EUROPEAN CENTRAL BANK
EUROSYSTEM

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based on joint work with
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Financial Integration, Capital Market Development and Risk Sharing in the Euro Area

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Disclaimer: Any views expressed are only the speaker’s own and should not be regarded as views of the ECB or the Eurosystem

Introduction 1

- Macroeconomic stabilisation of economies benefits from risk sharing
  - Cross-sectional: regions in an economic downturn receive income streams from regions in an upturn
  - Inter-temporal: saving in an upturn and dis-saving in a downturn
  - Complementarity: not optimal that each region saves and dis-saves on its own
- Both variants contribute to the smoothing of aggregate consumption
- Both the public and the private sector can be involved
  - Public: cross-regional transfers ("Länderfinanzausgleich"); unemployment insurance; counter-cyclical fiscal policy etc.
  - Private: cross-regional asset holdings; household and firm saving and dis-saving etc.
- Literature on large federal states (US, Germany) suggests that private financial risk sharing tends to go a long way in smoothing consumption
- Example: cross-regional equity holdings (particularly effective!)
- Requires financial integration and development
- <u>Today's talk</u>: does the euro area benefit from cross-country risk sharing and how can it be improved?

Introduction 2

- European Economic and Monetary Union is characterised by (design) constraints on some important macroeconomic adjustment mechanisms
  - ECB monetary policy is area-wide and the nominal exchange rate fixed
  - Fiscal policy is primarily national with very limited cross-country transfers
  - Labour is relatively immobile and there is no area-wide unemployment insurance
- Macroeconomic stabilisation in EMU would benefit significantly from well-functioning risk sharing (e.g. Five Presidents Report 2015)
- Discussion on the completion of EMU
  - Central fiscal capacity
  - Completion of the Banking Union
  - Capital Markets Union
- European Councils on 28-29 June and 17-18 October
- To be seen how much progress will be made, in particular on the public side
- <u>Today's focus</u>: private financial risk sharing
- Caveat: one relevant aspect of improving EMU covered and many others not!

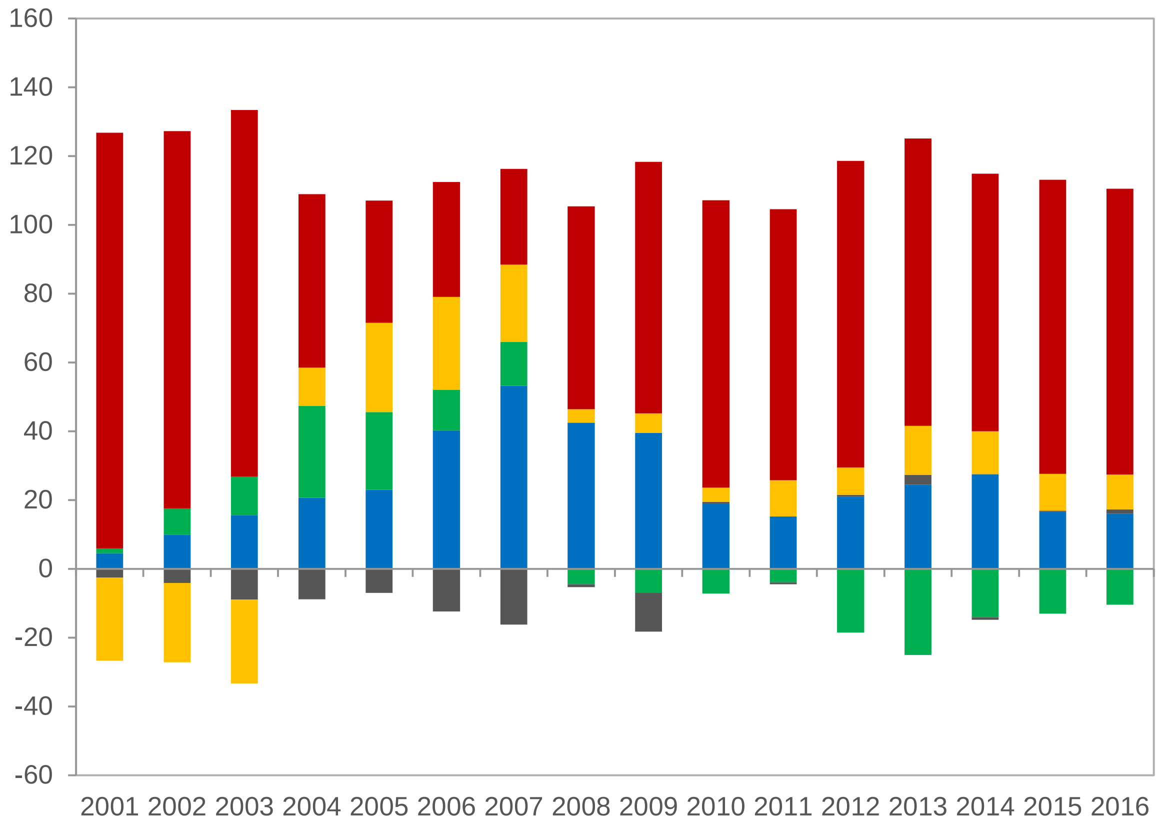
Outline

- Introduction and outline
- Levels and channels of risk sharing in the euro area
- Factors promoting private financial risk sharing in the euro area
  - via the capital channel
  - via the credit channel
- How to improve private financial risk sharing in the euro area
  - Pension investments
  - Financial literacy
  - Insolvency frameworks
  - Cross-border bank consolidation
- Concluding remarks

Risk sharing can be assessed through consumption smoothing via various channels

- A widely used literature measures risk sharing with the degree to which aggregate regional or national consumption is insulated from fluctuations in regional or national income (e.g. Lewis 1996 or Asdrubali et al. 1996)
- Four risk sharing channels limit the transmission of domestic GDP shocks to domestic consumption growth ("consumption smoothing")
  - Capital channel: net factor income payments from abroad (interest, dividends, profits, wages)
  - Credit channel: net borrowing from abroad (private and public)
  - Price channel: net valuation effects of domestic relative to foreign produced goods on consumption
  - Fiscal channel: net transfers from abroad (fiscal transfers, remittances)
- We estimate the contribution of each channel to overall consumption smoothing building on the approaches of Asdrubali and Kim (2004) and Corsetti et al. (2011)
- Residuals of the estimation reflect the parts of GDP shocks that continue to be transmitted to consumption (indicator of lack of risk sharing)

Cross-country risk sharing in euro area is limited, including via (private) capital and credit markets



	US 1963-1990	DE 1995-2006
Capital	**39%**	**51%**
Credit	**23%**	**18%**
Fiscal	**13%**	**10%**
Price		
Unsmoothed	**25%**	**21%**

Notes: ECB staff calculations applying the Asdrubali and Kim (2004) approach enhanced for relative price adjustments. 10-year rolling estimations up to the year indicated. Bars add to 100%. Memorandum item on the US from Asdrubali et al. (1996), on Germany from Hepp and von Hagen (2013).

- Note that not well-functioning risk sharing can also make some channels amplify consumption fluctuations

We estimate which factors foster risk sharing and assess which could be improved in the euro area

- Banking Union and Capital Markets Union are important policy programs
- Have also the potential to improve private financial and public risk sharing
- We do not start from their agreed or proposed measures, but from factors and variables that emerge from the extant literature
- We derive our policy proposals on how risk sharing can be improved from two main criteria
  - Euro area econometric evidence that a chosen factor leads to economically and statistically significant enhancements in the capital or credit channel of risk sharing
  - Indicators of factor levels suggesting that there is room for improvement in the euro area or its member countries
- This leads to ideas that go beyond the present Banking and Capital Markets Union policy programs
- Intention is to help making the Banking and Capital Markets Union programs more powerful over time
  - Encouraging a sustained effort in integrating and developing credit and capital markets
  - Contributing to a long-term vision for the single market for financial services

Capital channel is boosted by asset ownership, financial literacy and insolvency frameworks

		Mutual funds	Pensions and life insurance	Resolving insolvency	Financial literacy	General trust
EA-12	**1996—2015**	0.008	0.006	**0.009***	0.669	-0.215
	1996—2007	**0.051***	**0.014***	---	**3.380*****	**-1.625****
	2008—2015	-0.018	-0.005	**0.016****	-0.874	**0.701****
EA-19	**1996—2015**	-0.006	0.001	-0.003	0.129	-0.167
	1996—2007	0.001	**0.013***	---	0.265	0.059
	2008—2015	**0.024***	-0.010	-0.001	1.306	-0.228

Notes: Estimations by Giovannini, Hartmann, Imbs and Popov (in progress). The results in the first two columns are derived from different estimations than the results in the last three columns.

- Focus in what follows on pension reforms, financial literacy and insolvency frameworks
- But note also the relevance of the asset management industry

Credit channel is boosted by financial literacy, insolvency frameworks, foreign bank penetration, trust

		Mutual funds	Pensions and life insurance	Foreign bank share	Financial literacy	General trust
EA-12	1996—2015	**0.028*** **	0.002	**0.483*** **	**1.162*** **	0.146
	1996—2007	0.016	-0.005	**0.387*** **	0.683	0.415
	2008—2015	-0.018	-0.005	**0.571*** **	**1.371** **	-0.179
EA-19	1996—2015	**0.031*** **	0.003	**0.066* **	0.407	**0.562*** **
	1996—2007	**0.048** **	-0.010	**0.178*** **	0.331	**0.652** **
	2008—2015	-0.009	0.010	-0.033	-1.130	**0.676* **

Notes: Estimations by Giovannini, Hartmann, Imbs and Popov (in progress). The results in the first two columns are derived from different estimations than the results in the last three columns.

- Focus in what follows on financial literacy, insolvency frameworks and cross-border bank consolidation

Retirement savings in pension funds with adequate equity components can be increased significantly

- Low private savings for retirement in important euro area countries
- Low equity shares as well
- Already demographics require that citizens save more
- Pension reforms would make a big difference (compl. to CMU PEPP)

Private pension investments (all pillars)

Country	Total (% of GDP)	Equity Share (%)
Australia	122	51
Japan	32	11
Switzerland	123	30
United Kingdom	97	20
United States	133	44
Finland	58	39
Ireland	56	N/A
Netherlands	178	38
France	9	N/A
Germany	6	5
Italy	9	20
Spain	14	11

Notes: End-2015 data from OECD (2016) and World Bank. France end-2014. Equity share available only for pension funds.

Simulation of additional EA equity investments (in % of current equity market capitalisation)

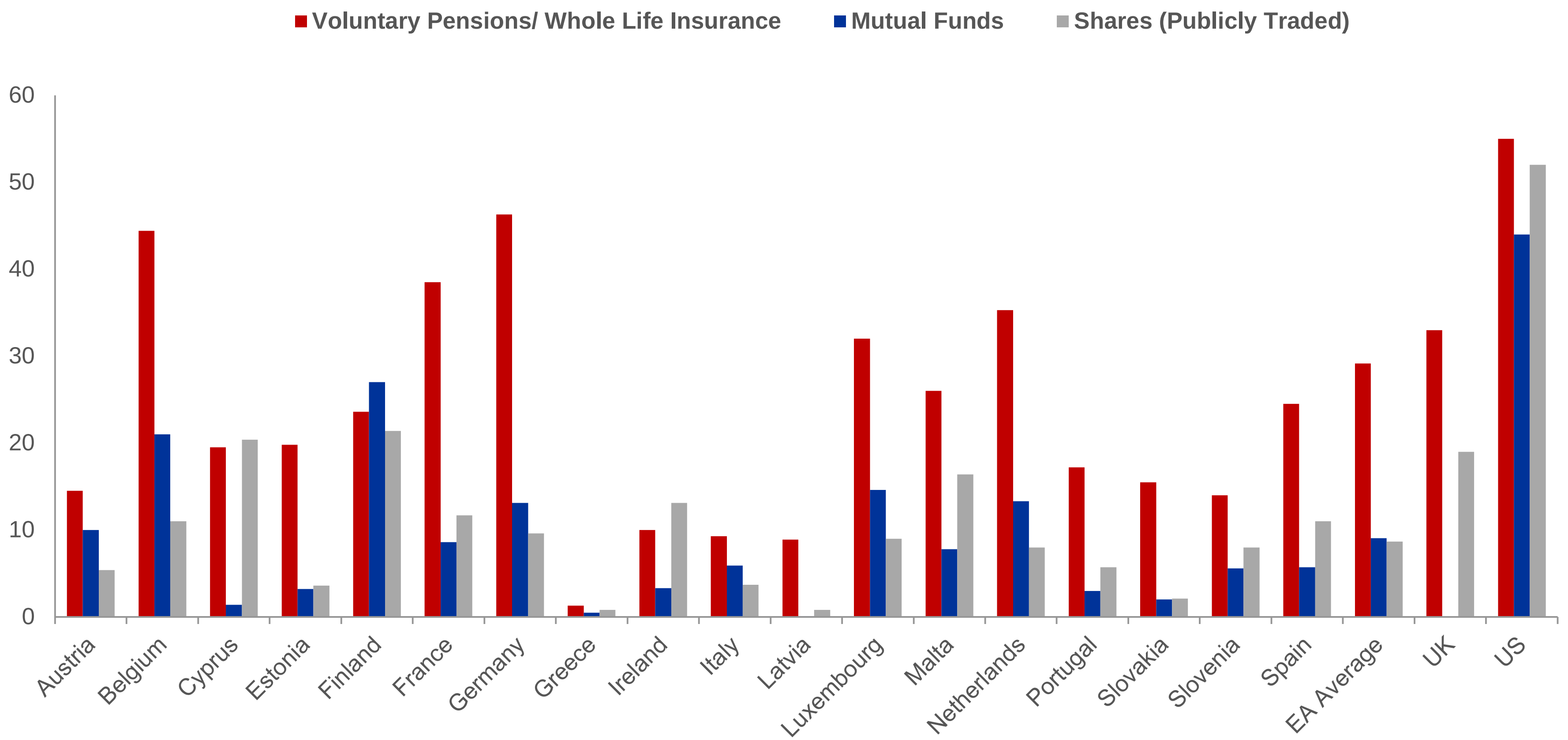
	Increased Equity Shares	Increased Savings and Equity Shares
To Euro Area median	1.2 – 1.3	1.3 – 1.4
To Finnish level	3.6 – 3.7	41.9 – 44.9
To US level	6.0 – 8.4	180.1 – 198.9

Notes: Authors' calculations using the same sources as in the upper right-hand table. Increased total savings are simulated assuming that pension investments per capita reach benchmark level.

- Complex policy direction (deep social choice)
- But without it important supporting factor missing compared to countries with large capital markets

Financial literacy stimulates investment in more productive assets than bank deposits and …

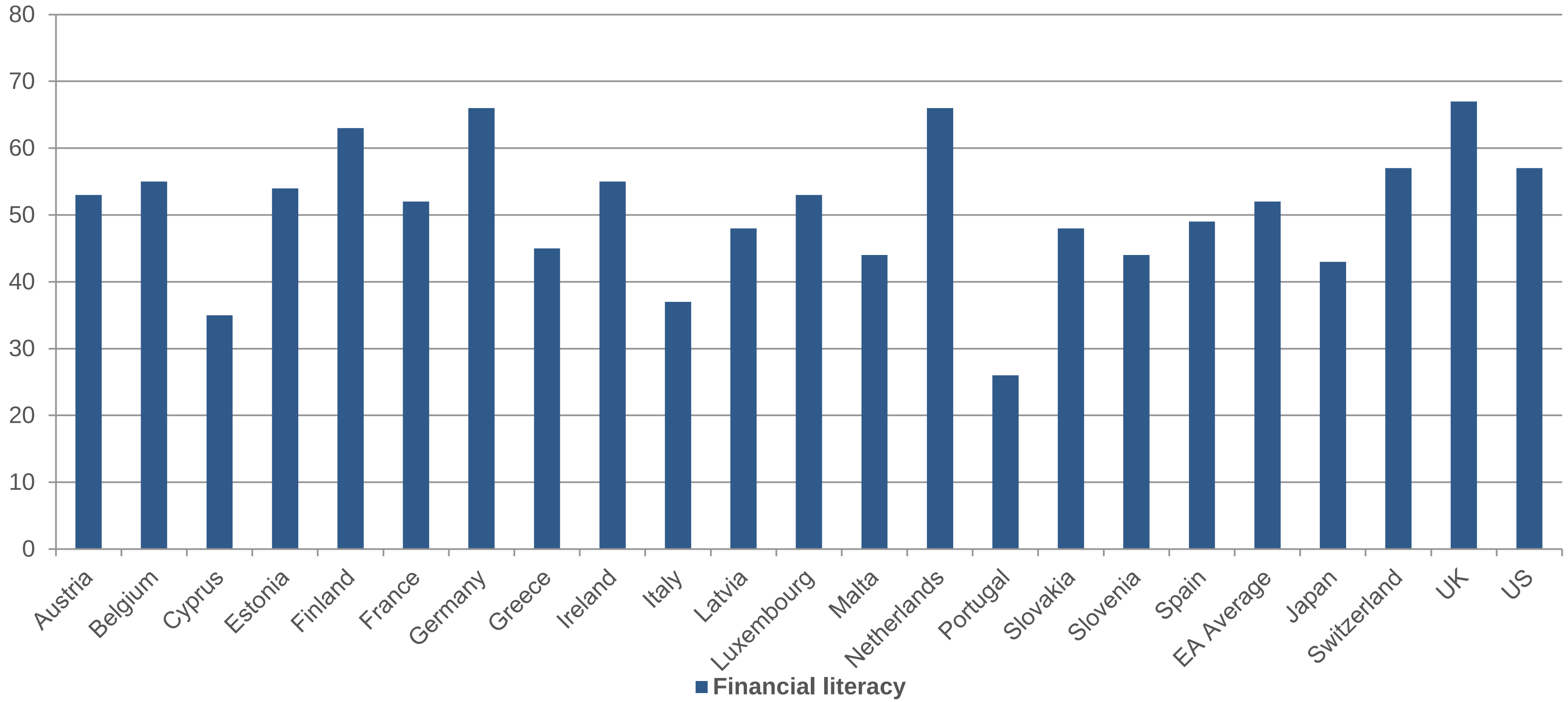
Share of households holding different asset classes (in %)



Notes: ECB Household Finance and Consumption Survey. Data for 2014, except for Estonia, Ireland, Malta, Netherlands, Portugal, Finland (all 2013) and Spain (2011). Mutual funds for UK not available.

… can be improved in a number of countries

Share of adults who are financially literate (in %)

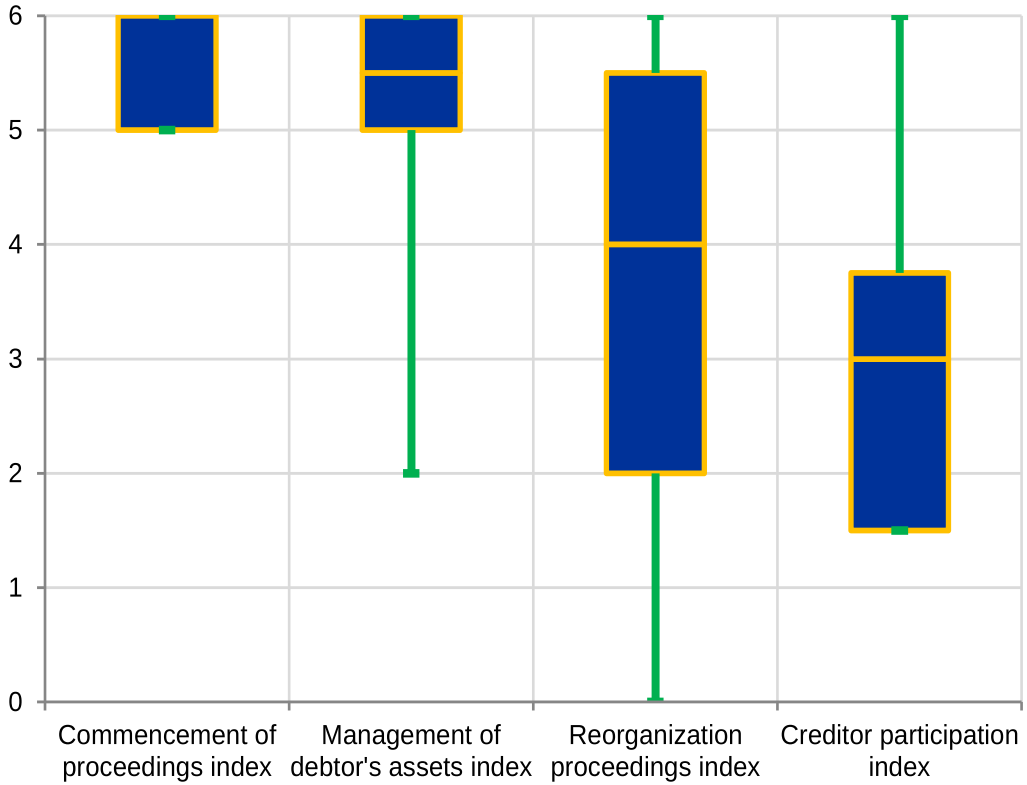


Notes: Standard and Poor's Global Financial Literacy Survey (2014) and ECB staff calculations. Financial literacy is defined as understanding the following four concepts: interest rate, cumulative interest rate, diversification, and inflation. Data for Lithuania not available.

- In order to be effective, probably stronger financial and economic education would have to be introduced in secondary school curriculums

Shortcomings and divergences of insolvency frame-works in the euro area should be addressed further

Euro area cross-country medians and dispersions of strength of insolvency framework sub-indexes (ranging between 0 and 6)



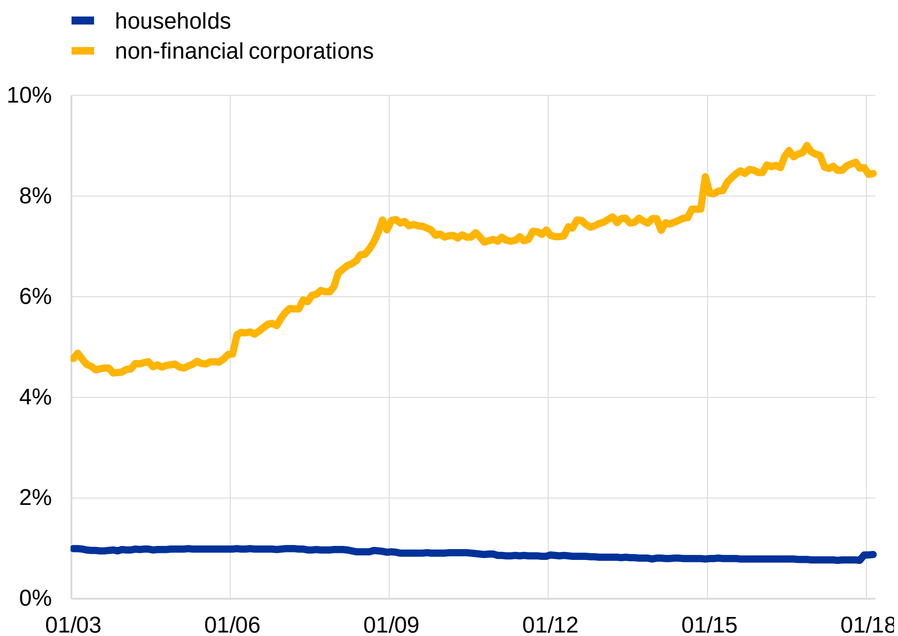
Notes: Giovannini, Hartmann, Imbs and Popov (in progress) using World Bank (2017) resolving insolvency data.

- Welcome CMU draft directive on restructuring and second chance does not cover a number of problematic areas
- Efficient re-organisation proceedings reduce failure rates and liquidations of profitable businesses
- Adequate creditor roles and harmonised creditor rankings help cross-border investors
- Complementary insights from OECD research on capital re-allocation (see annex)
  - SME procedures
  - Early warnings

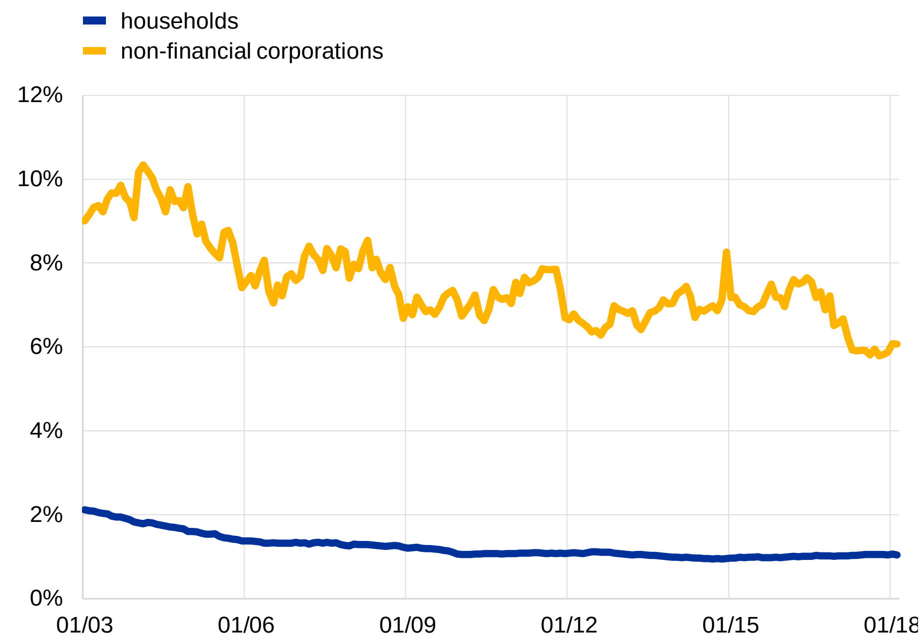
Integrating retail lending and deposit markets more would foster the credit channel of risk sharing

- Cross-border retail lending delivers better and more resilient risk sharing than cross-border wholesale lending (e.g. Fecht et al. 2007)
- But both lending and deposit markets are little integrated in the euro area

Share of cross-border loans in euro area total loans



Share of cross-border deposits in euro area total deposits

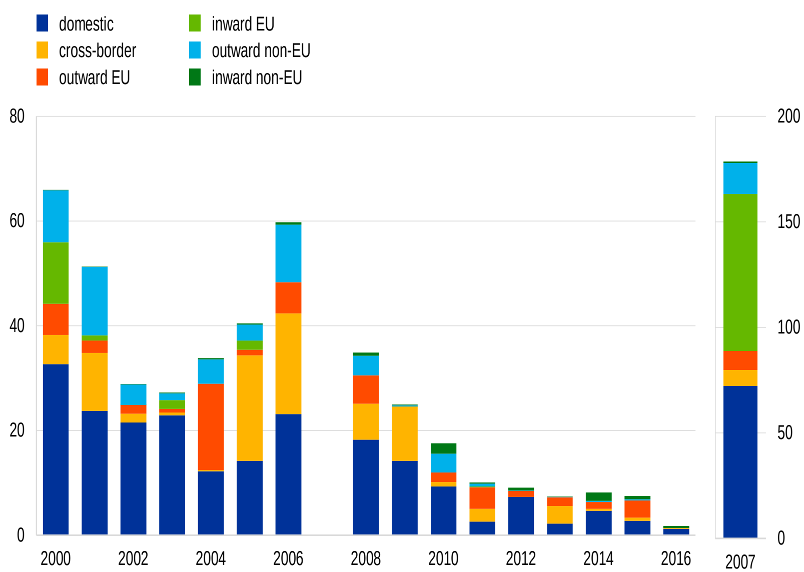


Notes: ECB and ECB staff calculations.

More realistic option would be enhanced cross-border bank consolidation

- Special feature in 2017 ECB report on "Financial integration in Europe"
- Should be possible to reap the benefits while safeguarding against potential risks (Single Supervisory and Resolution Mechanisms)
- But cross-border bank M&As at historical lows in the euro area
- Broader macroeconomic context
  - Growth important
  - Reduction of political uncertainties
- Targeted financial sector policies
  - Completion of banking union
  - Removal of options and national discretions in financial regulation
  - Considering euro area as single area for calculating Basel systemic surcharges
  - Harmonisation of (bank) insolvency laws
  - Harmonisation of consumer protection
  - Addressing non-performing loan problems
  - Streamlining of supervisory merger reviews
  - Harmonisation of taxation

Value of euro area bank mergers and acquisitions (EUR billions)



Notes: Dealogic and ECB staff calculations.

Concluding remarks 1

- More private financial risk sharing has the potential to materially improve consumption smoothing in the euro area and thereby the functioning of EMU
- But there are significant obstacles to lifting it to another level
  - Many related to the absence of a historically grown European nation state
  - Complementarity between private and public risk sharing
- A number of policy initiatives would nevertheless have the potential to lead to material improvements
- Empirical evidence suggests sizeable impacts of four directions
  - Pension reforms toward funded systems involving equity investments
  - Enhancing financial literacy in the population
  - Further ameliorating insolvency frameworks and the judicial systems supporting them
  - Policies facilitating cross-border bank consolidation
- Most of these are not reflected in the current Banking and Capital Markets Union programs or only to a limited extent
- But could become part of a sustained effort and a long-term vision for integrating and developing banking and capital markets

Concluding remarks 2

- Progress with improving private financial risk sharing cannot be expected to be quick
- Many measures would take a long time to unfold their effects
- There may be other avenues for developing and integrating European capital and banking markets to promote risk sharing, which I did not address today
- There are other goals that can be pursued with developing and integrating particularly capital markets
  – Innovation and economic growth (see special feature A of the 2018 ECB report on “Financial integration in Europe”)
  – Stability of governments’, households’ or firms’ funding (e.g. substituting between loans, bonds and equities)

Annex

Selected literature 1

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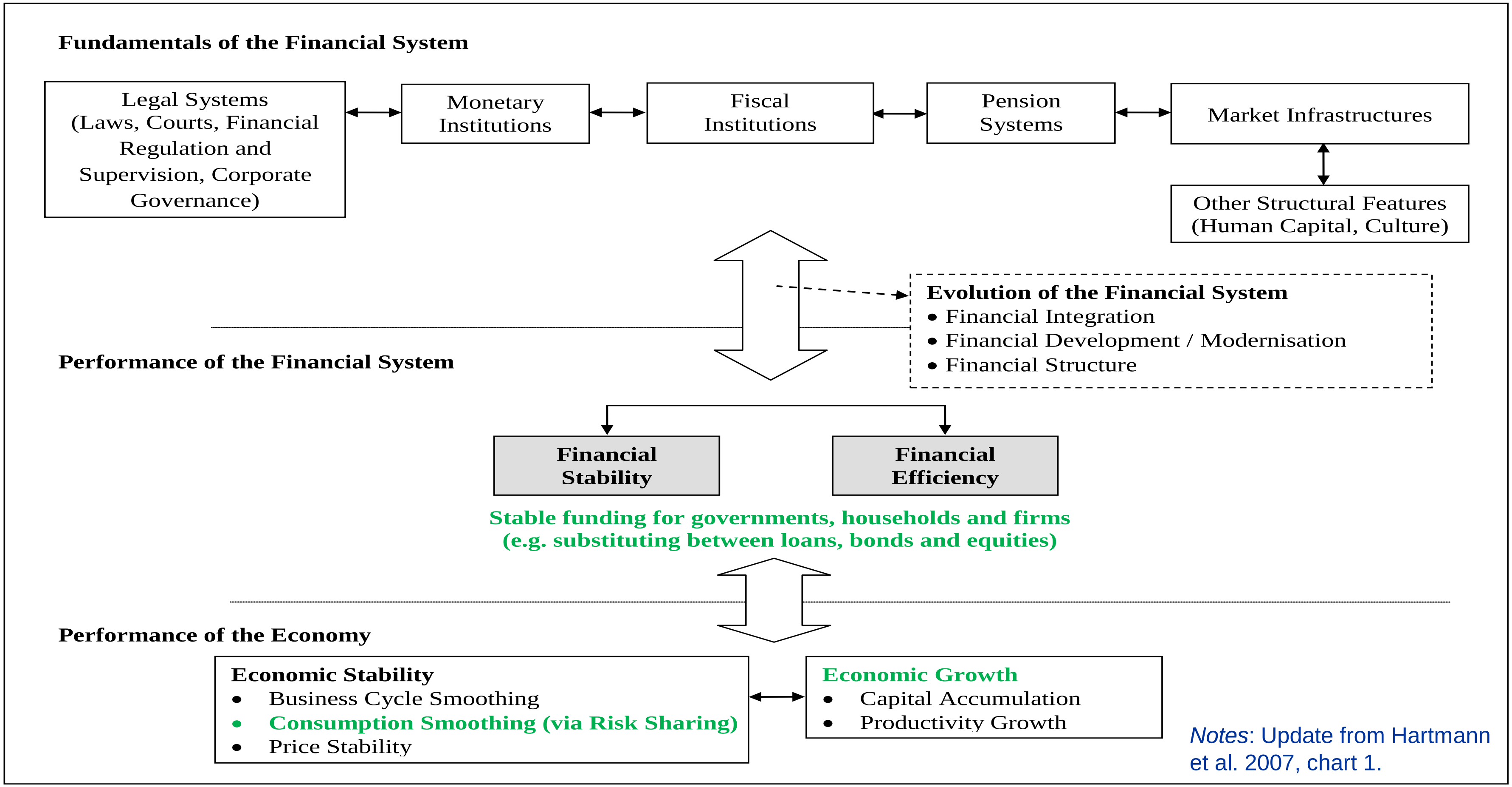
Well-designed financial systems contribute i.a. to stable funding, consumption smoothing and growth



Notes: Update from Hartmann et al. 2007, chart 1.

- Reverse causality can operate equally: growth creates demand for the necessary financial services

Capital Markets Union (CMU) initiatives

Venture capital:
EuVECA, EuSEF Regulation

Crowdfunding:
Regulation

Sustainable finance:
Action Plan

Investment fund distribution:
Directive and Regulation

Proprietary effects of transactions in securities
Communication

SME listings
Communication

Local/regional cap. markets:
Communication

Intra-EU investments:
Communication

Securitisation:
STSS Regulation

Prospectus:
Regulation

Non-bank supervision:
Regulation on investment firms

FinTech:
Action Plan

European pension products:
PEPP Regulation

Covered bonds:
Directive and Regulation

Assignment of claims:
Regulation, Communication

Recovery of collateral:
Directive

Preventive restructuring:
Directive

Insolvency

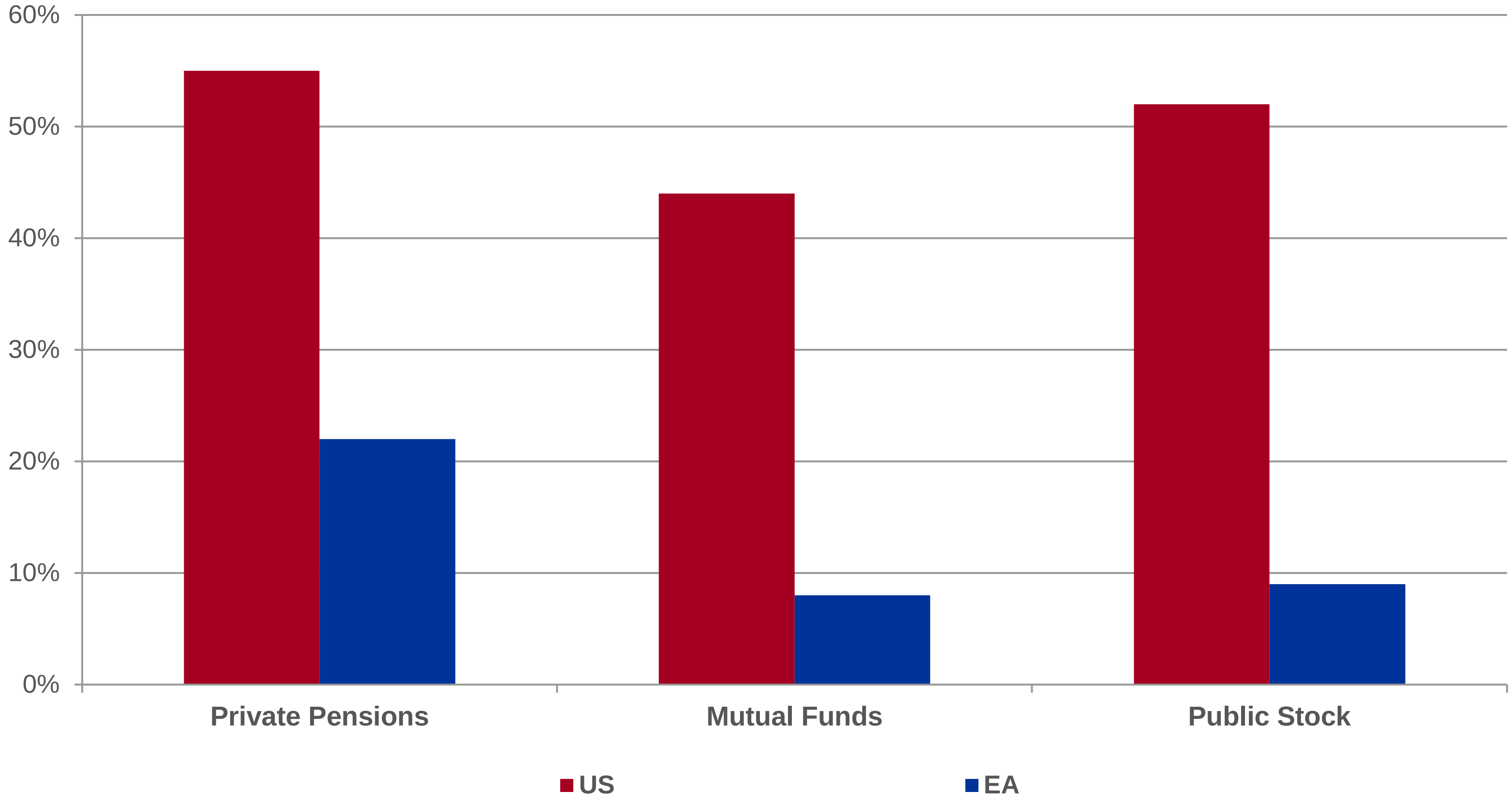
Debt-equity tax bias:
CCCTB Directive

Supervision:
ESA review

Status April 2018

Adopted
Proposed
Upcoming

Much smaller share of individual households hold financial assets in the euro area than in the US



Notes: The chart reports shares of households investing in a particular asset class. EA data from the HFSC (2014). US data from Forbes, ICI and Gallup.

Caveat: special case of US capital markets cannot be easily applied to euro area (or other countries)

- “Border effect”: single nation state versus 19 sovereign countries (single common law legal system, common safe asset/yield curve etc.)
- Regulation of securities markets (after the Great Depression) followed their nation-wide development
- Historical distrust of banks and decentralised banking system
- Concentration of capital markets in New York
- Historical individual responsibility for retirement savings
- History of broad lender of last resort (including capital markets)
- Culture of entrepreneurship, risk taking and forgivingness
- Government Sponsored Enterprises (GSEs, such as Fannie Mae and Freddie Mac) supporting securitisation

At the same time: Rajan and Zingales (2003) find evidence of some “great reversals” in the historical development of capital markets

Focus on macro risk sharing conceals the fact that conceptually risk sharing is a micro mechanism

- “Micro risk sharing”: individual consumption unaffected by shocks to individual income
- Similar conceptual channels:
    - Within-household transfers
    - Between-household transfers
    - Capital income
    - Taxes and transfers
    - Saving and dis-saving
- Limited survey evidence (household balance sheet data needed)
- Early literature simply tested for whether the null hypothesis of full risk sharing was rejected or not in the data (Cochrane, 1991; Attanasio and Davis, 1996; Hayashi et al., 1996)
- Asdrubali, Tedeschi, and Ventura (2015): Risk sharing within and across Italian households during the financial crisis
    - 69% of an individual income shock is smoothed through private risk sharing channels
    - 38% through within-household sharing, 28% through saving and dis-saving, 3% through capital income, 7% through public transfers and taxes, 24% unsmoothed

Variables definitions

Variable	Definition	Source
Mutual funds	Share of the population that has invested in mutual funds.	HFCS 2014
Bonds	Share of the population that has invested in private bonds.	HFCS 2014
Shares	Share of the population that has invested in public shares.	HFCS 2014
Pensions and life insurance	Share of the population that has invested in private pensions or whole life insurances.	HFCS 2014
Resolving insolvency	Average of Recovery rate and Strength of insolvency framework index. Recovery rate is calculated based on a) time, b) cost, and c) outcome of insolvency proceedings. Strength of insolvency framework index is calculated based on a) commencement of proceedings index, b) management of debtor's assets index, c) reorganisation proceedings index, and d) creditor participation index.	World Bank Doing Business (2017)
Foreign bank share	Share of banking sector assets that held by foreign bank branches and subsidiaries.	ECB (2015)
General trust	Share of the population that answers "Yes" to the question "Do you think most people can be trusted?"	World Values Survey (2015)
Financial literacy	Share of the population that is familiar with 4 fundamental concepts of financial decision-making: a) diversification; b) inflation; c) interest; and d) compound interest.	Standard & Poor's (2014)

High degree of risk sharing in the United States, bulk through private financial markets

- High degree of income and consumption smoothing across states in the United States between 1963 and 1990 (Asdrubali, Sorensen, and Yosha, 1996)
- Typically, only about 25% of state-specific shocks to GDP remain unsmoothed
- The bulk of a state-specific shock (39%) is smoothed through cross-state ownership of assets (capital markets)
- A further 23% is smoothed by borrowing and lending (credit markets)
- 13% is smoothed by the federal tax and transfer system
- I.e., about 60% of state-specific shocks are smoothed through market transactions
  - Market mechanisms more powerful than federal fiscal tools?
  - Probably some complementarity

Even higher degree of risk sharing through capital channel in Germany, especially post-unification

- High degree of income and consumption smoothing across regions in Germany (Hepp and von Hagen, 2012)
- Typically, only between 10% and 20% of state-specific shocks to GDP remain unsmoothed
- Before unification:
  - 19% smoothed through capital markets;
  - 17% smoothed through credit markets;
  - 54% smoothed by the government sector
- After unification:
  - 51% smoothed through capital markets;
  - 18% smoothed through credit markets;
  - 10% smoothed by the government sector
- Post-unification differences between West and East Germany
  - Capital markets smooth 63% of shocks in the West vs. 35% in the East

Overall risk sharing in the euro area is generally far from perfect

- Risk sharing implies that aggregate domestic consumption growth is unaffected by shocks to aggregate domestic income
- Is there "perfect" risk sharing in the EA, using the test in Lewis *(JPE* 1996)?

$$\Delta C_{it} = \beta_1 \Delta GDP_{it} + \varphi_i + \mu_t + \varepsilon_{it}$$

controlling for both country and quarter fixed effects (idiosyncratic shocks, net of trend)

			ΔC_{it}
ΔGDP_{it}	EA-12	1996—2015	**0.469*** **
		1996—2007	**0.447*** **
		2008—2015	**0.463*** **
	EA-19	1996—2015	**0.653*** **
		1996—2007	**0.665*** **
		2008—2015	**0.591*** **

- Significant co-movement between domestic consumption and GDP within EA member states
- Scope for financial (but also fiscal) tools to improve risk sharing

Risk sharing can work notably through a "capital channel", a "credit channel", and a "fiscal channel"

- Build on the framework of Asdrubali et al. (*QJE* 1996)
- Starting point: decompose GDP as follows:

$$GDP = \frac{GDP}{GNP} \times \frac{GNP}{GDI} \times \frac{GDI}{C} \times C$$

- Taking logs and differences yields, for each country and in each year:

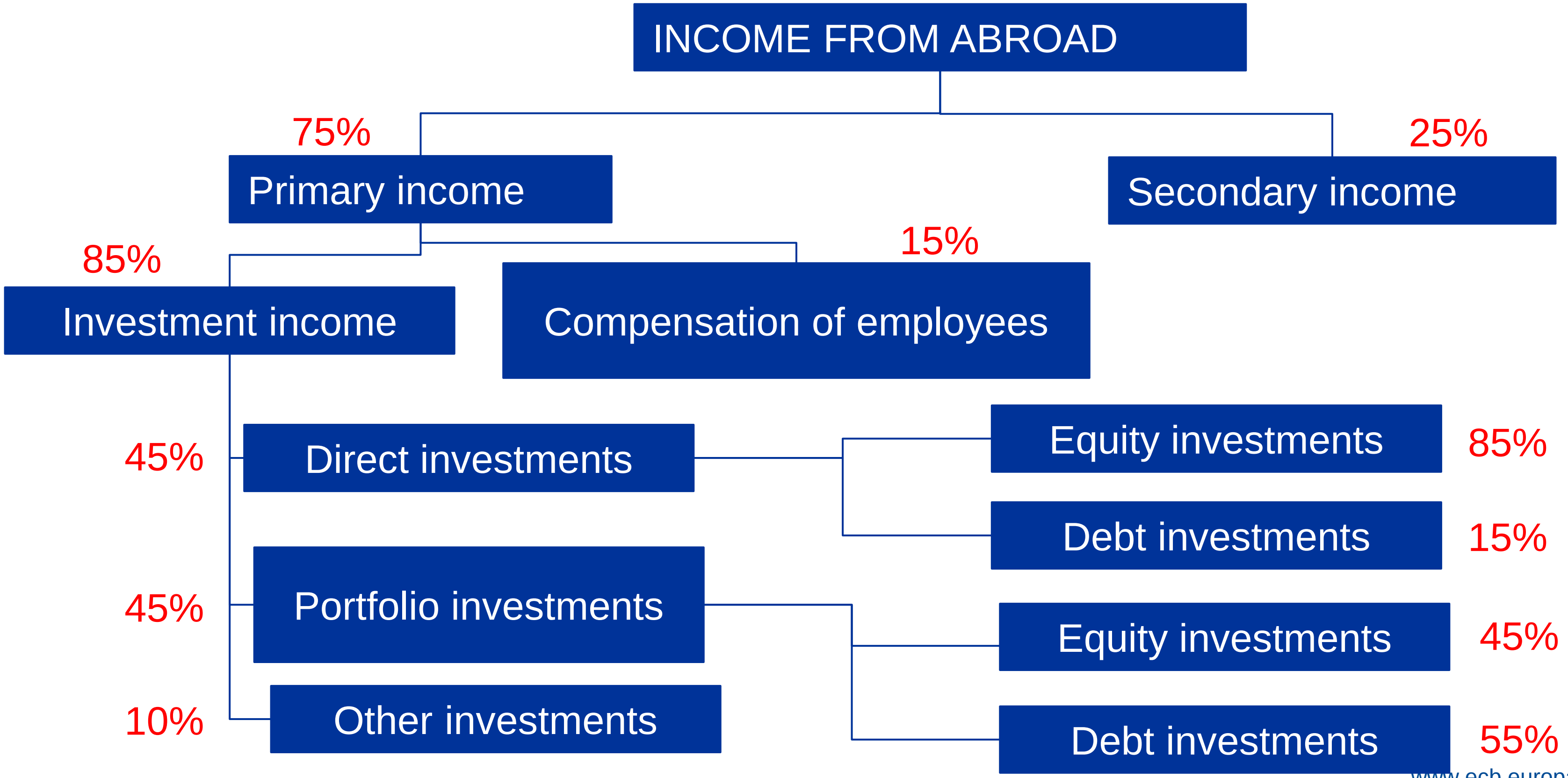
$$\Delta logGDP_{it} = \underbrace{\Delta logGDP_{it} - \Delta logGNP_{it}}_{\textbf{Capital channel}} + \underbrace{\Delta logGNP_{it} - \Delta logGDI_{it}}_{\textbf{Fiscal channel}} + \underbrace{\Delta logGDI_{it} - \Delta logC_{it}}_{\textbf{Credit channel}} + \Delta logC_{it}$$

- "***Capital channel***" : Net factor income payments from abroad (profits and earnings)
- "***Fiscal channel***" *:* International transfers (remittances and EU structural funds)
- "***Credit channel***" *:* Gross national savings (net lending abroad and domestic investment)

- If no channel active and GDP and consumption move 1:1 ➡ no risk sharing

Investment income represents the largest part of income from abroad

- Looking at the EA members BoPs, income from equity instruments represents around 37% of the overall income. Interest payments on debts, instead, amounts to 18%



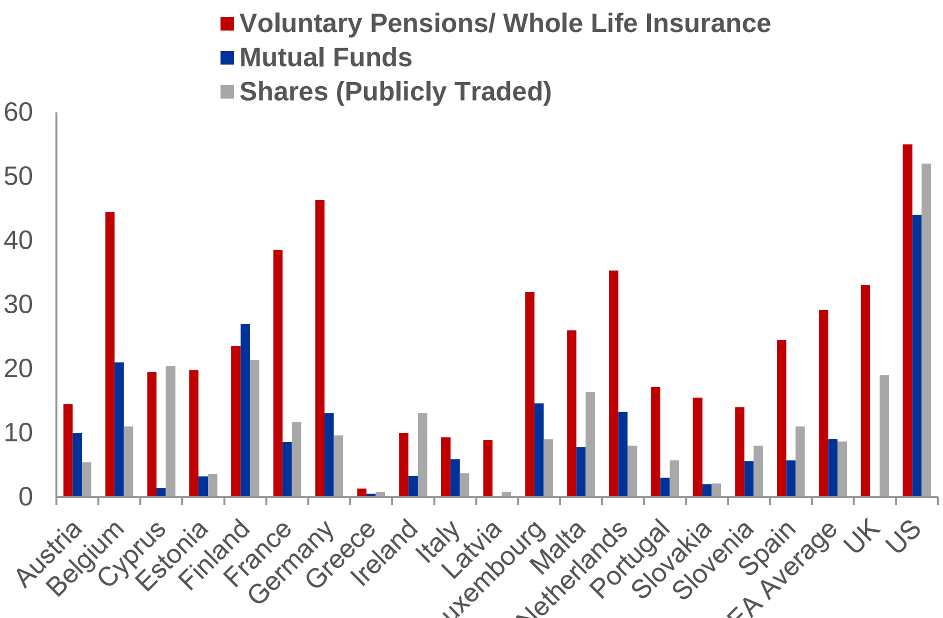
Further enabling measures needed for the full effect of pension reforms on capital markets

- Equity demand effects may have to be complemented with efforts fostering equity supply
  - Tax advantage of debt
  - Firm size/growth
  - More harmonised information about medium-size firms (e.g. Prospectus Directive in CMU)
- Regulatory constraints on pension investments
  - No or very limited restrictions on cross-border holdings within EU (Commission 2016)
  - No or very limited (quantity) restrictions on listed equity (OECD 2017)
  - Some restrictions on unlisted equity
  - Moreover, for insurers equity treatment in Solvency II
- Self-imposed constraints in parts of some countries' pension systems
  - No "equity culture"
  - Risk aversion
  - Asset-liability management of insurers
  - Desire for defined benefits
- Caveats: national pension systems complex to change (deep social choice)
  - Design of pension systems have many other dimensions than risk sharing
  - Full effect can take decades
  - More equity, less demand for government bonds → Higher funding costs for governments?
  - Reduction of deposits → Some pressure on banks?
  - People with high pension savings may take on debt

Financial literacy stimulates asset ownership (part. capital market products) and fosters risk sharing

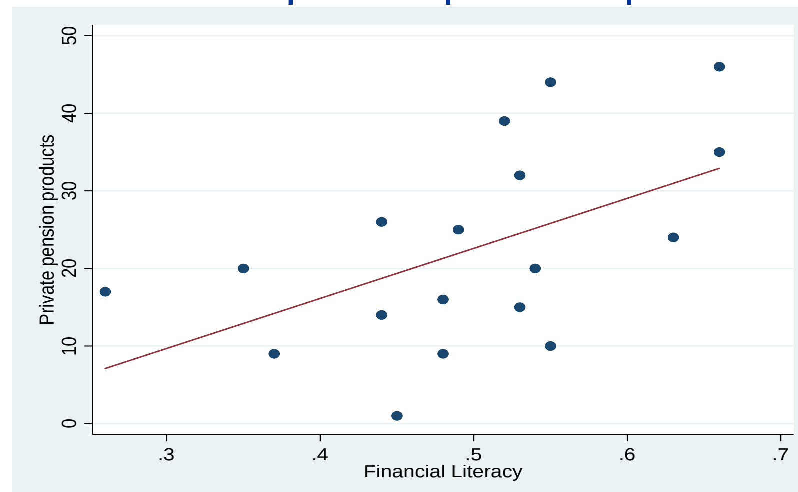
- Supported by ECB and other research for the euro area (van Rooij et al. 2011, Giovannini et al. 2018)

Share of households holding different asset classes by country (in %)



Notes: HFSC data for 2014, except for Estonia, Ireland, Malta, Netherlands, Portugal, Finland (all 2013) and Spain (2011). Mutual funds for UK not available.

Relationship between financial literacy and the demand for private pension products



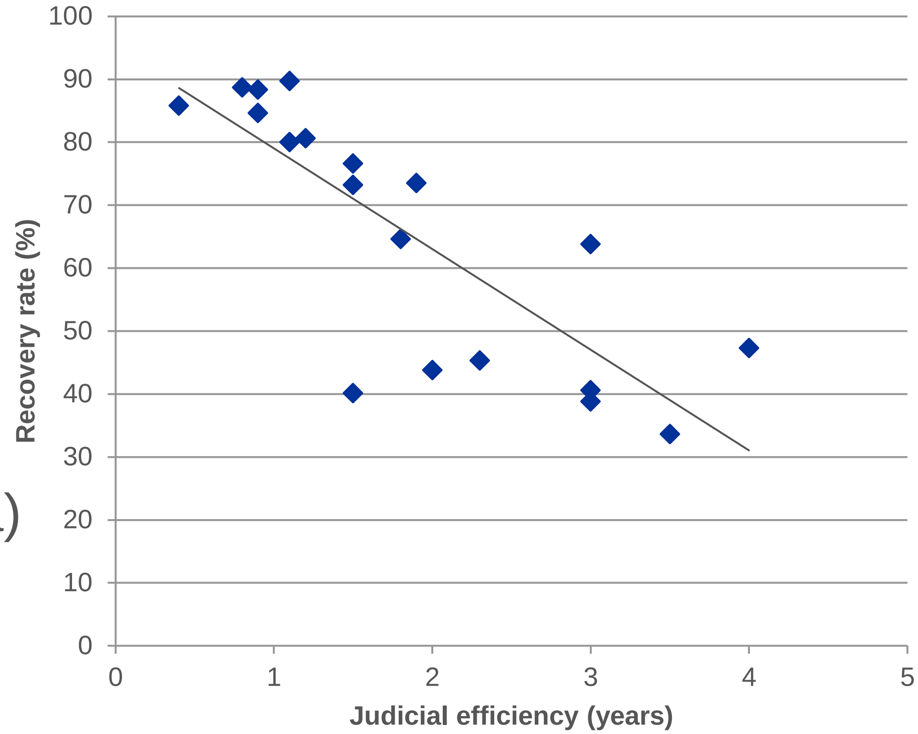
Notes: ECB calculations using euro area data on financial literacy from Standard and Poor's (2014) and on private pension ownership from the HFCS.

- Financial literacy in the euro area can be improved: only half of adults in median EA country are "literate"
- Policy proposal: strengthen basic financial education in schools
  - Saving and borrowing; cumulative interest; risk and return; diversification; inflation

This includes improving judicial efficiency and introducing out-of-court settlement systems

- Functioning of insolvency frameworks rely on the efficiency of courts and the competence of judges
- For example, timely procedures are essential for recovery
- Enhance incentives for (cross-border) investment
- But legal systems very slow and difficult to change
- Out-of-court procedures can complement courts (and vice versa)
- Two European policy options
  - Non-binding EU guideline
  - Formal EU regime
- Other aspects of insolvency frame-works, such as bank liquidation

Judicial efficiency and recovery rates

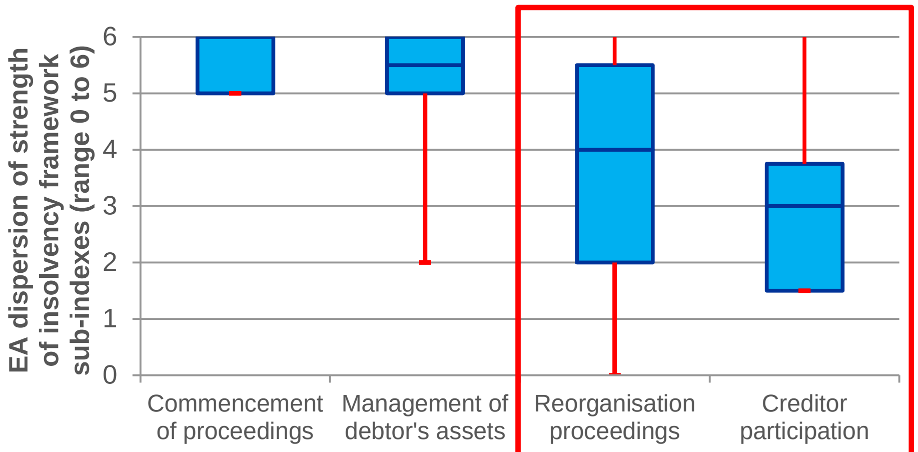


Notes: Giovannini, Hartmann, Imbs and Popov (in progress) using World Bank (2017) resolving insolvency data.

Important shortcomings and divergences of insolvency frameworks are still unaddressed

- Research supports the high relevance of efficient insolvency frameworks
  - ECB: promote risk sharing in the euro area (Giovannini et al. 2018)
  - OECD: improve capital reallocation, prevent firm “zombification” (McGowan et al. 2017)
- CMU Action plan contains a welcome directive on restructuring and second chance, which however does not cover other problematic areas

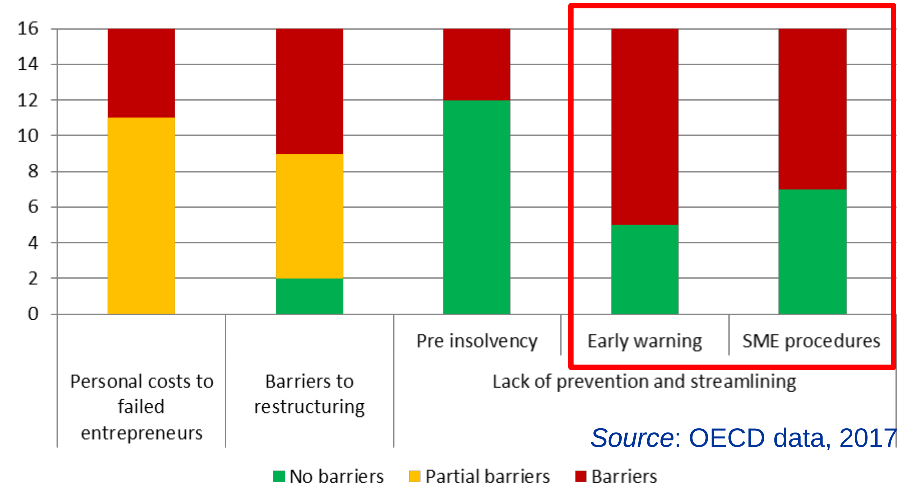
Address reorganisation plans and creditor roles/ranking



Source: World Bank data, 2017

- Efficient re-organisation plans reduce failure rates and the liquidation of profitable businesses
- Harmonised creditor ranking/clearer roles help cross-border investors

Need more “early warning” and special SME proced.



Source: OECD data, 2017

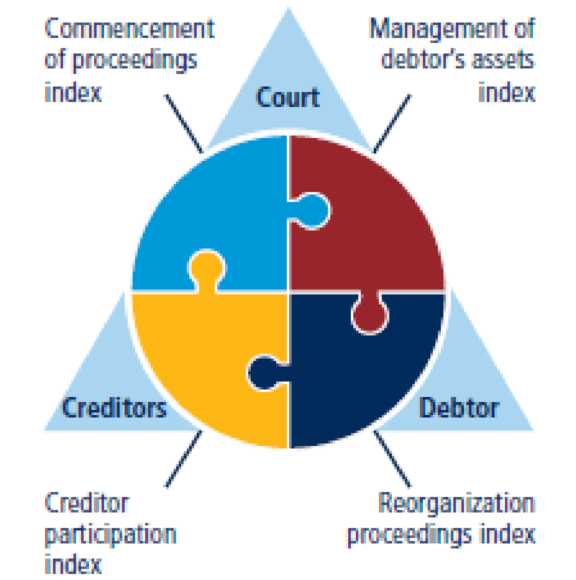
- “Early warning”: training; online tests; debt counselling
- Special procedures for SMEs have been introduced in some euro area countries

Resolving insolvency – World Bank methodology

Recovery rate (50 % of the index)

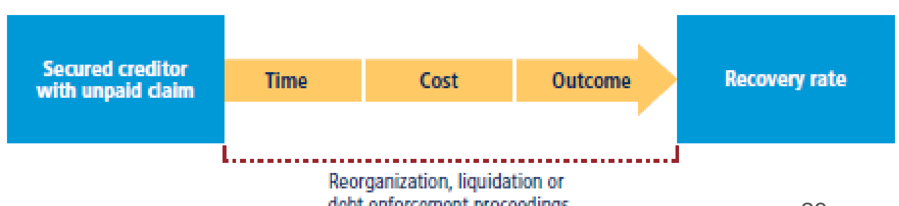
Time required to recover debt (years)
Measured in calendar years
Appeals and requests for extension are included
Cost required to recover debt (% of debtor's estate)
Measured as percentage of estate value
Court fees
Fees of insolvency administrators
Lawyers' fees
Assessors' and auctioneers' fees
Other related fees
Outcome
Whether the business continues operating as a going concern or whether its assets are sold piecemeal
Recovery rate for secured creditors (cents on the dollar)
Measures the cents on the dollar recovered by secured creditors
Present value of debt recovered
Official costs of the insolvency proceedings are deducted
Depreciation of furniture is taken into account
Outcome for the business (survival or not) affects the maximum value that can be recovered

Source: World Bank, 2017

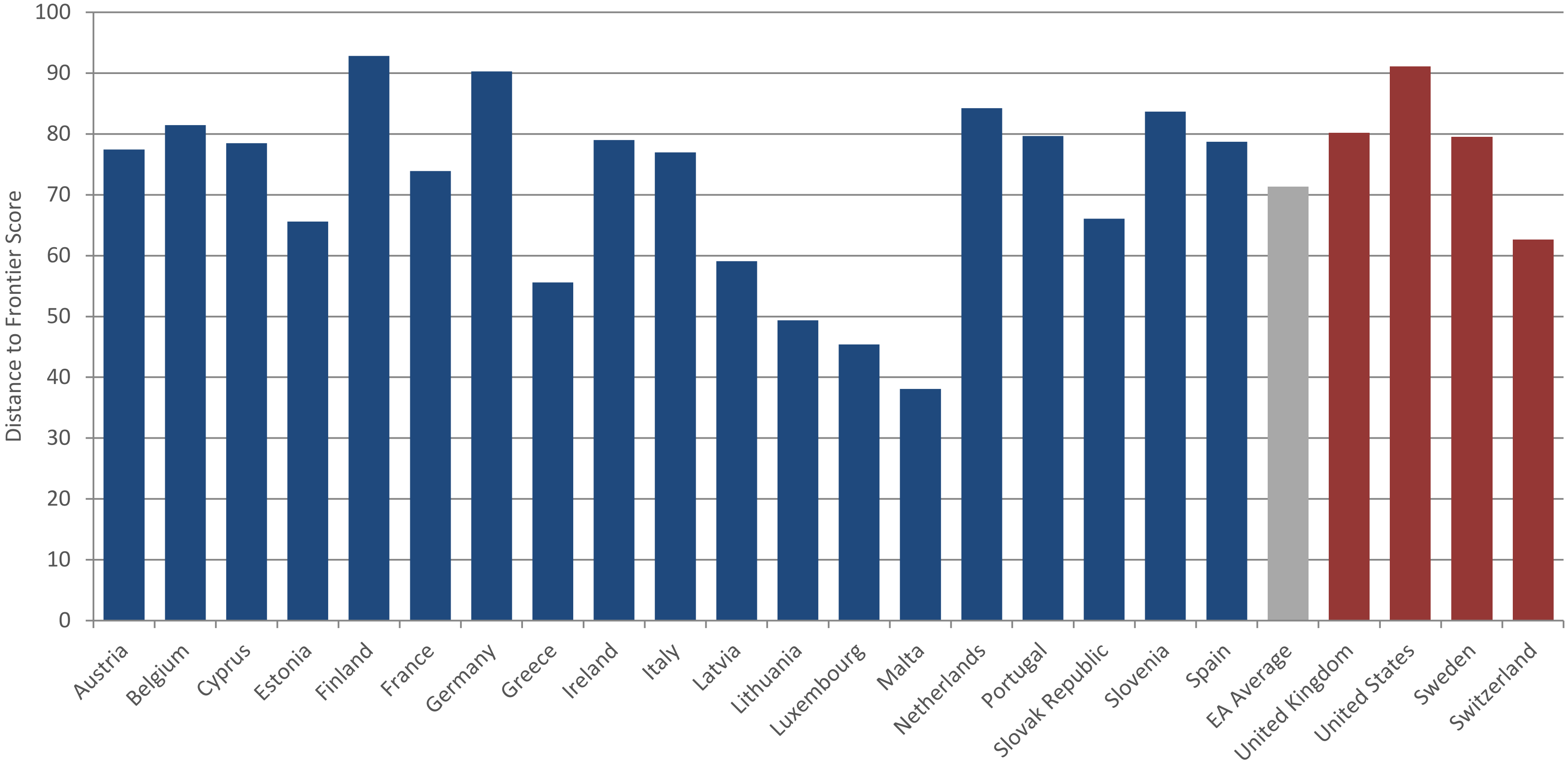


Strength of insolvency framework (50 % of the index)

Commencement of proceedings index (0–3)
Availability of liquidation and reorganization to debtors and creditors
Standards for commencement of insolvency proceedings
Management of debtor's assets index (0–6)
Continuation and rejection of contracts during insolvency
Avoidance of preferential and undervalued transactions
Post-commencement finance
Reorganization proceedings index (0–3)
Approval and content of reorganization plan
Creditor participation index (0–4)
Creditors' participation in and rights during liquidation and reorganization proceedings
Strength of insolvency framework index (0–16)
Sum of the commencement of proceedings, management of debtor's assets, reorganization proceedings and creditor participation indices

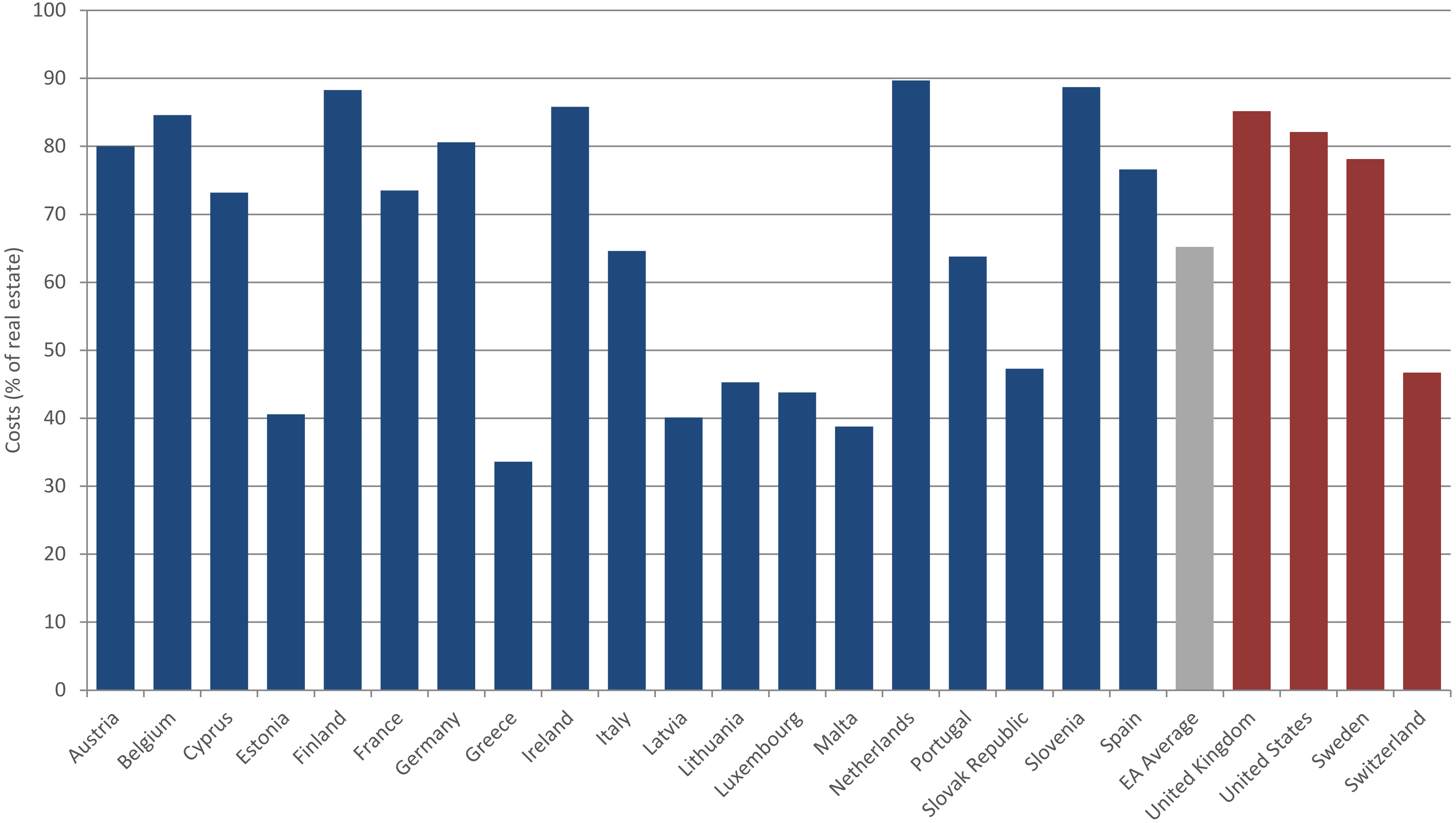


Euro area countries on average have less efficient insolvency frameworks than peers



Notes: Data source is World Bank 'Doing Business'. An economy's distance to frontier (DTF) for resolving insolvency is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 presents the frontier. DTF shows the distance of each economy to the "frontier", which represents the best performance observed on each of the indicators across all economies in the Doing Business Sample. This allows users to see the gap between a particular economy's performance and the best performance at any point in time and to assess the absolute change in the economy's regulatory environment over time as measured by Doing Business. The "frontier“ economy is Japan with a DTF score of 93.44. EA is the unweighted average.

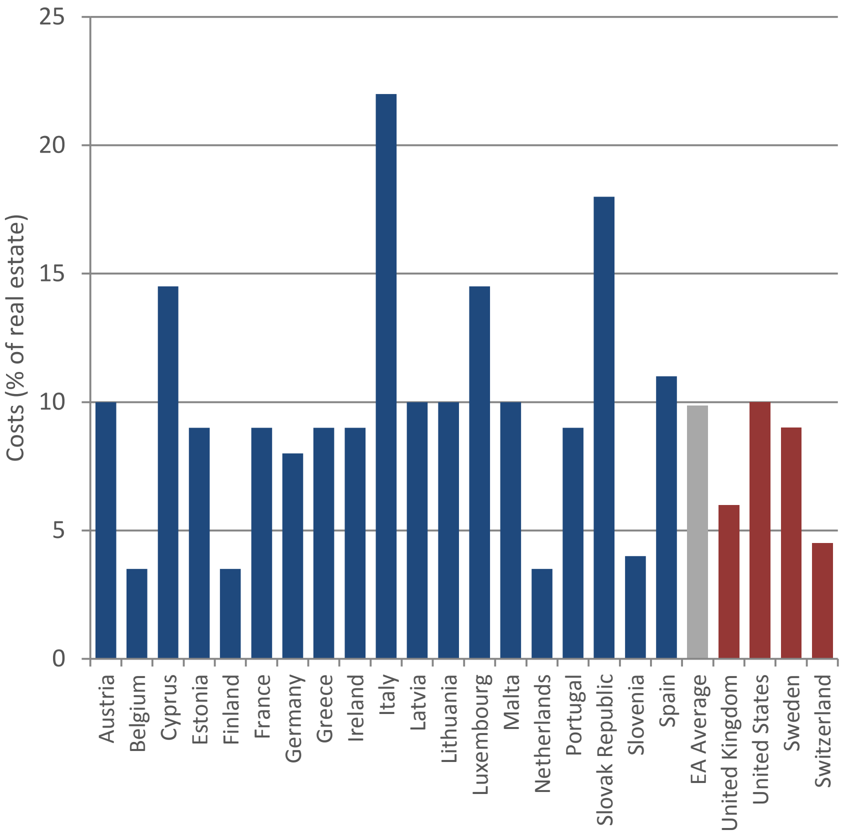
Recovery rate



Notes: Source is World Bank 'Doing Business'. The recovery rate is recorded as cents on the dollar recovered by secured creditors through judicial reorganization, liquidation or debt enforcement. The rate is a function of (1) bankruptcy costs, (2) time to recover debt and (3) outcome. The higher the bars, the greater the cost (% of real estate). EA is the unweighted average.

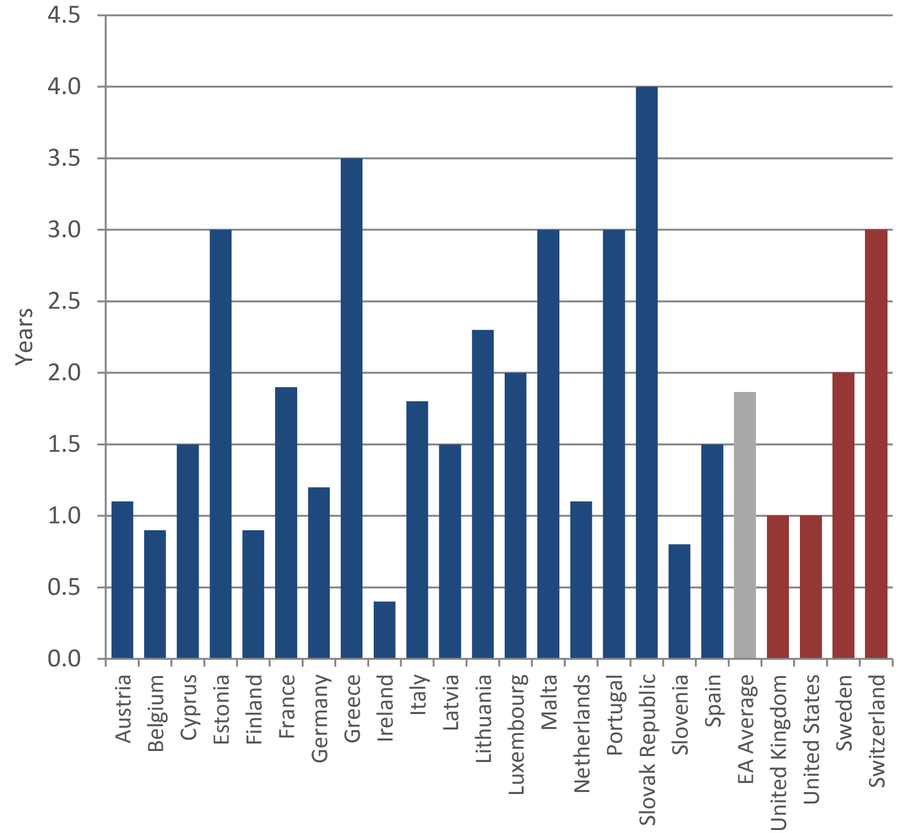
Recovery rate components

(1) Bankruptcy costs



Notes: Data source is World Bank 'Doing Business'. The bars show the cost of proceedings measured as a percentage of the value of the debtor's estate including court, insolvency administrators, lawyers' and assessors' fees. The higher the bar, the greater the bankruptcy cost in the respective economy. EA is the unweighted average.

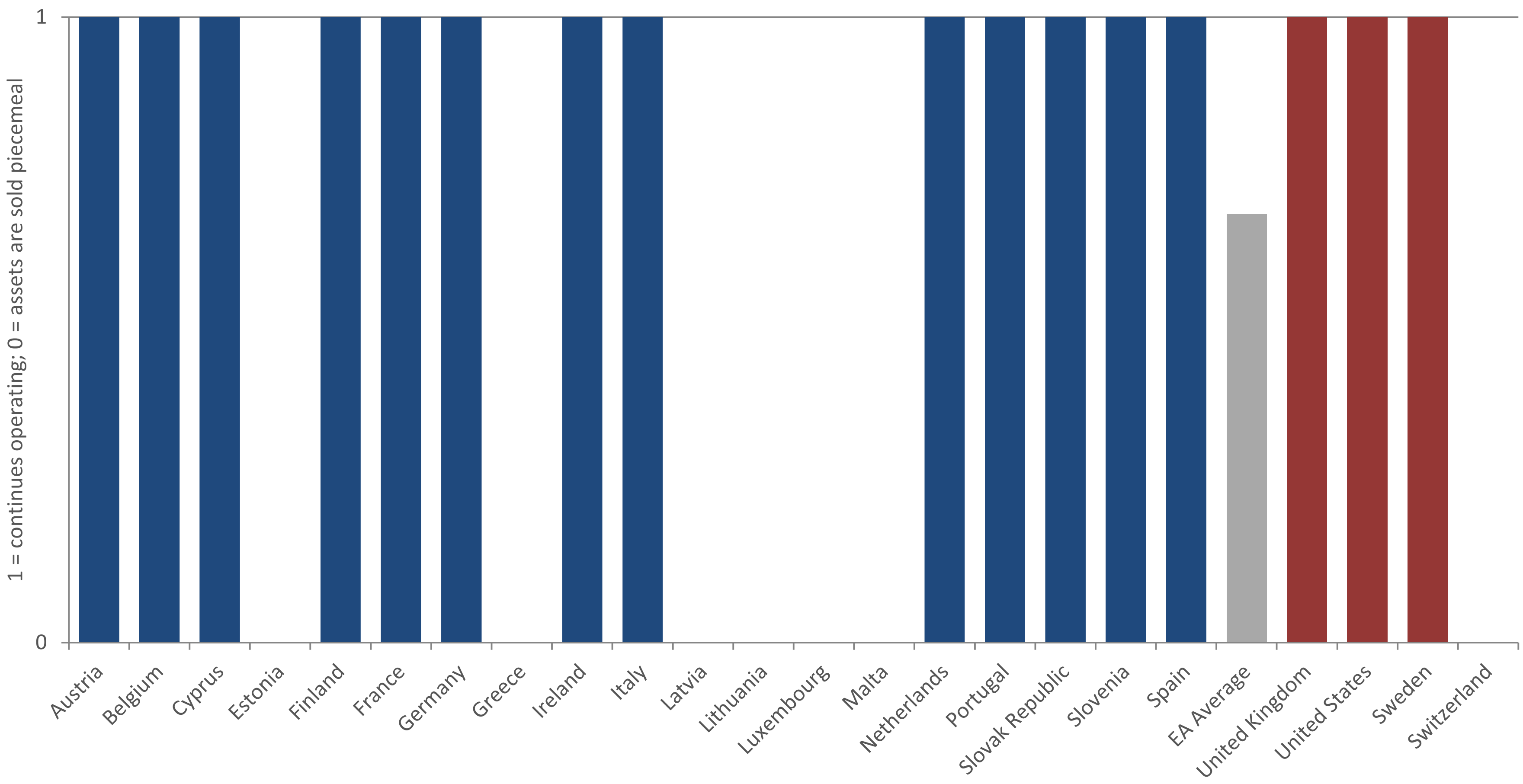
(2) Time to recover debt



Notes: Data source is World Bank 'Doing Business'. The bars measure the time for creditors to recover their debt recorded in calendar years, whilst also taking into account potential delay tactics. The higher the bar, the longer it takes to recover debt. EA is the unweighted average.

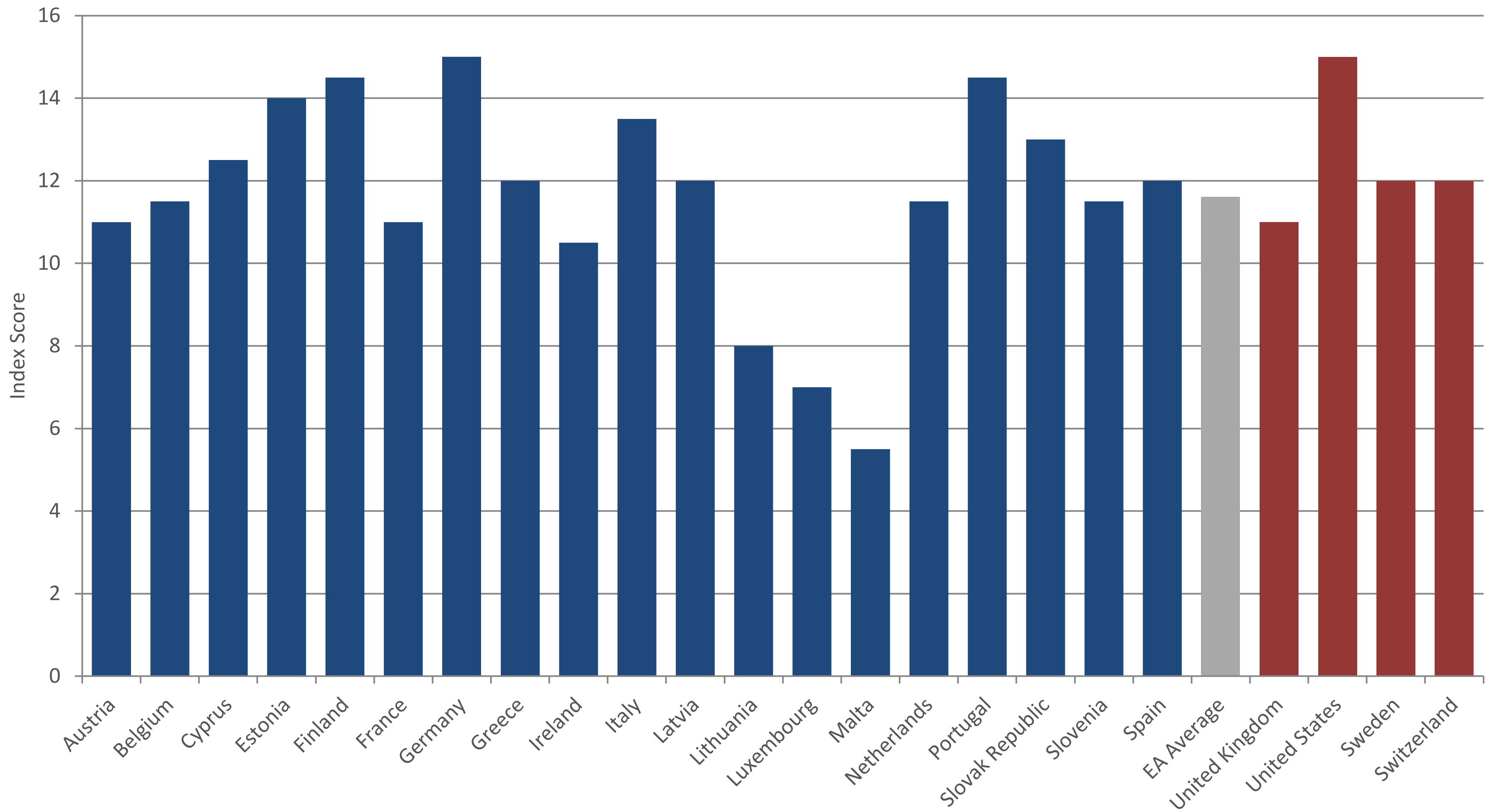
Recovery rate components

(3) Outcome



Notes: Data source is World Bank 'Doing Business'. The bars show whether the business continues operating as a going concern equal to a value of one or whether its asset are sold piecemeal equal to a value of zero. EA is the unweighted average.

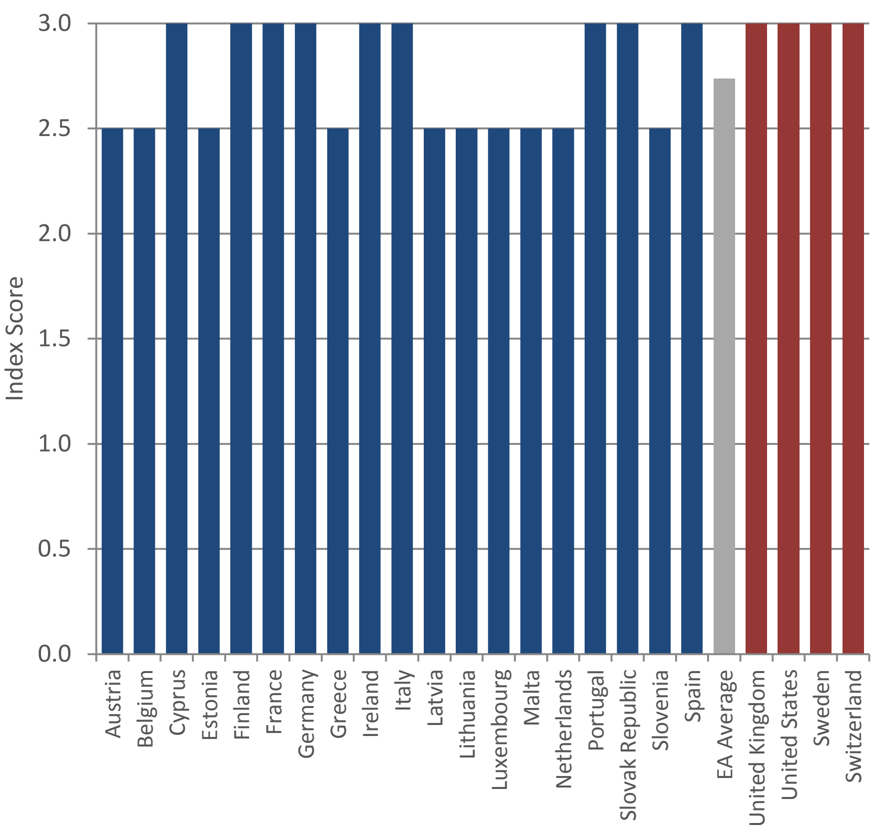
Strength of insolvency framework



Note: Source is World Bank 'Doing Business'. The strength of insolvency framework index is composed of the sum of (4) commencement of proceedings index, (5) management of debtors asset index, (6) reorganization proceedings index and (7) creditor participations index. The index ranges from 0 to 16, with higher values indicating insolvency legislation that is better designed for rehabilitating viable firms and liquidating nonviable ones. EA is the unweighted average.

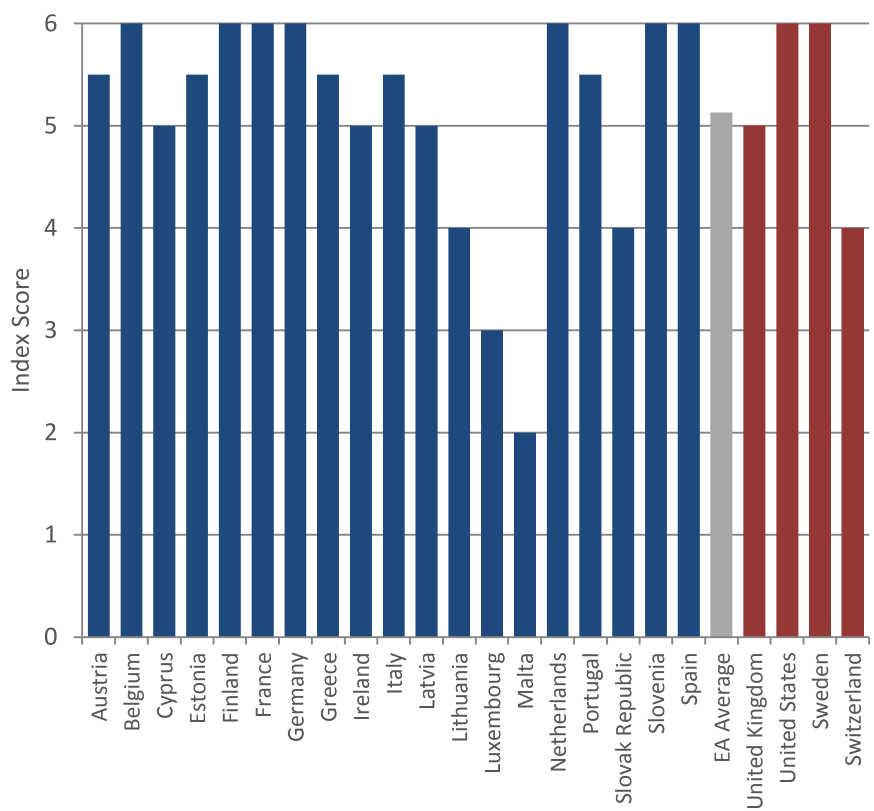
Strength of insolvency framework components

(4) Commencements of proceedings



Notes: Source is World Bank 'Doing Business'. The commencement of proceedings index ranges from 0 to 3, with higher values indicating greater access to insolvency proceedings. Insolvency proceedings are measured by liquidation and reorganization proceedings as well as liquidity and balance sheet tests. EA is the unweighted average.

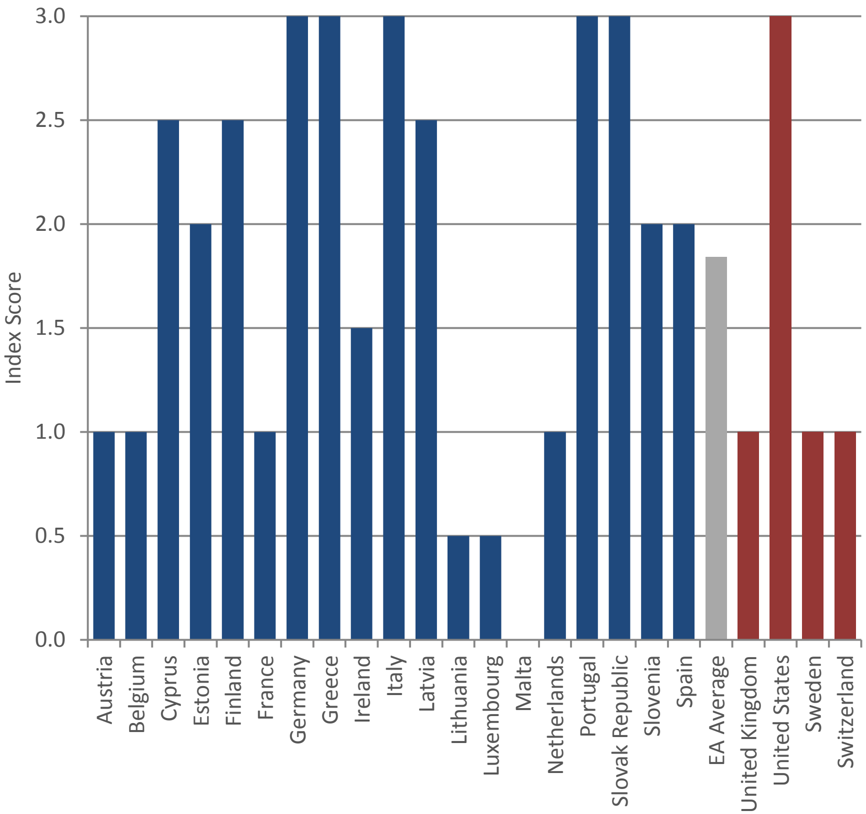
(5) Management of debtor’s asset



Notes: Source is World Bank 'Doing Business'. The management of debtor's asset index ranges from 0 to 6, with higher values indicating more advantageous treatment of the debtor's assets from the perspective of the company's stakeholders.

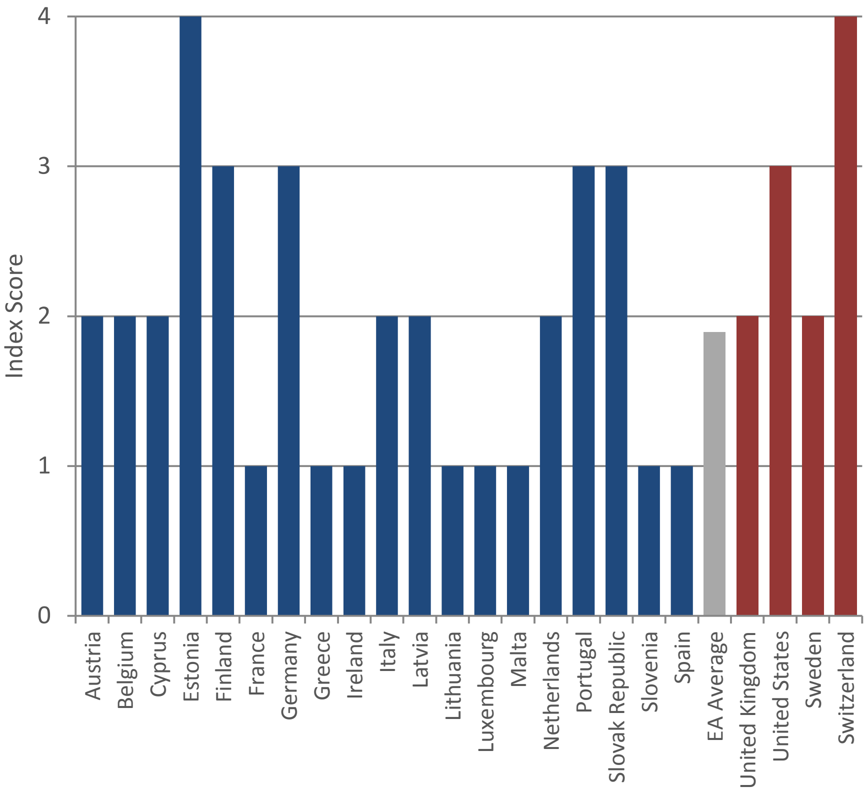
Strength of insolvency framework components

(6) Reorganisation proceedings



Notes: Source is World Bank 'Doing Business'. The reorganisation proceedings index ranges from 0 to 3, with higher values indicating greater compliance with internationally accepted practices. The higher the judicial reorganisation, the higher the score.

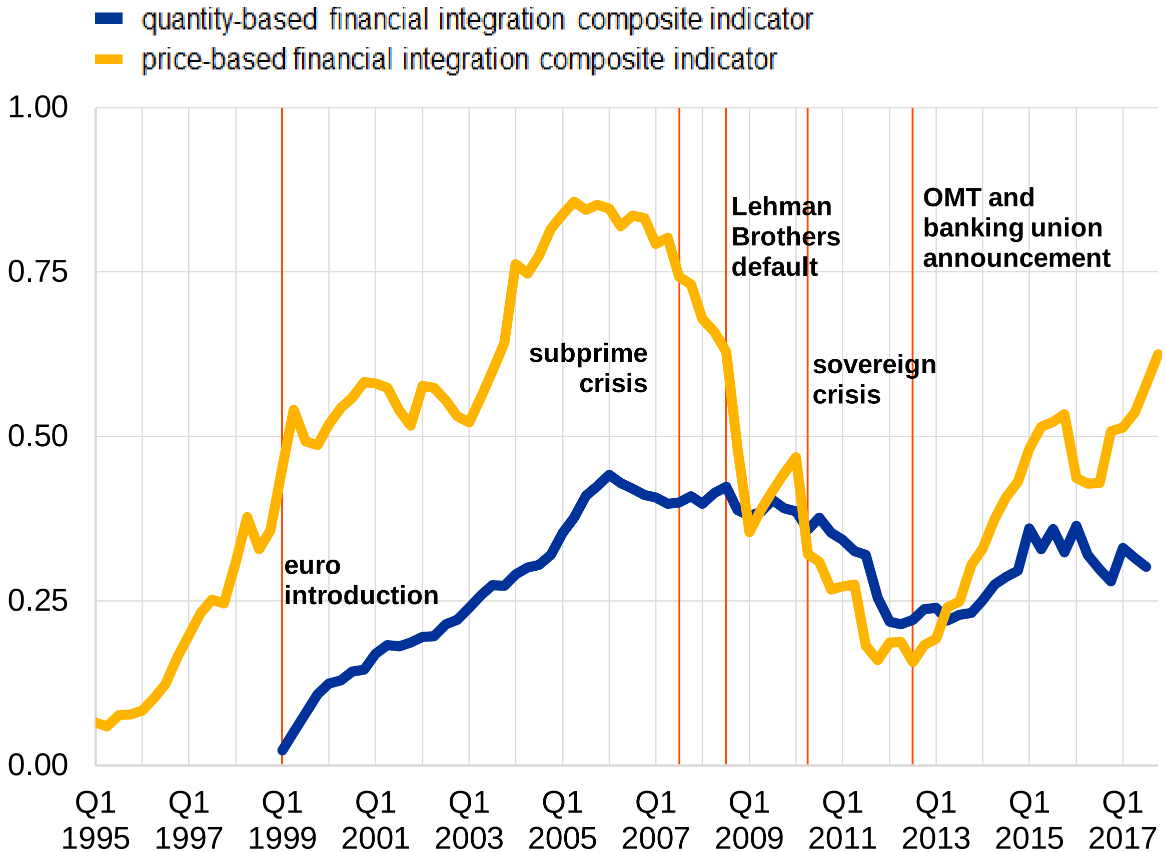
(7) Creditor participation



Notes: Source is World Bank 'Doing Business'. The creditor participation index ranges from 0 to 4, with higher values indicating greater participation of creditors. E.g. whether creditors appoint the insolvency representative or approve, ratify or reject the appointment of the insolvency representative etc.

Aggregate post-crisis re-integration trend resumed strongly in prices but not (yet?) in quantities in EA

Aggregate financial integration indicators



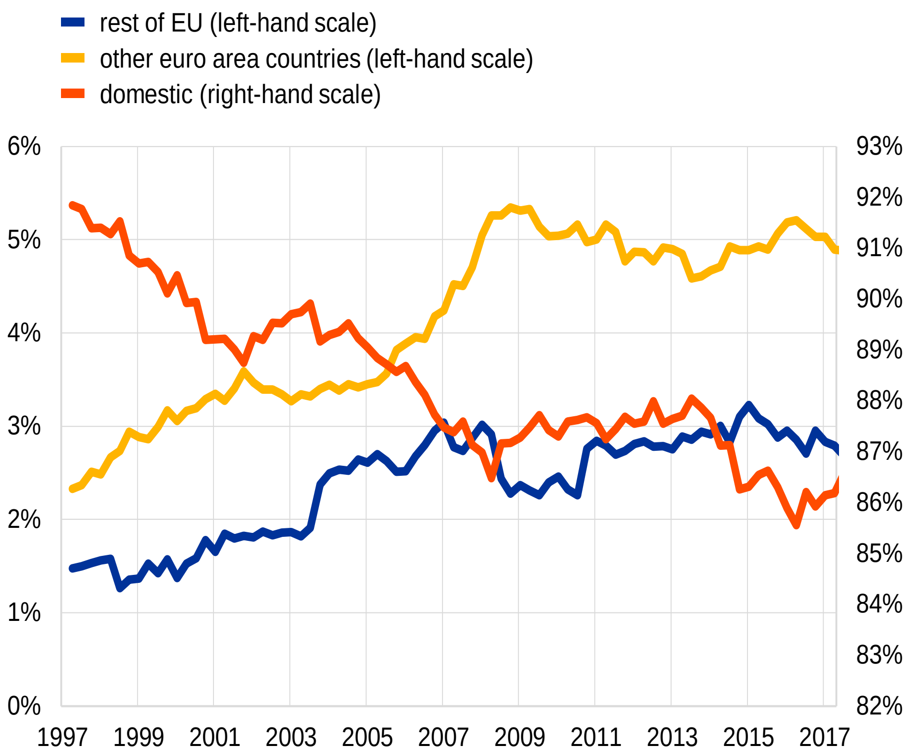
- Price convergence driven by
  - mainly equity returns
  - also bond yields
  - strengthening, broadening and rather uniform economic recovery
- Fundamental economic factors play a significant role
- Quantities mildly reduced by cross-border interbank lending (compared to 2015)

Sources: ECB and ECB calculations (based on Hoffmann, Kremer and Zaharia (2015), Financial integration in Europe through the lens of composite indicators), see Chart A in Key Messages and Charts S5 and S6 in ECB (2018), Financial integration in Europe.

Fragmentation in Retail Banking

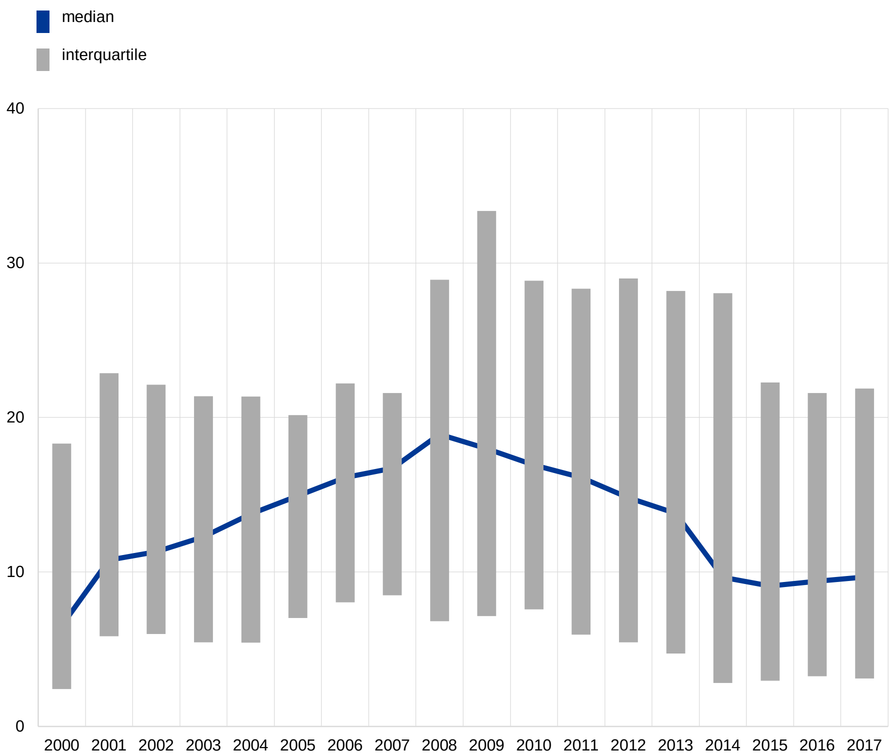
MFI loans to non-MFIs: outstanding amounts by residency of counterparty

(percentages of total lending excl. Eurosystem, quarterly data, Q3 1997 – Q4 2017)



Dispersion of the total assets of foreign branches and subsidiaries of euro area banks across euro area countries

(percentages of total assets of the euro area banking sector, yearly data, 2000 - 2017)

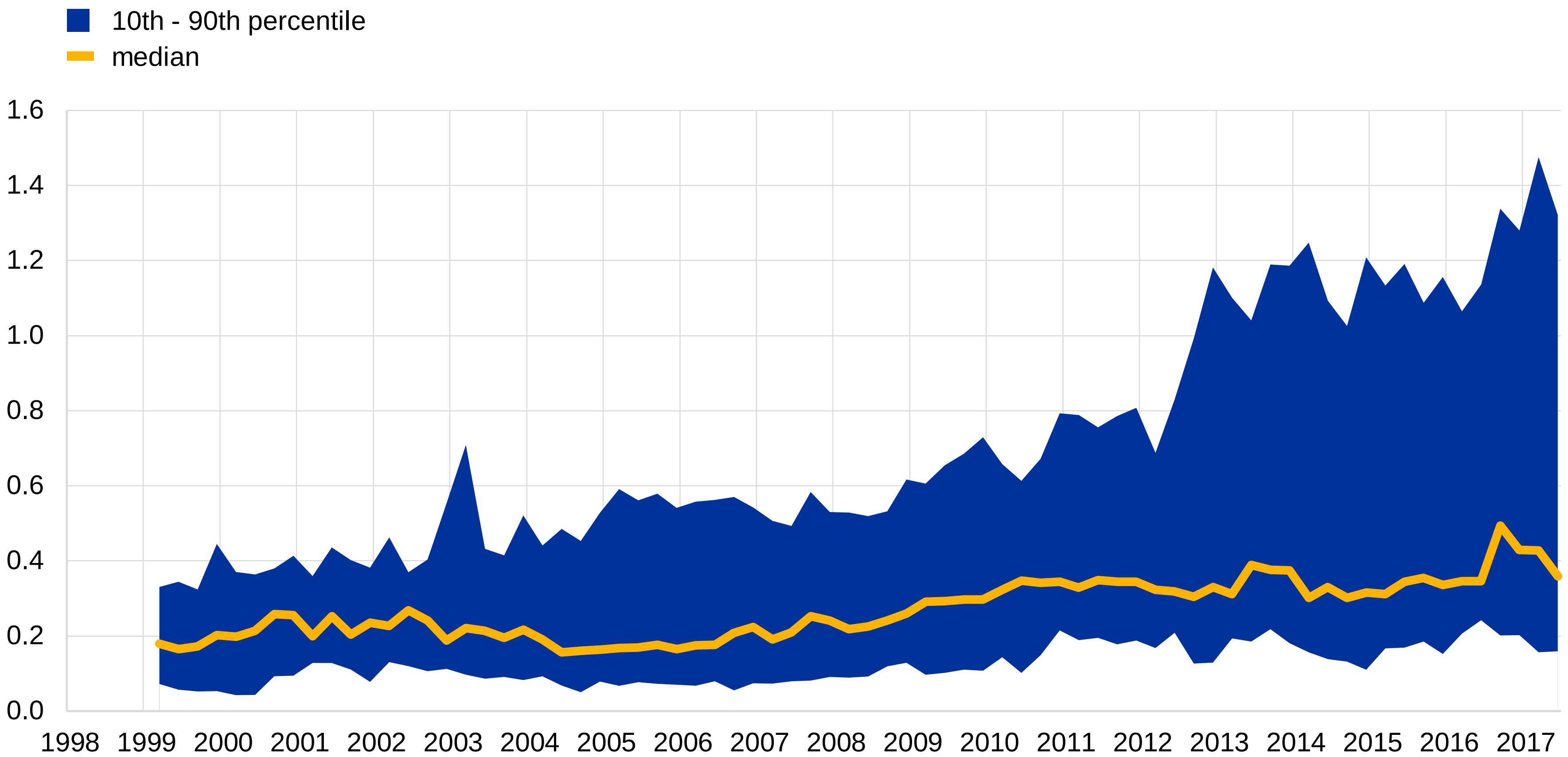


Sources: (LHS): ECB. See Chart S26 in the statistical annex of ECB (2018), Financial integration in Europe.
(RHS): ECB and ECB calculations. See Chart S30 in the statistical annex of ECB (2018), Financial integration in Europe.

Intra-Euro Area Cross-Border Lending

Resilience of banking integration: cross-border retail to wholesale lending ratio

(monthly data; percentages per annum; 10th – 90th percentile distribution and median)

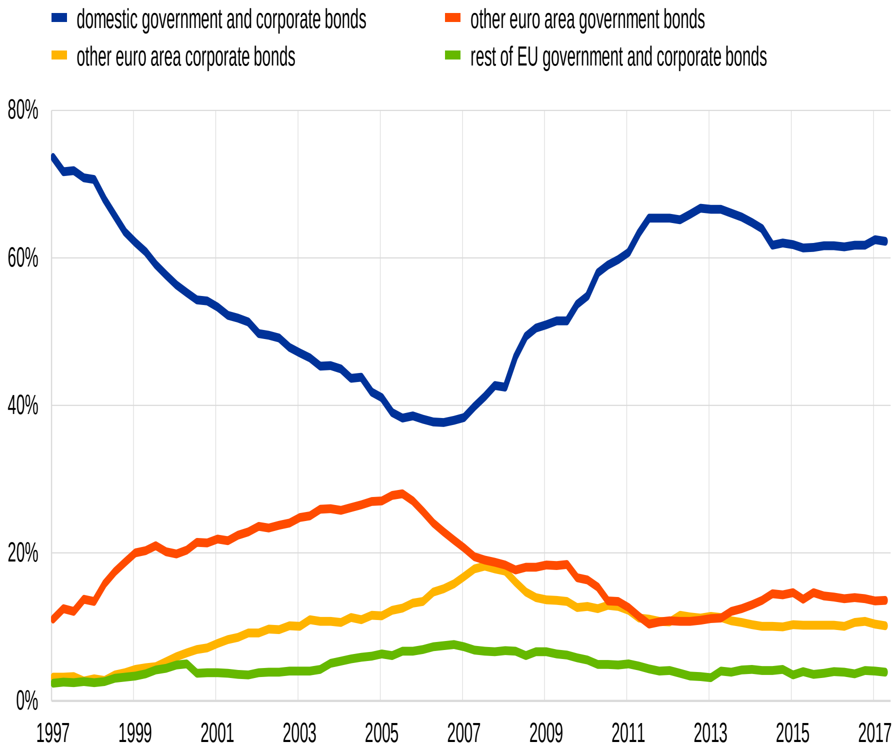


Sources: ECB (BSI). See Chart 19 in Chapter 1 of ECB (2018), Financial integration in Europe.

Cross-Border Debt Securities Holdings

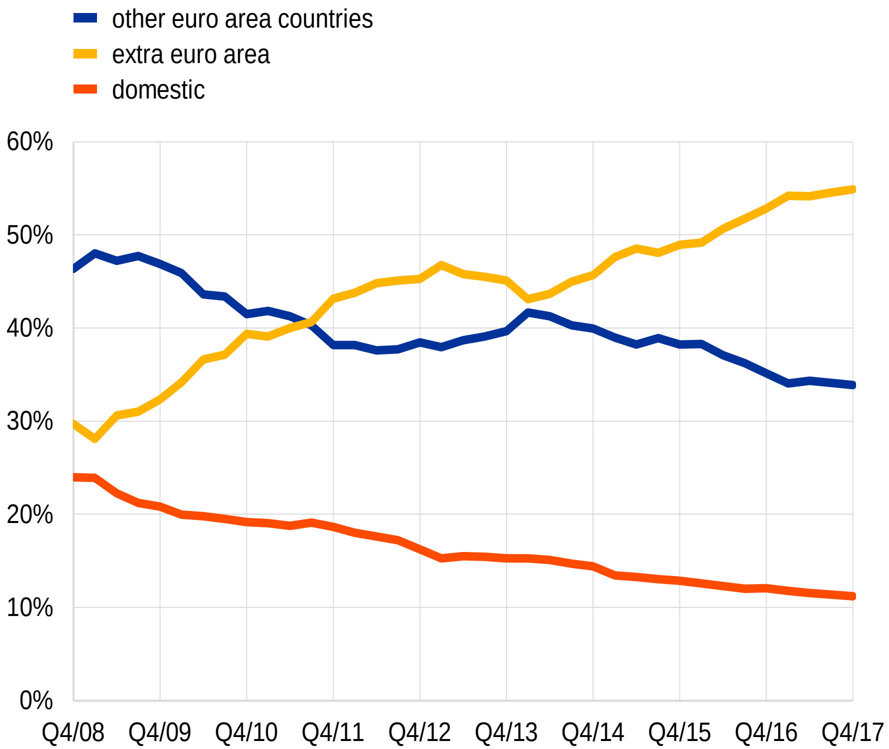
Share of MFI holdings of debt securities issued by euro area and EU corporates and sovereigns

(percentages of total holdings, excl. Eurosystem, monthly data, Sep. 1997 – Jun. 2017)



Investment funds' holdings of debt securities

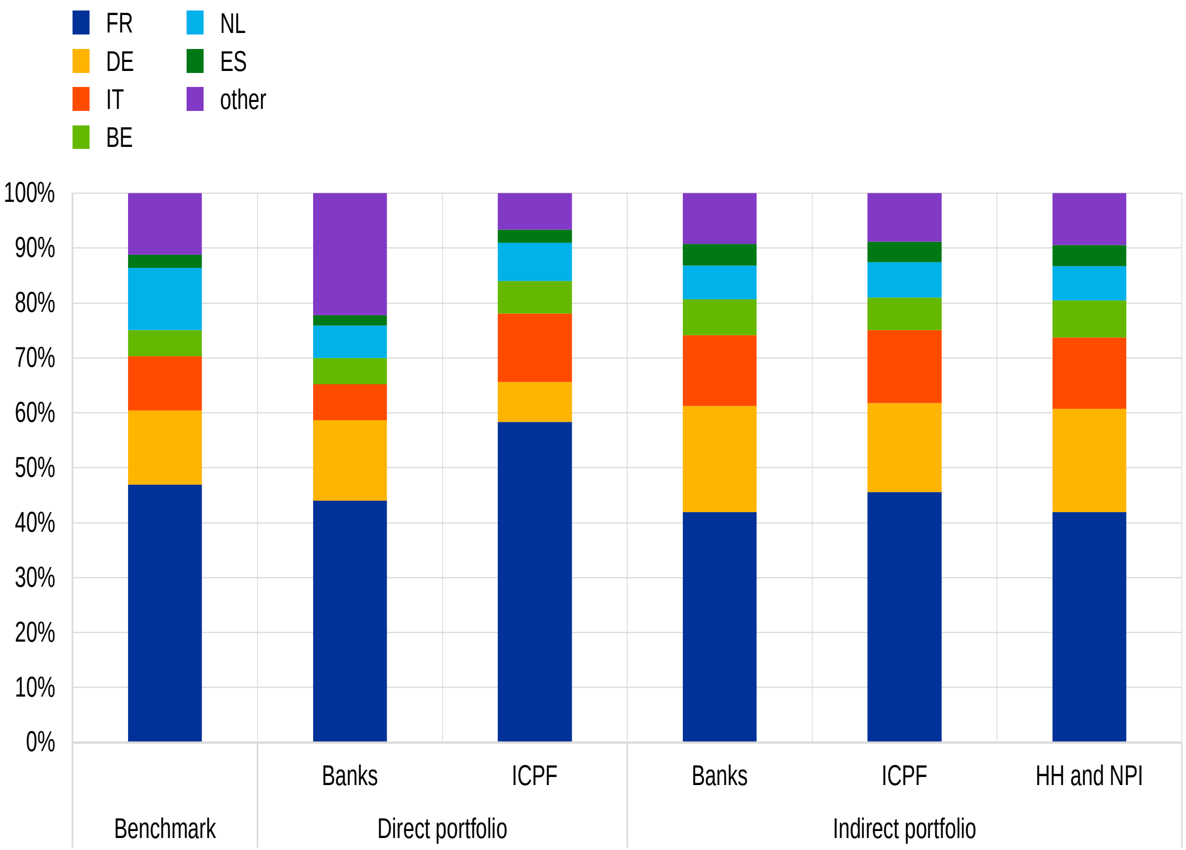
(percentages of total holdings of debt securities, quarterly data, Q4 2008 – Q2 2017)



Sources: (LHS): ECB. See Chart S22 in the statistical annex of ECB (2018), Financial integration in Europe.
(RHS): ECB. See Chart S23 in the statistical annex of ECB (2018), Financial integration in Europe.

Investment funds (IFs) foster financial integration by helping other investors to diversify across countries

Foreign euro area country shares in corporate bond portfolios



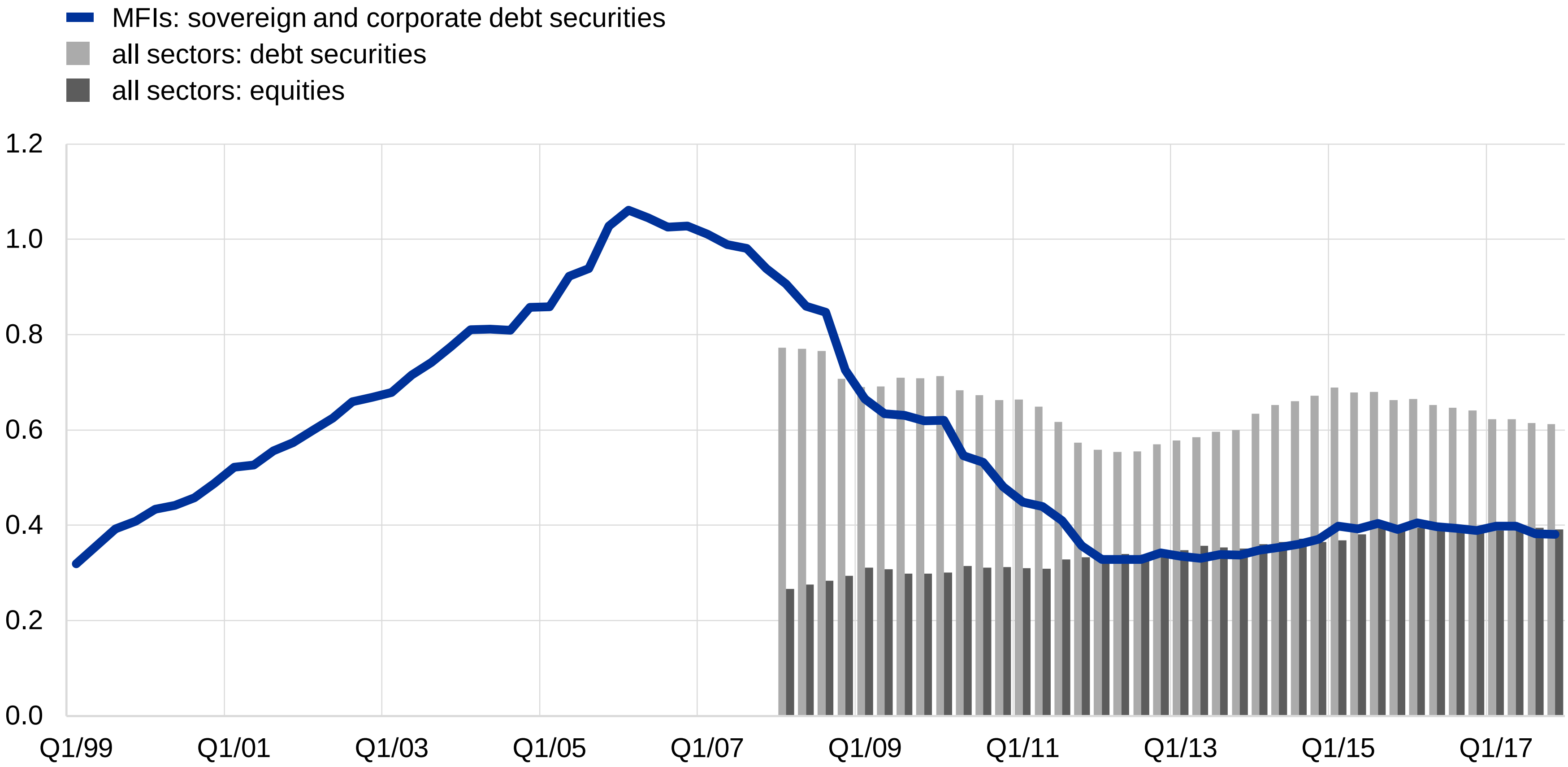
- Direct holdings of banks and insurance corporations and pension funds (ICPFs) are more concentrated than their portfolios taking indirect holdings via UCITS into account
- But new sources of risk and different channels transmitting financial instability associated with the growing popularity of IFs need to be monitored

Sources: Giuzio and Nicoletti (2018) using ECB SHS and Lipper Investment Management data, see Chart 11 in Special Feature B of ECB (2018), Financial integration in Europe.

Euro Area Portfolio Structure

Indicator of intra euro area cross-border portfolio allocations

(ratio; 1.0 = identical portfolio shares)

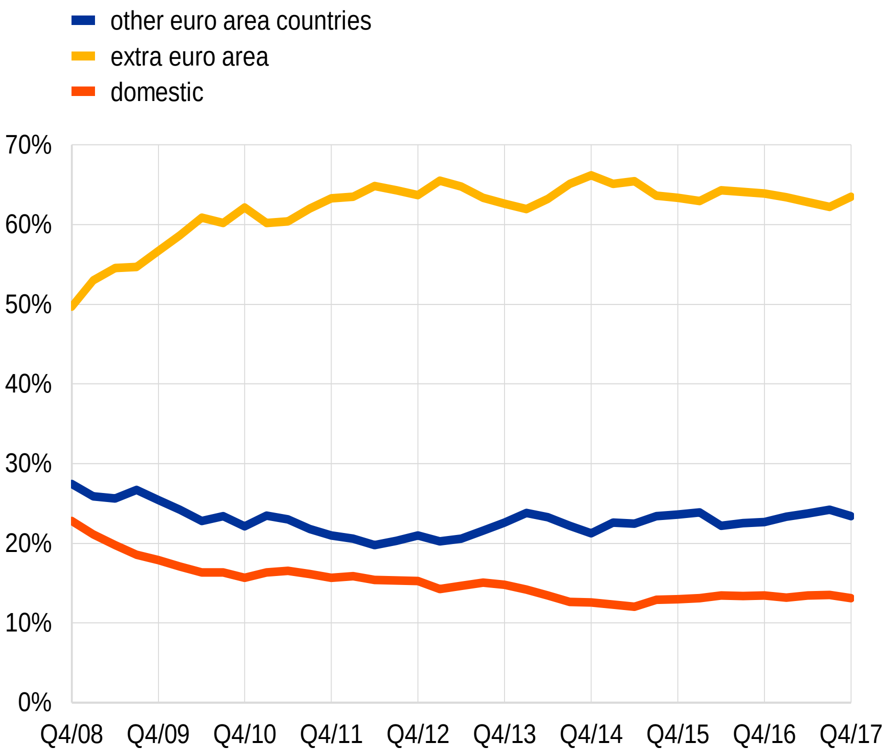


Sources: ECB. See Chart 9 in Chapter 1 of ECB (2018), Financial integration in Europe.

Cross-Border Equity Holdings

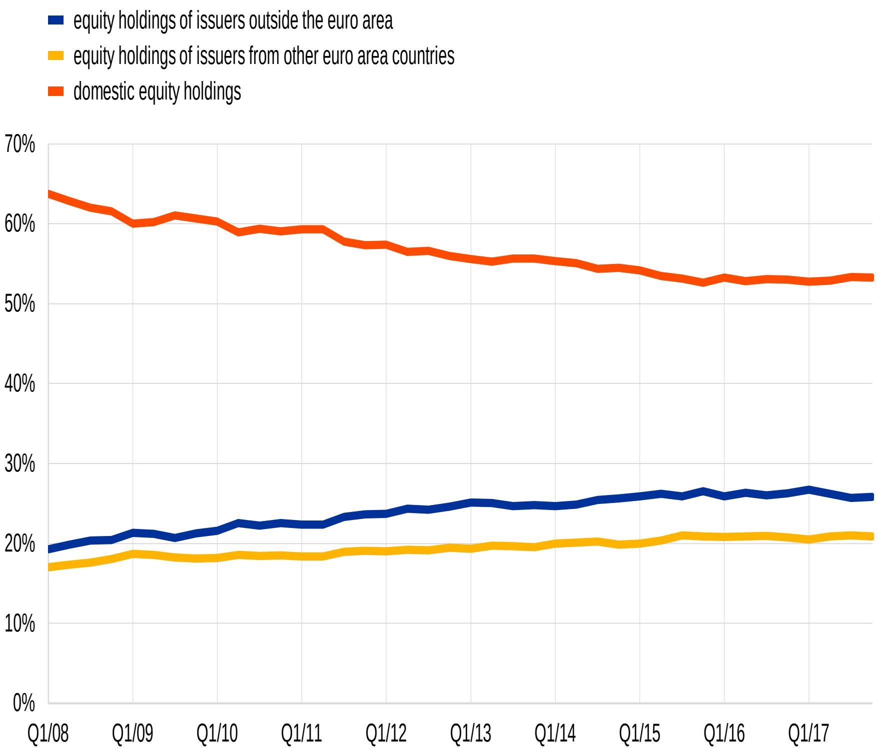
Investment funds’ holding of equity

(percentages of total holdings of equity, quarterly Q4 2008 – Q4 2017)



Euro area holdings of equity by geographical issuer counterparty

(percentages of total euro area holdings of equity, quarterly Q1 2008 – Q4 2017)



Sources: (LHS): ECB. See Chart S24 in the statistical annex of ECB (2018), Financial integration in Europe.
(RHS): ECB. See Chart S25 in the statistical annex of ECB (2018), Financial integration in Europe.