market shares of 69% and 26% respectively (see Chart 3.28).

3.3.5 Pension funds

¹ See West et al. (2011) for protection of investors rights’; Fleischer (2009) and Cui (2009) for double taxation and Helleiner (1994) and Vogel (1996) on policy autonomy.

² For instance, PwC estimates that until 2021 the European ETF market will grow by 27% annually.

³ Leveraged ETFs use borrowed money to establish a leverage effect and amplify investment returns.

Occupational or personal pensions are funded pension funds that convert members' contributions into assets invested on capital markets. They are an important source of funding because they increase the amount of market-based financing available to the economy and improve the efficiency of financial intermediation.⁴ Countries with a substantial funded pension funds sector tend to have larger capital markets.⁵ Increasing pension assets in the euro area and the EU to 90% of GDP — the level observed in the US — would generate additional stock market capitalisations of 31% and 26% in the euro area and EU respectively.⁶ This in turn would improve the depth and liquidity of capital markets and increase the shock absorbance (and thus the resilience) of the economy as a result of increased risk sharing.⁷

Table 3.2: EU occupational pension funds by Member State

	Total assets (EUR billion)	Penetration rate (Total assets/GDP)	Number of members (in thousands)	Of which active members (in thousands)	Number of IORPS
Netherlands	1 175.7	173.8%	18 120	5 478	249
United Kingdom	1 788.7	69.3%	21 455	9 843	:
Ireland	60.4	23.6%	942	411	:
Portugal	16.7	9.3%	277	153	183
Germany	211.8	7.0%	9 548	5 546	171
Italy	112.5	6.8%	4 344	4 232	283
Belgium	24.7	6.0%	1 513	938	197
Slovenia	2.3	5.9%	461	418	12
Austria	19.8	5.8%	877	737	13
Sweden	18.2	4.1%	1 015	1 015	11
Romania	5.7	3.6%	6 939	6 939	:
Luxembourg	1.8	3.5%	25	21	18
Spain	35.3	3.3%	2 176	733	336
Denmark	6.3	2.3%	13	3	18
Slovakia	1.6	2.0%	942	522	4
Finland	3.9	1.9%	72	13	47
Latvia	0.3	1.4%	255	142	6
Greece	1.2	0.7%	123	82	:
Croatia	0.1	0.2%	32	29	18
Poland	0.4	0.1%	46	45	4
Total	3 487	28.8%	69 175	37 298	1 570

Source: EIOPA statistical annex and own calculations

Note: Data as of December 2015 (with the exception of number of members and active members for Sweden for which 2014 data are shown). Sample of 20 Member States, where five Member States are missing from the database and for three the total assets are below EUR 5 million.

⁴ As the terms 'second pillar' and 'third pillar' have different meanings in Member States depending on the design of their national pension systems (e.g. in some Member States, 'second pillar' denotes statutory funded pensions, while occupational pension schemes are considered part of the 'third pillar'), the terms 'occupational' and 'personal' pensions will be used instead of 'pillars'.

⁵ See e.g. Rocholl and Niggemann (2010), Meng and Pfau (2010).

⁶ This would require increases by 73% and 60% of GDP for the euro area and the EU respectively. See EFSIR (2016).

⁷ These funds also provide an alternative savings vehicle for households and add to competition on the loan and securities markets. In so doing, they spread the gains of investments in capital markets to the broader population, facilitate asset diversification, and make access to capital markets cheaper.

The EU occupational pension funds under the IORP⁸ Directive had total assets of EUR 3.5 trillion as of December 2015, equivalent to almost 30% of GDP and covering close to 70 million pension scheme members. There is a high degree of heterogeneity among Member States. Differences are mainly driven by the relative shares of private and public provision of pensions, based on countries' legislations and state support (see Table 3.2).⁹ For example, the United Kingdom and the Netherlands are characterised by highly developed occupational pension systems with penetration rates much higher than the EU average and with total assets combined of more than 80% of total assets of the occupational pension funds in the EU.

Around 90% of total balance sheet assets are made up of invested assets¹⁰: as of December 2015, European occupational pension funds managed assets worth almost EUR 3.2 trillion, an increase of EUR 1.6 trillion (i.e. 90% growth) over the period 2008-2015. Several factors can explain this positive development, including the recovery of the equity market and the increase in bond valuations. The latter is driven by the prevailing low interest rate environment and demographical effects (e.g. a higher relative weight of active members over retired people's contribution to net incoming flows).

Table 3.3: Portfolio asset allocation of EU occupational pension funds

	2015		2008		Evolution
Equity and other variable-yield securities	1 030	33%	686	41%	50%
of which listed equity	904	29%	620	37%	46%
of which other variable-yield securities	126	4%	65	4%	93%
Debt and other fixed income securities	1 730	55%	707	43%	145%
of which sovereign	1 074	34%	420	25%	155%
of which financial	386	12%	125	8%	208%
of which other	270	9%	161	10%	67%
Other investments	392	12%	263	16%	49%
Real estate investments	234	7%	128	8%	82%
Other investments	158	5%	134	8%	18%
Assets under management (EUR billion)	3 152		1 655		90%

Source: EIOPA statistical annex and own calculations.

Note: The amount invested in UCITS (EUR 148 billion in 2015 and EUR 76 billion in 2008) has been included in the direct investments by asset class (e.g. for 2015 EUR 49 billion in debt, EUR 36 billion in equity, EUR 8 billion in real estate and EUR 49 billion in other investments).

Table 3.3 shows that pension funds have a long-term investment view, which is reflected in the long-term strategic asset allocation. Despite a noticeable decrease between 2008 and 2015, equity and other variable-yield securities still represent 33% of the total invested portfolio¹¹ with an amount over EUR 1 trillion. Pension funds' long-term investment horizon and their ability to follow contrarian investment strategies (i.e. strategy in which they invest against the

⁸ Institutions for Occupational Retirement Provision

⁹ All EU Member States have set up schemes whereby workers are assured of a certain level of income when they retire. It is up to the Member States to determine the preferred mix within their pension systems. The pension system has three pillars. Although there is no universal taxonomy of pension systems, the following elements are often distinguished: (i) a first pillar consisting of 'state-based pensions', which are part of a public statutory social security system (referred to as pay-as-you-go or 'PAYG' systems); (ii) a second pillar consisting of 'occupational pensions' private supplementary plans with contributions from employers and/or employees, linked to an employment relationship; (iii) a third pillar consisting of 'personal pensions' i.e. non-compulsory private pension savings by individuals.

¹⁰ The remainder being reinsured technical provisions and other assets.

¹¹ Higher than in the insurance sector, see Section 3.5.

prevailing market trend) support the proposition that pension funds can act as shock absorbers in the economy by providing liquidity and by not being forced to sell assets when asset prices are squeezed.

Box 5: Pan-European personal pensions (PEPP)

The European market for personal pension products shows a lot of potential for further development. Currently less than 3% of households' financial assets are invested in personal pension products, driven by a low level of diversification of households' financial portfolios (with on average 30% held in deposits) and an increasing pension gap.¹²

Table B5.1: EU households' financial assets, currency and deposits and personal pensions, 2015 (except for personal pension market which is 2014)

	Total financial assets (TFA) (% of GDP)	Total financial assets (EUR billion)	Currency & deposits (EUR billion)	Currency & deposits (% of TFA)	Personal pension market (EUR billion)	Personal pension market (% of TFA)
Netherlands	325	2 195	409	19	9.7	0.4
United Kingdom	324	8 262	2 006	24	:	:
Belgium	309	1 266	373	29	43.4	3.4
Denmark	294	799	133	17	78.8	9.9
Sweden	281	1 280	179	14	11.0	0.9
Cyprus	259	46	29	63	Low PP	:
Malta	257	24	11	46	2.1	9.0
Italy	251	4 120	1 273	31	37.2	0.9
France	222	4 841	1 379	28	49.9	1.0
Portugal	212	380	168	44	2.3	0.6
Spain	187	2 009	848	42	83.5	4.2
Austria	182	620	252	41	8.1	1.3
Germany	182	5 503	2 153	39	215.1	3.9
Greece	148	259	172	66	Low PP	:
Finland	144	301	90	30	12.0	4.0
Luxembourg	140	72	36	50	:	:
Ireland	139	356	132	37	4.7	1.3
Bulgaria	135	61	23	38	0.2	0.3
Hungary	124	133	38	28	3.5	2.6
Croatia	121	53	29	55	0.3	0.7
Estonia	113	23	7	29	0.3	1.5
Czech Republic	110	186	97	52	11.4	6.2
Latvia	108	26	9	34	0.3	1.1
Slovenia	102	39	20	50	1.9	4.8
Poland	97	408	195	48	0.9	0.2
Lithuania	92	34	12	36	0.05	0.1
Slovakia	77	61	38	62	1.5	2.4
Romania	72	114	40	35	0.2	0.2
Total EU-28	228	33 470	10 149	30	578*	2.3*
Total EU-24	:	24 831	:	:	578	2.3

Source: Eurostat, European Personal Pension Framework (EPPF) study (E&Y — May 2017) and own calculations.

Note: for Cyprus and Greece the current personal pension market is very low. As per the EIOPA 'Consultation paper on creation

¹² The pension gap is defined as the difference (or gap) between the pension individuals on an aggregated basis can currently expect to receive (from a possible combination of state, workplace and personal pensions) and the amount individuals on an aggregated basis are likely to need for an adequate standard of living in retirement. The gap is, among other factors, influenced by ageing and fiscal pressures limiting the capacity of states to sustain adequate retirement incomes in the long run.

of pan-European personal pension', the assets under management in Luxembourg and the UK amounted to EUR 0.5 billion (as of December 2011) and EUR 237 billion (as of December 2010) respectively. However the definition of the personal pension product employed by EIOPA is less stringent than the one used in the EPPF study as it includes mandatory retirement products. Therefore the figures are not fully comparable. Furthermore, households' financial assets include non-profit institutions serving households. The totals for the last two columns are for 24 Member States.

In addition, the EU market for personal pensions is fragmented, with a low degree of cross-border provision and portability.¹³ This fragmentation prevents personal pension providers from maximising economies of scale and achieving risk diversification. This reduces choice and increases costs for pension savers, and also hinders digital innovation.

The Commission therefore announced as part of the Communication on 'Capital Markets Union — Accelerating Reform' that it will analyse ways to increase choices for retirement savings and build an EU market for personal pensions.¹⁴ The preparatory works are currently being finalised and the Commission is expected to come forward with a proposal in the summer of 2017.

Finally, as pointed out by EIOPA¹⁵ traditional defined benefit plans, which make up approximately 75% of the sector in terms of assets, are affected by the current low interest rates environment.¹⁶ Defined benefit schemes in many EEA countries are long-term investors, whose liabilities have a longer duration than their assets, potentially leading to long-term asset-liability mismatches that sometimes can be greater than those experienced in the insurance sector. In the course of 2015, lower interest rates negatively affected cover ratios¹⁷ for most of the EEA countries in the sample, resulting in a decrease in the average weighted cover ratio in 2015 from 104% to 95%.¹⁸

3.4 Other types of funding

Developing funding options beyond banking is particularly relevant for SMEs, as they rely heavily on bank financing and have limited access to capital markets.¹⁹ Firms in the early stage of their life cycle tend to have less access to traditional market-based funding sources because they often combine a higher risk profile with a lack of earnings or collateral.²⁰ In

¹³ EIOPA's advice on the development of an EU single market for personal pensions products (PPP), July 2016, available at:

<https://eiopa.europa.eu/Publications/Consultations/EIOPA%27s%20advice%20on%20the%20development%20of%20an%20EU%20single%20market%20for%20personal%20pension%20products.pdf>

¹⁴ COM(2016) 601 final.

¹⁵ The European pension fund sector — June 2016.

¹⁶ This type of plan provides employees with a defined level of pension, although market developments may affect funding levels, which may have affect sponsors and/or members depending on how risks are shared across the parties.

¹⁷ Defined as net assets covering technical provisions divided by technical provisions.

¹⁸ Financial stability report — EIOPA — December 2016. For further details on the EIOPA stress test, see <https://eiopa.europa.eu/Pages/News/Results-of-the-first-EU-stress-test-for-occupational-pensions.aspx>

¹⁹ Improving SMEs financing options also affects the economy as a whole. SMEs represent 99% of all businesses in Europe. They are considered the backbone of the European economy given their crucial contribution to economic growth, innovation and job creation.

²⁰ See European Commission (2015).

addition, they typically face more significant barriers to funding than larger firms, largely owing to existing information asymmetries.²¹

Overall, SMEs' access to finance has improved significantly since the 2008 financial crisis. The latest survey on the access to finance of enterprises (SAFE), dating from June 2016, even reports a negative financing gap for euro-area SMEs — except Greece (23%) and France (3%) — indicating that the availability of funds exceeds the need for external funds. This is also reflected in the fact that only 9.2% of SMEs indicate access to finance to be a problem, compared to 17.4% in June 2009. Alternative sources of funding also remain underdeveloped in the EU compared to other regions around the world. It therefore remains important to further unlock these alternative sources of funding to broaden the spectrum of available funding to SMEs and other firms. By doing so, the possibilities for investors to diversify their portfolio will also improve.

The remainder of this section focuses on alternative financing instruments such as private equity, crowdfunding and business angel investment. Official statistics on these sources of funding are scarce or unavailable, so the analysis mainly relies on unofficial data.

3.4.1 Private equity and venture capital in the EU

Private equity is the provision of equity capital to non-quoted companies with significant growth potential. Private equity funds invested in about 5 000 European firms in 2015, 86% of them being SMEs.²² Private equity firms launch private equity investment funds that collect capital from investors which are typically institutional investors (like pension funds, insurance companies, banks, etc.), governments, investment funds, or high-net-worth individuals.²³ In 2015, pension funds accounted for 15% of investment in private equity funds, followed by government agencies (10%), sovereign wealth funds (9%), funds of funds (9%) and insurance companies (6%).

European private equity investments have been proven to positively affect innovation, subsequent business creation and a firm's productivity and survival rate.²⁴ Private equity typically focuses on firms with high growth potential or on underperforming firms that can be transformed into profitable businesses. Private equity investments can be associated with different stages of a firm's life cycle, targeting either mature firms (development capital or buyouts) or new and early-stage companies (venture capital).

Of the two main types of investments, buyout funds (which buy an existing unlisted firm from the current stakeholders) are far more important in terms of assets under management. Buyout funds have EUR 34 billion or 71% of assets under management, this compared to just 11% managed by venture funds focusing on the early development or expansion phase of a business.

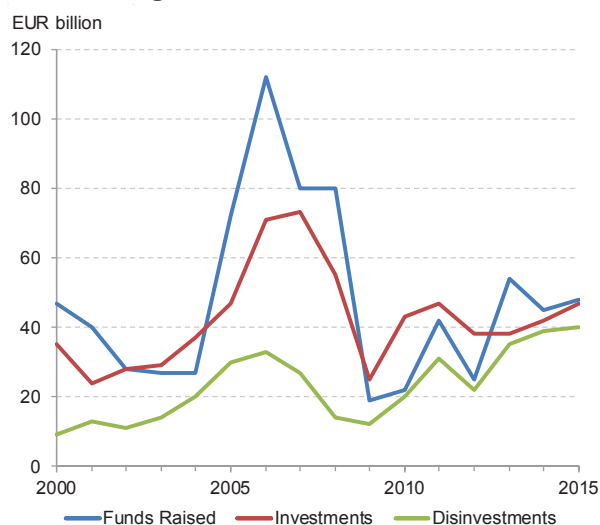
²¹ In the fourth quarter of 2016, 57.6% of SME funds consisted of bank loans and bank overdrafts. Equity and debt financing in general represented only 2.3%. See ECB (2016).

²² 2015 statistics of Invest Europe are based on information from over 1 200 European private equity firms, representing 91% of capital under management in Europe. See Invest Europe (2016).

²³ Private equity firms are also referred to as private equity management companies or 'general partners' (GPs), while private equity investors are often referred to as 'limited partners' (LPs).

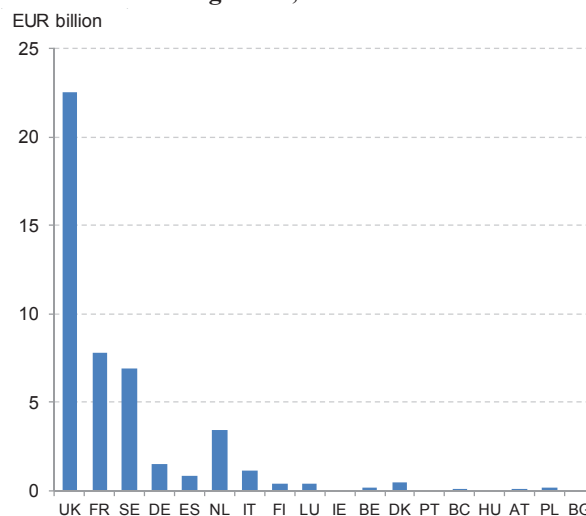
²⁴ See Frontiers Economics (2013).

Chart 3.29: Private equity activity in Europe, gross annual flows



Source: Invest Europe (2016)
 Note: Data include venture capital. ‘Funds raised’ refers to gross increases of liabilities, ‘investments’ to the use of liquidity to purchase equity, and ‘divestments’ to the liquidation of previous investments.

Chart 3.30: Private equity funds by country of management, 2015



Source: Invest Europe (2016)
 Note: Data include venture capital. ‘Funds raised’ refers to gross increases of liabilities, ‘investments’ to the use of liquidity to purchase equity, and ‘divestments’ to the liquidation of previous investments.

Compared to investment funds, the relative size of this market remains small. European private equity funds managed a total of EUR 564 billion in 2015, an increase of EUR 16 billion on 2014. Funds raised by private equity funds in 2015 increased by 8% to EUR 46 billion. Over the last 3 years of the reference period (2013-2015), funds raised were 70% higher than in the period 2010-2012. Looking at the long-term evolution of the sector, private equity activities are returning to their long-term average levels in terms of funds raised and investments, while disinvestments remain high but stable on a year-to-year basis (see Chart 3.29).

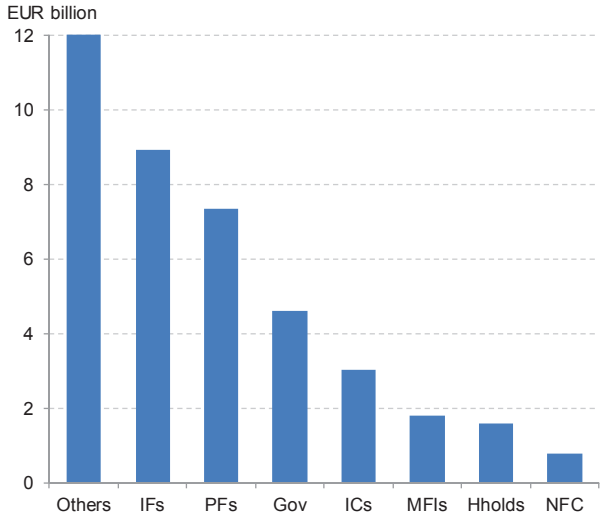
The positive aggregate trend in funds raised masks significant divergences across Member States. Among the top five Member States measured by market share (see Chart 3.30), funds raised more than doubled in Sweden and the Netherlands between 2015 and 2014. In the UK, funds raised increased by 49%, while in France they remained broadly stable, and Germany witnessed a significant decrease of 45%. Overall, about half of the investments are raised in the UK (49%), followed by France (17%) and Sweden (15%). Although this type of financing is important for high-risk and innovative products, such activities remain limited, even in the top three Member States, with ratios of funds raised to GDP ranging from 1.4% to 3.4%. There is also a strong geographic concentration in private equity investments. France & Benelux account for 29% of all investments, followed by United Kingdom and Ireland with 27%.

Private equity investment is attractive to institutional investors who want to further diversify their portfolios.²⁵ Although institutional investors have systematically built up their exposure to alternative investments, pension funds and insurance funds have recently significantly decreased their investment activities. Funds raised by pension funds for instance amounted to EUR 7 billion in 2015 compared to EUR 12 billion in 2014 (see Chart 3.31).

²⁵ Given the increased correlation within and across bond, equity and money markets over the last few years, it is increasingly difficult for investors to diversify risk.

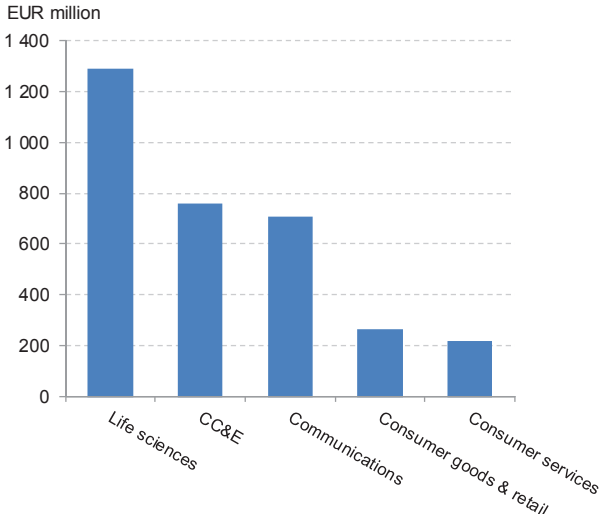
In line with trends for private equity funds, venture capital funds activities also grew in 2015. Investments increased by 7% to EUR 3.2 billion. The amount of investments related to start-up financing (financing of product development in companies that have not yet sold their product commercially) is the largest segment at 52% of total investment. This is closely followed by funds for later-stage financing (financing for the expansion of an operating firm), which account for 45% of total investments. In line with the global downwards trend, the EU venture capital industry however shrank in 2016, as the number of deals fell by 28% to 3 142 deals, representing a total venture capital investment of EUR 15.7 billion.²⁶ Investors have showed concerns about high valuations and increased macro-economic uncertainties. In Europe, these concerns have been moderated, among others, by its diversity of technology ecosystems. Total venture capital investments can therefore be considered to be rather robust and remains at high levels, despite the drop from the 2015 record level.

Chart 3.31: Private equity by investor, 2015



Source: Invest Europe (2016)
 Note: PFs (pension funds), IFs (investment funds), Gov (governments includes government agencies and sovereign wealth funds), ICs (insurance corporations), Hholds (households), MFIs (monetary financial institutions).

Chart 3.32: Venture capital by sector, 2015



Source: Zhang et al. (2016)

Venture capital is almost exclusively invested in SMEs (98%) and is characterised by a strong sector and geographical concentration. Two thirds of venture capital investments are made in the life sciences, computer and consumer electronics and communications sectors. Venture capital investments were hit hard by the financial crisis, and in the post-crisis period government agencies became the largest investor in venture capital, providing 20% of new funds raised in 2015. Corporate investors are the second largest provider of new funds, although they have significantly reduced their new commitments to EUR 503 million, a decrease of 60% compared to 2014 levels.

3.4.2 Crowdfunding

Crowdfunding aims at funding a project or venture by collecting relatively small amounts of funds from a wide range of contributors, typically via the internet. It is estimated that

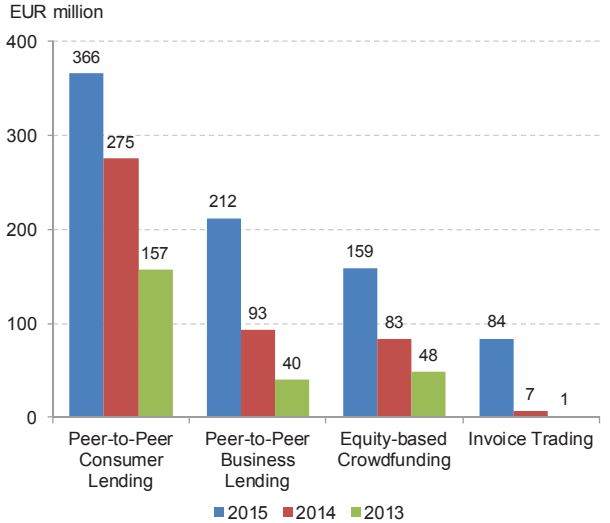
²⁶ Global venture activity declined 24% on a year-to-year basis. See KPMG (2017).

Although Europe is the second largest market in the world, it represents only 18.8% of the global market measured by total funding volume.²⁷ European crowdfunding platforms represent less than half of all active platforms worldwide.²⁸ The number of active platforms differs significantly across Member States. These platforms offer access to finance for individuals and small companies for which traditional lending channels are not available. Overall, the European online alternative finance market grew significantly by 92% in 2015, reaching EUR 5.4 billion.²⁹ The UK has a dominant position with a European market share of 81% of total market volume, followed at a distance by France (5.9%), Germany (4.6%) and the Netherlands (2.0%).

The main types of crowdfunding models are lending, equity, donation and reward. Lending is the most important segment, followed by equity-based crowdfunding. For continental Europe, peer-to-peer consumer lending and peer-to-peer business lending amounted to EUR 366 million and EUR 212 million respectively, while equity-based crowdfunding attracted EUR 159 million. In terms of three-year growth (period 2013-2015), invoice trading in particular grew spectacularly with an average annual growth rate of 877%.

There are signs that crowdfunding is evolving into a more mature market. The average deal size of equity-based crowdfunding has risen to EUR 460 000 for continental Europe and EUR 621 000 for the UK, illustrating that crowdfunding is no longer exclusively used to provide financial means in the very early stages of a firm’s life cycle. In addition, the market is becoming more and more institutionalised. Across continental Europe, participation rates of institutional investors grew dramatically, increasing by 83% over 2013-2015. In 2015, institutional investors provided about one quarter of funds in peer-to-peer lending and 8% in equity-based crowdfunding. Relatively speaking, institutional investors are the most important for invoice trading where they have a market share of 37%.³⁰ Nevertheless, crowdfunding in the EU remains largely a national activity, with only very low levels of cross-border flow. Almost half of the platforms (46%) indicate that all of their funding inflows were domestically sourced, while 76% of platforms report that none of the funds raised went to cross-border projects.

Chart 3.33: Crowdfunding in Europe (excluding UK)



Source: Zhang et al. (2016)

²⁷ See Massolution/Crowdsourcing.org (2016), CF2015: Crowdfunding Industry Report Excerpt.
²⁸ See Dushnitsky et al. (2016).
²⁹ See Zhang et al. (2016). Figures are based on data from 367 European platforms representing 90% of the visible market.
³⁰ In invoice trading, individuals or institutional funders purchase invoices or receivable notes from a business at a discount.

3.4.3 Business angel investment

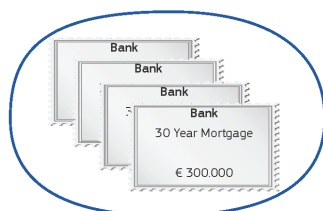
Business angels are high-net-worth investors, who individually or via a syndicate invest in an unquoted business (with which they have no family ties). They add to the financing possibilities for firms in the start-up phase. Business angels not only provide funding but usually also play an active role in the firm, and helping it to access non-financial resources such as skills, knowledge and a network. Figures on business angels are patchy. Accurate data are only available for visible business angel investments made through an angel network or a syndicate, which is estimated to represent only 10% of the total market.³¹ Although the size of the market remains relatively small, business angels are a significant provider of capital for early-stage investments, and as such support the entrepreneurial eco-system. The European Business Angel Network (EBAN) estimates that business angels provide more than 70% of early-stage investment.³²

Box 6 Simple and transparent securitisation

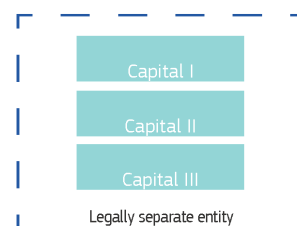
Soundly structured securitisation can be a significant channel for diversifying funding sources and allocating risk more efficiently within the EU financial system. It allows for a broader distribution of financial sector risk and can help to free up banks' balance sheets to allow for further lending to the real economy. Overall, it can improve efficiencies in the financial system and provide additional investment opportunities.

How does securitisation work?

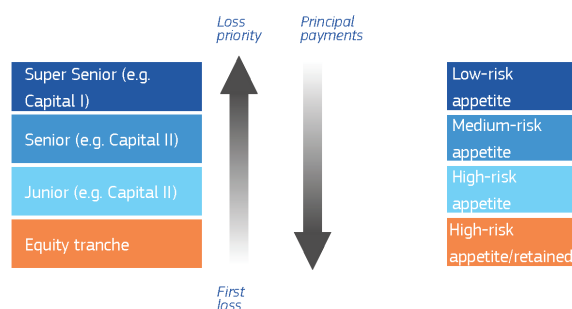
1. Take a pool of mortgages/loans



2. Convert them into tradeable securities



3. Tailor to different risk/reward preferences. The bank / lender is required to retain at least 5% of the total amount securitised



If simple, transparent and standardised (STS) requirements are met, securitisation can create a bridge between banks and capital markets with a direct benefit for businesses and citizens (through, for example, less expensive loans and business finance mortgages and credit cards). It can also provide investors with exposure to asset classes decoupled from the credit risk of the

³¹ See EBAN (2016).

³² See EBAN (2016).

originator (e.g. insurers investing in pools of SME loans).

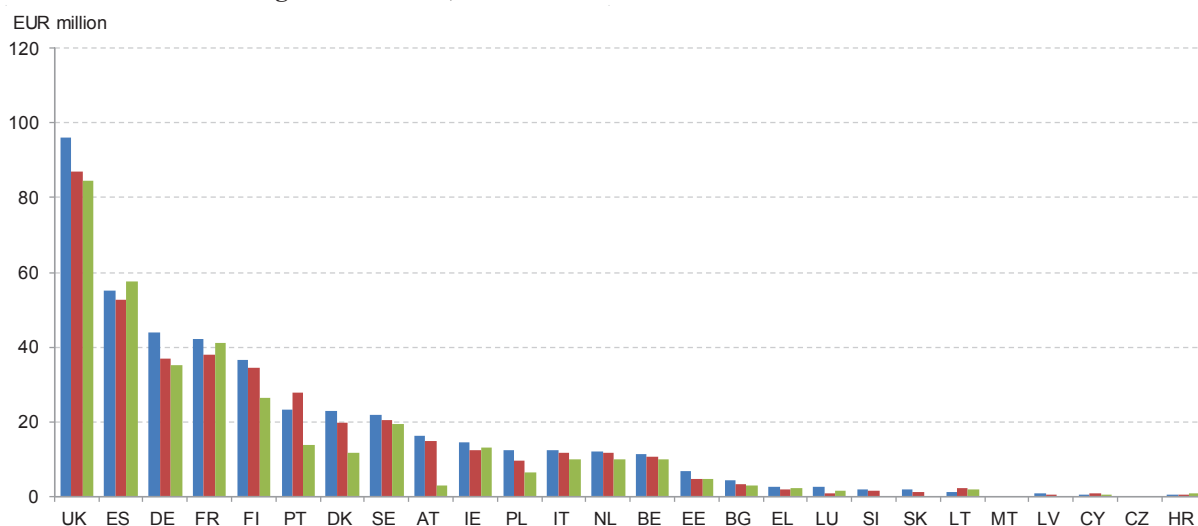
The Commission's proposals³³ fully incorporate the post-crisis reforms on securitisation. First, post-crisis provisions on due diligence, risk retention and transparency are included. Second, requirements for STS securitisations are proposed. These requirements are based on the analysis made by European and international institutions (EBA, BCBS/IOSCO, ECB and BoE) of soundly structured, transparent and well-performing securitisations. They exclude the instruments which featured prominently in the US subprime boom and successive crisis. Thirdly, in view of the good performance of these STS securitisations a more risk sensitive treatment is proposed, which reflects the instruments' actual performance. Finally, the proposals contain a robust supervision and sanctioning regime that puts responsibilities with the market participants with strong oversight by supervisors.

What is the expected impact of the adoption of the Commission proposals?

The proposals will: (i) take away the stigma attached to securitisation; (ii) provide a more risk sensitive treatment to securitisations; and (iii) provide a sound basis for sustainable market practices in securitisation, ensuring financial stability and investor protection.³⁴ If the issuing of EU securitisations were to reach the pre-crisis average, it could generate between EUR 100-150 billion in additional funding for the economy.

The UK hosts the most prominent European angel investment community with EUR 96 million followed by Spain (EUR 55 million) and Germany (EUR 44 million) (see Chart 3.34). Angel investment scaled by a country's GDP is most developed in Estonia, Finland and Poland.

Chart 3.34: Business angel investments, 2013-2015



Source: EBAN Statistics Compendium (2015)

Business angels invest their money mostly in the information and communications technology (ICT) sector, which attracts 22% of total amount invested. Average investment per business angel remains low, but stable at EUR 20 000, although co-investment with other angels and

³³ See Regulation COM/2015/0472 final and amendments to regulation COM/2015/0473 final (CRR).

³⁴ See the European Commission Impact Assessment on the securitisation proposal for a detailed discussion of the proposal's expected effects on EU securitisation markets, available at https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-markets/securities-markets/securitisation_en

through early-stage funds is gaining in popularity. Average investment per company is therefore also steadily increasing, going up by 5.0% in 2014 and 5.9% in 2015.

3.5 Insurance sector

The insurance sector is typically divided into two quite distinct categories: (i) life and health insurance; and (ii) general insurance, also known as property/casualty or non-life insurance.

The former offers protection to individuals against mortality, disability and longevity risk, and it usually involves a savings element. The latter offers protection to both individuals (e.g. compulsory motor insurance) and entities (e.g. catastrophe cover), and hence makes sure that their financial situation is not heavily impacted in case of a claim. They also support economic growth by taking on risks the commercial entity would otherwise have needed to bear.

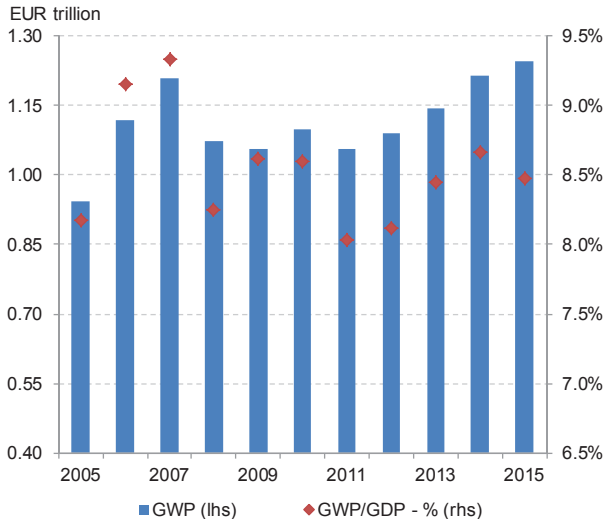
3.5.1 The role of the insurance sector in the EU economy

The EU insurance market is the largest in the world with more than EUR 1.2 trillion in gross written premiums (GWP). As of December 2015, this represents around one third of the global share, and is equivalent to more than 8% of EU GDP. Split across sectors, the GWP in the EU is distributed³⁵ as follows: 61% for life, 29% for non-life, and 10% for health insurance, with an average amount per capita spent on insurance of around EUR 2 000. Moreover, total benefits and claims paid in 2015 amounted to almost EUR 1 trillion, with a split between sectors broadly in line with that of GWP.

The value added of the insurance sector to the economy is estimated at 1-2% of total GDP. There seems to be a positive correlation between the size of the insurance sector and the development status of economies, although the direction of causality is unclear.³⁶

Table 3.4 shows that the situation in EU Member States is quite uneven, with a somewhat low insurance activity (insurance penetration ratio below 4%) in most Member States that joined the EU in or after 2004.³⁷ On the other hand, there is relatively high insurance activity

Chart 3.35: Evolution of premiums in EU



Source: EIOPA Statistical annex
 Note: 27 Member States up to 2012, afterwards Croatia is also included. The database is incomplete so GWP 2015 for Luxembourg is assumed to equal 2014, GWP 2005 for Romania is assumed to equal 2006 and GWP 2005 and 2006 for Greece is assumed to equal 2007.

³⁵ See European Insurance in Figures — December 2016 — Insurance Europe.

³⁶ ESRB (2015a).

³⁷ ‘Insurance penetration rate’ is defined as the ratio of GWP over GDP.

(penetration ratio above 20%) in Luxembourg, Ireland and Malta, where the international activities of national enterprises under free provision of services in other EU or EEA countries are quite significant. In 2015, the four biggest markets (the UK, France, Germany and Italy) account for 70% of the total GWP in the EU.

Table 3.4: EU premiums, GDP and penetration ratios, 2015

	Gross written premium (EUR billion)	Insurance undertakings (Number of)	GDP (EUR billion)	Penetration ratio (per cent)
Luxembourg	23.1	302	51.2	45.1
Ireland	56.4	147	255.8	22.0
Malta	1.9	51	9.3	20.3
United Kingdom	296.4	354	2 580.1	11.5
Denmark	30.7	99	271.8	11.3
France	234.6	285	2 181.1	10.8
Netherlands	72.4	167	676.5	10.7
Italy	150.4	117	1 642.4	9.2
Belgium	30.1	79	410.4	7.3
Germany	199.5	349	3 032.8	6.6
Spain	59.0	237	1 075.6	5.5
Austria	18.3	40	339.9	5.4
Finland	10.8	49	209.5	5.1
Slovenia	1.9	15	38.6	4.9
Cyprus	0.8	29	17.6	4.8
Sweden	21.1	166	447.0	4.7
Portugal	7.5	45	179.5	4.2
Czech Republic	5.5	31	167.0	3.3
Poland	13.1	57	429.8	3.0
Estonia	0.6	12	20.3	3.0
Croatia	1.1	23	43.8	2.6
Slovakia	2.0	17	78.7	2.6
Hungary	2.7	30	109.7	2.5
Bulgaria	1.0	45	45.3	2.2
Greece	3.3	48	175.7	1.9
Latvia	0.4	8	24.3	1.6
Romania	2.0	35	160.0	1.2
Lithuania	0.4	10	37.3	1.1
Total EU-28	1 247	2 847	14 711	8.5

Source: EIOPA Statistical annex (data for Luxembourg refers to 2014), Eurostat and own calculations

Note: The numbers of insurance undertakings comprise those under national supervision i.e. national enterprises and branches of undertakings from non-EU countries operating in a given country. The gross written premiums also include the international activity of national enterprises. The data are sorted by penetration ratio (from highest to lowest).

The strong growth of the insurance sector in 2006 and 2007 came to a halt in 2008 due to the financial crisis. Chart 3.35 shows the evolution of GWP in the EU and the penetration rate in the period 2005 to 2015. With the financial crisis, the insurance sector declined by more than 11% in terms of GWP, mainly due to a decrease in the life sector. After a few years of overall stagnation, a positive and stable trend resumed in from 2012 and continued through 2015, bringing the average yearly GWP nominal growth to around 3%, which is broadly in line with

GDP growth during this period.³⁸ The expectation for 2016 and 2017 is for a slight improvement in premium growth.³⁹

Table 3.5: Assets managed by insurance companies, EUR billion (unless indicated), 2015

	Total assets	Of which total investment assets	Of which non unit linked type investment	Total assets/GDP (per cent)
Luxembourg	151.0	126.1	28.2	295
Denmark	388.7	376.0	261.1	143
Ireland	287.2	243.8	53.1	112
France	2 199.3	1 980.3	1 693.5	101
United Kingdom	2 534.0	2 351.5	962.7	98
Sweden	434.6	415.7	295.8	97
Malta	7.6	6.1	4.9	82
Belgium	321.7	295.6	265.1	78
Netherlands	498.2	436.3	331.4	74
Germany	1 662.4	1 559.1	1 464.0	55
Italy	762.7	692.6	564.4	46
Finland	73.0	68.9	37.2	35
Austria	104.8	98.9	79.7	31
Portugal	53.9	51.6	51.6	30
Spain	297.5	247.4	233.1	28
Cyprus	3.6	3.0	1.8	20
Slovenia	6.6	5.6	4.5	17
Croatia	5.0	4.1	3.9	11
Czech Republic	17.9	16.0	12.9	11
Poland	42.0	37.1	24.2	10
Greece	15.3	12.9	10.8	9
Estonia	1.7	1.5	1.0	8
Slovakia	6.5	5.8	4.7	8
Hungary	8.2	7.1	3.7	7
Romania	5.5	3.0	2.2	3
Lithuania	1.2	1.0	0.6	3
Latvia	0.6	0.5	0.4	3
Bulgaria	0.4	0.0	0.0	1
Total	9 891.3	9 047.6	6 396.5	67

Source: EIOPA Statistical annex (2015 data, except for Luxembourg, for which 2014 data are taken, Eurostat and own calculations)

3.5.2 Insurers as major institutional investors in the EU

Insurance companies are large institutional investors that contribute to the development of well-functioning capital markets, due to the large amount of assets they manage: indeed, with

³⁸ GWP growth across the EU over the 10-year period was uneven. For example, five Member States (Malta, Estonia, Luxembourg, Bulgaria and Denmark) recorded a yearly nominal growth higher than 6%, while another five Member States (Hungary, Sweden, Belgium, Greece and Portugal) saw a net decrease from 2005 to 2015.

³⁹ EIOPA — The European Insurance Sector — Financial Stability Report December 2015.

total assets equivalent to two thirds of EU GDP, the EU insurance sector plays a significant role in the financial sector, together with the banking sector.⁴⁰

In 2015, insurance companies managed assets worth EUR 9.1 trillion, of which EUR 2.7 trillion in backed life assurance policies, where the investment risk is borne by the policyholders. The remaining EUR 6.4 trillion of assets are managed by insurance companies for two purposes: first to fulfil life and non-life policies contractual obligations where the risk is borne by the insurance companies, and second to contribute to the overall net profit of the company by complementing the technical profit (see Table 3.3).⁴¹ In short, investments are a key component of the insurance business, in which the premiums paid to insurers are invested until liabilities fall due. Moreover, as liabilities usually are of a long-term nature (especially in the life sector⁴²), insurers try to match those liabilities by investing in long-term and relatively safe assets. Table 3.6 provides a breakdown of the total investments in the EU.

Table 3.6: Insurance companies' investments by categories, 2005 and 2015

	2015		2005	
	(EUR billion)	(% of portfolio)	(EUR billion)	(% of portfolio)
Lands and buildings	170	3	164	4
Investments in affiliated enterprises and participating interests	475	7	248	6
Shares and other variable-yield securities and units in unit trusts	1 246	19	928	22
Debt securities and other fixed income securities	3 830	60	2 357	55
Loans	427	7	388	9
Deposits	243	4	175	4
Others	6	0	10	0
Total investments	6 397	100	4 270	100

Source: EIOPA Statistical annex (2015 data except for Luxembourg, for which 2014 data is taken) and own calculations

In aggregate, EU insurance companies have a rather conservative investment strategy, with 60% of assets invested in debt and other fixed income securities. With a value of almost EUR 4 trillion, insurance companies are key players in the government and corporate debt markets. As Table 3.6 shows, total investments held by insurance companies have increased by 50% in the last 10 years, which is equivalent to an increase of more than 4% annually. This trend is mainly explained by the growth in GWP, favourable asset price developments, and a greater role for 'assets-intensive' products like savings-like life insurance contracts.

In addition to managing and offering protection on insurance-related risks for their clients/policyholders, insurance companies are exposed to financial risks, including market risk, credit and counterparty risk, operational risk and liquidity risk through their investment portfolio. The EU regulatory framework addresses all these risks in the Solvency II Directive (see Box 7).

⁴⁰ As per EBA risk dashboard report, total assets of the banking sector in the EU as of December 2015 amounted to EUR 30.3 trillion with the bulk made up of loans and advances (EUR 19.8 trillion). Debt securities and equity instruments investments amounted to EUR 4.4 trillion and EUR 0.6 trillion respectively.

⁴¹ In its simplest form defined as the profit resulting from the difference between the received premiums and paid-out claims together with administrative charges.

⁴² The weighted average time until maturity of the life insurance obligations is estimated at around 14 years in the EEA - 2016 Stress Test — EIOPA — p. 60.

In particular, the current low interest rate environment is a concern for the insurance industry, especially for life insurers⁴³, whose profitability and solvency positions are hurt by the low yields and tight spreads. This is mainly due to the long-term business model in the life sector, the duration mismatches between assets and liabilities, and in some cases guaranteed returns to policy-holders. On the liability side, low interest rates lead to an increase in the firms' obligations in present-value terms and consequently to a deterioration of their solvency position. On the assets side, low interest rates have an adverse impact on investment returns and increase the reinvestment risk (given that the assets mature before the liabilities fall due), hence reducing the spreads between investment returns and the weighted average guarantee on in-force policies. The life insurance industry is responding to this particularly challenging environment by:

- changing the asset allocation (which increases investment income, but could increase asset risk and decreases asset liquidity);
- lowering credited rates on in-force policies (which reduces the risk of declining profitability, but makes traditional savings products less attractive to policyholders, and may decrease sales and increase lapses);
- offering lower guaranteed rates on new business (which reduces the average guaranteed rate over time, but with low immediate impact);
- increasing the unit-linked business (which reduces exposure to investment results and increases fee-based income, but may lead to declining margins in the longer term).

3.5.3 Insurance as the main investment for households

Consumers depend on the insurance sector for their future income, as life insurance liabilities comprise a significant part of European households' wealth.

For the aggregate EU level, Table 3.7 shows that out of a total of EUR 8.1 trillion of insurance liabilities (excluding capital and other non-insurance liabilities), the total provisions related to households' future financial claims are estimated at EUR 7.1 trillion. The provisions can be broken down into: (i) EUR 2.7 trillion in life insurance policies of a unit-linked type, where the investment risk is borne by the policyholders; and (ii) EUR 4.4 trillion in gross life assurance provision, where the risk is borne by insurance companies.⁴⁴ The table compares the total amount of provisions set aside for households and the level of financial wealth of households measured as the amount of total financial assets held (hence excluding real estate). On average at EU level, future pay-outs from life insurance policies represent 20% of households' total financial wealth (this ratio would increase to 30% if deposits and currencies were excluded from the definition of financial assets). Luxembourg and Ireland stand out in this respect, which is explained by the significant weight of non-resident investments in life insurance policies sold there, and thus it is less meaningful.

⁴³ (Short-term) non-life insurance business is less affected. Although lower returns reduce the financial margin available to offset adverse combined ratios, non-life insurance companies are more flexible as they have the possibility to react quicker by raising premium as many products re-price annually.

⁴⁴ Although there is no actual breakdown of the figures available, it is fair to assume that the vast majority of these provisions are for savings-type insurance products under which a certain investment return is guaranteed to policyholders, with the remainder being whole life insurance policies where the insurance companies will pay out the death benefit of the policy to the policy's beneficiaries when the insured person dies.

Table 3.7: Insurance companies liabilities by country, EUR billion, 2015

	Insurance companies' total liabilities	Insurance companies' household related liabilities (a)	Households' total financial assets (b)	a/b in per cent
Luxembourg	143.3	134.8	71.7	188
Ireland	261.8	194.1	355.7	55
France	1 853.7	1 619.7	4 841.2	33
Denmark	313.3	254.2	794.7	32
United Kingdom	2 212.1	2 065.3	8 598.3	24
Sweden	297.6	263.2	1 278.7	21
Germany	1 314.5	1 096.7	5 503.4	20
Belgium	242.5	207.3	1 225.7	17
Finland	63.1	45.3	300.5	15
Malta	5.4	3.3	23.8	14
Italy	647.5	576.7	4 118.8	14
Netherlands	378.9	304.0	2 195.1	14
Austria	91.8	74.3	619.9	12
Spain	203.4	167.6	2 009.2	8
Slovenia	4.6	3.1	39.3	8
Slovakia	4.7	3.6	60.5	6
Czech Republic	13.3	9.6	185.7	5
Poland	32.0	19.3	406.5	5
Cyprus	2.7	2.1	45.6	5
Portugal	22.8	16.5	380.2	4
Croatia	3.5	2.3	53.2	4
Hungary	7.0	5.5	131.2	4
Estonia	1.3	0.9	22.9	4
Greece	11.5	7.7	259.4	3
Lithuania	0.9	0.6	34.4	2
Romania	3.3	1.3	114.1	1
Latvia	0.4	0.1	25.8	0
Bulgaria	1.5	0.0	61.5	0
Grand Total	8 138.4	7 079.2	33 757.1	21

Source: EIOPA Statistical annex (Data for Luxembourg are for 2014), Eurostat and own calculations

Note: 'Households-related' liabilities include gross life insurance provisions and unit-linked type life insurance provisions.

Household financial assets include: currency and deposits; securities other than shares; loans; shares and other equity; net equity of households in life insurance reserves; net equity of households in pension funds; pre-payments of premiums and reserves against outstanding claims; and other accounts receivable.

The latest ECB Household Finance and Consumption Survey illustrates how important the performance and safety of insurance companies are for households. The survey provides an analysis of individual household wealth and consumption, with the data collected in a harmonised way in 18 euro-area countries (except Lithuania), as well as in Hungary and Poland. On financial assets, the survey confirms that after deposits, the second most common asset class is voluntary pensions/whole life insurance, with a participation rate of 30%, with only a small fraction of households owning riskier assets (e.g. bonds 4.6%, publicly traded shares 8.8% or mutual funds 9.4%). Not surprisingly, the smallest financial asset portfolios consist almost exclusively of deposits (and to a lesser extent voluntary pensions/whole life insurance), but as the portfolios get bigger, so does the weight of risky assets.

Box 7 Solvency II — The foundation of financial stability and integration in EU insurance

The Solvency II Directive (as amended by the Omnibus II Directive) became fully applicable on 1 January 2016. The EU-level harmonised regulatory framework established under the Directives includes Solvency II Delegated Regulation and a number of implementing acts. Solvency II addresses the financial soundness of individual insurance companies (i.e. solos) as well as insurance groups. For international groups, the activities of supervision are coordinated across

Member States.⁴⁵

The main objective of the Solvency II framework is to protect policyholders and beneficiaries by ensuring the financial soundness of insurance companies.⁴⁶ The framework contains qualitative provisions and principles for governance, risk management, internal controls, actuarial function and prudential investment behaviour.

The framework prescribes detailed and uniform reporting on solvency and financial conditions of insurance companies so that investors, financial advisers or intermediaries and policyholders can take well-informed decisions based on information that is comparable throughout the European Union. Disclosure quality of insurers' financial reports is enhanced by ensuring that a 'market-consistent' approach is used for the valuation of assets and liabilities by insurance companies. Any public disclosure requirements are in addition to the reporting to relevant supervisors.

Risk-based capital requirements in Solvency II are proportionate to all risks borne by insurance companies through assets as well as liabilities in their business. The Solvency II Delegated Regulation was amended with effect from 2 April 2016 to include appropriate risk calibrations for qualifying infrastructure projects that are safer than other investments.⁴⁷

The capital requirements in Solvency II are calibrated at a 99.5% confidence level over a one-year horizon, which ensures that insurance companies that meet the capital requirement should be able to withstand stresses arising from extreme but plausible scenarios. It also establishes the criteria on 'eligible own funds' to ensure high quality of capital in various tiers. The framework contains clear provisions for addressing situations where certain insurers fail to maintain the regulatory capital requirements. In addition, Solvency II contains specific treatment for long-term investments by insurers and measures to avoid procyclical investment behaviour. Transitional provisions have been established in the Directive to allow for a smooth transition of existing insurance companies to the new Regulation.

While no regulatory framework can fully prevent the failure of insurance companies Solvency II contains provisions for early supervisory intervention for insurers who breach their solvency capital requirement or minimum capital requirement.

Based on the indications available as at March 2017, the first full year of Solvency II application has been largely successful in contributing to the financial stability and integration objective of the European Union.⁴⁸ Currently the Commission is addressing any issues on the transposition of the Directives by Member States. It has also sought further technical advice from EIOPA to review the Delegated Regulation by 2018.

⁴⁵ The relevant documents can be retrieved at the following links: [Solvency II Directive](#), [Omnibus II Directive](#), [implementing and delegated acts](#), and [Solvency II Delegated Regulation](#).

⁴⁶ The reference to insurance companies in this box includes reinsurance companies.

⁴⁷ The link to the amendment to the Solvency II Delegated Regulation is [here](#).

⁴⁸ Most insurance companies are expected to publish their financial reports by May 2017. The current indications are based on half-yearly results announced by companies, the results of stress tests carried by EIOPA and other technical reports.

Chapter 4 COMPLETING BANKING UNION

4.1 Introduction

In response to the financial and sovereign debt crises in the EU, Member States agreed to a deeper integration of the EU banking system via the creation of the Banking Union. The need for deeper integration was particularly strong in the euro area, so as to ensure a more effective transmission of the single monetary policy and better risk diversification across Member States sharing a single currency. A fully functional Banking Union would reinforce financial stability within the EU by restoring confidence in the banking sector through a combination of measures designed to both share and reduce risks. Participation in the Banking Union is mandatory for Member States in the euro area, while other Member States have the option to participate. A banking Union would also complement the process of capital market integration, which will receive a boost from the CMU project.

The European financial and sovereign debt crises were also driven by an excessive exposure of banks to their national sovereign. Breaking this link between banks and sovereigns is therefore an overarching objective of the Banking Union. This chapter presents the existing and proposed elements of Banking Union, and assesses the progress made in achieving the overall objective.

4.2 Existing elements of the Banking Union architecture

The Banking Union is based on a 'Single Rulebook' approach, i.e. a foundation of common rules making sure that credit institutions are subject to equivalent rules and proper supervision across the EU. The Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM) form the two existing institutional pillars of the Banking Union architecture. These pillars facilitate a more centralised application of the Single Rulebook.

Single Rulebook

A common set of rules for banks in all 28 Member States acts as the foundation for what is known as the 'Single Rulebook'. In essence, the 'Single Rulebook' is a set of legislative texts that all banks in the EU must comply with. These rules are designed to ensure sound institutions and thereby prevent or minimise the risk and impact of banking crises.⁴⁹ Among other things, the rules require banks to hold sufficient amount of good quality capital and liquidity, require Member States to set up deposit guarantee schemes that guarantee retail deposits of up to EUR 100 000, and provide a common framework for the resolution of banks that are failing or 'likely to fail'.⁵⁰ The Single Rulebook also transposes internationally agreed regulatory standards into EU law. In November 2016, the Commission brought forward a proposal for a comprehensive package of reforms, which will further reduce risks in the European banking sector and implement international agreements on bank regulation into EU law.

⁴⁹ The report uses the word 'credit institution' and 'bank' interchangeably.

⁵⁰ See http://ec.europa.eu/finance/general-policy/policy/map-reform/index_en.htm

As shown in Chart 4.1 and described in Chapter 2, EU banks have significantly strengthened their balance sheets and built up resilience to adverse shocks in recent years. A steady improvement in quantity and quality of bank capital and liquidity positions has been driven by EU bank regulatory reforms. Signs of this improved resilience have materialised with the solid recovery of interbank and overall wholesale funding in recent months.

Single Supervisory Mechanism

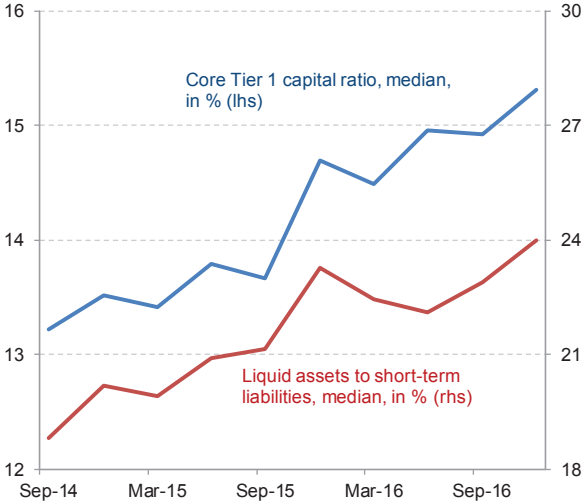
The institutional pillar of the Banking Union that was first implemented was the Single Supervisory Mechanism (SSM). It brings together the European Central Bank (ECB) and the national competent authorities of the participating Member States in a single supervisory architecture. The European Central Bank has become the banking supervisor for all banks in the Banking Union and is directly responsible for supervising (currently) 125 of the largest banking groups, while the national authorities continue to directly supervise the remaining banks under ECB guidance. The main tasks of the ECB and the national authorities are to check that banks comply with the EU banking rules and ensure the safety of the banking system through consistent supervision. This may have beneficial effects on financial integration and stability.

Single Resolution Mechanism

The Single Resolution Mechanism (SRM) is the institutional pillar that deals with the management of bank resolutions, to ensure an orderly resolution of banks that are failing or likely to fail so that there are minimal costs for taxpayers and the economy. It includes the Single Resolution Board (SRB) and the Single Resolution Fund (SRF), which operate within a framework that became operational in 2016. The operational mandate of the SRB applies to all banks under SSM supervision, and to a number of other cross-border banks. National resolution authorities are responsible for managing the remaining banks if they are failing or likely to fail. The predictable functioning of the resolution mechanism brings clarity and transparency and reinforces market confidence. The SRM is also needed to eliminate the risk of having separate and potentially inconsistent decisions by Member States for the resolution of cross-border banking groups, which may affect the overall costs of resolution.

The SRB prepares the strategy for the decision whether and when to place a bank in resolution and chooses the best course of action for the use of resolution tools and the SRF. The SRF ensures the availability of funding to support the orderly resolution of a bank. The Fund is progressively being built up, and will reach a target level of 1% of covered bank deposits in the Banking Union by 2024, or an estimated volume of around EUR 55 billion. It

Chart 4.1: Banks capital and liquidity ratios



Source: ECB; Statistical Data Warehouse

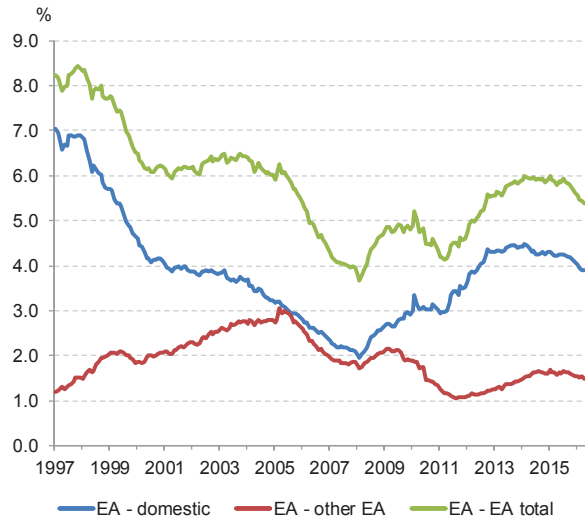
is financed by all banks, and certain investment firms, in the Banking Union. Since it will take several years for the Fund to reach its full capacity, Member States have signed agreements to provide temporary financing as a last resort during the transition period.

4.3 Progress in breaking the link between banks and sovereigns

The sovereign debt crisis that emerged in 2010 revealed the danger of the excessive interdependence between banks and their domestic sovereigns. This section attempts to analyse any progress made in achieving the overarching objective of severing the bank-sovereign link, by examining the evolution of some basic indicators related to the different channels of interaction between sovereigns and banks. The trend suggested by these indicators does not necessarily imply direct causality with Banking Union actions, as they are influenced by several other factors (like fiscal and monetary policies), but they offer a fair illustration of the state and evolution of the sovereign-bank nexus.

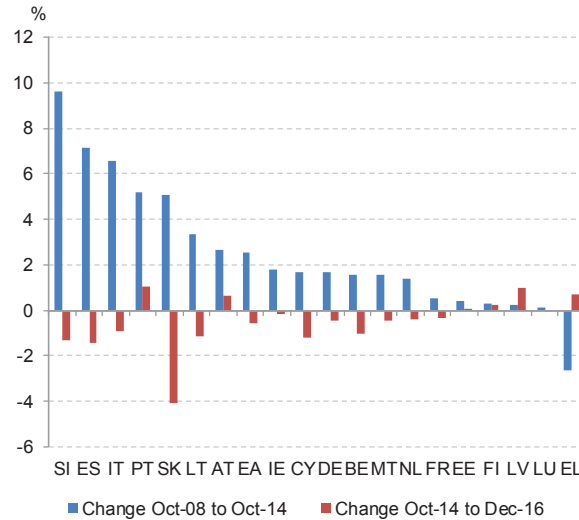
There are several different channels through which risks can be transferred between sovereigns and banks, and thereby threaten the stability of the banking system and efficient credit allocation to the economy. Two of these channels are direct. First, risk is directly transferred from the banking sector to the sovereign, e.g. via explicit and implicit state guarantees. Second, risk is transferred from the sovereign to the banking sector via holding of sovereign debt by banks. As a result, the perceived quality of banks' assets is dependent on the credit quality of the sovereign debt. Hence, the cost of bank funding (as a function of the bank's risk) is influenced by the cost of sovereign debt, which embeds the credibility of government support to its domestic banking sector. There are also indirect channels, which are a consequence of more market based developments. For example, sovereigns and banks are both very much dependent on the performance of the economy, or credit markets may be subject to information asymmetries or coordination failures, which can lead to persistent divergences of prices from fundamentals.

Chart 4.2: Government debt held by banks, in % of total assets



Source: ECB

Chart 4.3: Change in government debt held by banks



Source: ECB

Sovereign debt holdings of banks have varied significantly over the years (see Chart 4.2). From the formation of the euro area in 1999, and before the financial crisis, banks' holdings of euro-area sovereign debt declined persistently from 8% to below 4% of total assets. In this way, banks reduced their dependency on sovereigns in the run-up to the financial crisis. Furthermore, until 2005, banks diversified their government bond holdings, reducing their domestic holdings and replacing them with government debt from other euro-area Member States. This diversification process ended with the 2008 financial crisis. The home bias in sovereign debt holdings and the implied interdependence between banks and their national sovereign increased with the sovereign debt crisis. Chart 4.2 shows how government debt holdings moved from a historical bottom (since the introduction of the euro) in 2008 to a peak in 2014. Coincidentally, the peak in euro-area bank holdings of domestic government debt occurred in the same month the ECB published its comprehensive assessment of banks' assets, and declined afterwards.

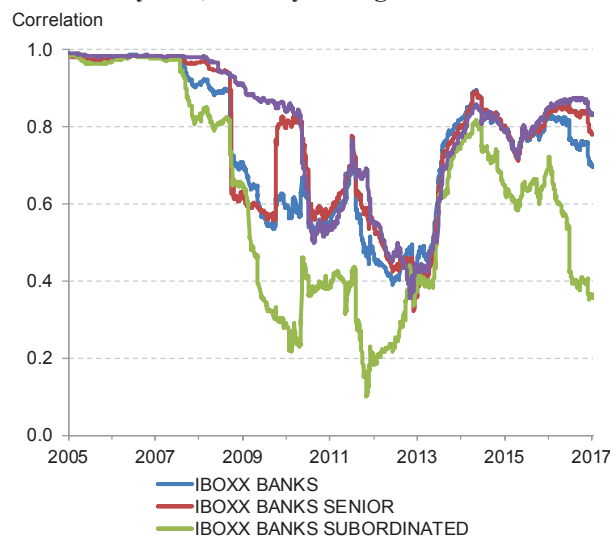
The top five Member States with the highest increases of government debt held by domestic banks between 2008 and 2014 — Italy, Latvia, Portugal, Slovenia and Spain — also experienced sovereign stress during those years. In Greece, instead, the decline took place before, thanks to the debt restructuring with private sector involvement in 2011. However, Greece had a relatively high dependency on government debt already in 2008, which increased and peaked in June 2011, with government debt equivalent to 10% of total bank assets. In contrast, Ireland — a Member State with an IMF-EU financial assistance programme running from 2011 to the end of 2013 — had a relatively low share of domestic sovereign bond holdings across the period.

The trend in banks' domestic sovereign holdings have stalled since the second half of 2012, when the Banking Union was announced and the ECB pledged far reaching support in defence of the euro area and started to decline in early 2014 (when the details of the comprehensive review under the new supervisory pillar were announced). While since then domestic and foreign government bonds have been on a declining trend, the decline in domestic bonds has been slightly faster, reducing the home bias and banks' dependency on domestic sovereigns. Overall, the amount of government debt on banks' balance sheets remains high relative to the years prior to the crisis.

The trends in correlation statistics send a mixed picture, with some weakening of the link between banks and sovereigns, but correlations are still generally high. Before the crisis, bank bonds were typically priced with a mark-up of about 40 basis points over government bonds. However, this trend was changed significantly by the financial crisis. When the crisis took hold, bank bonds were considered very risky investments and were priced accordingly. Consequently, the close correlation between the yields on bank bonds and on sovereign bonds broke down (see Chart 4.4). The adverse shock to the banking sector was eventually transmitted to governments and led to an increase in sovereign risk. In turn, the deterioration in sovereign risk raised the credit risk for banks. The interdependency between the tradable debt of sovereigns and banks was again reinforced, until the announcement of Banking Union and the beginning of the ECB's unconventional policy measures, but still remains generally strong.

An important development is the deviation in correlations for senior and subordinated bank bonds, which would suggest that the concept of bail-in is being internalised, partly via the discussions on the Bank Recovery and Resolution Directive (BRRD) and banks' total loss-absorbing capacity, and partly via the actual experience of the crisis. The close correlation between sovereign and bank yields that characterised the pre-crisis years, was largely restored by May 2014, (see Chart 4.4). However, the EU implemented a battery of measures to counter the effects of the financial crisis and reduce the risk of future crises. Among these were the different parts of the Banking Union, which involved the setting up of the SSM, conducting stress tests of the banking sector and assessing the quality of banks' assets.

Chart 4.4: Correlation between sovereign and bank yields, 260-day rolling correlation

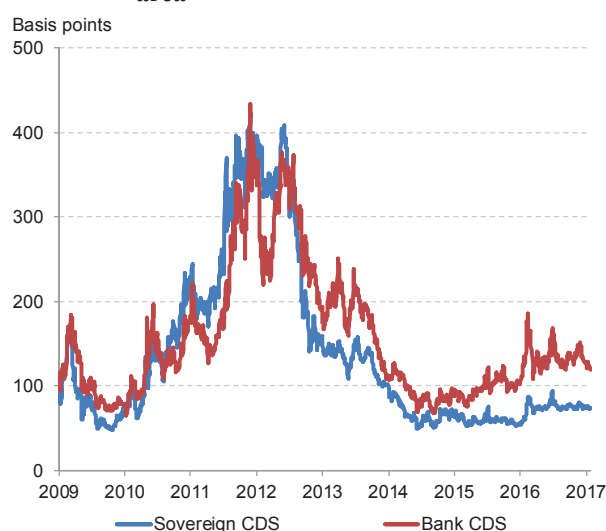


Source: Datastream

After the peak, banks' subordinated debt broke away from their senior debt. The yields of public banks and private banks' senior debt, however, are still close to parity with each other in terms of correlation with sovereign debt. As the crisis abates, the links to sovereigns and banks' senior and subordinated debt diverge, implying a different treatment of the two types of debt. Eventually, the links to sovereigns' and private banks' senior and public banks debt also start deviating, but at a slower pace, i.e. there is a partial breaking of the link between sovereigns and banks. Interestingly, there was a big shift in the correlation between sovereigns and banks' subordinated debt at the beginning of January 2016, which coincides with the BRRD (and SRF) rules on bail-in taking effect.

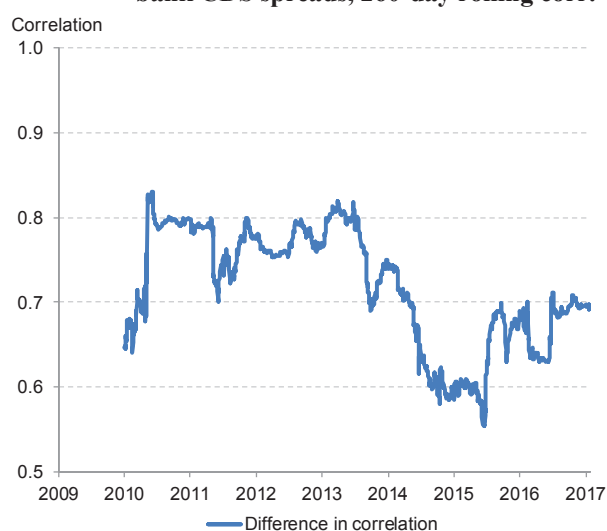
Similar to bond yields, the spreads on credit default swaps (CDS) can measure the interdependence between banks and sovereigns. These show that the links between sovereigns and banks were strong until SSM started to supervise the large euro-area banks. CDS contracts are relatively new instruments; they measure the credit risk of an issuer of debt. The price for hedging against the default of a bond is expressed in terms of the CDS spread, which isolates the price on credit risk from other factors priced in bond yields. CDS contracts on euro-area sovereigns were not traded much before 2009, and thus cannot provide information on the situation before the onset of the financial crisis. However, from the beginning of the sovereign debt crisis starting with the Greek announcement of faulty public deficit figures, the link between CDS spreads for sovereign debt and bank debt was strong, i.e. the credit risk of banks and sovereigns were priced similarly. Since, the SSM took over supervision of the large euro-area banks in late 2014, there has been a persistent break between the CDS spreads for sovereign debt and bank debt. The credit risk for banks increased and the correlation to sovereign CDS spreads declined, which may be interpreted as meaning that part of the link has been broken.

Chart 4.5: Sovereign and bank CDS spreads, euro area



Source: Bloomberg

Chart 4.6: Correlation between five-year sovereign bank CDS spreads, 260-day rolling corr.



Source: Bloomberg and own calculations

There are various caveats to concluding that the link between banks and sovereigns has been decisively broken, particularly at the senior debt level. First, the conclusions are based on simple observations of a narrow set of indicators. Second, regulation was not introduced in isolation from other events. For example, at the beginning of 2016, there were concerns about banks' profitability, and there was a sharp drop in prices of contingent convertible bonds (CoCo) over general uncertainty regarding institutional, legal and regulatory issues. There was also broad selling of bank shares by investors, with some stocks touching their weakest levels in a long time. Third, the approach and the indicators are not comprehensive enough to cover all aspects of the interaction between sovereigns and banks, so a more sophisticated analysis would be required to isolate the regulatory effects.

In sum, there are signs that the links between sovereigns and banks have been weakened, while these links still persist. The correlation between banks' and sovereigns' bond yields and CDS spreads have come down, especially for subordinated bank debt. However, both CDS and bond correlations for senior debt still remain rather high, in the range between 0.7 and 0.8. The reduction in the correlation coefficients coincided with strong monetary policy interventions by the ECB (e.g. the outright monetary transactions, the long-term refinancing operations, the asset purchase programme). These reduced credit and liquidity risk in the financial system more generally, and may muddle the link between banks and sovereigns. Nevertheless, the correlation between bank and sovereign credit risk seems consistent with the principles of the BRRD, in that the correlation with relatively senior bank liabilities is greater than the correlation with subordinated bank liabilities.

Even if the Banking Union is having some effect on correlations, it is clearly not enough. The continued interdependence between banks and their national sovereigns carries risks going forward. It is therefore important to move forward with both risk reduction and risk sharing as a means to definitively break the links between banks and sovereigns.

4.4 Missing elements of the Banking Union

Completion of the Banking Union is essential to ensure that the link between banks and sovereigns is broken decisively and as an important step towards a genuine European Monetary Union. The Banking Union is already functioning and has already made the banking sector more resilient and less prone to excessive risk-taking. However, it is still structurally incomplete.

As stated above, the overarching objective of the Banking Union is to break the link between banks and sovereigns at national level. This is accomplished through risk reduction and removing barriers that segment the single market for banking services. The creation of the SSM and SRM, operating on the basis of a single rulebook derived from EU legislation on bank capital requirements and bank recovery and resolution, constitutes a major step forward in risk reduction. However, a properly functioning Banking Union requires parallel steps in risk sharing at the euro-area level. In order to complete the Banking Union, the Commission has proposed a European deposit insurance scheme (EDIS), aiming to give the Banking Union the third pillar on which the functioning of the other pillars depends. The Commission also called for enhanced bridge financing arrangements and the creation of a common fiscal backstop.

The Commission proposal for a European deposit insurance scheme

There is a widespread consensus among experts and academia of the benefits of a viable and effective euro-area deposit insurance scheme.⁵¹ The main argument behind a common European deposit insurance scheme is that it would increase the risk-absorption capacity and reduce the vulnerability of national DGS to large local shocks, as compared to the current system of national deposit guarantee schemes (DGS). A common safety net can be seen as an insurance contract, which would help prevent retail deposit runs that could overwhelm the capacity of any one country's DGS.⁵² That would in turn help increase depositor confidence and limit the effects of national differences, contribute to a better functioning of the single market, and enhance financial stability in the euro area in general. Any divergences, perceived or real, between national DGSs can, on the other hand, contribute to market fragmentation by affecting banks' ability and willingness to expand their operations cross-border.

As a European deposit guarantee scheme would provide more stability and protection against large banking crises, it is an indispensable third pillar of the Banking Union. According to the Commission's effects analysis, EDIS would be considerably less likely to fall short of pay-outs than a national DGS. It would improve deposit insurance cover for banks in all participating Member States in both single and multiple pay-out scenarios, without changing the overall level of funding.⁵³

⁵¹ See e.g. <http://voxeu.org/article/case-euro-deposit-insurance>; <http://bruegel.org/2016/05/the-european-deposit-insurance-scheme/>; Diamond and Dybvig (1983), Allen and Gale (1998), Diamond and Rajan (2001), Goyal et al. (2013), and IMF (2013).

⁵² IMF (2013).

⁵³ http://ec.europa.eu/finance/general-policy/docs/banking-union/european-deposit-insurance-scheme/161011-edis-effect-analysis_en.pdf.

In its proposal, the Commission provided a framework for the design of EDIS to tackle most of the inherent incentive misalignments relating to a common deposit guarantee scheme.⁵⁴ Nevertheless, EDIS is a controversial issue for many Member States. The technical details of such a scheme are inherently linked to the actual design of the EDIS, and these are yet to be worked out. According to the Commission proposal, EDIS would be established in three sequential stages:

- The first stage would be a reinsurance scheme and would apply for 3 years until 2020. In this stage, EDIS would provide a specified amount of liquidity assistance and absorb a specified amount of the final loss of the national scheme in the event of a pay-out or resolution procedure. In order to limit moral hazard and avoid ‘first-mover advantages’, a DGS can only benefit from EDIS in this stage if it has met its requirements and filled its national fund to the required level, and only if those funds have been fully depleted.
- The second stage would be a co-insurance scheme and would apply for 4 years until 2024. In this phase, a national scheme would not have to be exhausted before accessing EDIS. EDIS would absorb a progressively larger share of any losses over the four-year period in the event of a pay-out or resolution procedure. Access to EDIS would continue to be dependent on compliance by the national DGS with the required funding levels.
- In the final stage, EDIS would fully insure deposits and would cover all liquidity needs and losses in the event of a pay-out or resolution procedure.

The reinsurance and co-insurance stages would share many common features, ensuring a smooth gradual evolution, but the costs for covering deposits would be increasingly shared among the national schemes and EDIS under the co-insurance stage. EDIS would provide full insurance of depositors in the Banking Union from 2024 onwards.

A common fiscal backstop

Member States have agreed to develop a common backstop for the SRF during the transition period. The backstop will facilitate borrowing by the SRF and hence the capacity of the SRB to resolve banks effectively. The banking sector will ultimately remain liable for repayment by means of contributions after the fiscal was used. After all Member States had transposed the BRRD, technical work on the backstop has started in November 2016.

4.5 Risk reduction and risk sharing in the euro area

Risk sharing aims to improve capital allocation in a way that allows risks to be borne by those that can bear it the most, thus improving asset allocation. When risk is shared across a

⁵⁴ Like in the current DGS framework, EDIS would apply to deposits below EUR 100 000. The national deposit guarantee schemes and EDIS would intervene in the event of bank insolvency or resolution, and where there is a need to pay out deposits or finance their transfer to another bank. At the final stage of the EDIS set-up, the protection of those deposits would be fully financed by EDIS, supported by close cooperation between EDIS and national schemes. http://ec.europa.eu/finance/general-policy/docs/banking-union/european-deposit-insurance-scheme/151124-factsheets_en.pdf.

financially integrated space such as the Banking Union, there is a lower likelihood of severe and disruptive capital movements during crises. As risk sharing implies a diversification of risks, it increases the capacity of the area as a whole to absorb losses deriving from country-specific shocks.⁵⁵ In the case of the euro area, the limited capacity for cross-border risk sharing mechanisms exposed the area to a significant capital reversal during the recent financial and sovereign debt crisis.

Box 8: General outlook on risk sharing in the euro area

Before the crisis, banks had become excessively leveraged, i.e. they were making use of other liabilities than equity to finance their operations. They represented a high systemic risk, and eventually taxpayers had to support the banks to ensure the continuity of banking services. In addition, many sovereigns were not fiscally resilient enough to withstand the pressure, which created a negative feedback loop between banks and sovereigns. This led to deteriorating market confidence in both the banking sector and sovereigns. Ideally, further risk sharing should be accompanied by measures to reduce risks in both private and public risk sharing channels. However, as the crisis illustrated, in a largely unfinished Economic and Monetary Union existing private risk sharing mechanisms were not effective enough to limit contagion to sovereigns.

The euro area could strengthen its cross-border risk sharing through both private and public mechanisms. Private risk sharing works through the access to foreign financial markets, including foreign capital markets, cross-border loans and deposits, direct investments, as well as through cross-border unemployment insurance. Public risk sharing could involve some form of fiscal redistribution between countries experiencing a negative output shock and those which do not. Fiscal risk sharing could potentially be in the form of cross-border subsidies, social protection including a common unemployment scheme, or cross-border financing of public investment.

Looking at past output shocks in the euro area, the limited smoothing that has taken place has predominantly gone through the credit channel, including savings, smoothing consumption after a shock. The evidence suggests that roughly 75% of the shocks in the euro area have gone unsmoothed, whereas in the US only 25% of the shocks have gone unsmoothed, as capital markets and fiscal transfers are able to absorb over 50% of shocks.⁵⁶

To limit contagion in future crises, ideally both private and public risk sharing mechanisms would be needed. There is extensive evidence that financial integration can produce mechanisms of private risk sharing, where risk sharing via capital markets provides insurance before a shock has happened, with more potential to absorb losses deriving from more permanent shocks. The credit channel, on the other hand, can only address temporary shocks, and is subject to reversal.⁵⁷

The measures proposed to complete the Banking Union are logical steps in the efforts to deepen European Monetary Union. They aim to reduce the link between banks sovereigns in Member States through risk sharing (for a more general discussion of risk sharing in the euro area see Box 8 above). A common deposit insurance scheme and a common fiscal backstop would assure the most effective functioning of the Banking Union. A common feature of these measures is that they reduce the bank-sovereign link at the national level through risk sharing among all the Member States in the Banking Union. The mere existence of these

⁵⁵ See e.g. Kose, Prasad, Rogoff and Wei (2006), Jappelli and Pagano (2008).

⁵⁶ See e.g. Poncela et al (2016), Furceri and Zdzienicka (2013), IMF (2013) or Asdrubali et al. (1996).

⁵⁷ See e.g. Obstfeld and Rogoff (1996), Asdrubali, Sorensen and Yosha (1996); Sorensen and Yosha (1998).

elements would reduce the likelihood of them ever being used, by strengthening confidence in the safety mechanisms in place.

Despite the systemic benefits of risk sharing implied by the steps to reinforce the Banking Union, these steps should be accompanied by measures to further reduce risk. In June 2016, EU finance ministers agreed on a road map to both share and reduce risk in parallel. If the costs associated with bank failures and insolvencies are to be shared, it is essential that the risk of incurring such costs is contained to the maximum extent possible. While this is not a new concern, and measures to reduce such risks have already been taken, additional risk-reducing measures will be needed in parallel with work to establish further risk sharing. To this end, the Commission presented in November 2016 a comprehensive package of reforms to further strengthen the resilience of EU banks. The proposal builds on existing EU banking rules and aims to address outstanding weaknesses to bolster financial stability, while making sure that banks can continue to finance the real economy.

The measures for further risk reduction in the banking sector aim to: (i) ensure the resilience and smooth functioning of the Banking Union; (ii) increase legal certainty; (iii) contribute to overall stability in the euro area; and (iv) ensure a level playing field for all banks in the Banking Union. Further risk reduction is pursued by a range of prudential measures. These will, for example: improve the amount and quality of capital; reduce concentration of exposures; encourage deleveraging; limit pro-cyclical lending behaviour; reinforce access to liquidity; address systemic risk due to size, complexity and interconnectedness; underpin depositor confidence; and incentivise proper risk management through governance rules.

The proposal sets more risk-sensitive capital requirements for institutions involved in trading securities and derivatives, particularly in terms of market risk, counterparty credit risk and, for exposures to central counterparties. As a part of the measures to reduce excessive risk-taking, the Commission proposes to set a 3% leverage ratio requirement for all credit institutions and investment firms bound by the capital requirement regulation. With some adjustments to avoid discriminating against any particular business model, a leverage ratio is essentially the amount of capital of an institution divided by its total assets.

By setting a binding net stable funding ratio to address financial institutions' excessive reliance on short-term wholesale funding, the Commission aims to make sure banks have stable and resilient funding. During crisis, banks' reliance on short-term funding caused them to seek emergency liquidity assistance from central banks, or sell their assets in fire sales with significant discounts, causing many to become insolvent.

Some financial institutions have become so systemically critical that their potential failure would cause serious ramifications to the whole economic and financial system. As a consequence, these institutions effectively hold governments hostage, forcing them to save the banks with taxpayers' money. To address this 'too-big-to-fail' issue, a requirement known as total loss-absorbing capacity (TLAC) will be integrated into the existing minimum requirement for own funds and eligible liabilities (MREL) system. TLAC requires global systemically important institutions (G-SIIs) to be financed with sufficient levels of liabilities that can be readily be bailed-in, and other instruments that bear losses in resolution. TLAC proposes a harmonised national insolvency ranking of unsecured debt instruments to make it easier for banks to issue such loss-absorbing debt instruments. TLAC and MREL will thus

strengthen the EU's ability to resolve failing G-SIIs, and allow for a more sound financial system.

Creating a Capital Markets Union would allow risk sharing in the euro area to be less dependent on the credit channel and complement the role of banking. This would also create a better balance between debt and equity financing, and make the financial system more resistant to shocks by offering access to a wider choice of financial instruments. However, capital markets are prone to increased interconnectedness and herd behaviour. The emergence of new risk transmission channels needs to be monitored and the build-up of risk curtailed.

4.6 Concluding remarks

Even after these risk-reducing proposals have been implemented, potential risk transmission between banks and sovereigns will still be present. Banks need safe and highly liquid assets to operate. They therefore rely to a large extent on bonds issued by their home sovereign and consequently hold large amounts of government debt on their balance sheets. As a result, banks remain vulnerable to changes in the perceived credit risk of their national sovereigns. Although investors are pricing in the risk of bail-in, e.g. differentiating between senior and junior debt, they still consider the possibility of a public bail-out to be supportive of bank credit quality. Taken together, it is clear that a strong bank-sovereign link remains at national level and that additional measures are needed to fully break this link. Much progress has been made in constructing a functioning Banking Union, but it remains structurally incomplete. In June 2016, EU finance ministers adopted a road map that laid out further guidelines for completing the Banking Union. To this end, as a first important step, the Commission delivered a comprehensive bank reform package in November 2016 to tackle remaining weaknesses, by strengthening the loss absorbency of EU banks and making it easier to carry out resolution of banks at risk of failure. The new features proposed and envisaged, concern both risk-reduction and risk-sharing measures and finding a way to balance the two.

Chapter 5 FINANCIAL CYCLES, HOUSING MARKETS AND MACRO-PRUDENTIAL POLICY

5.1 Introduction

Macro-prudential policy can be defined as the use of primarily prudential tools to limit systemic risk. Systemic risk in turn is described as the risk of widespread disruption to financial services caused by impairment of all or parts of the financial system, and which can cause serious negative consequences for the real economy.⁵⁸ Systemic risk can be generally characterised by two dimensions. A first ‘structural or cross-sectorial dimension’ of systemic risk refers to vulnerabilities stemming from interconnectedness at any given point in time. A second ‘cyclical or time dimension’ of systemic risk refers to vulnerabilities related to the build-up of risks over time.

This chapter focuses on the cyclical dimension of systemic risk in the EU, and the important role played by residential real estate⁵⁹ in the financial cycle⁶⁰. Fundamental to systemic risk is the notion of negative externalities from a disruption or failure in a financial institution, market or instrument. Three types of negative externalities give rise to systemic risk:

- first, externalities related to the strategic interactions of financial institutions and agents during the expansionary phase of a financial cycle (causing the build-up of vulnerabilities);
- second, externalities related to fire sales and credit crunches during the contractionary phase of the financial cycle (causing a generalised sell-off of assets and decline in asset prices, a deterioration of balance sheets of intermediaries and investors, and a drying up of liquidity);
- a third category of externalities which is more structural and which refers to interconnectedness and contagion at any given point in time, causing the propagation of shocks from systemic institutions or through financial markets.

The existence of the externalities associated with the build-up of systemic risk provides the economic justification for policy interventions to safeguard financial stability. Nevertheless, the recent financial crisis made it clear that not all policies are equally effective in addressing systemic risk. For instance, macro-economic policies such as monetary and fiscal policies can be relatively blunt instruments in managing specific financial system risks, with changes in interest rates and taxation impacting very broadly on the economy as a whole. By targeting inflation and GDP, monetary and fiscal policies influence the business cycle but are arguably less effective in dampening the powerful asset price and credit movements known as

⁵⁸ See among others, ECB (2009), Financial Stability Review, Special Feature B, for a discussion of the concept of systemic risk.

⁵⁹ Commercial real estate markets are also important for financial stability due to the size of the market, the large exposures of banks and other financial institutions to it, the widespread use of commercial real estate as collateral in borrowing, and the high degree of cyclicity of the market (ESRB, 2015b). Given that commercial real estate markets are distinct from residential real estate in their characteristics and drivers, they are left out of this chapter.

⁶⁰ There is no one single definition of a financial cycle. Borio (2014) defines a financial cycle as a ‘self-reinforcing interaction between perceptions of value and risk, attitudes towards risk and financing constraints’.

‘financial cycles’ that are observed in most developed nations. This is in part caused by the fact that these financial cycles show very different patterns from ordinary business cycles. They are generally longer and are characterised by greater amplitude, while the impact of downturns on the real economy appears more pronounced.⁶¹ The financial cycle is a manifestation of the pro-cyclicality of the financial system and has been a source of costly banking crises.⁶² Macro-prudential policy aims to complement macro-economic policies by dampening the financial cycles in both the expansionary and contractionary phase, by for instance influencing the price or availability of credit.⁶³

In particular, monetary policies across the developed world have focused almost exclusively on price (and output) stability. The financial crisis has shown that stable and low inflation does not necessarily ensure financial and macro-economic stability. This strengthens the case for additional tools that can address macro-economic risks stemming from the financial sector more effectively. Macro-prudential policy, using instruments such as capital buffers, risk-weighting of assets and loan-to-value/loan-to-income ratios, can better target risks linked to particular activities (e.g. the purchase of real estate and foreign-currency borrowing) or structural features (e.g. the existence of systemically important financial institutions and the large size of the financial sector relative to GDP) in the economy. While macro-prudential policy is being used across the EU, it is seen as a particularly useful tool for Member States in the euro area, where the single monetary policy precludes the use of interest rates to address potentially systemic risks to financial stability at the national level.

The chapter is structured as follows. Section 5.2 explains out the importance of residential real estate markets for financial cycles, arguing that both mortgage credit and a range of other housing market characteristics have the potential to amplify financial cycles. Section 5.3 documents the significant heterogeneity in national housing market characteristics across the EU and succinctly reviews the different types of macro-prudential measures taken in the area of residential real estate in the EU. Section 5.4 discusses EU macro-prudential policy in a broader perspective of the overall economic policy mix. Section 5.5 provides conclusions.

5.2 The importance of residential real estate in financial cycles

Macro-prudential policies aim to dampen booms and busts linked to financial crises, which reflects the accumulation of unsustainable financial imbalances that ultimately trigger credit crunches, fire sales following a generalised sell-off of assets and sharply declining asset prices. As indicated in the previous section, the vast majority of financial crises are related to

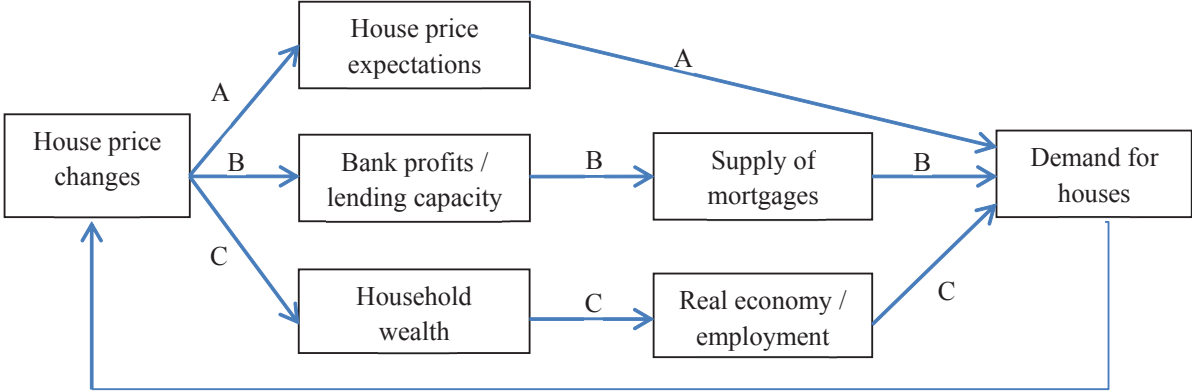
⁶¹ See among others Drehmann et al. (2012), Schüler et al. (2015) and Claessens et al. (2012). While business cycles in the EU last between 2 and 8 years, EU financial cycles are shown to have an average length of between 10 and 20 years. Most studies find substantial heterogeneity across EU Member State financial cycles. This will be further illustrated in Section 5.4.

⁶² See Borio (2014).

⁶³ Dampening the cycle is the more challenging objective of macro-prudential. The other and more pragmatic objective is to enhance the resilience of the financial system to significant shocks that would cause disruptions to its functioning and have negative knock-on effects on the real economy. Jorda et al. (2017) find that higher capital ratios are unlikely to prevent (or even reduce the likelihood of) a financial crisis, but mainly help the speed of recovery from financial crisis recessions. They argue that the main role of higher capital ratios is in mitigating the social and economic costs, rather than in reducing the likelihood of financial crises.

house price cycles.⁶⁴ This explains why most of the literature finds that the key indicators of financial cycles are the evolution in credit volumes and house prices. Chart 5.1 presents three important feedback loops that help explain the strong role of residential real estate in contributing to financial cycles and systemic risk.

Chart 5.1: Feedback loops in house prices, credit and the real economy



Source: European Commission

Feedback loop A represents the possibility that rising house prices raise expectations about further price rises, increasing demand and driving prices up further. In a downturn, this process could go into reverse: a combination of pessimism and risk aversion can lead to price decreases through lower demand.

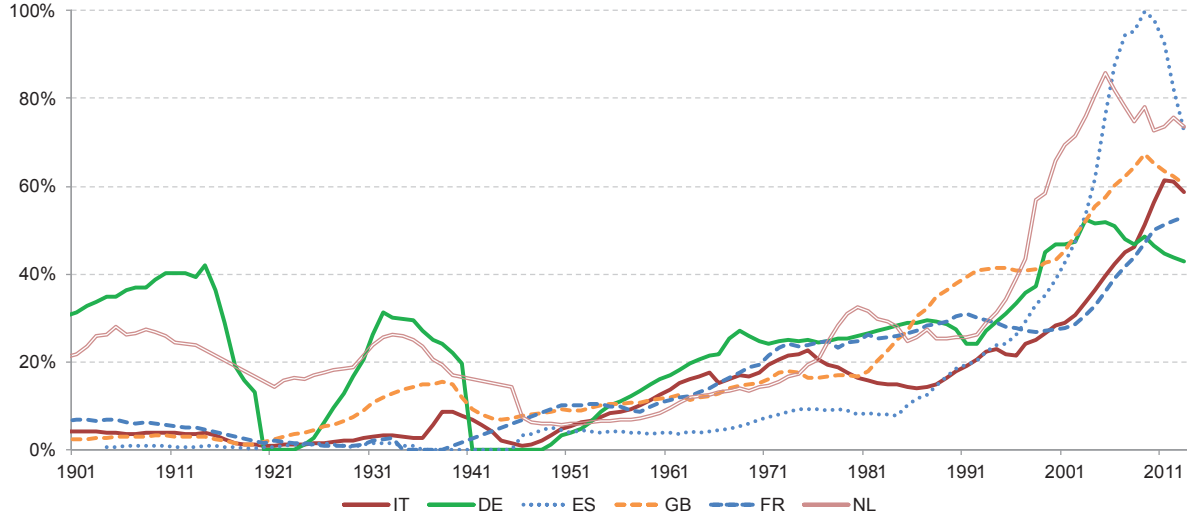
Feedback loop B represents the importance of mortgage credit. The past decades have seen a strong increase in reliance on mortgages for the financing of housing purchases. Chart 5.2 shows that mortgage lending has increased rapidly over the past decades across EU Member States. This has markedly strengthened the link between the financial sector and households. By increasing the immediate purchasing power of households, availability of mortgage credit may drive up house prices. At the same time, a subsequent sharp fall in house prices may expose banks to large losses which could destabilise the financial system and result in a contraction in the supply of mortgages.

Feedback loop C represents the link to the real economy via wealth effects. Real estate purchases by households have become very common in many European countries. Across the EU, 70% of households own rather than rent the property in which they live.⁶⁵ Accordingly, changes in house prices may influence the actual or perceived wealth held by a large share of the population. House price increases could encourage households to spend more and save less, whereas a fall in house price values would likely result in increased saving and weaker household expenditure. Mortgage lending also strengthens the link between households and the real economy, as high levels of indebtedness increase the impact of house prices falls on the wealth and spending capacity of households.

⁶⁴ See Schoenmaker (2016), Jorda et al. (2015), Reinhart et al. (2009) and Claessens et al. (2011).

⁶⁵ Source: Eurostat. There is substantial variation in home ownership across Member States. This is further described in Section 5.3.

Chart 5.2: Mortgage lending in % of GDP



Source: Jordà et al. (2017)

The finding that a credit-fuelled increase in house prices plays a key role in contributing to financial cycles suggests that it may be appropriate for macro-prudential policies to influence the availability or price of mortgage credit, and to do so in a counter-cyclical manner. At the same time, apart from mortgage credit, there are many structural characteristics of housing markets that can have profound implications for the length and amplitude of house price cycles. These include characteristics like home ownership rates, frequency of switching residence, mortgage reliance, loan-to-value ratios (LTVs) and other financial assets held by households. The theoretical channels through which housing market characteristics can impact the strength of financial cycles are explained using the various feedback loops described in Chart 5.1, which are summarised in Table 5.1 below. Many of these housing market characteristics are at the centre of social, fiscal and income policies in most countries. This underlines the importance of recognising that macro-prudential policy cannot be set in isolation and that the social, fiscal and economic impact should be assessed carefully.

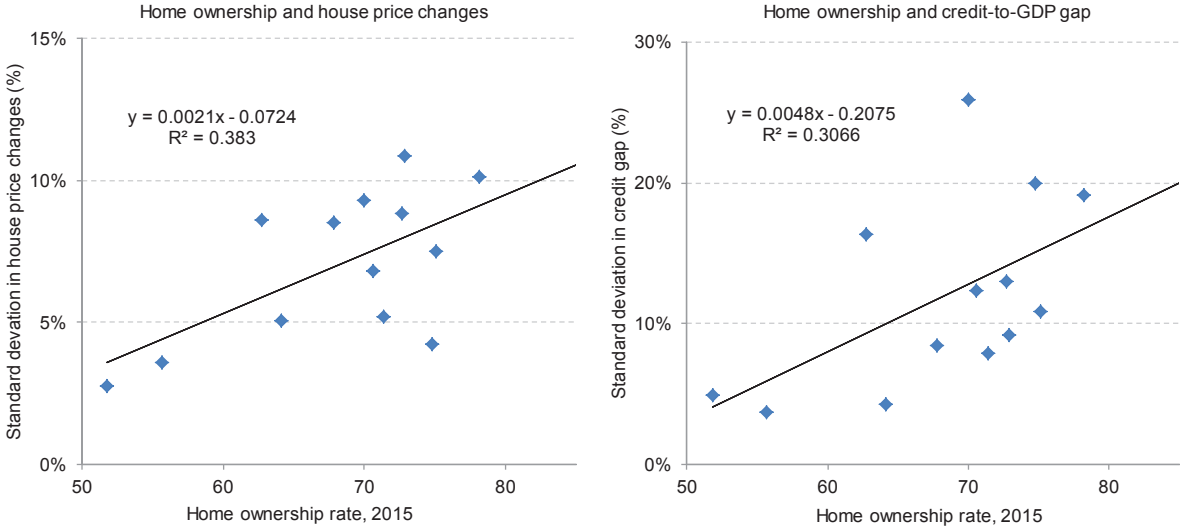
Table 5.1: Selected housing market characteristics and hypothesised impact on the financial cycle

Housing market characteristics	Hypothesised impact on financial cycles
Home ownership rate	Higher levels of home ownership could amplify financial cycles. Home ownership is likely to strengthen the relationship between house prices and the real economy (feedback loop C); home ownership can boost consumption via a positive wealth effect as house prices rise, but could have the reverse effect if prices fall.
Frequency of switching residence	Higher frequency of switching could amplify financial cycles. Many transactions on the housing market may accelerate the speed with which price adjustments take place. This could work through feedback loops A, B and C.
Mortgage reliance	Higher reliance on mortgages could amplify financial cycles. Mortgage reliance creates a direct link between the housing market and bank lending. House prices could rise quickly if credit is easily provided and dampened when it is not (through feedback loop B). In addition, higher reliance on mortgages also creates higher levels of household indebtedness and therefore more vulnerability to changes in house prices (e.g. by creating negative equity) or to economic shocks in general. It will thus make feedback loop C stronger.
LTV on new mortgages	Higher LTV ratios could amplify financial cycles. They reinforce feedback loop B by facilitating the supply of mortgages to a larger share of the population. In addition, they create higher levels of indebtedness and make households more vulnerable to shocks in house prices, through feedback loop C.

Source: European Commission

There is some empirical evidence suggesting that some of these housing market characteristics are correlated with the strength of financial cycles. Huber (2016) shows that the length and amplitude of the financial cycle, i.e. the ‘violence’ of housing booms and busts, is closely related to home ownership shares: the higher the share of home ownership, the longer and more amplified are the financial cycles. Runstler (2016) also finds that markets with higher home ownership rates experience more powerful financial cycles in house prices and credit volumes. This is confirmed by our own analysis: when plotting home ownership rates in various Member States against the standard deviation (as a proxy for the strength of the financial cycle) of both house prices and the credit-to-GDP gap, we find a positive correlation, as shown in Chart 5.3.⁶⁶ This provides an indication that structural characteristics of housing markets and the underlying policy choices that drive them (e.g. taxes and transaction costs) play an important role in financial cycles.

Chart 5.3: Home ownership rates versus volatility of house prices and credit-to-GDP gap



Source: Eurostat and OECD data. Own analysis
 Note: For house prices, the countries included are AT, BE, DE, DK, ES, FI, FR, EL, IE, IT, NL, PT and SE. The standard deviation (STDEV) of house price growth rate is calculated for the period from 1971 to Q3-2016, with the exception of ES (start in 1972), PT (start in 1989), EL (start in 1989), and AT (start in 2001). For credit-to-GDP gap, the countries included are AT, BE, DE, DK, ES, FI, FR, EL, IE, IT, NL, PT and SE. The standard deviation of the credit-to-GDP gap is calculated for the period from 1971 to Q3-2016, with the exception of DK (start in 1976), FR (start in 1979), BE, FI, EL, ES (start in 1980) and IE (start in 1981).

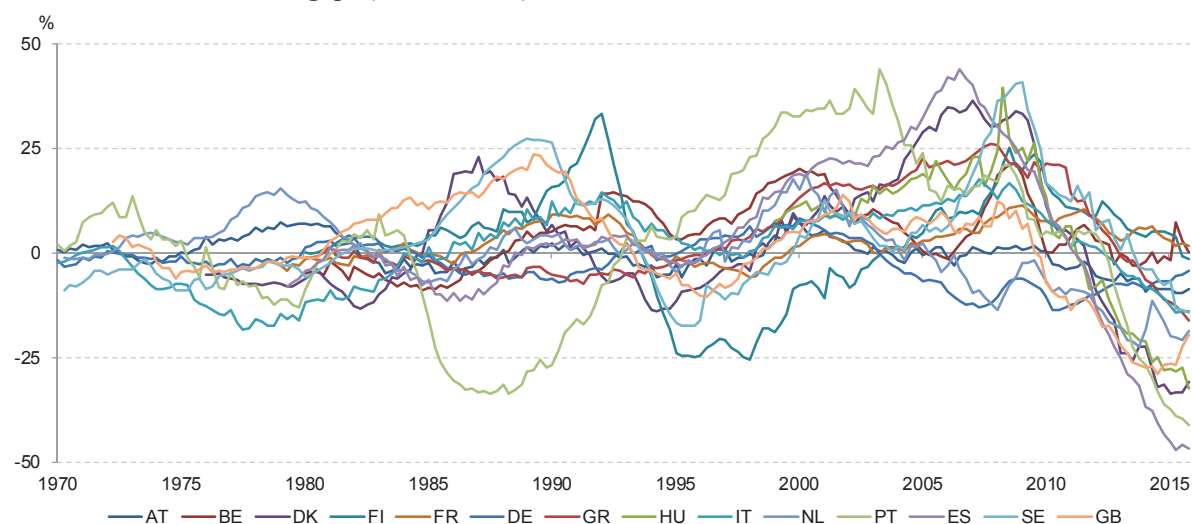
The next section points out that these underlying factors differ across Member States. This is because they are influenced by national characteristics including policies (e.g. property taxation system, mortgage tax relief, transaction taxes), banking systems (e.g. market concentration, importance of non-banks in credit provision), market characteristics (e.g. home ownership, typical mortgage maturities, prevailing type of interest rates), preferences, and other demand and supply features. Institutional features and structural elements can therefore play a key role in accentuating or mitigating developments in the real estate sector and the related vulnerabilities.

⁶⁶ The ‘credit-to-GDP gap’ is the estimated deviation of credit-to-GDP from its long-term trend.

5.3 National developments and macro-prudential policies in the real estate sector

Many recent studies, using a range of empirical approaches, show that movements in credit and house prices have common trends but are not fully synchronised across EU Member

Chart 5.4: Credit-to-GDP gaps (in % of GDP)



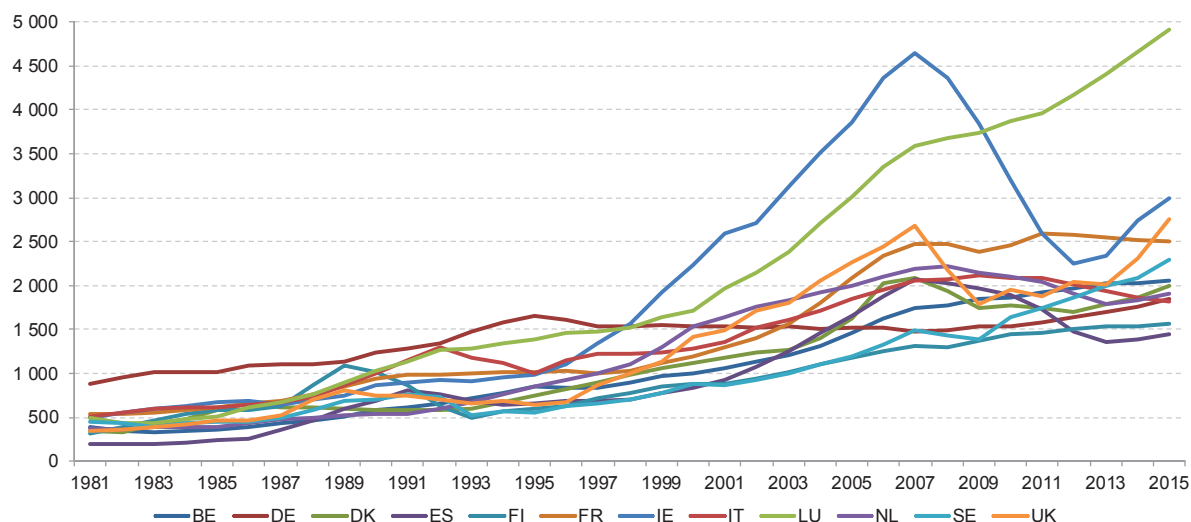
Source: BIS

Note: The 'credit-to-GDP gap' is defined as the difference between the credit-to-GDP ratio and its long-term trend. The credit series used is for total credit to the private non-financial sector, capturing total borrowing from all domestic and foreign sources. The ratio of nominal broad credit to nominal GDP is calculated for each quarter, where GDP is annualised by taking the sum of the four most recent quarterly observations. The long-term trend is calculated with a one-sided (or recursive) Hodrick-Prescott filter, where the smoothing parameter λ is set at 400 000. The credit-to-GDP gap is the difference between the credit-to-GDP ratio and its long-term trend, resulting in a gap in percentage points (pp).

States.⁶⁷ The existence of heterogeneity can be illustrated by Chart 5.4, which shows substantial variation across the EU in the development of private credit-to-GDP, one of the key indicators of financial cycles. Real house prices (Chart 5.5) have increased during the past few decades in all Member States, but the pace of growth and the adjustments following the financial crisis vary substantially from country to country.

⁶⁷ See Schuler et al. (2016), Galati et al. (2016) and Runstler et al. (2016).

Chart 5.5: Real house prices, EUR per m²



Source: Bricongne et al. (forthcoming) and European Commission, Box I.4: Assessment of the housing markets outlook: new insights from house prices in levels

Note: Here, prices in euro/m² are in real (CPI-deflated) terms.

A recent study by Runstler et al. (2016) also shows a large degree of heterogeneity in financial cycles for some EU Member States, both in the length and amplitude of the financial cycle. Table 5.2 summarises their main findings. Germany stands out with very short and small cyclical components, whereas Spain and UK have particularly long and strong cycles. France and Italy fall in the middle. These findings also illustrate the pronounced differences between financial cycles and business cycles mentioned in Section 5.1.

Table 5.2: Length and size of financial cycles, selected EU Member States

	House price cycle		Credit cycle		Business cycle	
	Length	Amplitude	Length	Amplitude	Length	Amplitude
Germany	7.1	2.7	6.2	1.4	6.4	2.1
France	15.3	10.5	15.1	5.1	12.6	2.7
Italy	13.5	12.4	13.6	6.2	9.2	2.9
Spain	17.1	21.2	18.7	14.0	17.6	4.1
UK	16.5	18.6	15.8	7.7	13.5	4.1

Source: Runstler et al. (2016)

Note: The length of the cycles is measured in years. The amplitude of the cycle is proxied by the standard deviation of the time series.

The common trends in financial cycles across the EU can in part be explained by the strong financial and economic linkages between European economies, as capital tends to be mobile and liquidity conditions are generally correlated across markets. Nevertheless, there are a range of other factors at play that could help explain heterogeneity in financial cycles. Some of them are related to differences in demand for housing and credit. Specifically, country-specific economic policies including taxation and fiscal policies, as well as differences in labour markets, industries and productivity levels, result in large variation across EU Member States in key macro-economic outputs such as employment and economic growth. Some of the key variables affecting housing markets are also specific to Member States. For instance, the supply of housing and tax systems for housing markets are often determined locally. In addition, many structural housing market characteristics, including rates of home ownership, accessibility of mortgages and the frequency of going to the (real estate) market either as a

buyer or seller remain differentiated across Member States, as is shown Table 5.3 and in more detail in the Annex.

Table 5.3: Heterogeneity in housing market characteristics, EU Member States

	Min	1 st quartile	Median	3 rd quartile	Max
Home ownership rate in % (i)	51.8	70.2	75.0	82.1	96.5
Frequency of switching residence in % (ii)	3.1	13.6	22.6	31.1	44.3
Mortgage reliance in % (iii)	0.9	13.3	26.4	55.2	89.8
Loan-to-value ratio on new mortgages in %	50.5	62.4	70.4	75.4	96.0
Share of floating rate mortgages in % (iv)	2.2	19.7	61.4	91.2	99.9
Maturity at issuance in years	15.0	20.2	22.7	28.4	41.2

Sources: Eurostat, ECB Expert Group, Hypostat

Note: 2015 data for home ownership and mortgage reliance, 2016 data for floating-rate mortgages and, 2013 data for maturity and LTV. (i) share of all households that own a home, (ii) share of all owners that switched in period 2007-2012, (iii) share of all owners with a mortgage, and (iv) share of new housing loans with floating rate of fixation period of up to one year.

Given the importance of the real estate market in affecting financial cycles, macro-prudential authorities are particularly vigilant in this area. In November 2016, for the first time in its history, the European Systemic Risk Board (ESRB) issued public ‘warnings’ to eight Member States about significant medium-term vulnerabilities relating to their residential real estate sectors.⁶⁸ The ESRB initiative was part of a forward-looking EU-wide assessment using indicators related to price levels and dynamics in residential real estate markets, the implications of household borrowers’ debt for their consumption and behaviour, and the potential impact on lenders of developments in residential real estate. The ESRB stressed that the nature of the vulnerabilities in the various Member States differed, but all were the result of a combination of household indebtedness (more specifically households’ leverage and capacity to repay debt) and price dynamics in the real estate market. In parallel, the ESRB also adopted a recommendation on closing real estate data gaps, encouraging national macro-prudential authorities to implement frameworks for monitoring financial stability developments in the real estate sector, based on recommended indicators and definitions.⁶⁹

To address risks stemming from imbalances, macro-prudential authorities have a variety of tools at hand, ranging from capital-based measures (which can help increase the resilience of the banking sector against potential shocks) to measures to reduce credit flows and lower household indebtedness. The analysis of vulnerabilities and use of macro-prudential instruments in the real estate sector can be grouped conveniently in ‘borrower-stretch’ (or ‘income-stretch’), ‘collateral-stretch’, and ‘lender-stretch’ categories:

- **Borrower-stretch instruments** cover instruments that target the repayment capacity of the borrower, such as loan-to-income (LTI), debt-to-income (DTI), and debt-service-to-income (DSTI) limits. These are used in 14 Member States.⁷⁰

⁶⁸ The eight countries identified were Austria, Belgium, Denmark, Finland, Luxembourg, the Netherlands, Sweden and the United Kingdom. In Member States that did not receive a warning, vulnerabilities in residential real estate could not be identified or the policy stance in place to address vulnerabilities was deemed appropriate and sufficient to address them. Direct near-term risks in residential real estate have not been identified, partially thanks to the resilience of the banking sector. For the complete set of documentation, see ESRB (2016).

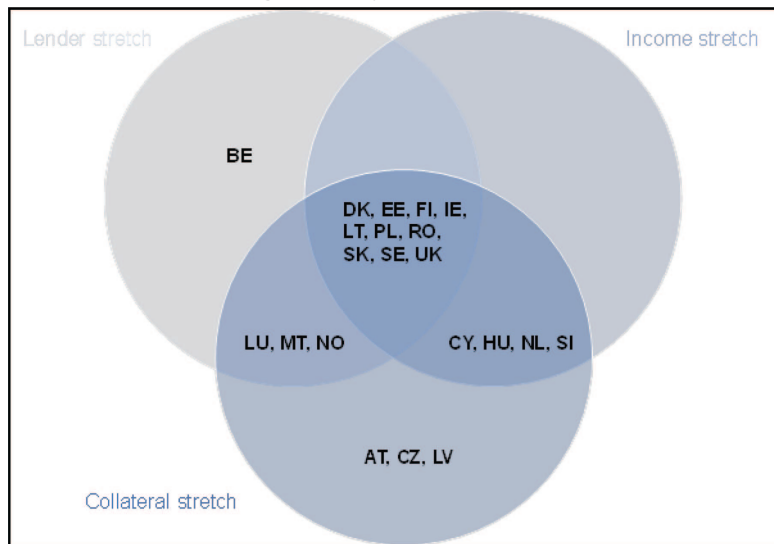
⁶⁹ ESRB Recommendation ESRB/2016/14.

⁷⁰ Finland, Austria and Sweden are examples of Member States that are still working on ensuring a legal basis or clear mandate for the use of borrower-based measures.

- **Collateral-stretch instruments** refer to instruments that focus on the collateral of loans, such as loan-to-value (LTV) limits. These are used in 20 Member States.
- **Lender-stretch instruments** are instruments that directly increase the resilience of the lender, such as risk weights or sectoral capital buffers. These are used in 14 Member States.

Most Member States employ a combination of instruments, as illustrated in Chart 5.6. This variation in the tools used by national authorities reflects the fact that macro-prudential policies have to be tailored to the national specificities of housing markets and cycles documented in this chapter. EU oversight and coordination of macro-prudential measures is necessary, to permit the deployment of the national policies without hampering the single market (see also Section 5.4).

Chart 5.6: Use of macro-prudential instruments in the real estate sector, by Member States and categorised by ‘stretches’



Source: ESRB (2017)

Note: Instruments active in 2016, but possibly activated in earlier years. Some instruments have a hybrid nature. Amortisation requirements affect both the repayment burden and bring down the LTV ratio over time. Therefore they have been included under both the borrower/income stretch and collateral stretch.

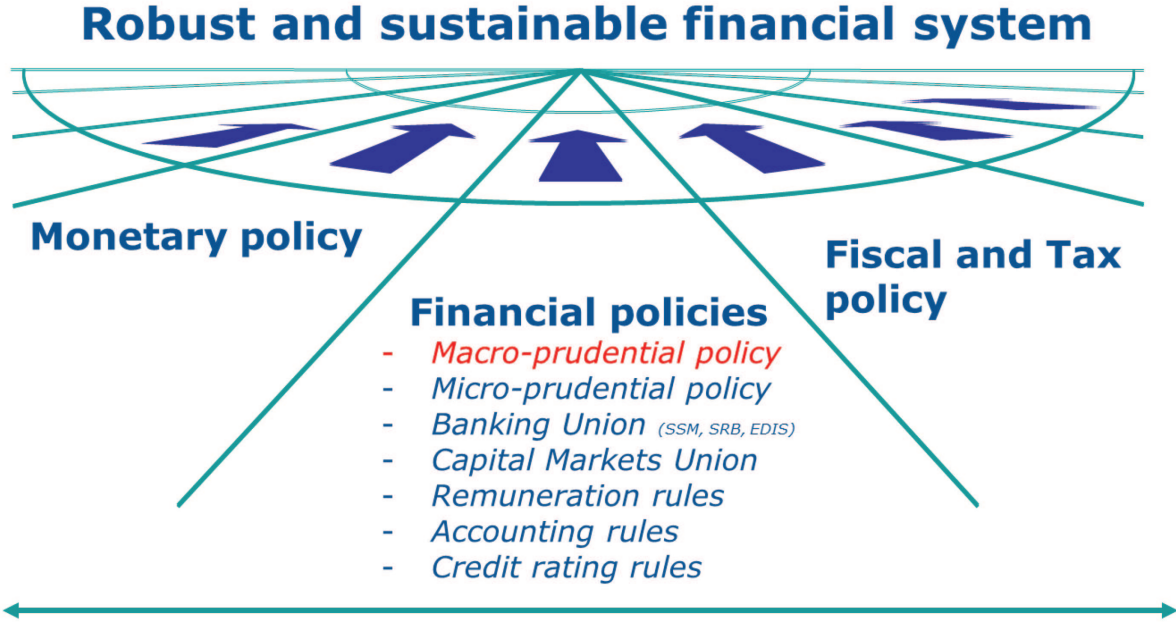
The ESRB considers measures as ‘appropriate’ when they are conceptually suitable given the nature and timing of risks. The ESRB considers measures as ‘sufficient’ when they are expected to or can be shown to significantly mitigate or reduce the build-up of risks over an appropriate time period with limited unintended impact on the general economy. However, for a number of reasons, assessing the appropriateness and sufficiency of macro-prudential measures to address systemic risks in the real estate sector or elsewhere is not straightforward.⁷¹

⁷¹ When assessing macro-prudential measures, several complexities need to be dealt with. First, reliably and accurately measuring systemic risk is difficult. Second, reliably assessing the causal impact of any policy measure on systemic risk is difficult, given the lack of a counterfactual scenario where no measure has been taken. Third, many of the evaluated macro-prudential regulations became applicable only quite recently, meaning that the implementation period is very short. Fourth, the introduction of macro-prudential measures may have been well anticipated, with the result that adjustments of economic agents may have already taken place prior to implementation. Fifth, cost-benefit analyses in financial regulation are inherently difficult to perform, as costs often materialise in the short term and often affect

5.4 Putting EU macro-prudential policy in a broader perspective

This section enlarges the perspective around EU macro-prudential policy-making beyond its role in preventing imbalances in the real estate sector. First and foremost, macro-prudential policy is just one of the numerous interacting policies contributing to a more robust and sustainable financial system, that in turn ensures the provision of vital services to the real economy. Second, national flexibility in macro-prudential policy implementation triggers a need for a strong framework of EU oversight and coordination to ensure the proper functioning of the single market. Third, the existing macro-prudential policy framework is relatively bank-centric and the fact that some risks, currently more prevalent in banking, may migrate to the non-bank sector, suggests that careful consideration is needed whether and when the existing macro-prudential framework needs to be expanded into the non-bank sector. Fourth, macro-prudential policy is just part of an ambitious and comprehensive reform agenda that put in place following the 2008 financial crisis to ensure that financial integration gives rise to improved risk sharing, efficient capital allocation and sustainable economic growth.

Chart 5.7: Interaction of policies that aim to contribute to a more robust and sustainable financial system, that in turn ensures vital services to the real economy



Source: European Commission

Numerous policies in addition to macro-prudential policy aim to contribute to a more robust and sustainable financial system, that in turn ensures vital services to the real economy. As Chart 5.7 illustrates, and as partially reflected in this section, tax policy, fiscal policy, monetary policy, competition policy, financial regulatory policies and crisis management policies all interact with each other. The interaction between these policies needs to be analysed and assessed as all of them may reduce or increase systemic risk, directly or

primarily a few vocal financial institutions, whereas expected benefits only materialise over the medium or long run, and are spread out over numerous smaller stakeholders (depositors, taxpayers, etc.). Also, private costs and social costs may differ, with the same holding for the benefits. Finally, the protracted period of low growth since the onset of the crisis and the introduction of the new macro-prudential tools has not resulted to date in the common use of cyclical macro-prudential measures, such as the countercyclical capital buffer.

indirectly, or intentionally or unintentionally.⁷² For example, tax policies may often focus on specific political objectives and may thereby unintentionally and indirectly distort asset prices and contribute to excessive leverage and systemic risk. In turn, excessive leverage and debt overhang can give rise to artificially weak investment and economic growth. In such context, one challenge when implementing macro-prudential policy can be that addressing imbalances in property prices and rising credit may go against other social and tax policies aimed at fostering credit availability and home ownership. Taking a broad policy perspective to address systemic risk is aligned with the key objectives of President Juncker's political agenda and would improve the coherence of policy-making.

Second, there are a number of reasons that support national flexibility or discretion in activating and implementing macro-prudential policy. First, as documented in the previous sections, systemic risks and financial cycles vary across Member States as a result of national policies and differences in economic and financial structures.⁷³ Therefore, macro-prudential policies need to be sufficiently focused on detail to deal with the more local features of property credit cycles. National authorities have in-depth knowledge about the functioning of their economy and financial system; this suggests that national macro-prudential authorities should play an important role in identifying and designing measures. Some of the macro-prudential measures taken, such as caps on loan-to-value or debt-service-to-income ratios, may also have significant social, distributional and hence political impacts. Furthermore, despite significant progress in Banking Union to date, the consequences of financial system crises will still to a certain extent be borne at the national level. The above arguments jointly suggest that macro-prudential policy calibration has an important national dimension.

Given the national dimension of macro-prudential policy-making⁷⁴, EU coordination and oversight becomes all the more important to ensure proper functioning of the single market. Set out below are some of the features that would be needed for a successful macro-prudential framework:

- Positive cross-border spill-overs need to be generated and negative ones need to be avoided.
- Transparency, cross-border consistency and a level playing field need to be promoted.

⁷² Rajan (2010) argues that rising inequality in the past three decades led to political pressure for redistribution that eventually came in the form of subsidised housing finance ('let them eat credit'). A lending boom resulted, with the massive rise in housing prices enabling consumption to stay above stagnating incomes. When the boom reversed in 2007, it led to the 2008 banking crisis. Interestingly, increasing inequality also preceded the financial crash of 1929 and the resulting great depression.

⁷³ Also, while the Single Rulebook has harmonised the key elements of financial legislation, some elements are still specific to Member States due to the transposition of Directives into national law or the fact that insolvency law and taxation — which are key for the functioning of financial markets — are not harmonised at EU level.

⁷⁴ To avoid inaction bias at the national level, the ECB and the Commission have also been granted certain macro-prudential powers and instruments. Under Article 5 of the SSM Regulation, the ECB/SSM is entrusted with certain macro-prudential powers within the Banking union and may object to or strengthen certain macro-prudential measures proposed by national competent or designated authorities within the Banking union, under certain conditions. Under Article 459 of the Capital Requirements Regulation, the Commission may impose, for a period of one year, stricter requirements for the level of banks' own funds, large exposures, or public disclosure, under specific conditions, in particular upon the recommendation or the opinion of the ESRB or EBA. The required conditions are that these measures are necessary to address changes in the intensity of micro-prudential and macro-prudential risks which arise from market developments in the Union or outside the Union affecting all Member States, and that the instruments of the CRR/CRDIV are not sufficient to address these risks.

- Unintended effects and misuse of macro-prudential measures (inappropriate/disproportionate action) need to be avoided.
- Host authorities should not unduly ring-fence capital and liquidity within national boundaries.
- Cross-border foreign banks not subject to macro-prudential regulation should not undo the intended domestic effect.
- Political economy and short-term considerations should not give rise to inaction bias on behalf of national authorities, to the detriment of other Member States, the Banking Union or the single market.
- Risks should be built down and not just shifted to other sectors.
- Finally, too loose credit conditions in good economic times should be avoided, as they could lead to the build-up of non-performing loans (NPLs) when the economic situation worsens. The build-up of NPLs on banks' balance sheet in turn affects banks' capacity to lend and deepens or prolongs the period of protracted growth (one of the key feedback loops described in Section 5.2).
- Excessive fragmentation and undue complexity should be avoided for cross-border banks. As the Banking Union develops, it should lead to the possible emergence of pan-European banks, which should foster an increase in cross-border mortgages and cross-border ownership of assets within a soundly regulated and supervised single market.

In sum, the EU macro-prudential policy framework rightly reflects a careful balance between national flexibility in macro-prudential policy implementation and EU oversight and coordination to achieve these objectives.

Third, the importance of the banking sector in Europe and the role it played in the recent financial crisis naturally led to a focus of the regulatory and supervisory framework on addressing risks coming from this sector. The creation of the Banking Union and the macro-prudential policy and regulatory frameworks have gone a long way in providing authorities the necessary tools to do so. However, activities which have been traditionally the sole remit of banks, such as intermediation and credit provision to the economy, are increasingly being undertaken by financial institutions which are outside of the banking system, and hence outside of their specific regulatory and supervisory perimeter.⁷⁵ Therefore, as macro-prudential measures are targeted at the banking sector, there may be a risk that 'shadow banks' take an increasing share of the mortgage provision and potentially fuel imbalances in house prices.

⁷⁵ The 2015 ECB Financial Stability Review (FSR) points to the growth of assets of non-bank financial entities in the euro area and to the increasing role of non-banks in credit intermediation. From 2009 to 2014, shadow banking entities increased their share in the total assets of the financial sector from 33% to 37%, while — in parallel — credit institutions saw their share in intermediation shrink from 55% to 49%. The ECB 2016 FSR also stresses the possibility of spill-overs between banks, shadow banks and insurance companies in Europe.

As the Capital Markets Union (CMU) initiative seeks to develop and integrate capital markets across Europe, careful reflection is needed as to how to appropriately reflect developments in capital markets in the existing macro-prudential toolkit and monitoring framework to ensure that newly emerging risks are monitored and addressed. For example, one of the CMU initiatives is to revitalise the securitisation market by providing a framework for the development of simple standardised and transparent (STS) securitisations, allowing banks to use this tool in a transparent way, while freeing up space on their balance sheet to contribute to the financing of the real economy and mortgage credit intermediation. Financial market integration has not always been resilient in the past, as illustrated by the developments in short-term wholesale funding market segments, which proved to be prone to sudden reversals in the face of shocks. Therefore, from a macro-prudential perspective, CMU should seek to foster further integration in those market segments which are more resilient and more conducive to cross-border absorption of shocks (risk sharing), such as equity markets. Further private risk sharing through capital markets and an efficient allocation of capital is of key relevance as financial cycles are not fully aligned across countries, and idiosyncratic shocks need to be compensated through market or fiscal mechanisms, which allow smoothing consumption in times of crisis. The upcoming Commission's mid-term review on the CMU is looking at these issues and seeking to dismantle the barriers to the good functioning of capital markets.

Fourth, the macro-prudential policy framework is only one piece of the puzzle when it comes to ensuring that the financial system can effectively play its role in ensuring that financial integration gives rise to improved risk sharing, efficient capital allocation and, sustainable economic growth. An ambitious and comprehensive reform agenda has been put in place following the 2008 financial crisis, including a complete revision of the supervisory and regulatory frameworks with the creation of the European System of Financial Supervision and the Banking Union. The Five Presidents' Report took this approach a step further by providing a long-term vision for the strengthening of the Economic and Monetary Union. This long term vision will be further specified in the upcoming Commission reflection paper on EMU deepening.

5.5 Concluding remarks

Macro-prudential policy is a challenging policy area which is still relatively young and under development. Macro-prudential policy cannot be looked at in isolation, as a broad policy stance is needed to effectively address the root causes of vulnerabilities and imbalances in the financial system. The interaction between policies needs to be assessed to ensure that they collectively generate a robust and sustainable financial system providing vital services to the real economy. The macro-prudential framework is just one of the elements to ensure that the financial system can effectively play its role in ensuring that financial integration gives rise to improved risk sharing, efficient capital allocation and sustainable economic growth.

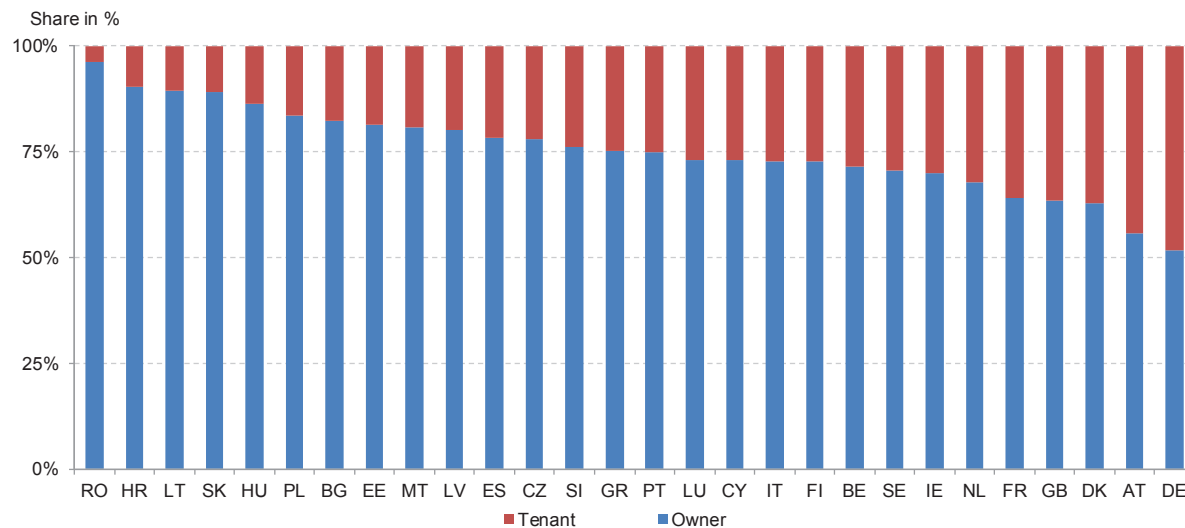
This chapter highlights that real estate developments play a key role in financial cycles and are therefore a central concern of macro-prudential policymakers. Continuous vigilance and further analytical work will be required following the November 2016 ESRB warnings on significant medium-term vulnerabilities relating to the residential real estate sectors of selected Member States. Understanding the underlying drivers of vulnerabilities and

imbalances in the real estate sector will be crucial for the design of the appropriate measures and to better anticipate the impact of these measures on the behaviour of market participants.

Developments in the real estate market are driven by macro-economic factors such as interest rates and economic growth, as well as by national structural features such as market characteristics, taxes, and supply and demand features. In this context, macro-prudential policy needs to integrate a cross-border focus with a deep understanding of national developments. The current EU framework for macro-prudential policy allows for flexibility at the national level to take into account national specificities including differences in households' home ownership and related factors. It will be important for the proper functioning of the single market that the governance of the European coordination and oversight framework remains efficient, effective and coherent. Consideration and analysis is also needed to determine the macro-prudential policy framework needs to continue to be developed, particularly as the financial structure evolves towards a more active role for the non-banking sector in delivering key economic activities such as intermediation and credit provision to the economy.

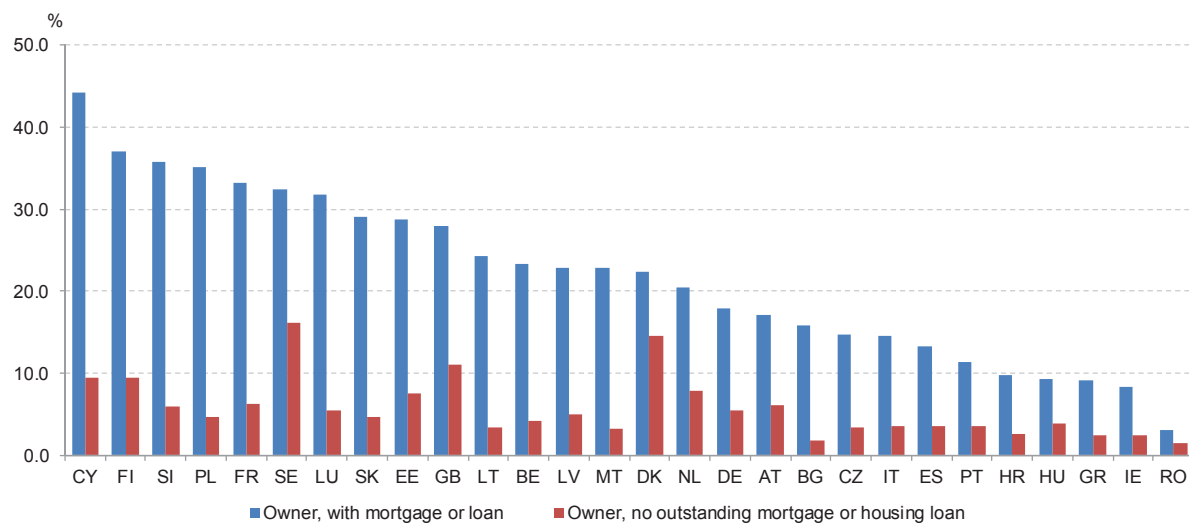
5.6 Annex — Housing market characteristics across Member States

Chart A5.1 Home ownership rates of European households



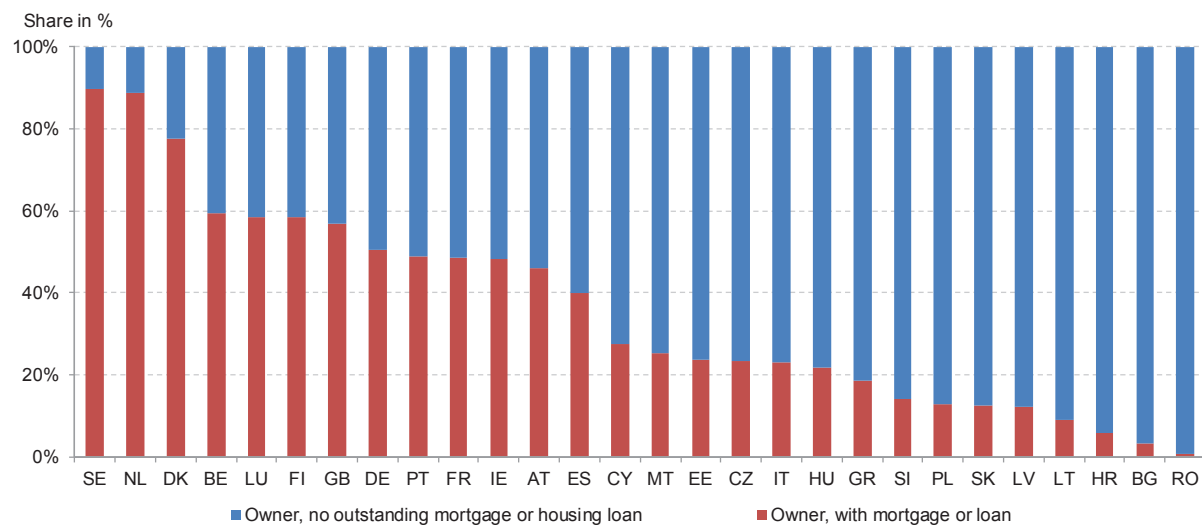
Source: Eurostat

Chart A5.2 Share of owners having switched residence between 2007 and 2012



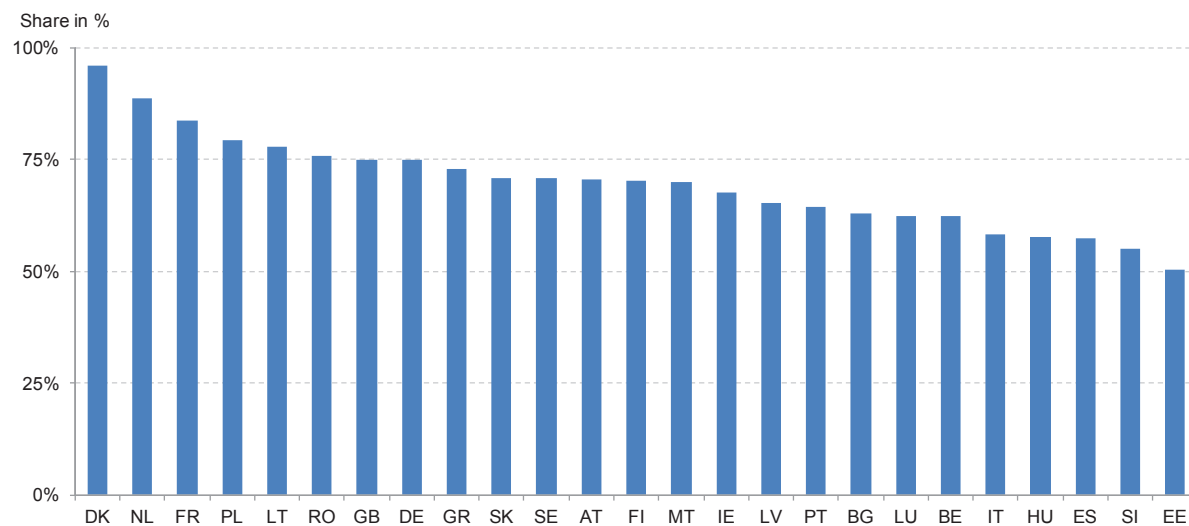
Source: Eurostat

Chart A5.3 Owners with mortgage as a share of all dwelling owners



Source: Eurostat, EC analysis

Chart A5.4 Typical mortgage LTV at issuance



Source: ECB expert group on real estate

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