



**ESRB**

European Systemic Risk Board

European System of Financial Supervision

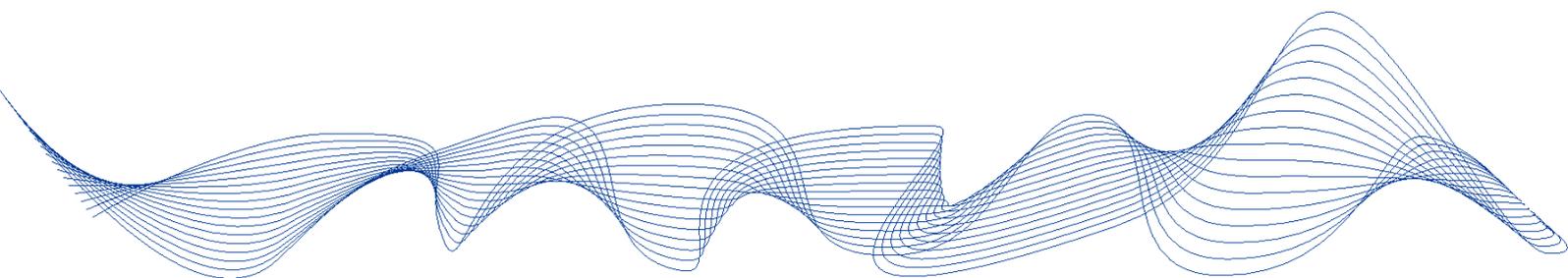


**EUROPEAN CENTRAL BANK**

EUROSYSTEM

# ESRB risk dashboard

Production date: 9 December 2019



**DISCLAIMER: The risk dashboard is a set of quantitative indicators and not an early-warning system.**

**Users may not rely on the indicators as a basis for any mechanical form of inference.**

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## General notes

The ESRB risk dashboard is a set of quantitative and qualitative indicators of systemic risk in the EU financial system. The composition and the presentation of the ESRB risk dashboard have been reviewed in the first quarter of 2017. Unless otherwise indicated: a) all EU indicators relate to the 28 Member States of the EU (the EU28) and b) all data series relate to the Euro 19 (i.e. the euro area) for the whole time series. For statistics based on the balance sheet of the MFI sector, as well as statistics on financial markets and interest rates, the series relate to the composition of the EU/euro area in the period covered (changing composition). Statistics based on the balance sheet of the MFI sector are unconsolidated.

Additional indicators to support the systemic risk assessment in the EU financial system are available in the Macroprudential Database: <http://sdw.ecb.europa.eu/browse.do?node=9689335>

## List of countries and aggregates

Austria	AT	France	FR	The Netherlands	NL
Belgium	BE	Greece	GR	Poland	PL
Bulgaria	BG	Croatia	HR	Portugal	PT
Cyprus	CY	Hungary	HU	Romania	RO
Czech Republic	CZ	Ireland	IE	Sweden	SE
Germany	DE	Italy	IT	Slovenia	SI
Denmark	DK	Lithuania	LT	Slovakia	SK
Estonia	EE	Luxembourg	LU	United Kingdom	UK
Spain	ES	Latvia	LV	Euro area	EA
Finland	FI	Malta	MT	European Union	EU

## List of acronyms

BIS	Bank for International Settlements	ICPF	Insurance Corporation and Pension Funds
CDS	Credit Default Swap	IMF	International Monetary Fund
CISS	Composite Indicator of Systemic Stress	IPD	Investment Property Databank
COREP	Common Solvency Ratio Reporting	MFI	Monetary and Financial Institutions
EBA	European Banking Authority	MMF	Money Market Funds
ECB	European Central Bank	NFC	Non-Financial Corporations
EIOPA	European Insurance and Occupational Pensions Authority	OFI	Other Financial Intermediaries
EONIA	Euro OverNight Index Average	ITS	Implementing Technical Standards
ESCB	European System of Central Banks	SovCISS	Sovereign Composite Indicator of Systemic Stress

## Introductory note to the Section "8. Risk related to central counterparties"

The following indicators on central counterparties are designed to provide a macroprudential, systemic perspective over time on CCPs' default resources, collateral, margins and haircuts, interoperability arrangements and concentration of clearing members. The indicators cover all 16 CCPs that are authorised in the EU and which are regulated under EMIR. Differences across CCPs may reflect differences in business models, membership structure and products cleared. An ESRB Occasional Paper provides further detail on the rationale, the computation of these indicators and open questions. The data from which these indicators were computed are published by CCPs according to the CPMI - IOSCO Public Quantitative Disclosure Framework (PQD) and have not been verified by the ESRB.

Data from all authorised CCPs in the EU are shown with the exception of Athex Clear that do not report data according to the CPMI-IOSCO

## Cut-off date

Data available to the ECB by Thursday, 9 December 2019 were taken into account in these statistics.

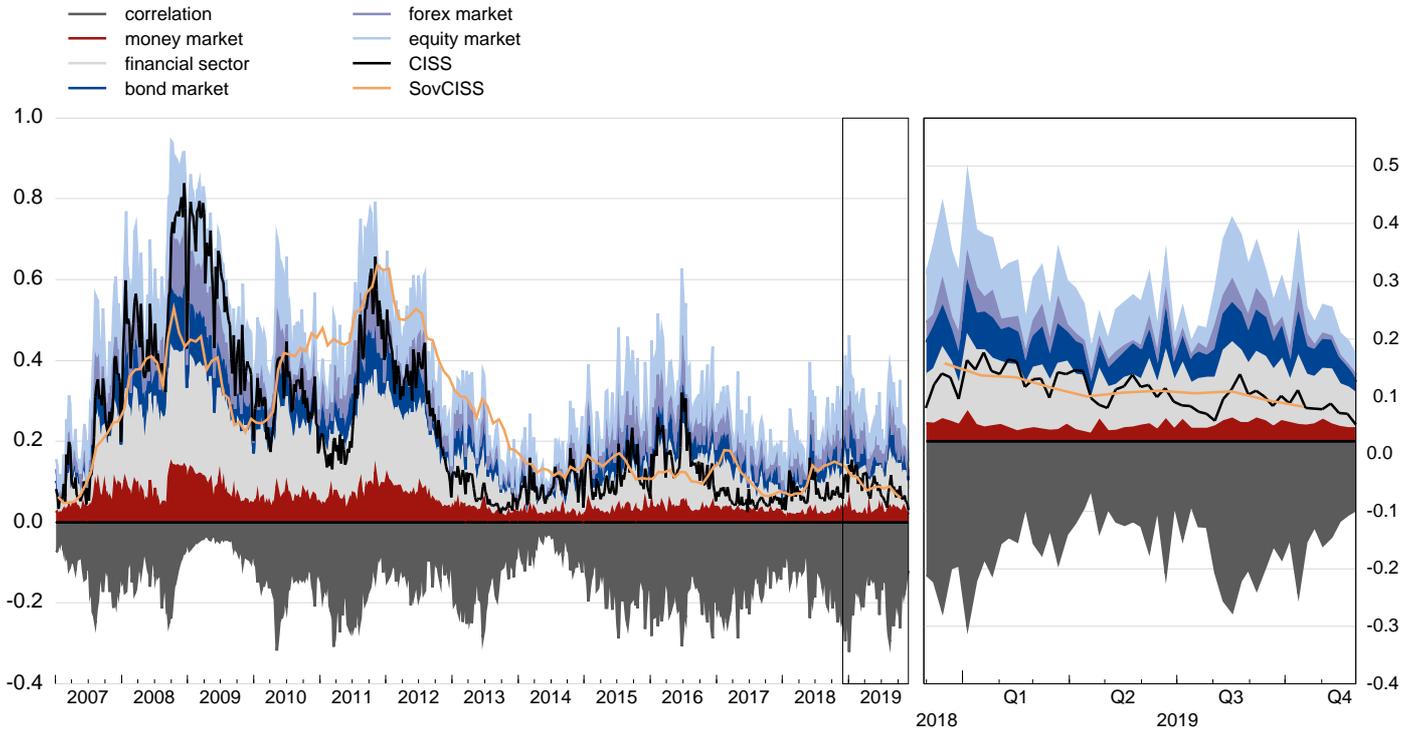
## Contact

For enquiries regarding the risk dashboard and its contents, please contact: <https://ecb-registration.escb.eu/statistical-information>

# 1. Interlinkages and composite measures of systemic risk

## 1.1 Composite indicator of systemic stress

(Last observation: 29 Nov. 2019)

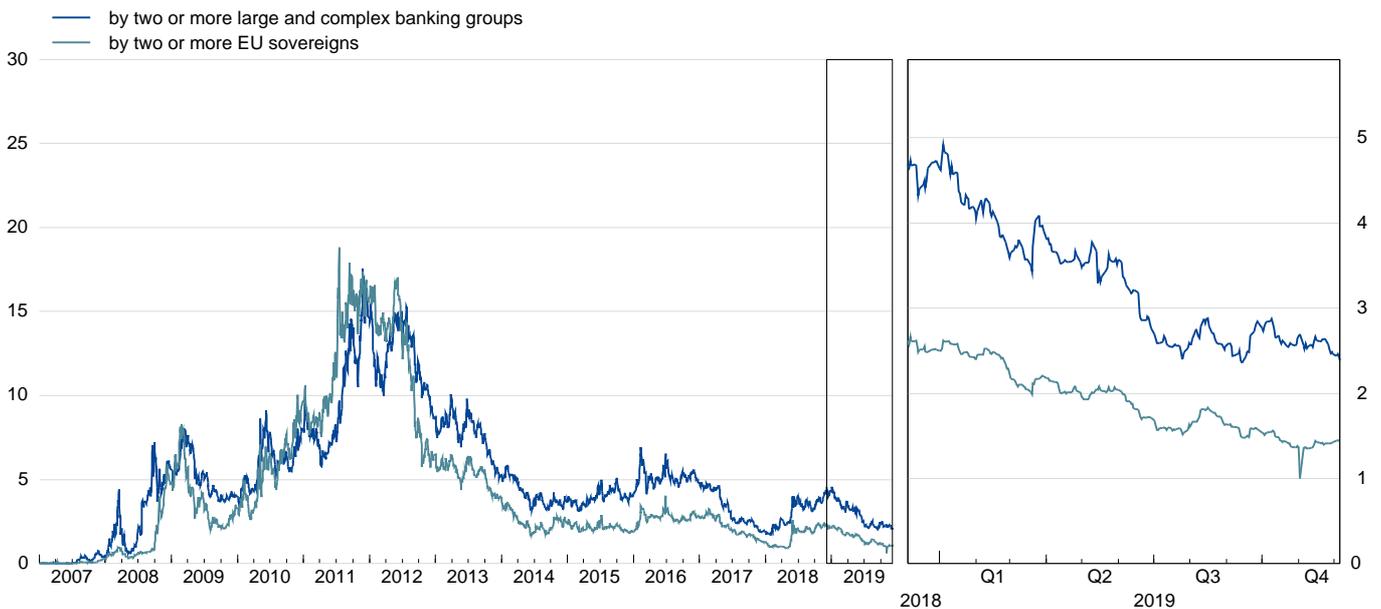


Sources: Thomson Reuters, ECB and ECB calculations.

Notes: The CISS is unit-free and constrained to lie within the interval (0, 1). See Hollo, D., Kremer, M. and Lo Duca, M., "CISS - a composite indicator of systemic stress in the financial system", Working Paper Series, No 1426, ECB, March 2012. The Sovereign CISS applies the same methodological concept of the CISS. On aggregation of different measures of stress in different euro area sovereign bond markets see Garcia-de-Andoain, C. and Kremer, M., "Beyond spreads: measuring sovereign market stress in the euro area", Economics Letters, Vol. 159, 2017, pp. 153-156.

## 1.2 Probability of a simultaneous default

(Percentages; last observation: 5 Dec. 2019)



Sources: Bloomberg, Thomson Reuters and ECB calculations.

Note: See Box 8, Financial Stability Review, ECB, June 2012.

# 1. Interlinkages and composite measures of systemic risk

## 1.3 Cross-border claims of banks

(Sample of EU countries; percentages; last observation: Q2 2019)



Source: ECB and ECB calculations.

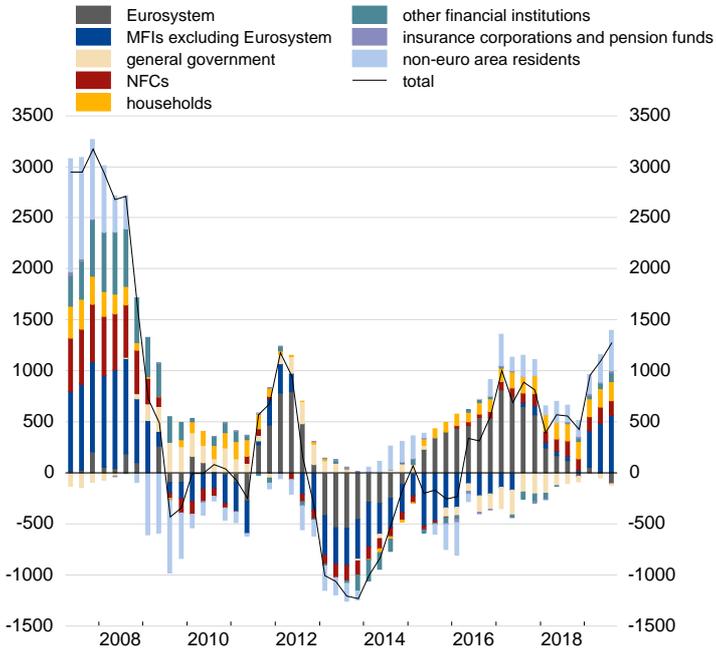
Notes: Based on Consolidated Banking Data. The size of the bubbles corresponds to the ratio of domestic to total claims of a country's consolidated banking sector. The thickness of the arrows depends on the share of bilateral foreign claims in the total claims of the banking sector extending the loans. Arrows are not displayed in cases where the corresponding ratio is below 5%. Due to the use of consolidated data, cross-border claims also include banks' exposures to other countries in the EU through the presence of subsidiaries in those countries. Data for UK not available.

# 1. Interlinkages and composite measures of systemic risk

## 1.4 MFI credits by counterpart sectors

### a. Four-quarter cumulated flows

(euro area; EUR billions; last observation: Q3 2019)

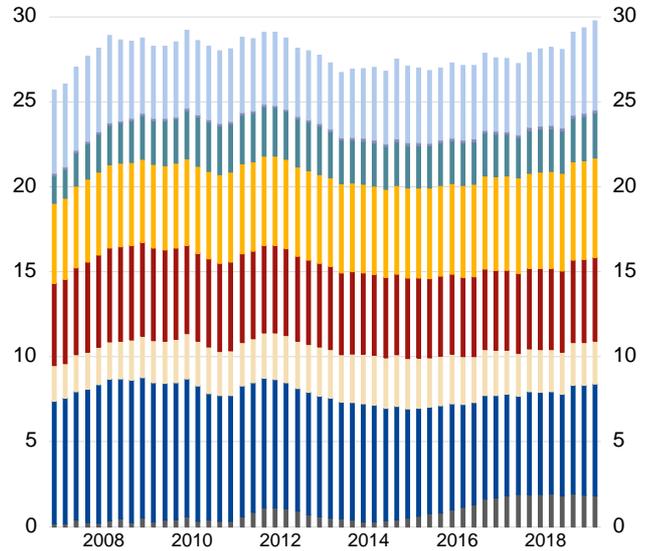


Source: ECB.

Notes: MFIs excluding the Eurosystem. Credit comprises loans and holdings of securities. Eurosystem credit comprises only loans. Households include non-profit institutions serving households.

### b. Outstanding amounts

(euro area; EUR trillions; last observation: Q3 2019)

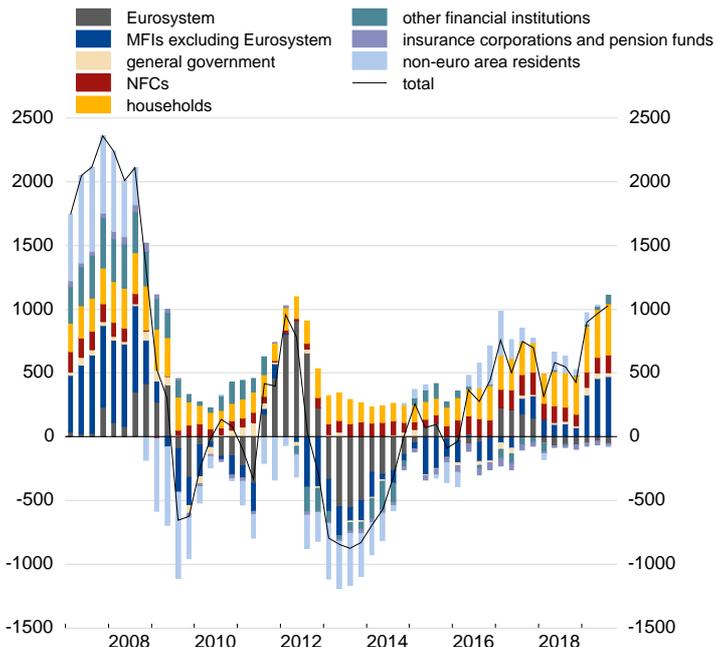


Source: ECB.

## 1.5 MFI deposits by counterpart sector

### a. Four-quarter cumulated flows

(euro area; EUR billions; last observation: Q3 2019)

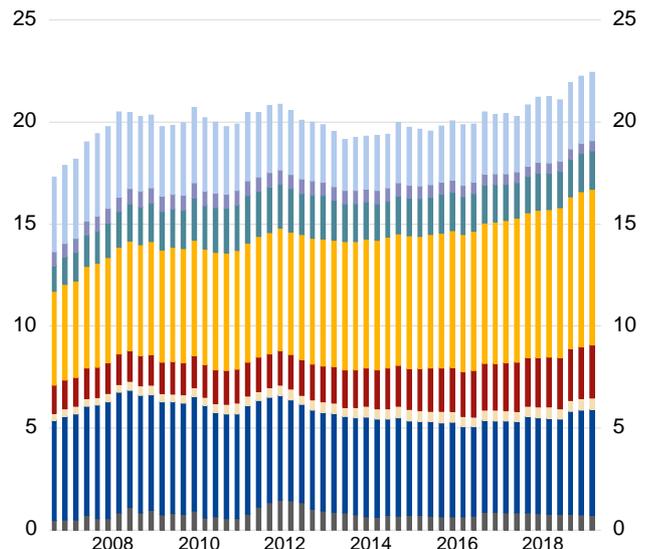


Source: ECB.

Notes: MFIs excluding the Eurosystem. Households include non-profit institutions serving households.

### b. Outstanding amounts

(euro area; EUR trillions; last observation: Q3 2019)

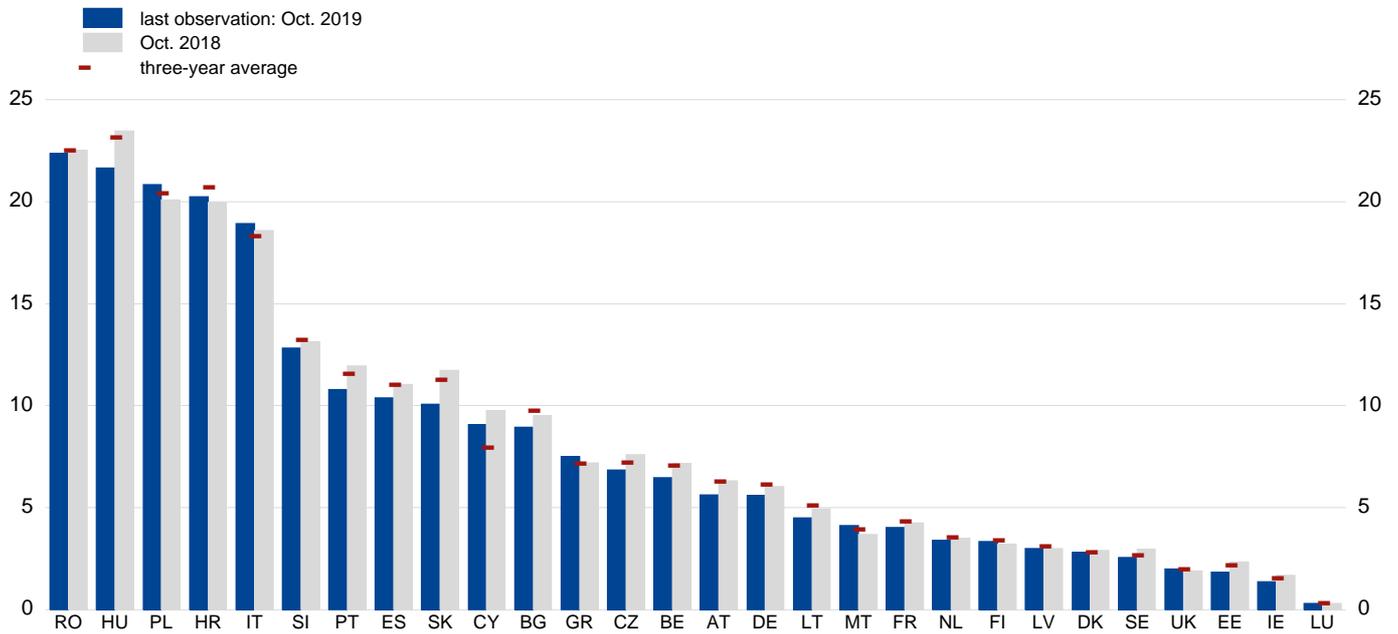


Source: ECB.

# 1. Interlinkages and composite measures of systemic risk

## 1.6 MFI credits to general government

(EU; share of total assets; percentages)

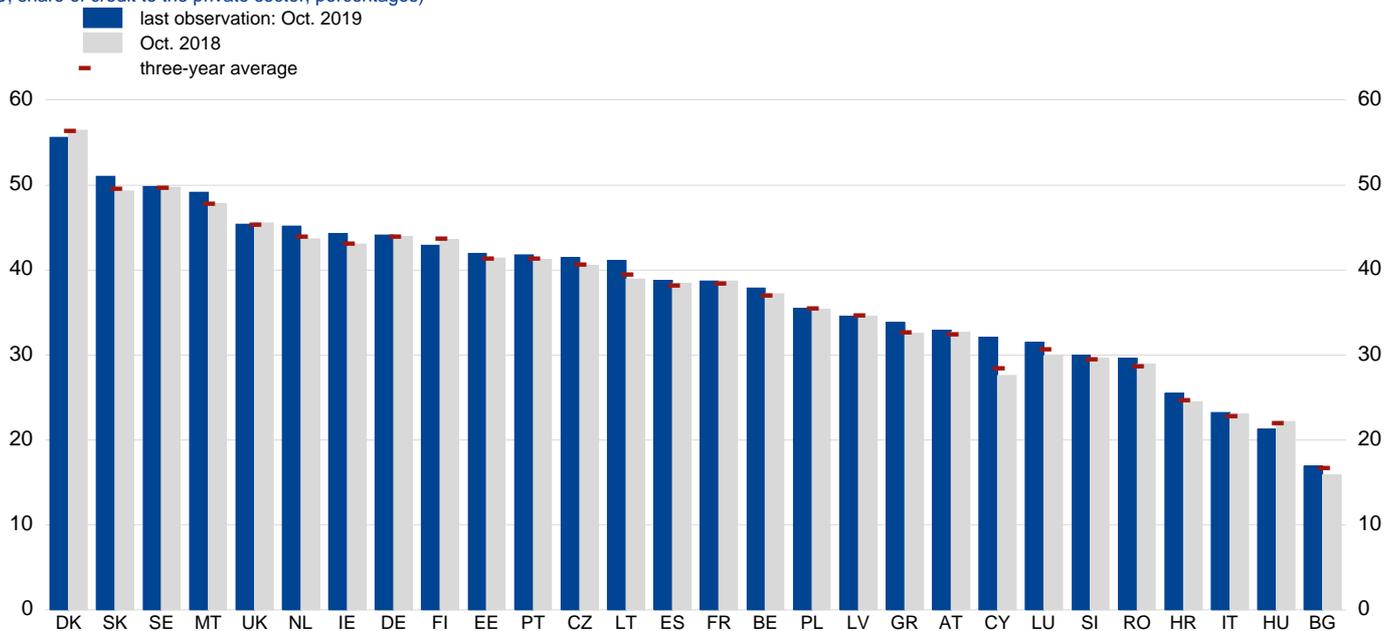


Source: ECB.

Notes: Credit extended by MFIs excluding the ESCB to domestic general government. Credit comprises granted loans and holdings of debt securities issued. Total assets excludes remaining assets. For some countries, such as Italy and France, government-owned agencies mandated to finance primarily public administrations are listed as MFIs.

## 1.7 MFI loans for house purchase

(EU; share of credit to the private sector; percentages)



Source: ECB.

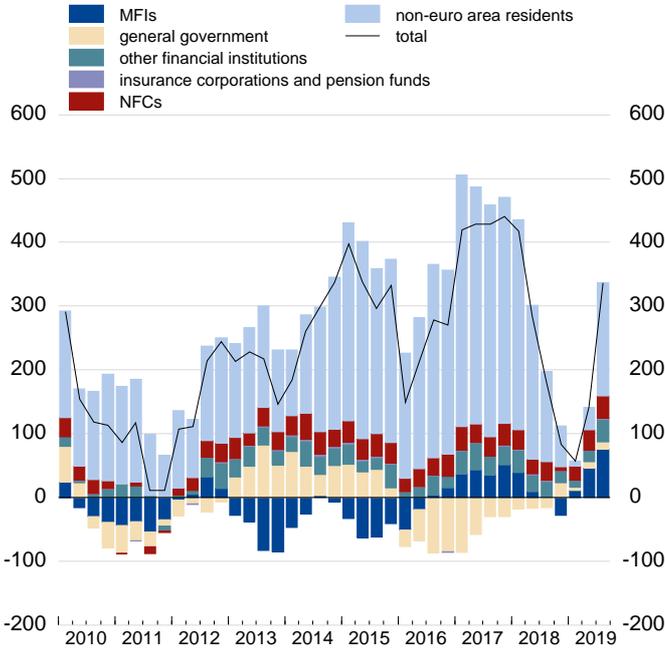
Notes: MFIs excluding the ESCB. Data refer to loans granted to domestic households for house purchase purpose. Credit comprises loans and holdings of debt securities.

# 1. Interlinkages and composite measures of systemic risk

## 1.8 Investment funds' holdings of debt securities by counterpart sector

### a. Cumulated flows

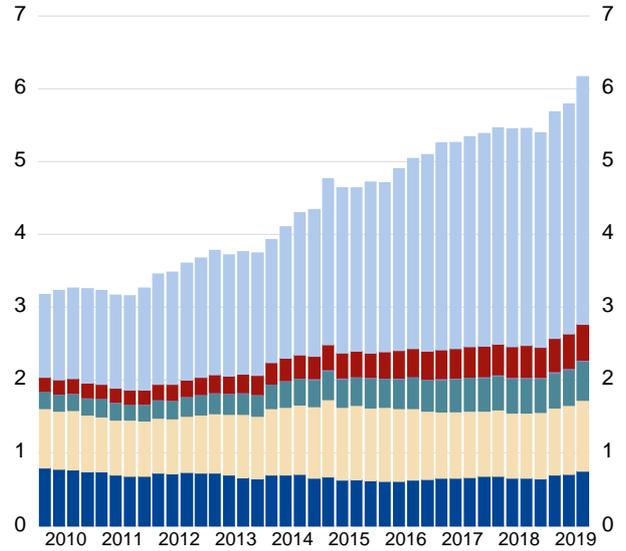
(euro area; four-quarter cumulated flows; EUR billions; last observation: Q3 2019)



Source: ECB.

### b. Outstanding amounts

(euro area; EUR trillions; last observation: Q3 2019)

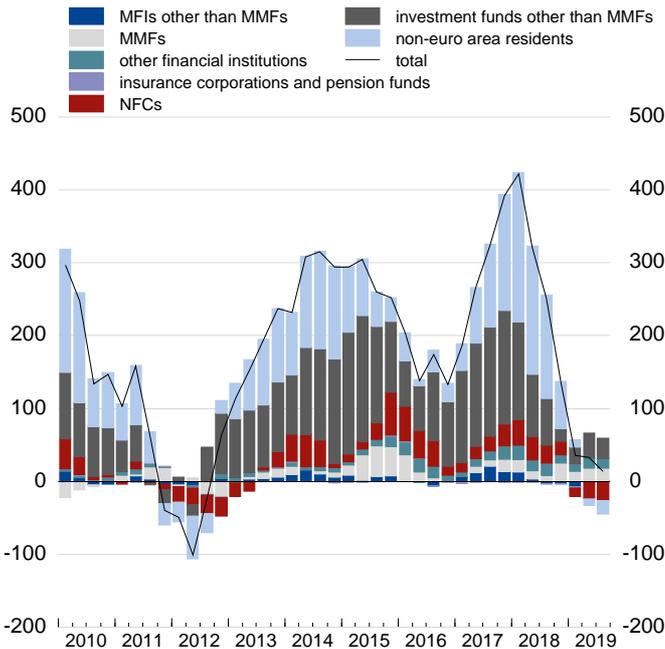


Source: ECB.

## 1.9 Investment funds' holdings of equity and investment fund shares by counterpart sector

### a. Cumulated flows

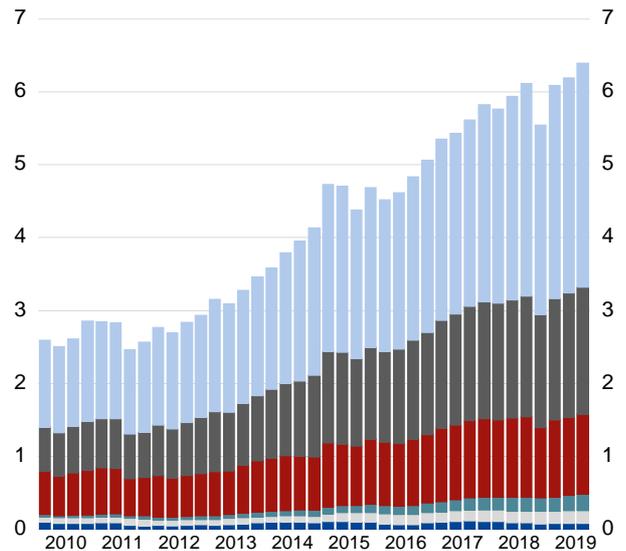
(euro area; four-quarter cumulated flows; EUR billions; last observation: Q3 2019)



Source: ECB.

### b. Outstanding amounts

(euro area; EUR trillions; last observation: Q3 2019)

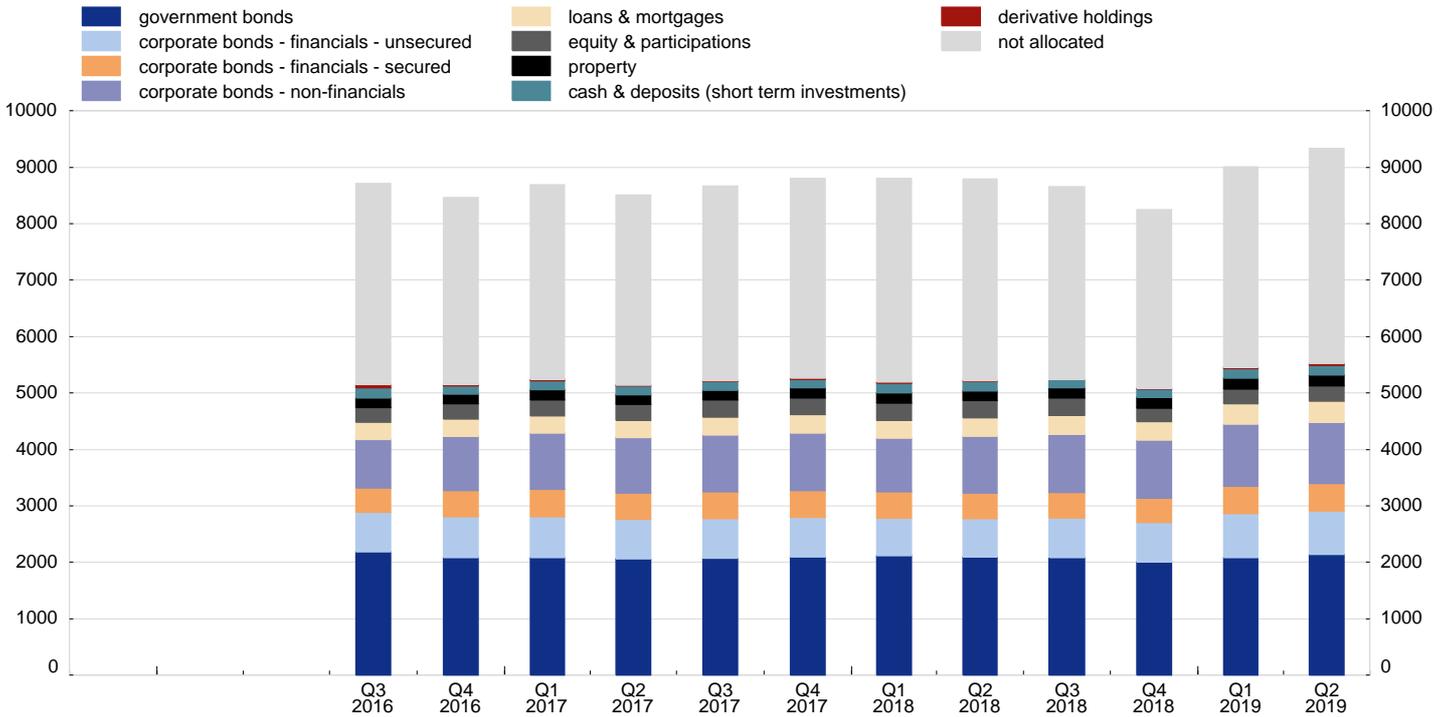


Source: ECB.

# 1. Interlinkages and composite measures of systemic risk

## 1.10 Insurance corporations' assets allocation (including derivative holdings)

(EU; outstanding amounts; EUR billions; last observation: Q2 2019)

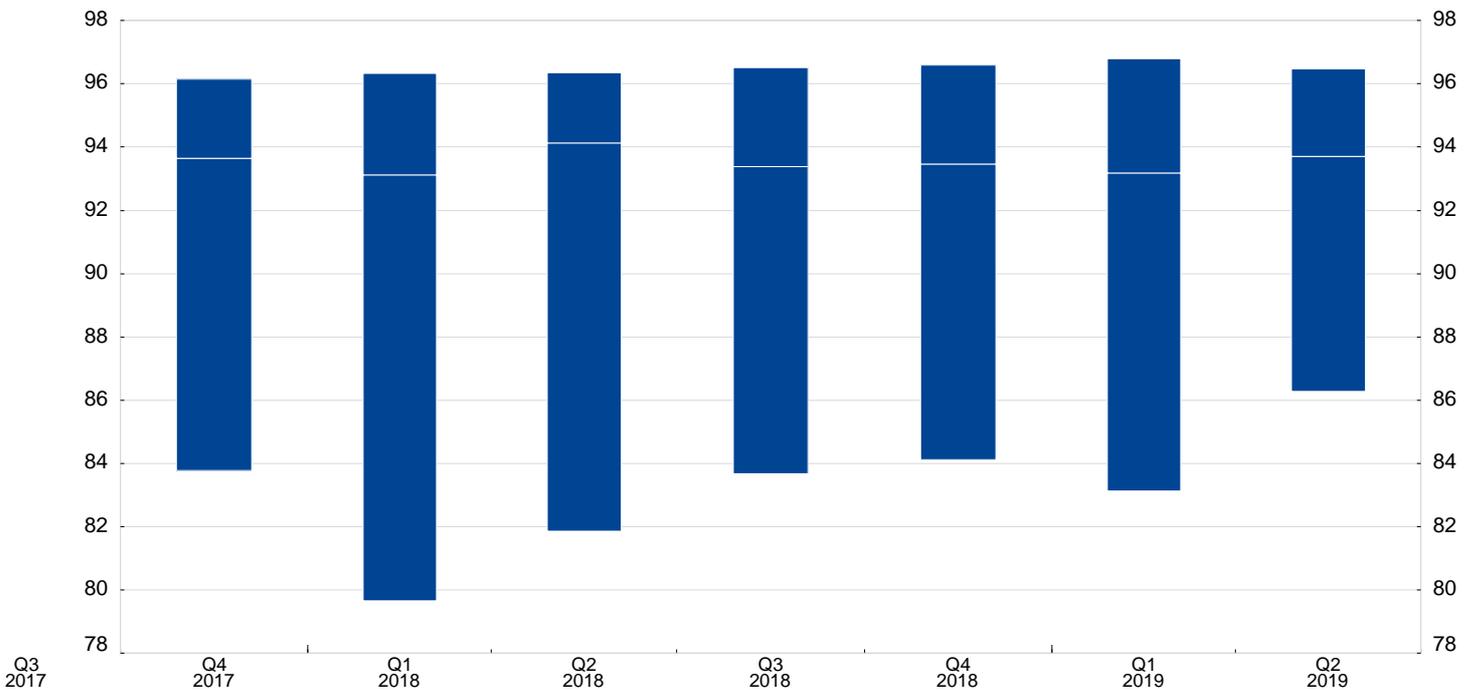


Source: EIOPA, based on Solvency II Reporting.

Note: For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 1.11 Insurance groups' retention ratio

(EU; percentages; interquartile range and median; last observation: Q2 2019)



Source: EIOPA, based on Solvency II Reporting.

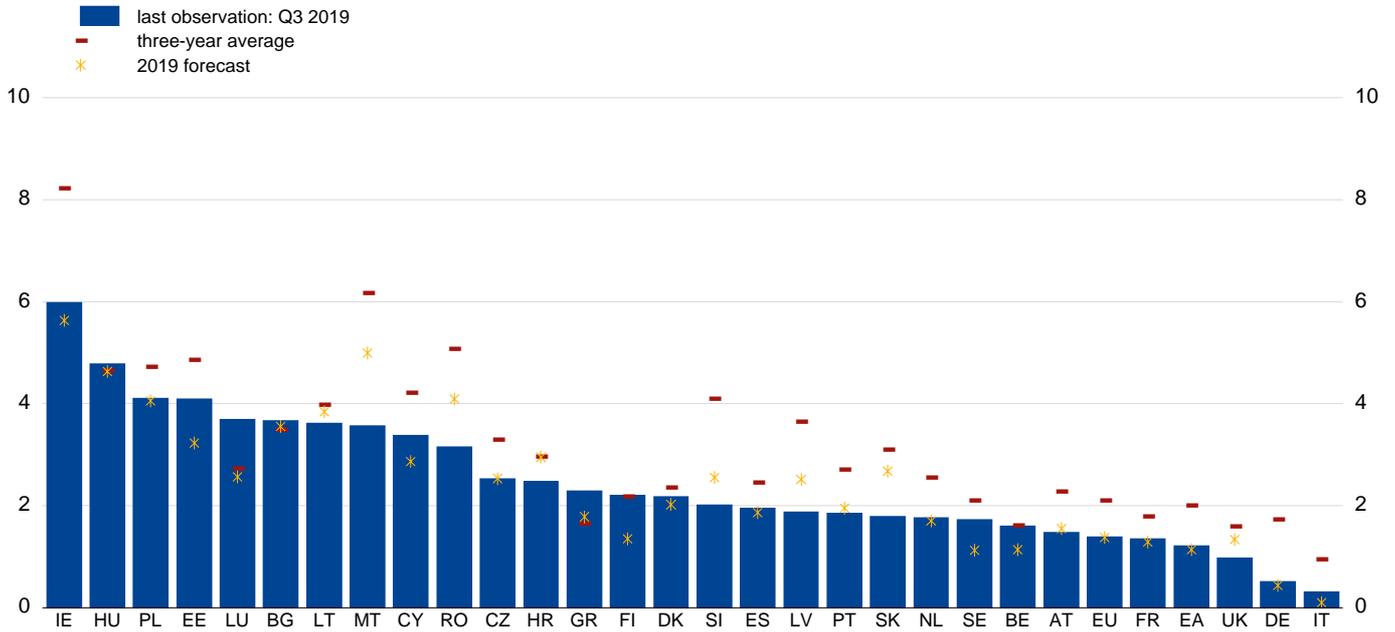
Note: The retention ratio is defined as net premiums written divided by gross premiums written.

For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 2. Macro risk

### 2.1 Current and forecast real GDP growth

(EU; percentage changes; year-on-year growth)

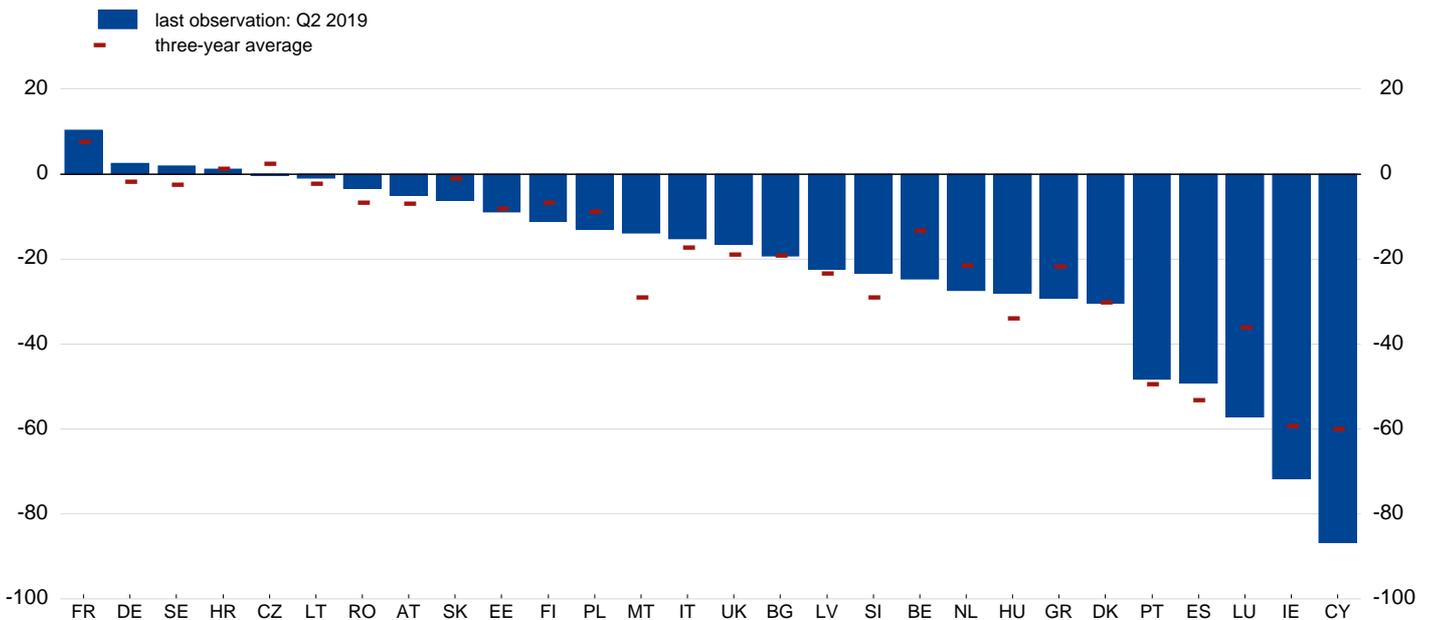


Sources: European Commission and the European Commission Autumn 2019 forecast.

Notes: The three-year historical average is the average of the year-on-year growth rates over the last 12 quarters. For IE, HR and LU, "last observation" refers to Q2 2019.

### 2.2 Domestic credit-to-GDP gap

(EU; percentages)



Sources: European Commission, BIS, ECB and ECB calculations.

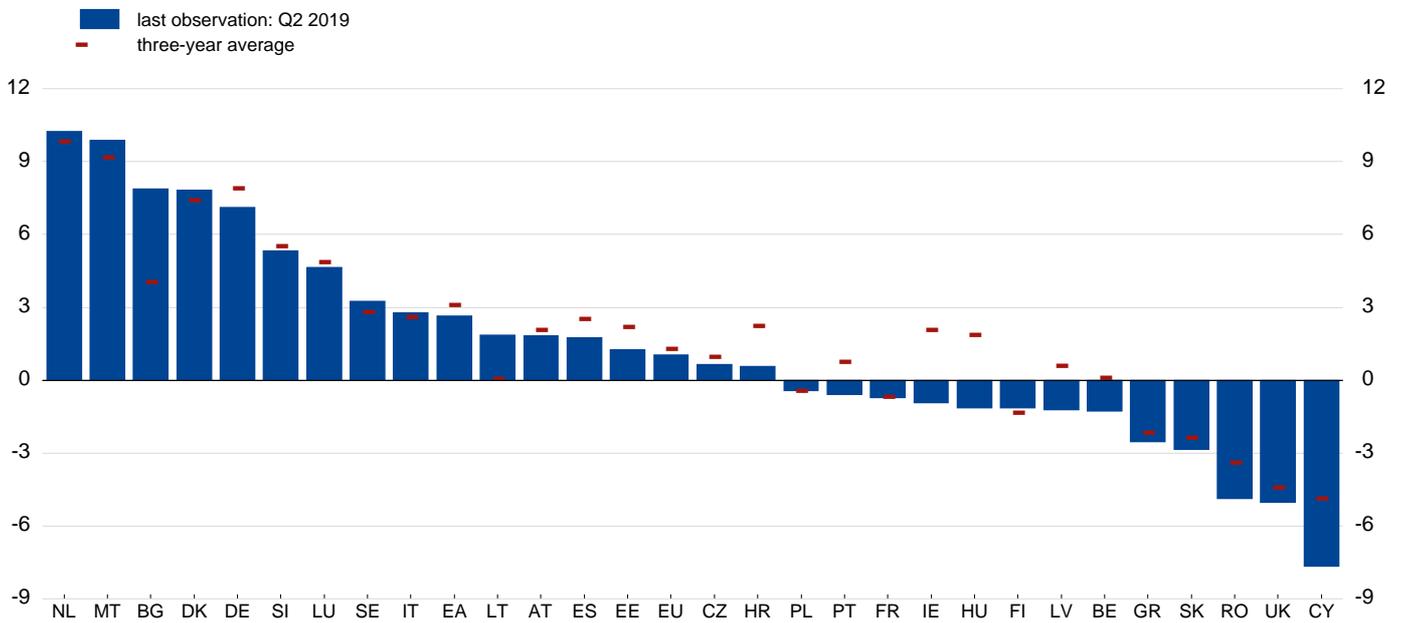
Notes: See ESRB recommendation of 18 June 2014 on guidance for setting countercyclical buffer rates (ESRB/2014/1). ECB calculations and national calculations may differ.

Methodological change in time series for FR. Data has been revised backward from 2016-2019 for NFC loans.

## 2. Macro risk

### 2.3 Current account balance-to-GDP ratio

(EU; percentages)

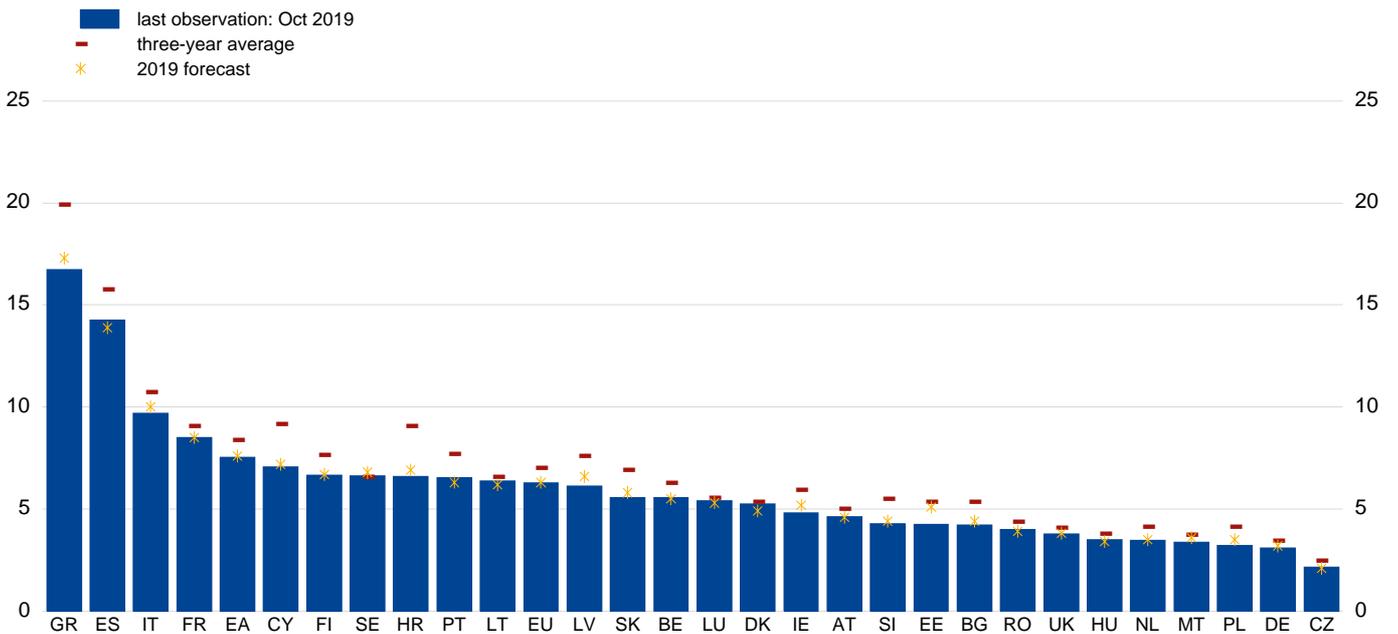


Source: ECB and European Commission.

Notes: Quarterly data represent the sum of the four quarters up to and including the quarter of reference. The three-year average is compiled on the basis of the annualised ratio of the last 12 quarters. The indicator includes amounts relating to special purpose entities (SPEs). Large proportions of their activities and their lending and indebtedness practices are not related to the domestic market. For countries with a relevant presence of resident SPEs (in particular CY, HU, IE, LU, MT and NL), the impact on this indicator and its changes can be very significant. Additional information on the effect of SPEs may be obtained from the relevant national compilers.

### 2.4 Unemployment rate

(EU; percentage of labour force; seasonally adjusted)



Sources: European Commission and the European Commission Autumn 2019 forecast.

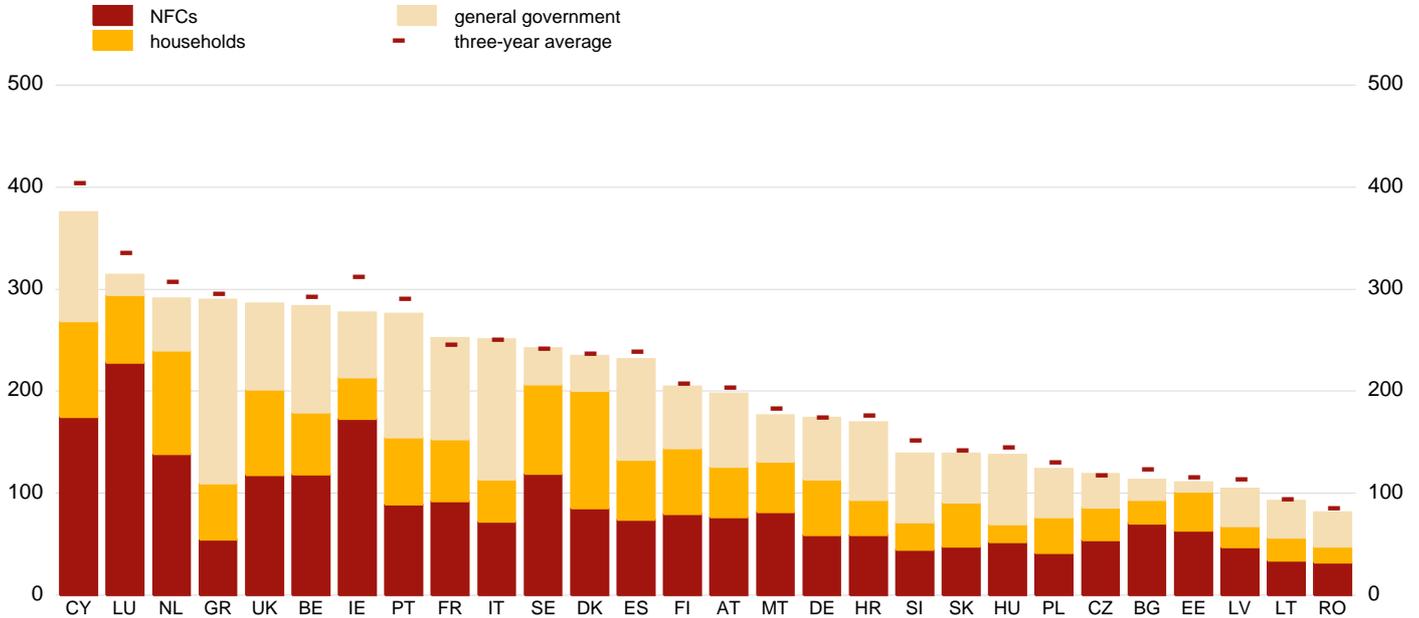
Notes: For EE and HU, "last observation" refers to September 2019. For GR and UK, "last observation" refers to August 2019.

## 2. Macro risk

### 2.5 Aggregate debt-to-GDP ratio

#### a. Level

(EU; percentages; last observation: Q2 2019)

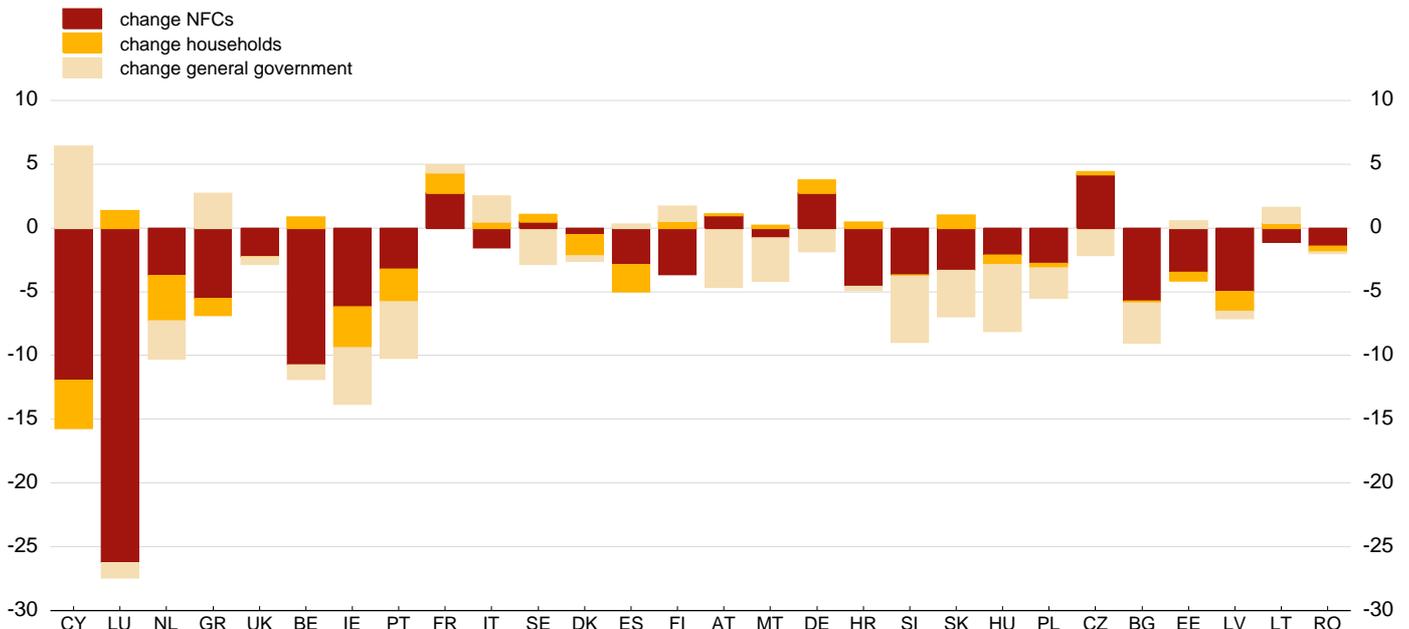


Sources: ECB and European Commission.

Notes: Debt-to-GDP ratios for NFCs and general government are based on consolidated debt figures. Data for NFCs for UK are based on annual ESA2010 series for 2018. Three-year average is not calculated for UK. The indicator includes amounts relating to special purpose entities (SPEs). Large proportions of their activities and their lending and indebtedness practices are not related to the domestic market. For countries with a relevant presence of resident SPEs (in particular CY, HU, IE, LU, MT and NL), the impact on this indicator and its changes can be very significant. Additional information on the effect of SPEs may be obtained from the relevant national compilers.

#### b. Year-on-year change

(EU; percentage points; year-on-year changes; last observation: Q2 2019)



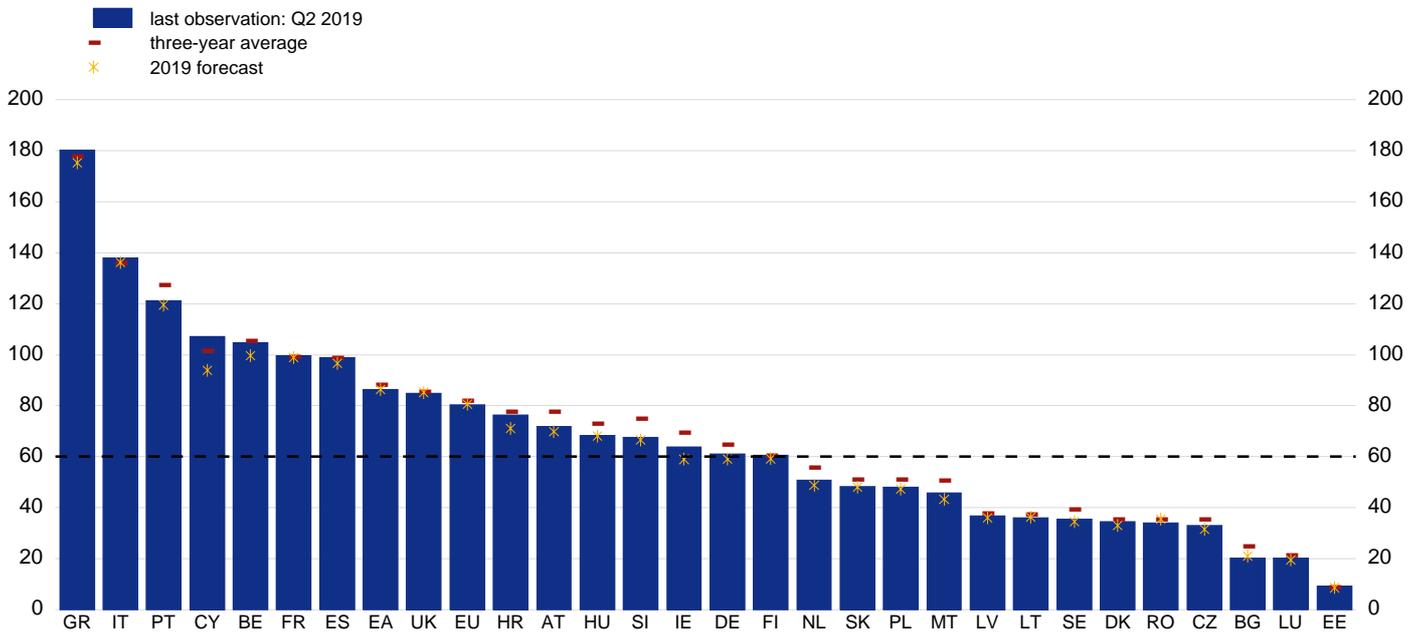
Sources: ECB and European Commission.

Notes: Debt-to-GDP ratios for NFCs and general government are based on consolidated debt figures. Data on changes of NFCs debt for UK are based on annual ESA2010 series up to 2018. The indicator includes amounts relating to special purpose entities (SPEs). Large proportions of their activities and their lending and indebtedness practices are not related to the domestic market. For countries with a relevant presence of resident SPEs (in particular CY, HU, IE, LU, MT and NL), the impact on this indicator and its changes can be very significant. Additional information on the effect of SPEs may be obtained from the relevant national compilers.

## 2. Macro risk

### 2.6 General government debt-to-GDP ratio

(EU; percentages)

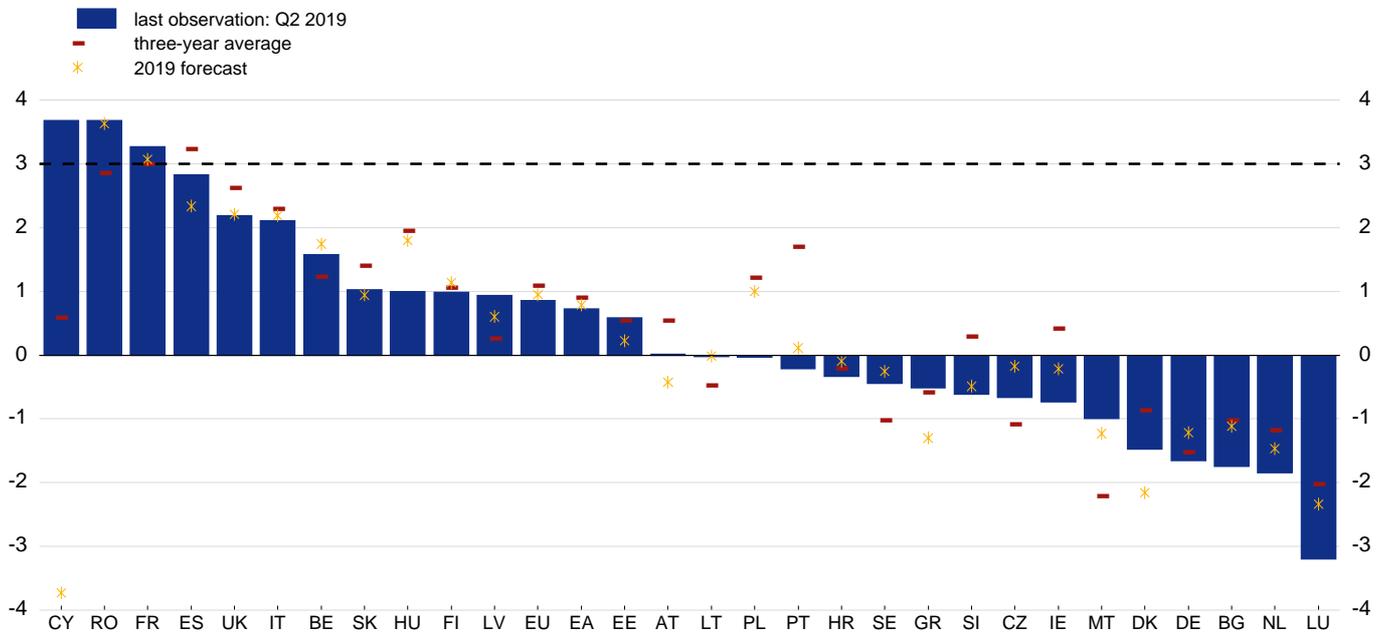


Sources: European Commission and the European Commission Autumn 2019 forecast.

Notes: Intra-general government transactions are consolidated. The black dashed line represents the threshold of 60% for the government debt-to-GDP ratio under the Stability and Growth Pact.

### 2.7 General government deficit-to-GDP ratio

(EU; four-quarter moving sum; percentages)



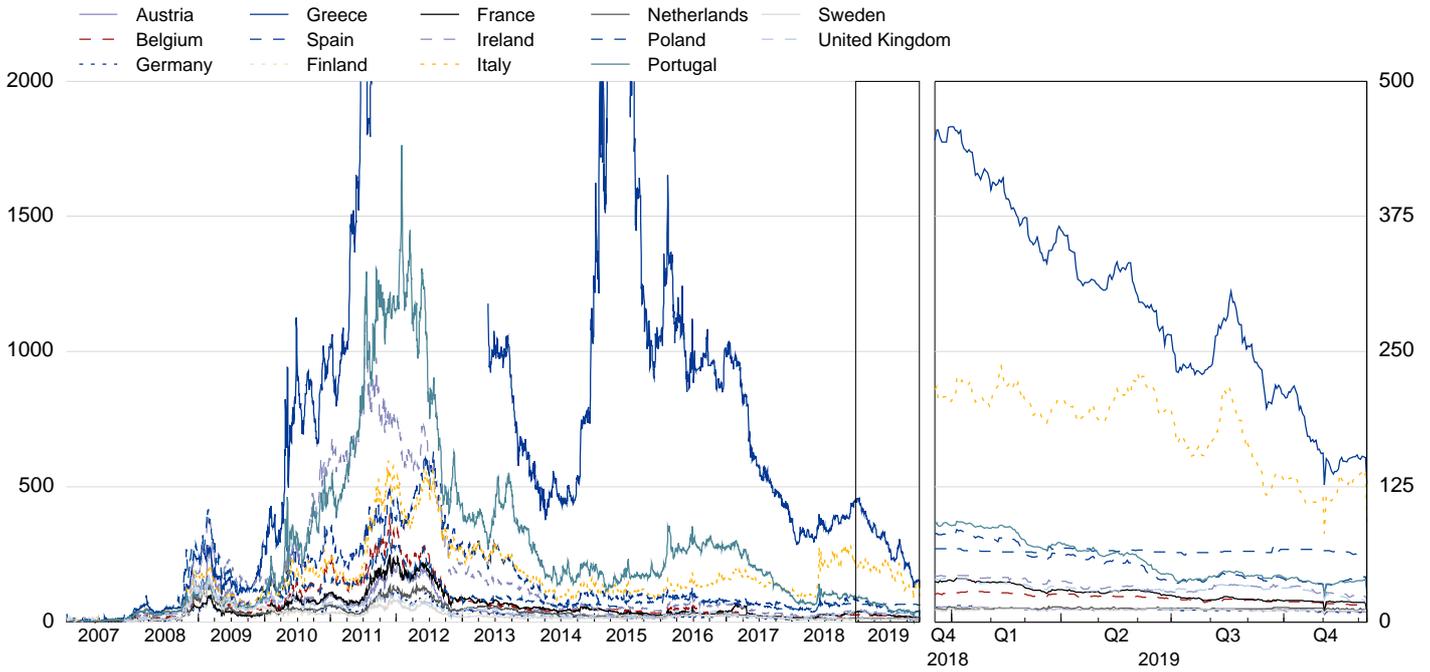
Sources: European Commission and the European Commission Autumn 2019 forecast.

Notes: The black dashed line represents the threshold of 3% for the budget deficit under the Stability and Growth Pact. For a number of countries, the figures include bank recapitalisation costs. Excluding these factors would in most cases lower the deficits.

## 2. Macro risk

### 2.8 CDS premia on sovereign debt

(Sample of EU countries; basis points; five-year maturities; last observation: 6 Dec. 2019)

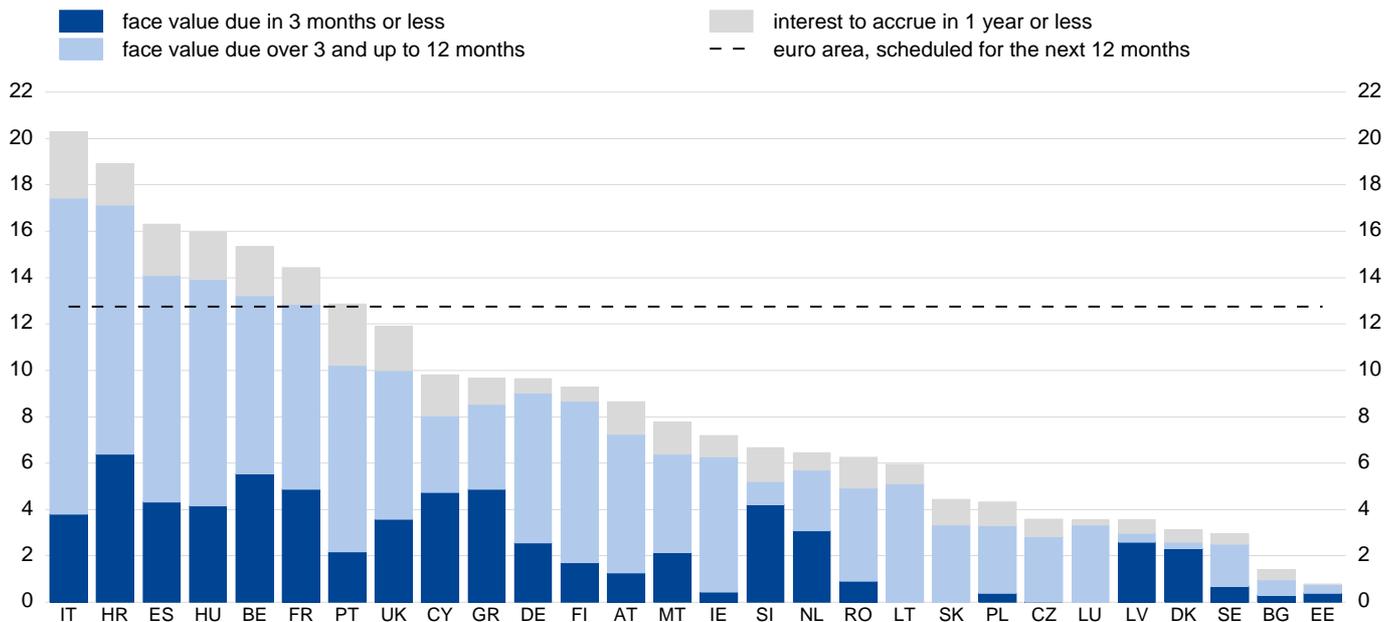


Sources: Thomson Reuters Datastream and CMA.

Notes: Greek sovereign CDS were not traded between 9 March 2012 and 11 April 2012 following the decision by the ISDA that a credit event had occurred. Due to the lack of contributors, data were also not available between 1 March and 21 May 2013. For presentational reasons, this chart has been truncated.

### 2.9 Government debt service

(EU; percentage of GDP; Nov. 2019 to Oct. 2020)



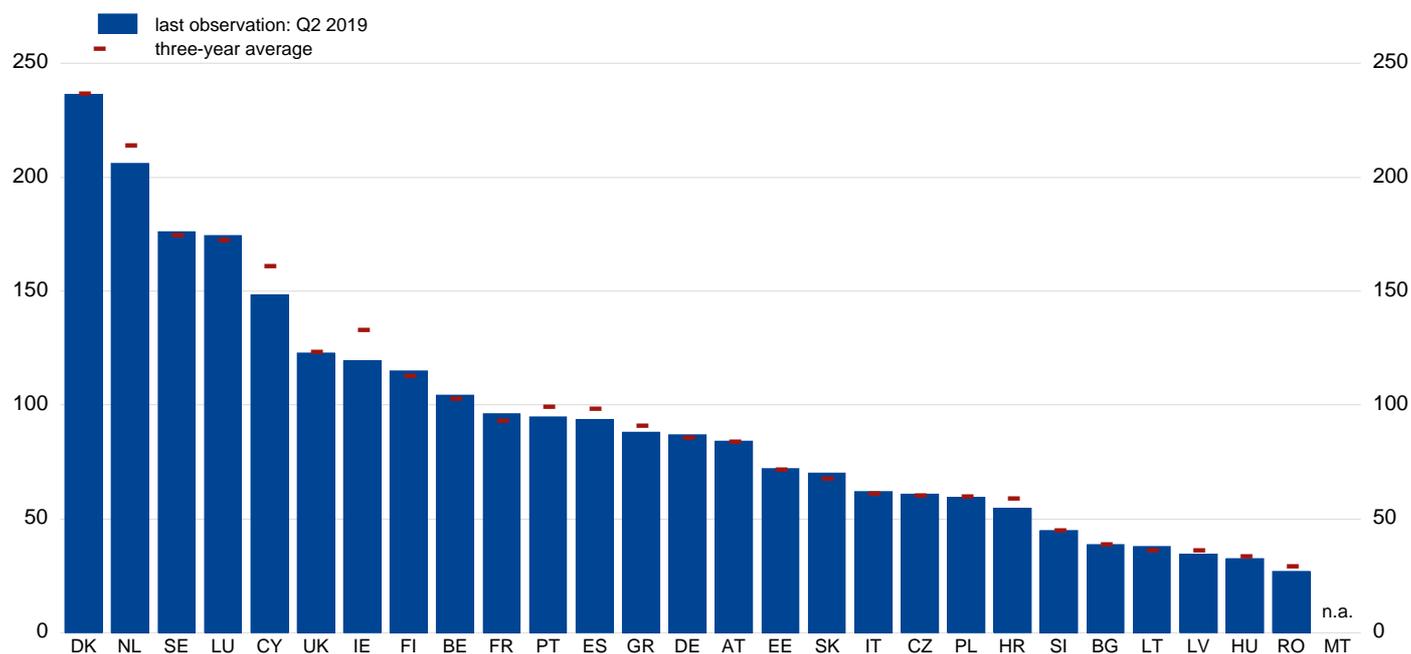
Source: ECB.

Notes: Debt service is a set of payments, including the principal amount and interest, to be made by the debtor over the life of a debt. Debt service is measured for the coming 12 months.

## 2. Macro risk

### 2.10 Household debt-to-gross disposable income ratio

(EU; percentages)



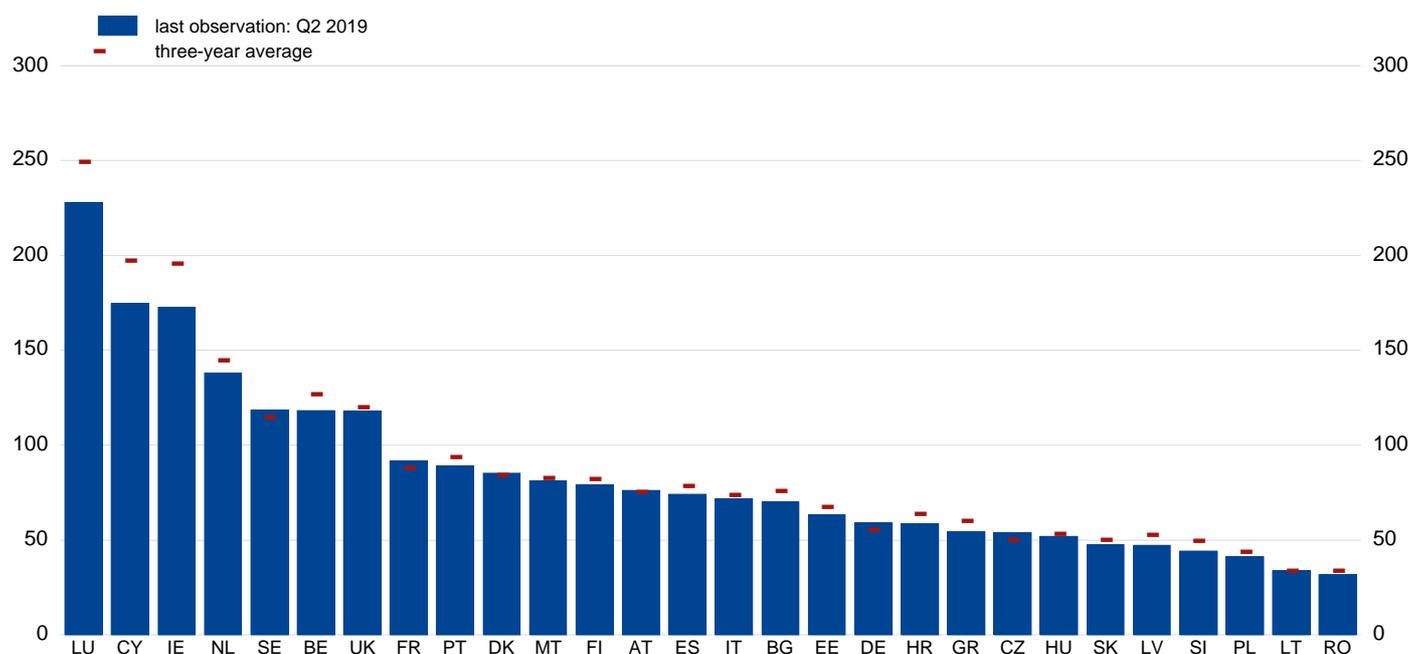
Sources: ECB and European Commission.

Notes: Data for HR are based on Q4 2016. Data for GR and RO are based on Q4 2018. Data for PL are based on Q1 2019.

Data for CY, HU, LT, LU, LV and SK are based on annual ESA2010 series for 2018 and BG and EE are based on annual ESA2010 series for 2017. Data for MT are not available.

### 2.11 NFC debt-to-GDP ratio

(EU; percentages)



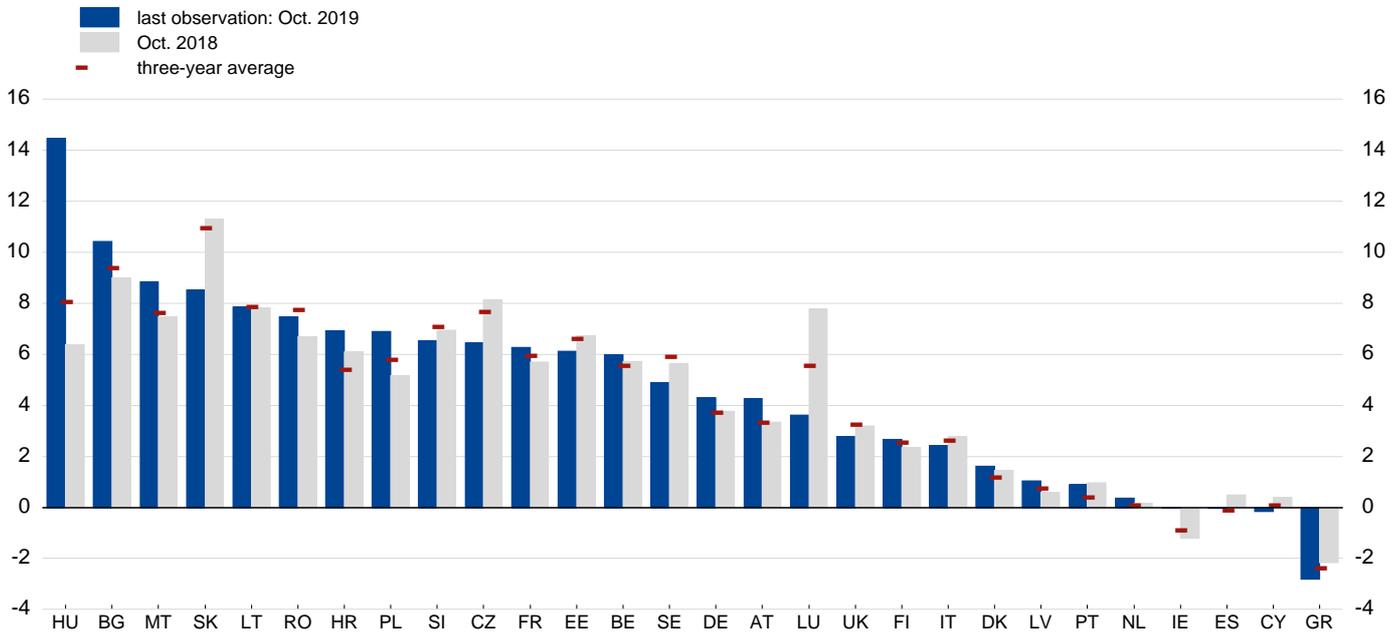
Sources: ECB and European Commission.

Notes: Debt-to-GDP ratios for NFCs are based on consolidated debt figures. NL data are consolidated at the level of the resident enterprise group. Data for UK are based on annual ESA2010 series for 2018. The indicator includes amounts relating to special purpose entities (SPEs). Large proportions of their activities and their lending and indebtedness practices are not related to the domestic market. For countries with a relevant presence of resident SPEs (in particular CY, HU, IE, LU, MT and NL), the impact on this indicator and its changes can be very significant. Additional information on the effect of SPEs may be obtained from the relevant national compilers.

### 3. Credit risk

#### 3.1 Annual growth rates of MFIs loans to households

(EU; percentages)

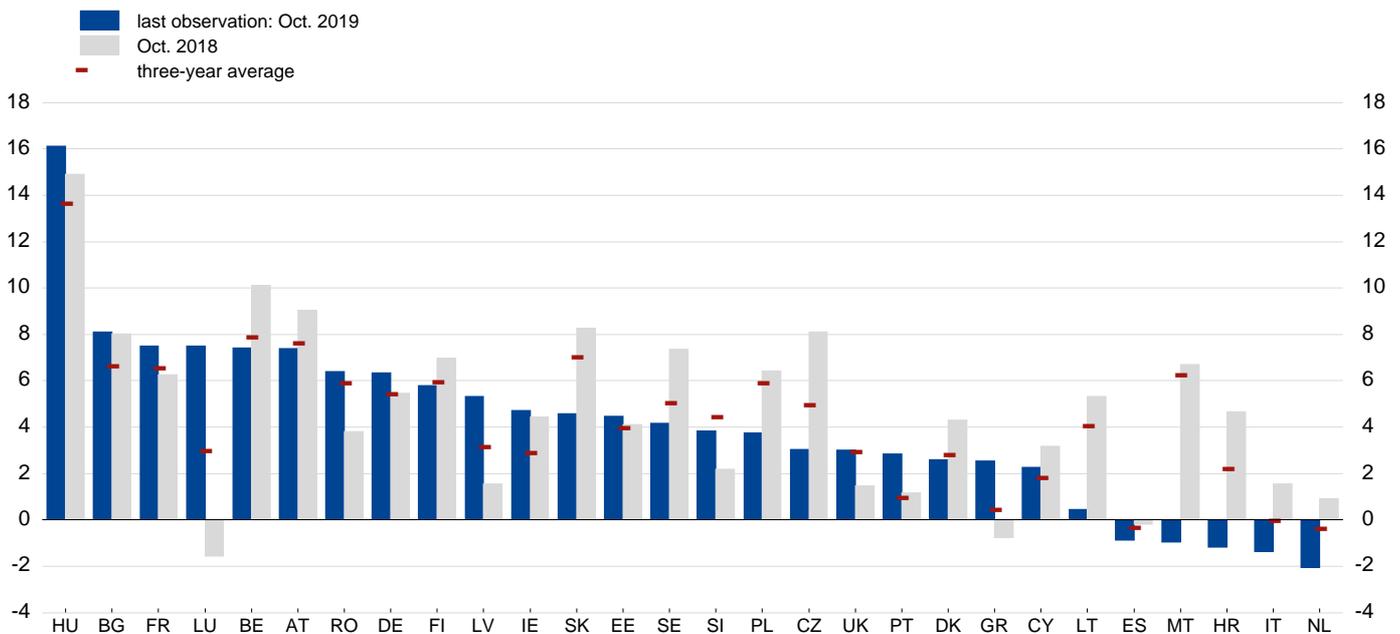


Source: ECB.

Notes: Loans extended by MFIs excluding the ESCB. Data for euro area Member States refer to loans granted to euro area households, while for non-euro area Member States to loans to domestic households. Euro area Member States data are adjusted for the derecognition of loans from the MFI statistical balance sheet due to their sale or securitisation. The figure is based on growth in the index of notional stocks.

#### 3.2 Annual growth rates of MFI loans to NFCs

(EU; percentages)



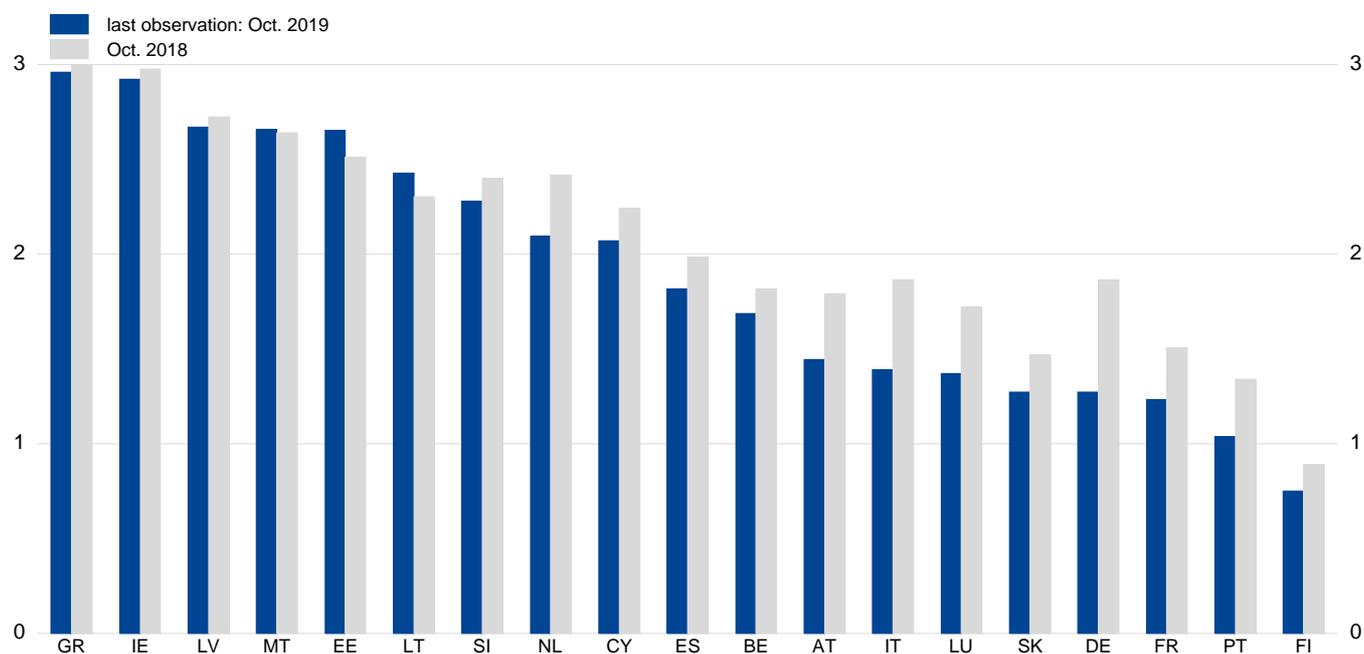
Source: ECB.

Notes: Loans extended by MFIs excluding the ESCB. Data for euro area Member States refer to loans granted to euro area NFCs, while for non-euro area Member States to loans to domestic NFCs. Euro area Member States data are adjusted for the derecognition of loans from the MFI statistical balance sheet due to their sale or securitisation.

## 3. Credit risk

### 3.3 Cost of borrowing from MFIs for households (for house purchase)

(euro area; percentage points)

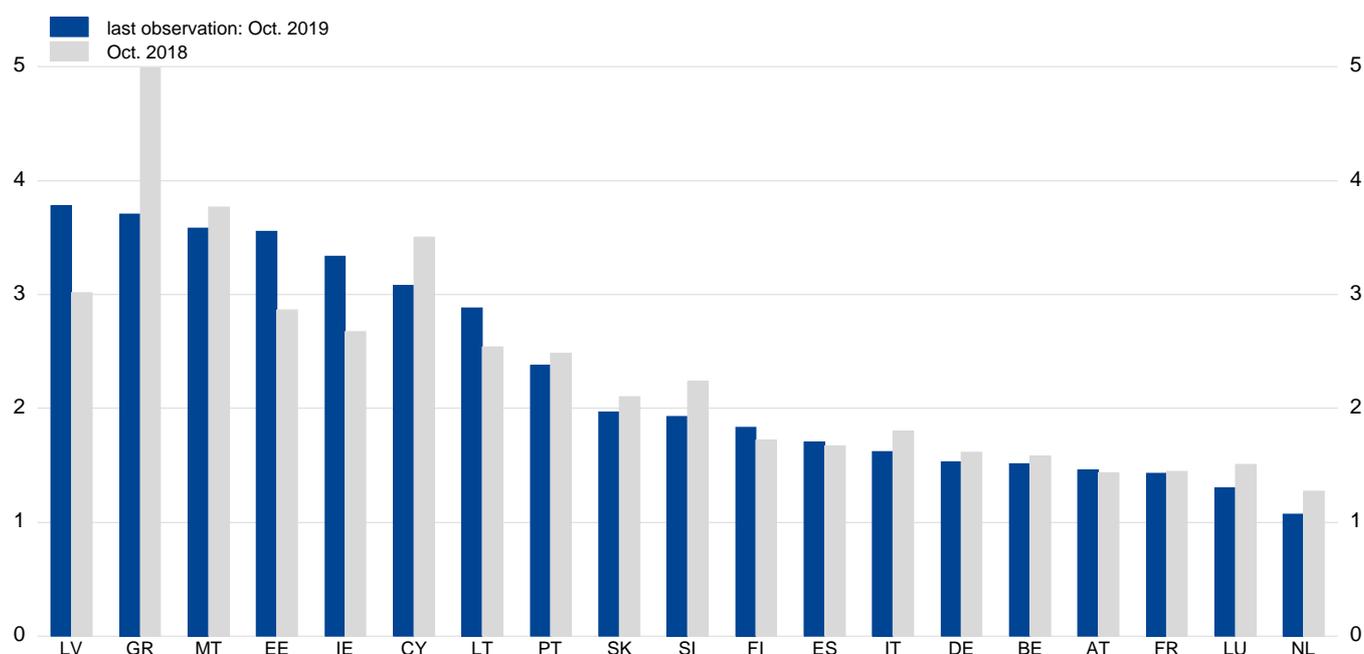


Source: ECB.

Notes: MFIs excluding ESCB. The cost of borrowing from MFIs is calculated as the weighted average of rates on short-term (i.e. initial period of interest rate fixation up to one year) and long-term (i.e. initial period of interest rate fixation over one year) MFI loans, weighted by the volumes of new business (smoothed by the moving average of the previous two years).

### 3.4 Cost of borrowing from MFIs for NFCs

(euro area; percentage points)



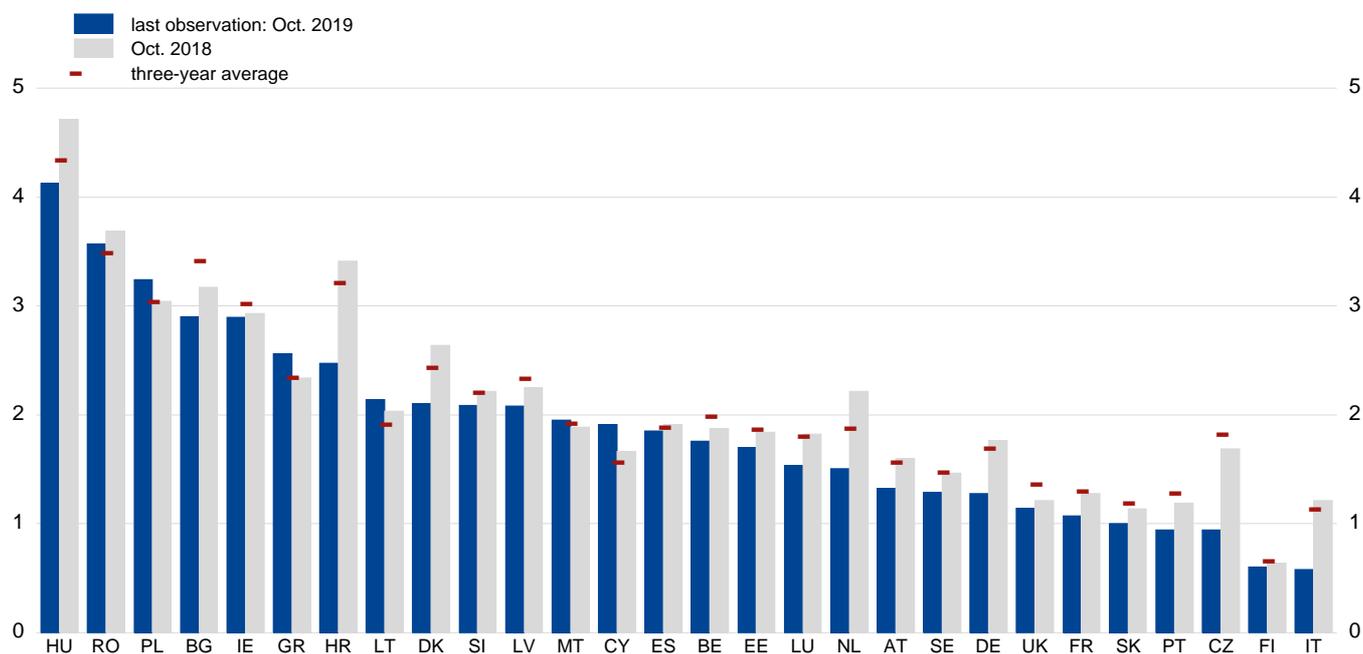
Source: ECB.

Notes: MFIs excluding ESCB. The cost of borrowing from MFIs is calculated as the weighted average of rates on short-term (i.e. initial period of interest rate fixation up to one year) and long-term (i.e. initial period of interest rate fixation over one year) MFI loans, weighted by the volumes of new business (smoothed by the moving average of the previous two years).

### 3. Credit risk

#### 3.5 Lending margins of MFIs - loans to households (for house purchase)

(EU; percentage points)



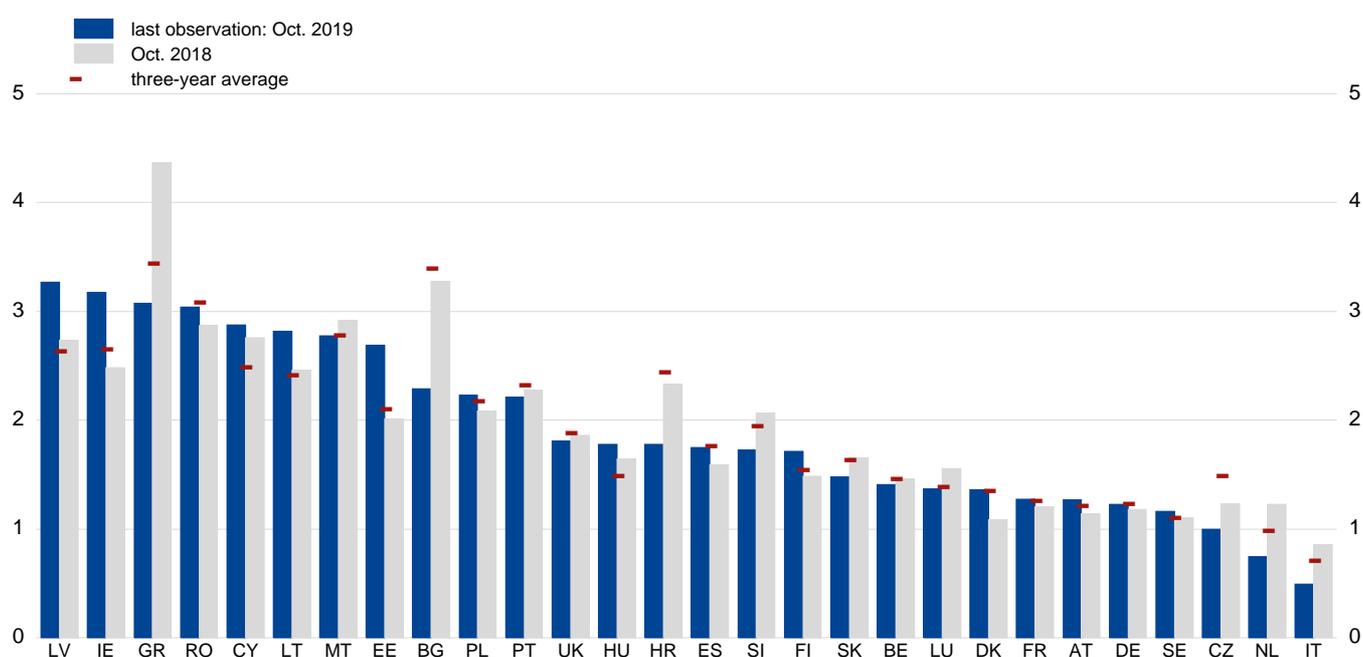
Source: ECB.

Notes: Lending margins are measured as the difference between MFIs' interest rates for new business loans and a weighted average rate of new deposits from households and NFCs. For non-euro area countries, rates for loans and deposits in both euro and the national currency are taken into account. For UK, only loans and deposits in national currency are included in the calculation. For euro area countries, rates refer to loans granted to euro area residents, whereas for non-euro area countries rates refer to loans granted to domestic residents.

Data for CZ is currently under revision.

#### 3.6 Lending margins of MFIs - loans to NFCs

(EU; percentage points)



Source: ECB.

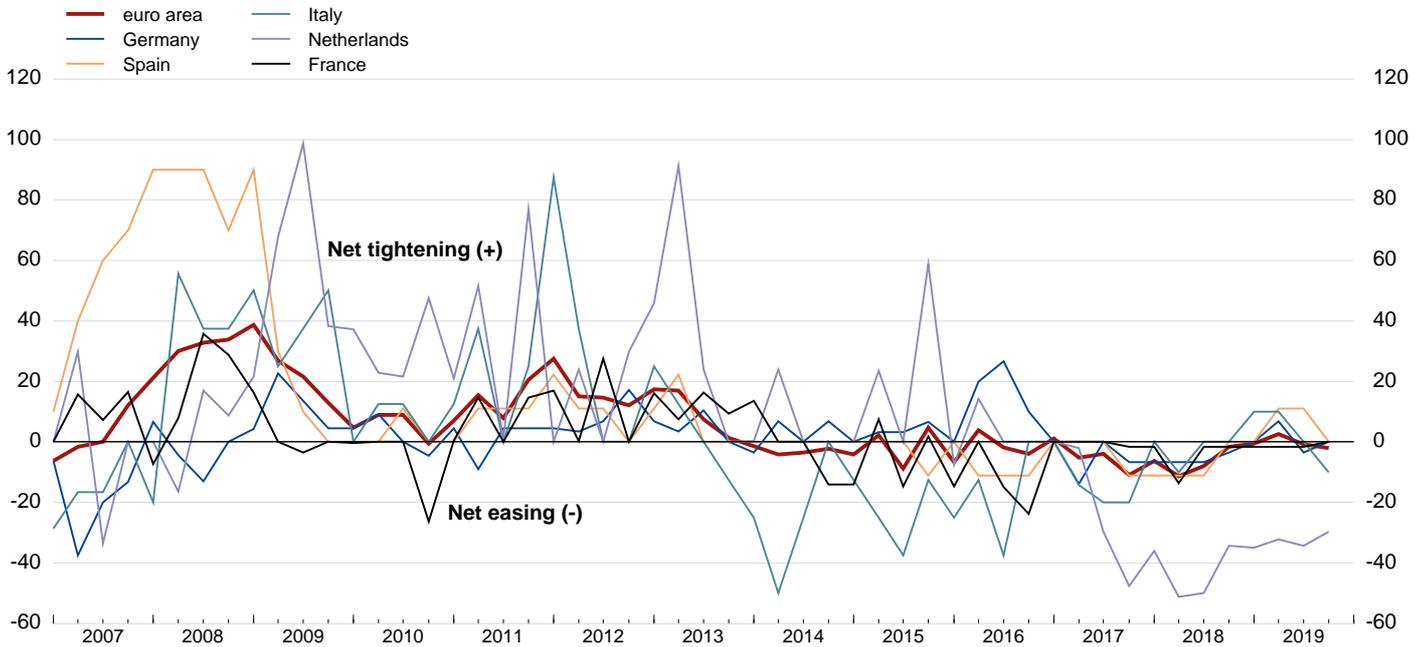
Notes: Lending margins are measured as the difference between MFIs' interest rates for new business loans and a weighted average rate of new deposits from households and NFCs. For non-euro area countries, rates for loans and deposits in both euro and the national currency are taken into account. For UK, only loans and deposits in national currency are included in the calculation. For euro area countries, rates refer to loans granted to euro area residents, whereas for non-euro area countries rates refer to loans granted to domestic residents.

Data for CZ is currently under revision.

### 3. Credit risk

#### 3.7 Changes in credit standards for loans to households (for house purchase)

(Sample of euro area countries; net percentages; last observation: Q4 2019)

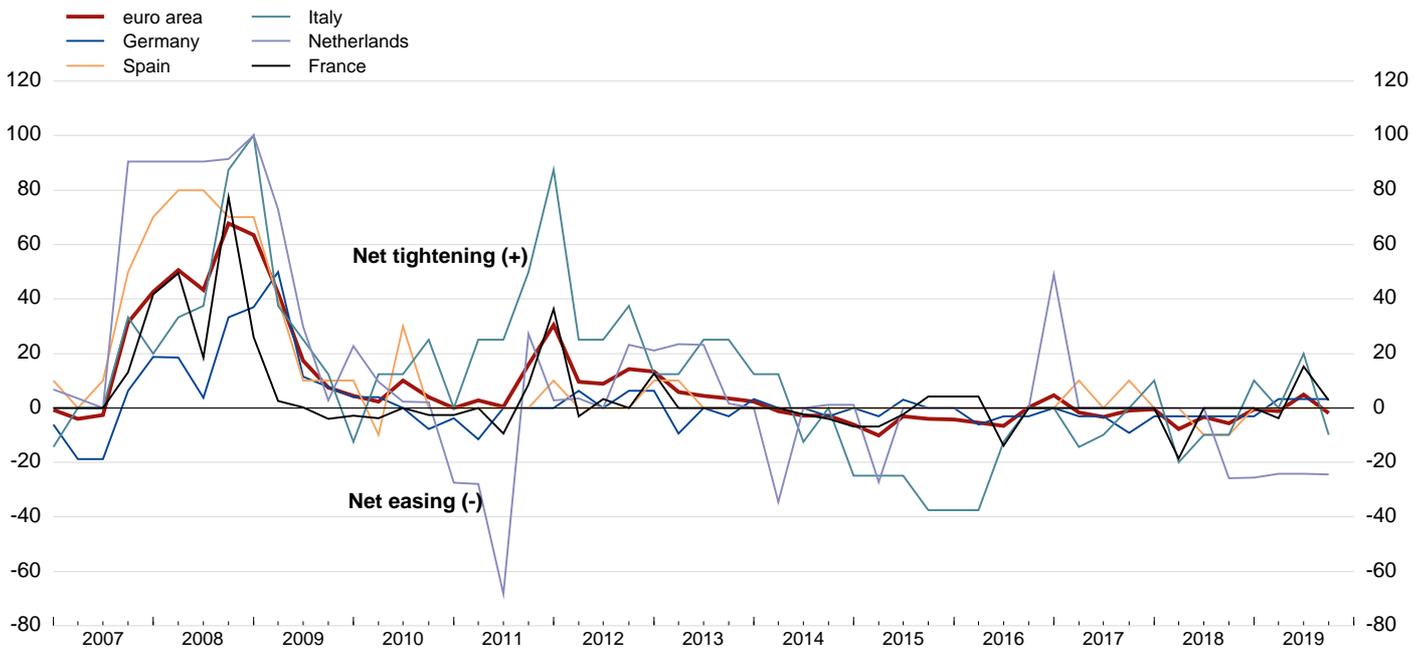


Source: ECB.

Notes: Net percentages of banks contributing to the tightening of standards over the previous three months. The last observation refers to the quarter in which the most recent BLS was published.

#### 3.8 Changes in credit standards for loans to NFCs

(Sample of euro area countries; net percentages; last observation: Q4 2019)



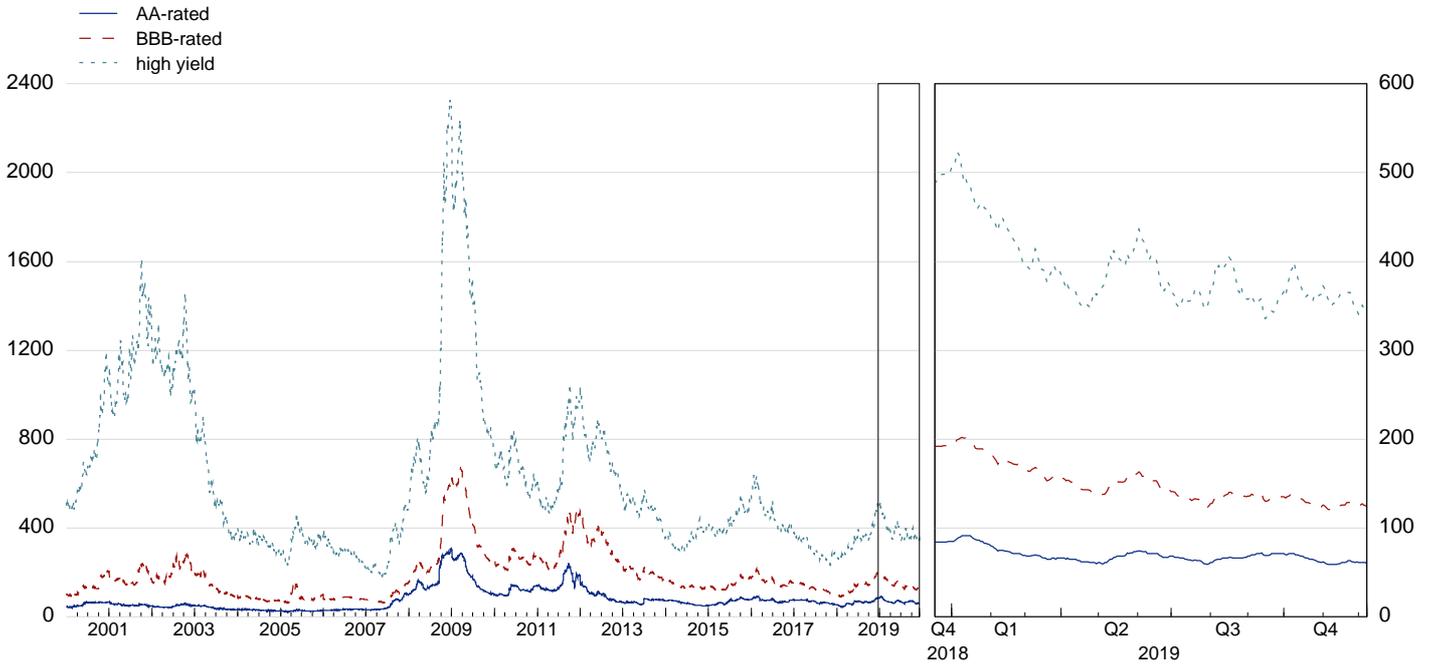
Source: ECB.

Notes: Net percentages of banks contributing to the tightening of standards over the previous three months. The last observation refers to the quarter in which the most recent BLS was published.

### 3. Credit risk

#### 3.9 Option-adjusted spreads on euro area corporate bonds

(euro area; percentages; last observation: 6 Dec. 2019)

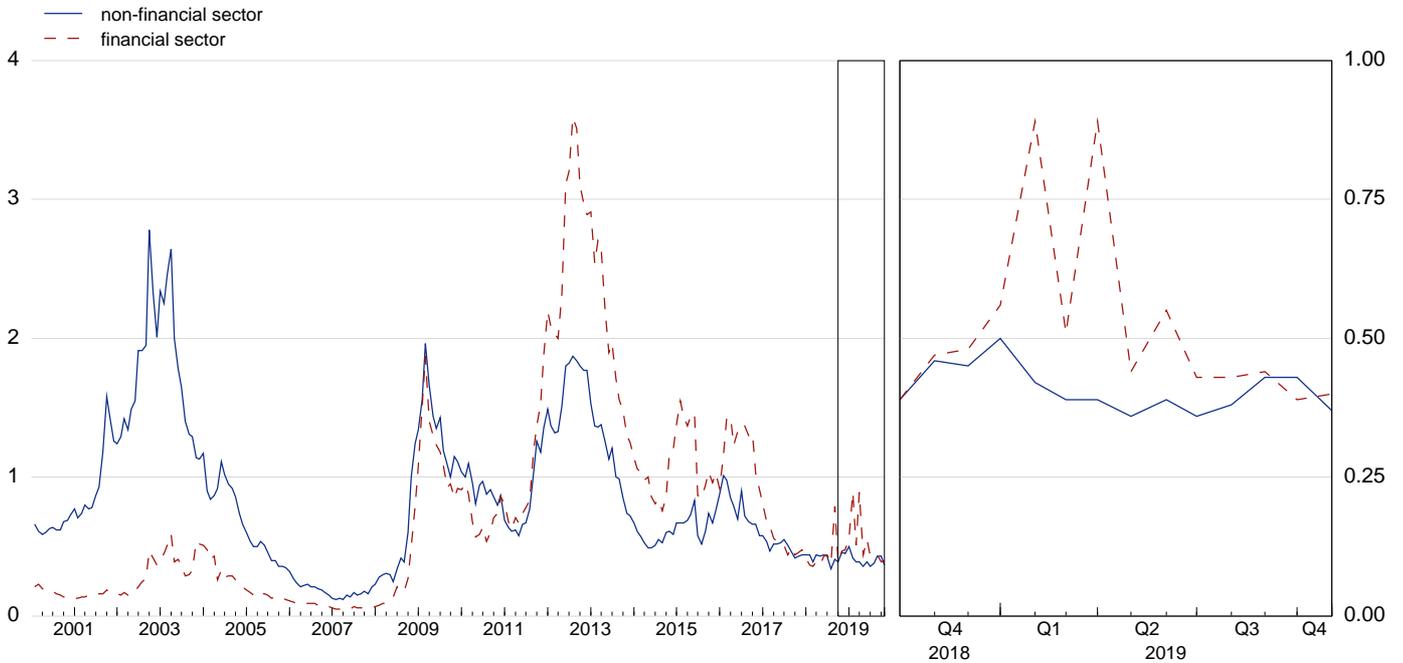


Source: Bank of America Merrill Lynch.

Note: Spreads (in basis points) over German government bonds for both plain vanilla bonds and bonds with embedded options (for which the value of the option is stripped using proprietary models).

#### 3.10 Expected default frequency of the corporate sector

(EU; percentages; average weighted by liabilities; last observation: Oct. 2019)



Sources: Moody's Analytics and ECB calculations.

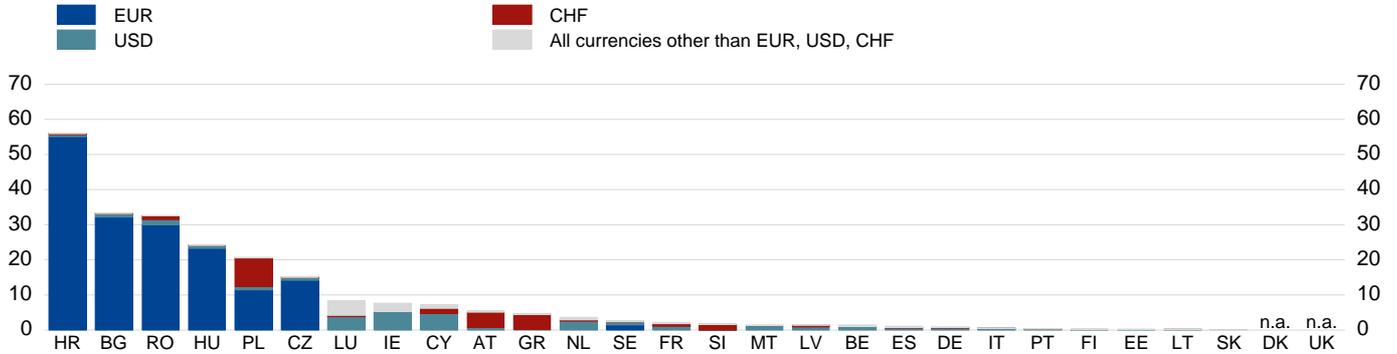
Note: The figures refer to listed companies. The weighted average is based on the amounts of non-equity liabilities. Model changed from EDF8 to EDF9 as of 1 June 2015.

### 3. Credit risk

#### 3.11 Foreign currency loans

##### a. By currency

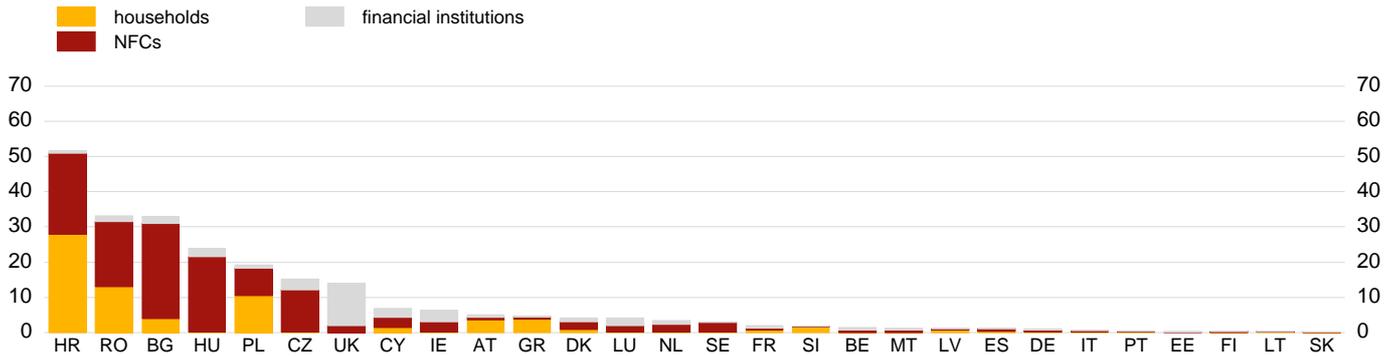
(EU; percentages; last observation: Q3 2019)



Source: ECB.

##### b. By sector

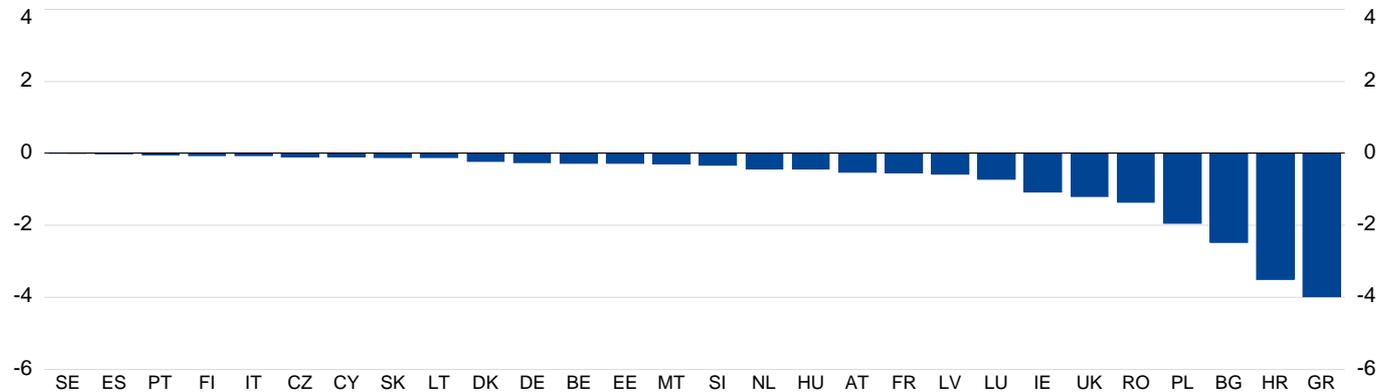
(EU; percentages; last observation: Oct. 2019)



Source: ECB.

##### c. Annual changes

(EU; percentage points; last observation: Oct. 2019)



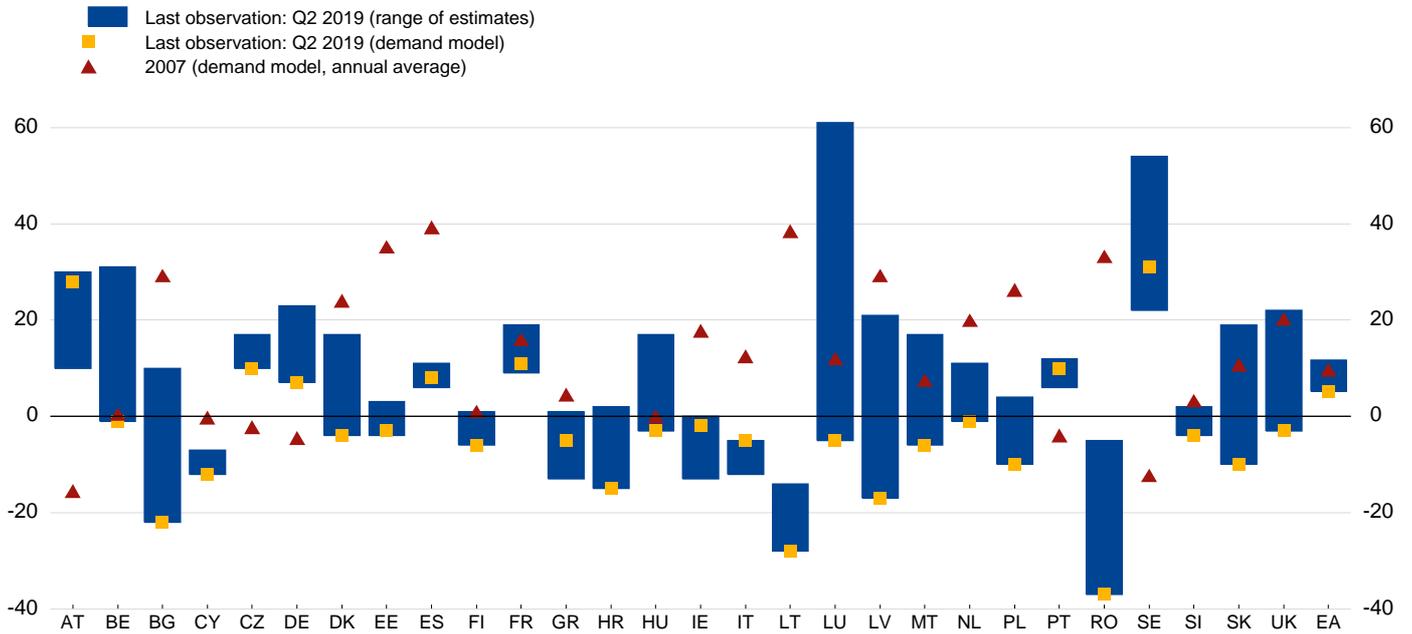
Source: ECB.

Notes for charts 3.11 - a, b and c: BG (currency board arrangement) and DK have a regime of fixed exchange rates vis-à-vis the euro.

### 3. Credit risk

#### 3.12 Over/undervaluation of residential property prices

(EU; percentages)

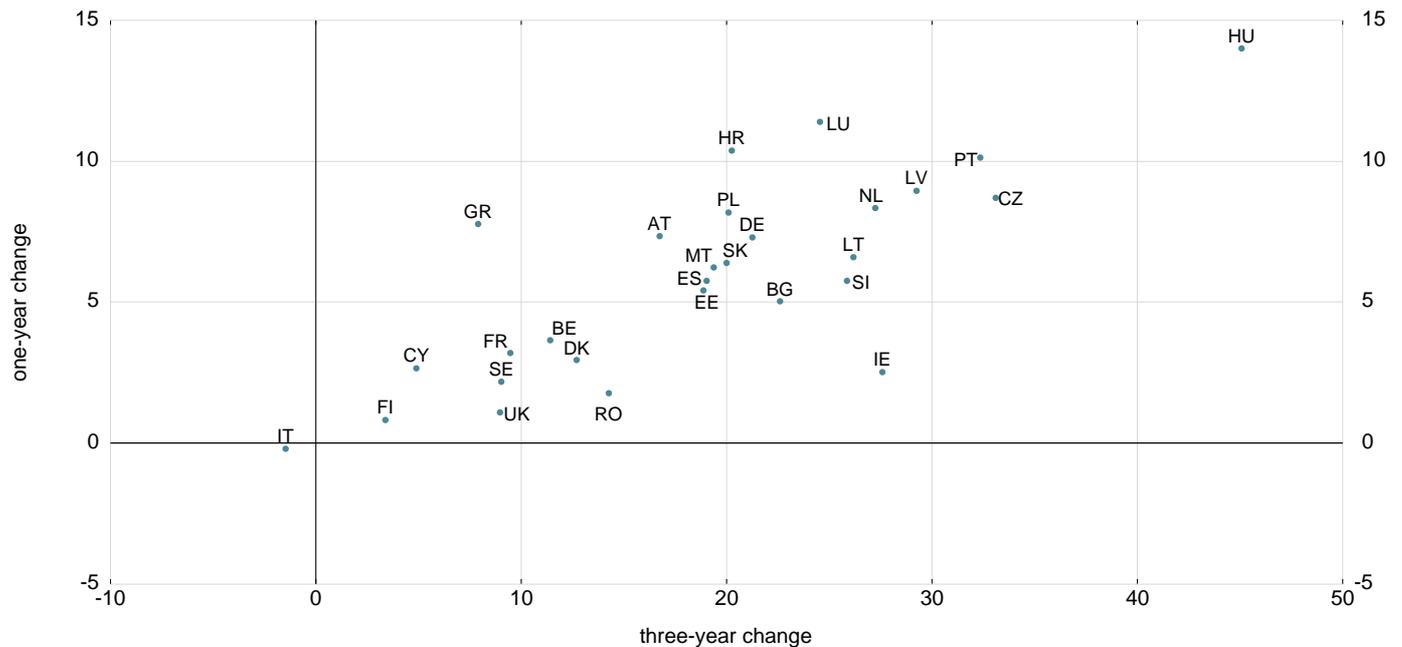


Sources: Eurostat, national sources, ECB and ECB calculations.

Notes: Estimates based on four different valuation methods: price-to-rent ratio, price-to-income ratio, asset pricing approach and a Bayesian estimated inverted demand model. For further details see Box 3, Financial Stability Review, ECB, June 2011; and box 3, Financial Stability Review, ECB, November 2015. For each country, the blue bars represent the range of estimates across the four valuation methods. For CY the last observation refers to Q4 2018, and for LT, FI, CZ, DK, HU, RO and HR the last observation refers to Q1 2019.

#### 3.13 Change in nominal residential property prices

(EU; percentages; last observation: Q2 2019)



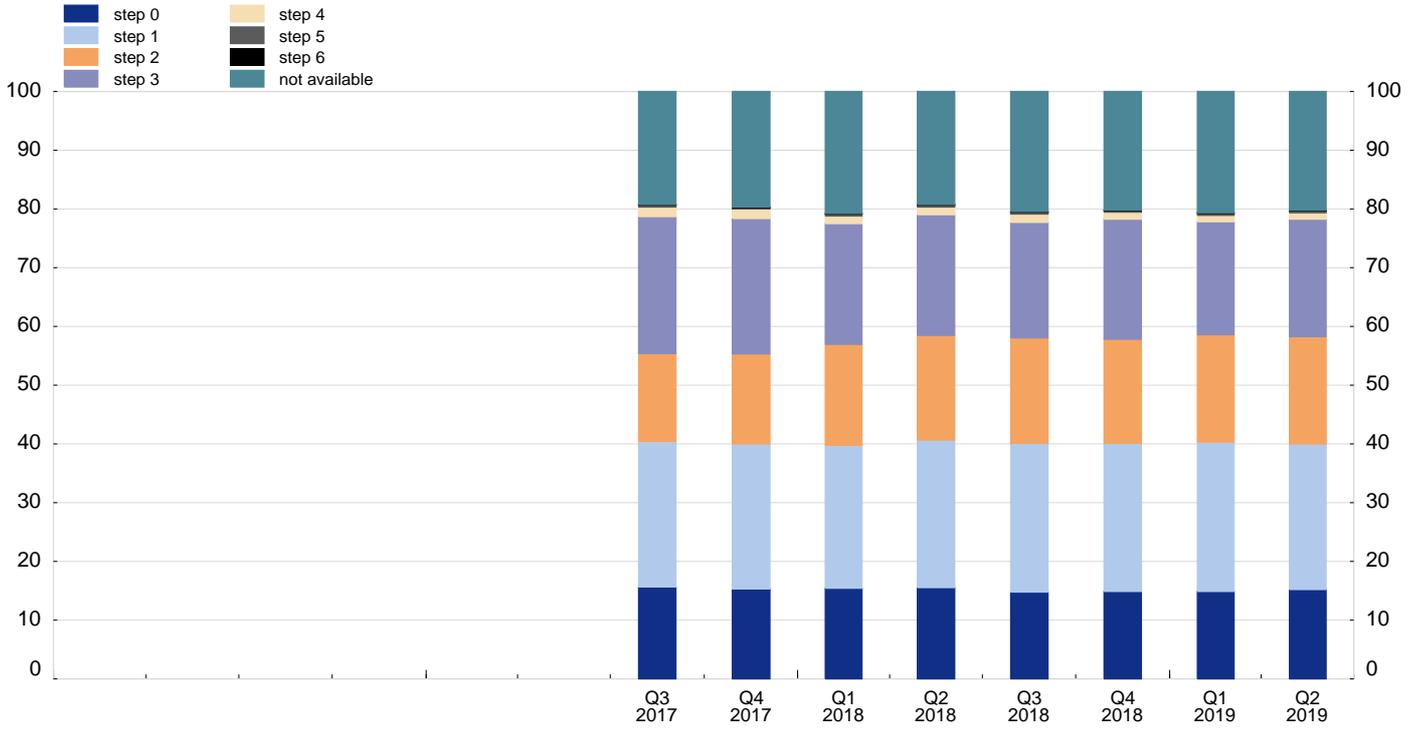
Sources: ECB, national sources and ECB calculations.

Notes: For CY "last observation" refers to Q1 2019.

### 3. Credit risk

#### 3.14 Insurance groups' credit quality steps

(EU; percentages; share of total bond portfolio; last observation: Q2 2019)



Source: EIOPA, based on Solvency II Reporting.

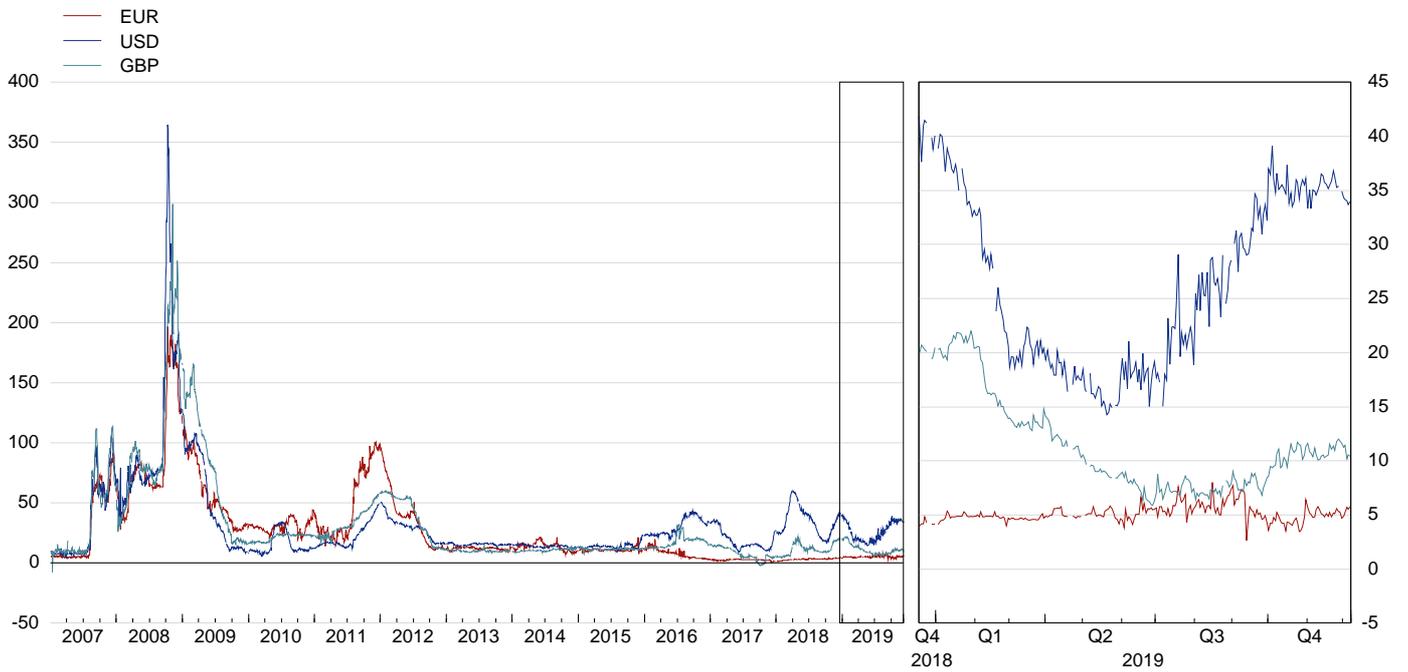
Note: indicator presents breakdown of the insurers' bond portfolio according to the different credit quality steps.

For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 4. Funding and liquidity

### 4.1 Interbank interest rate spreads

(basis points; three-month maturities; last observation: 6 Dec. 2019)

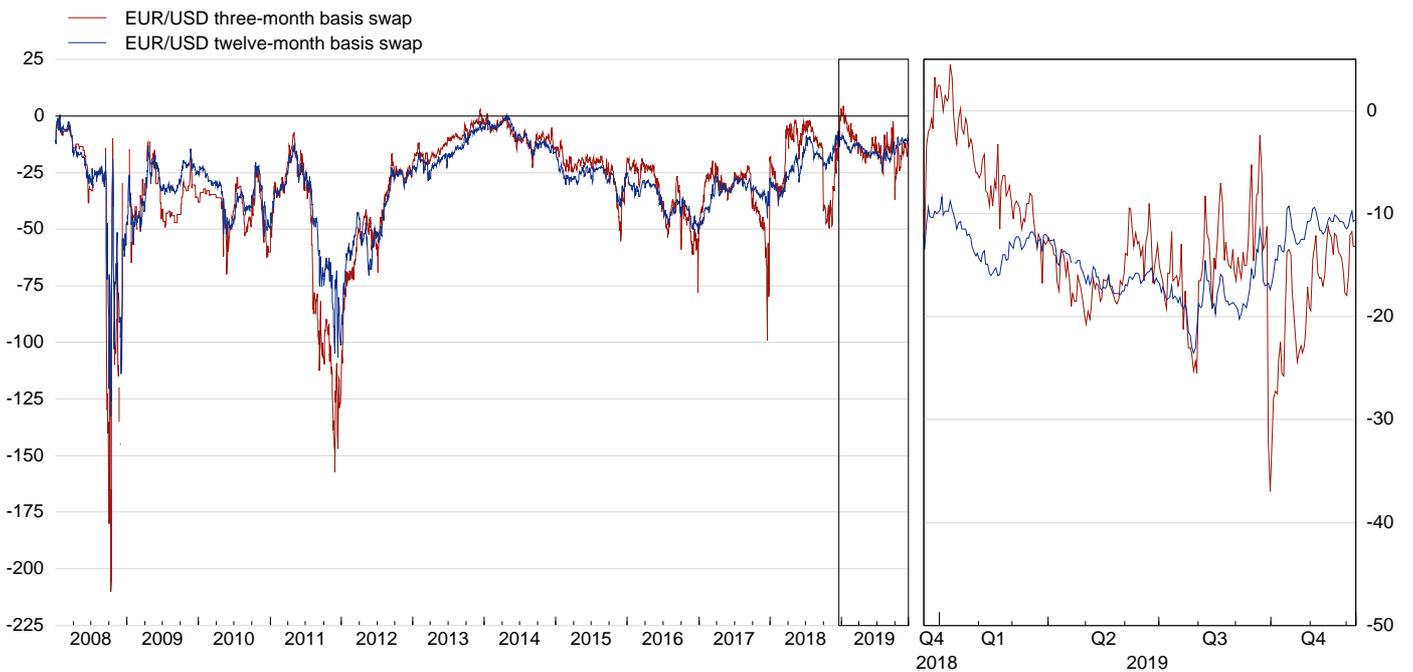


Sources: Thomson Reuters, Bloomberg and ECB calculations.

Note: Difference between interbank interest rates and overnight indexed swap.

### 4.2 EUR/USD cross-currency basis swap spreads

(basis points; last observation: 9 Dec. 2019)



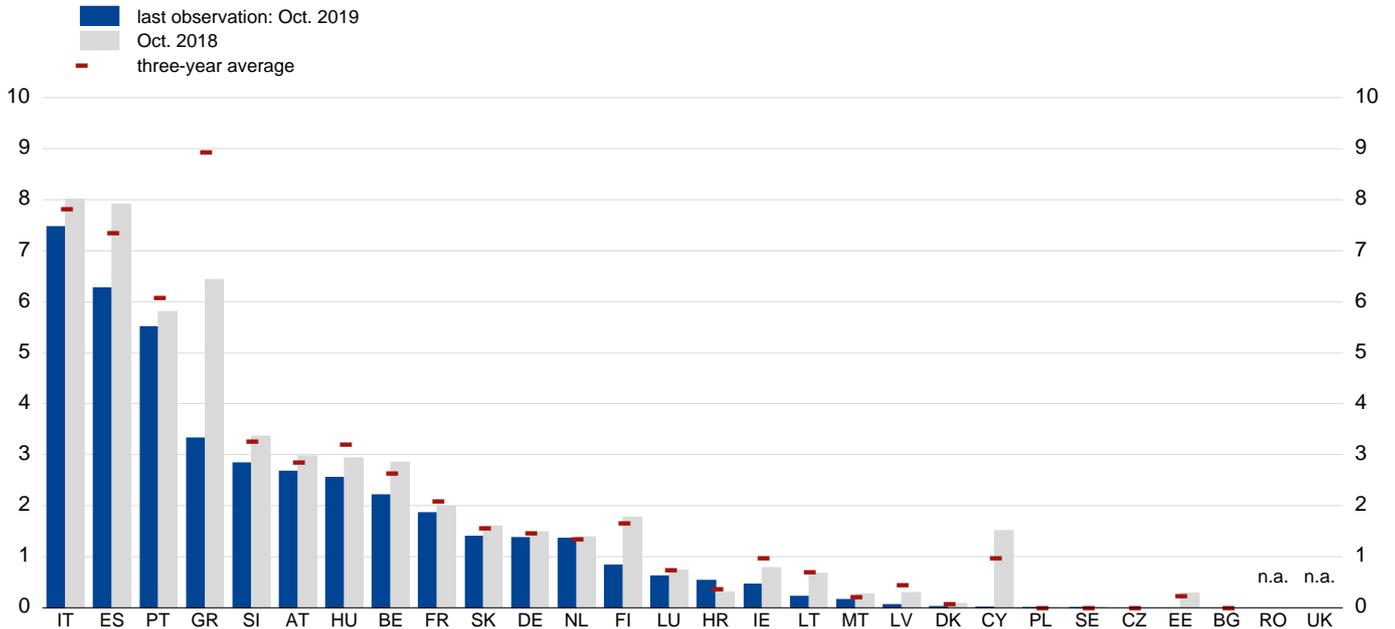
Source: Bloomberg.

Note: Data available since January 2008.

## 4. Funding and liquidity

### 4.3 Banks' funding by central banks

(EU; share of total liabilities; percentages)

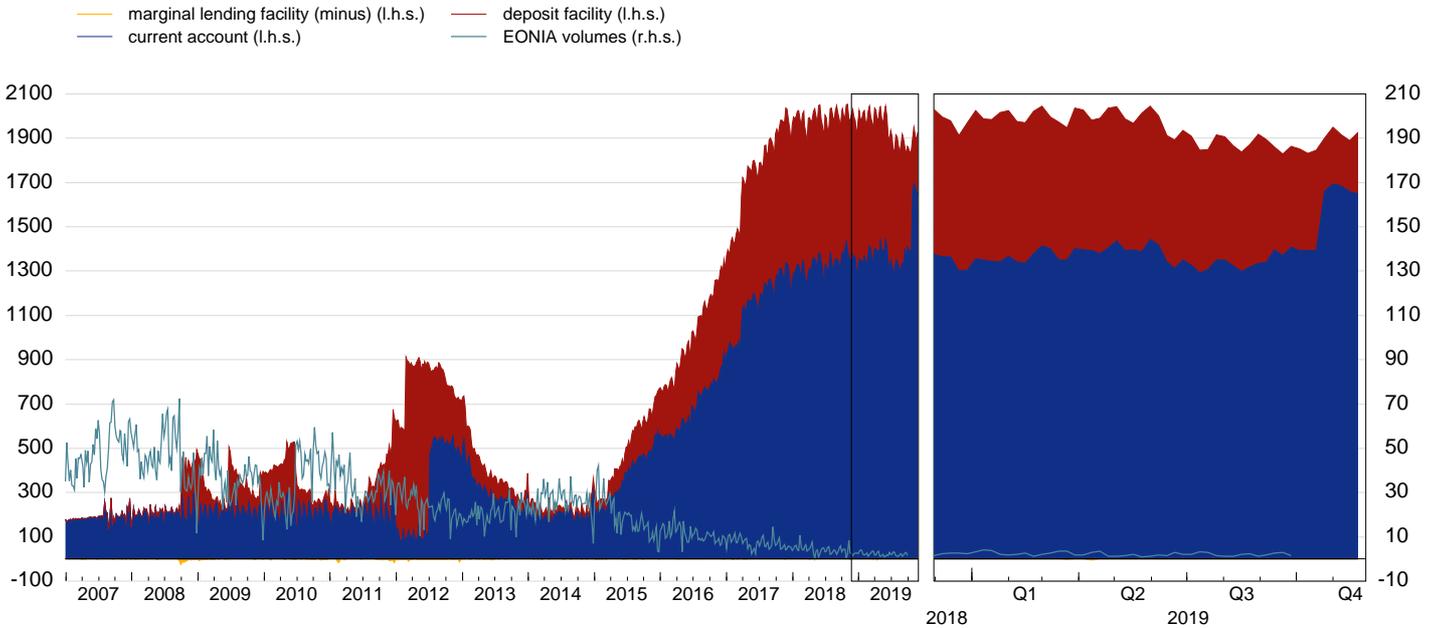


Sources: ECB and ECB calculations.

Notes: MFIs excluding the ESCB and Money Market Funds. Banks' funding by central banks comprises all loans granted by the ESCB. Total liabilities exclude capital and reserves as well as remaining liabilities.

### 4.4 Money markets and the Eurosystem's standing facilities

(euro area; EUR billions; last observation: 3 Oct. 2019)



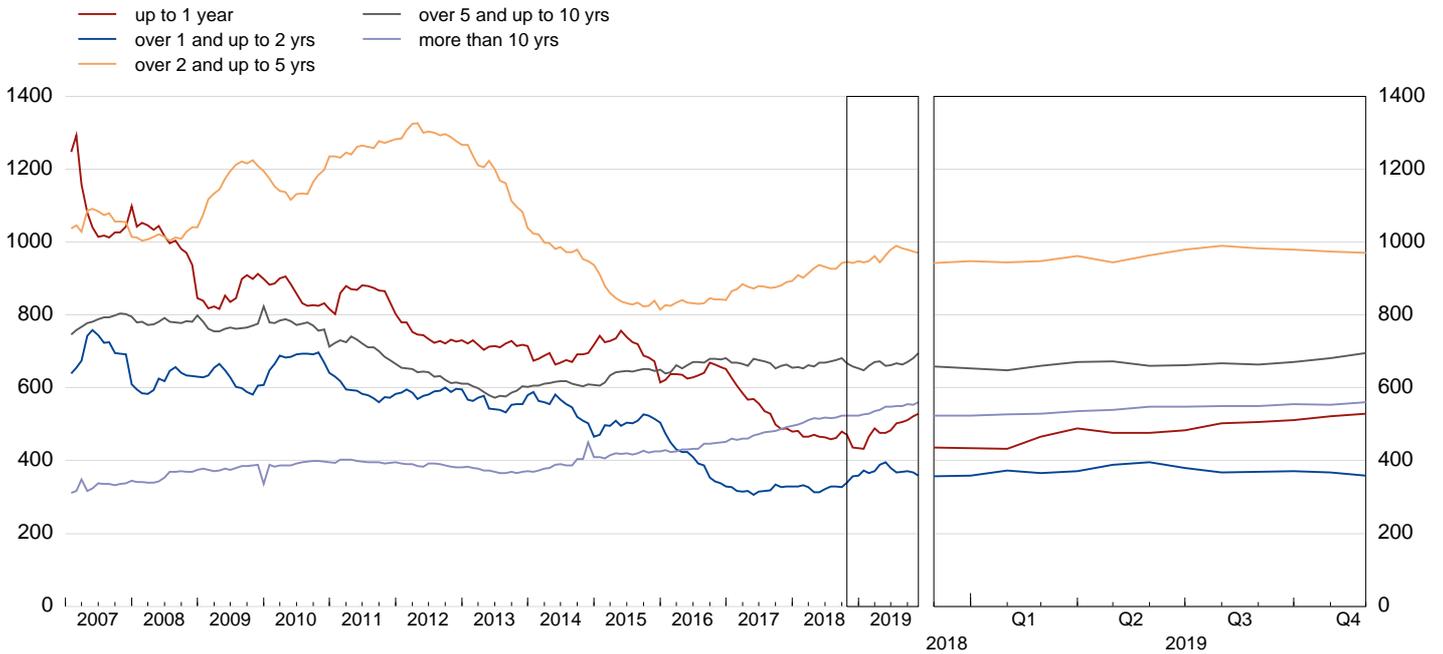
Sources: ECB and Bloomberg.

Note: Eurosystem's current account includes minimum reserves.

## 4. Funding and liquidity

### 4.5 Maturity profile of Banks' outstanding debt securities

(EU; EUR billions; last observation: Nov. 2019)

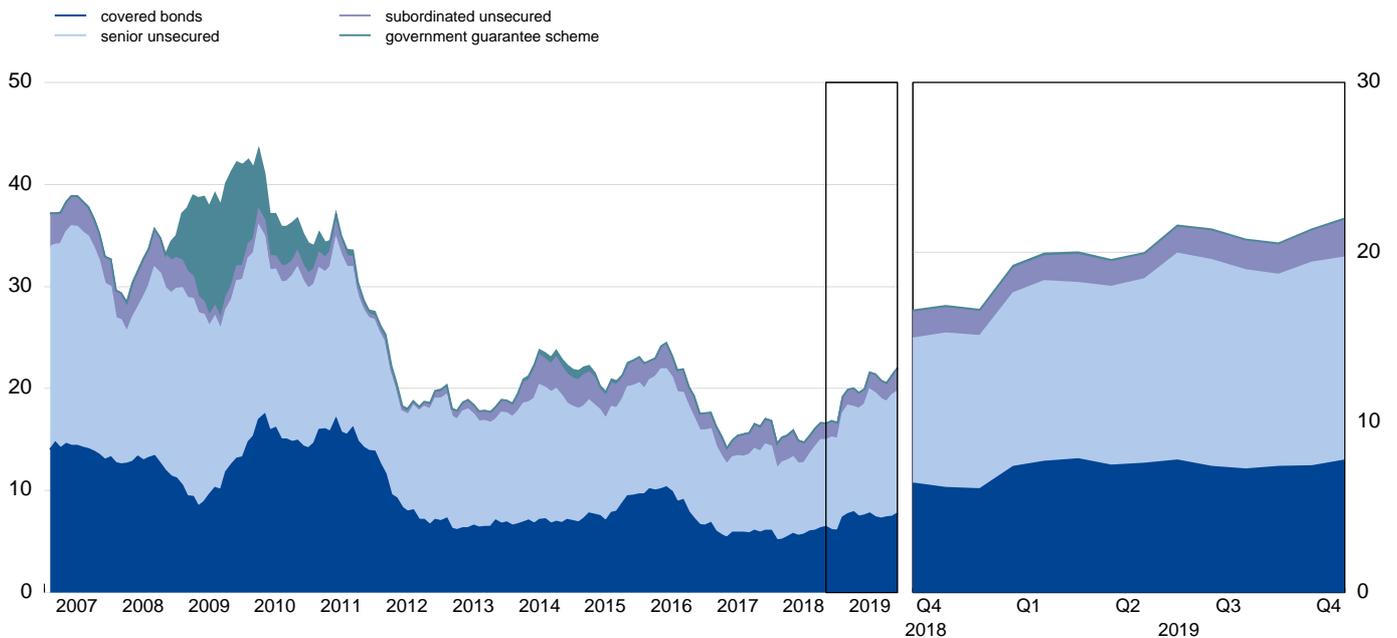


Sources: Dealogic DCM Analytics, Dealogic CPWare and ECB calculations.

Notes: The maturity profile refers to the residual maturity of long-term and short-term debt securities issued by European banks. Banks' long-term debt includes corporate bonds, medium-term notes, covered bonds, asset-backed securities and mortgage-backed securities with a maturity of more than 12 months. Banks' short-term debt includes commercial papers certificates of deposits and short-term notes with a maximum maturity of 12 months. Data are based on amounts outstanding at the end of the corresponding year or month.

### 4.6 Banks' long-term debt securities issuance

(EU; EUR billions; last observation: Nov. 2019)



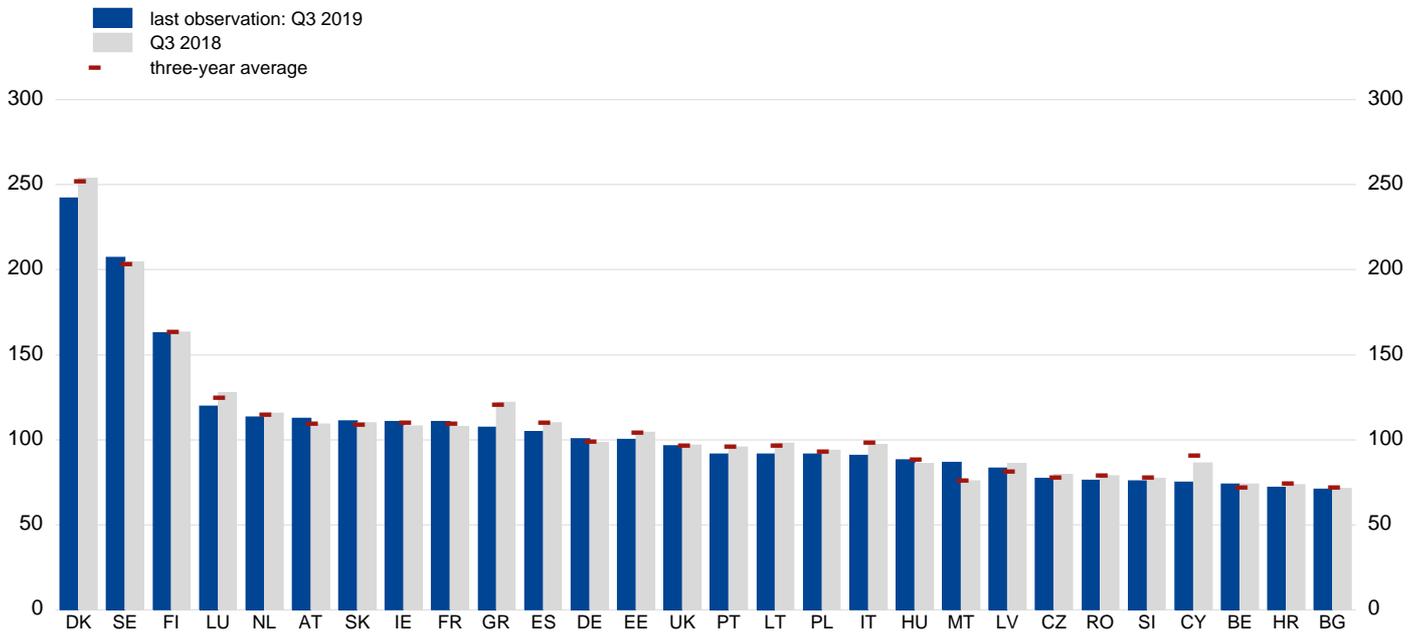
Source: Dealogic DCM Analytics.

Note: Debt issuance by EU public and private sector banks, excluding issuance of short term debt (i.e. with original maturity of below one year) and excluding ABS, MBS and agency related issuances.

## 4. Funding and liquidity

### 4.7 Loan-to-deposit ratio

(EU; percentages)

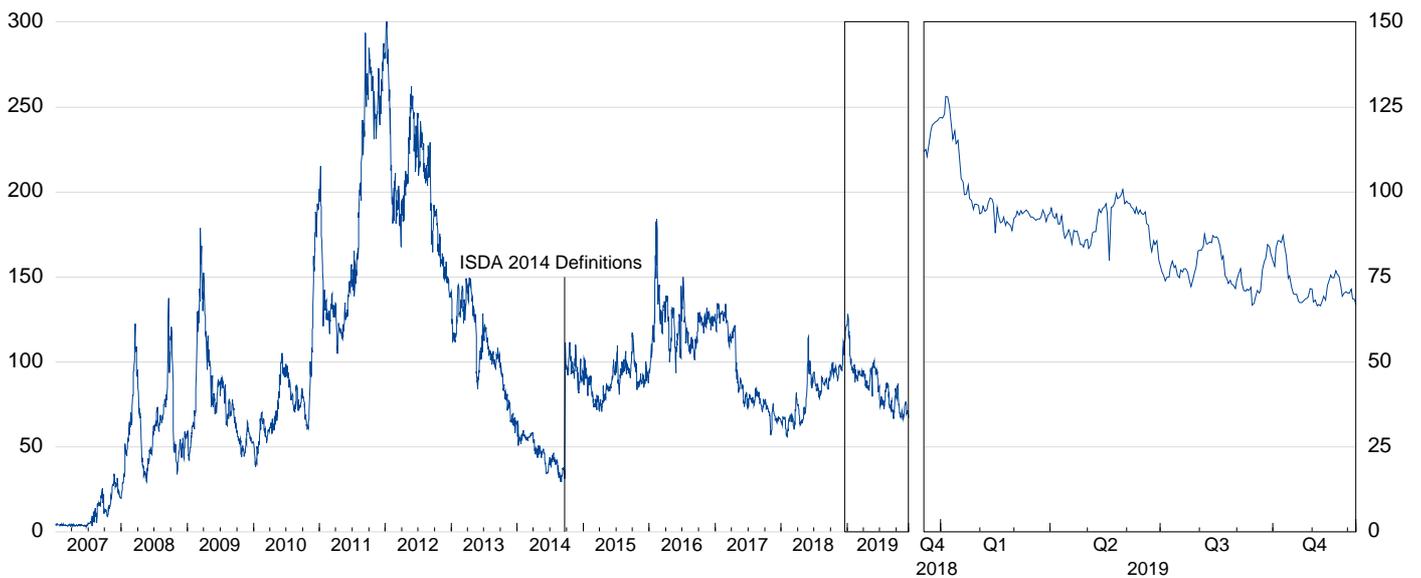


Source: ECB.

Notes: MFI sector excluding the ESCB. Data refer to the ratio between total loans and total deposits vis-à-vis domestic and euro area households and NFCs, and non-domestic and non-euro area residents excluding banks and general government. Mortgage banks in Denmark, which represent around 55% of total MFI loans to domestic NFCs, are not allowed to take deposits owing to regulations, but must fund their lending through issuance of covered bonds only. Excluding mortgage banks from the indicator, the loan-to-deposit ratio for DK is equal to 0.61 for Q3 2019 and 0.66 for Q3 2018.

### 4.8 CDS spread between senior and subordinated debt

(EU; basis points; five-year maturities; last observation: 6 Dec. 2019)



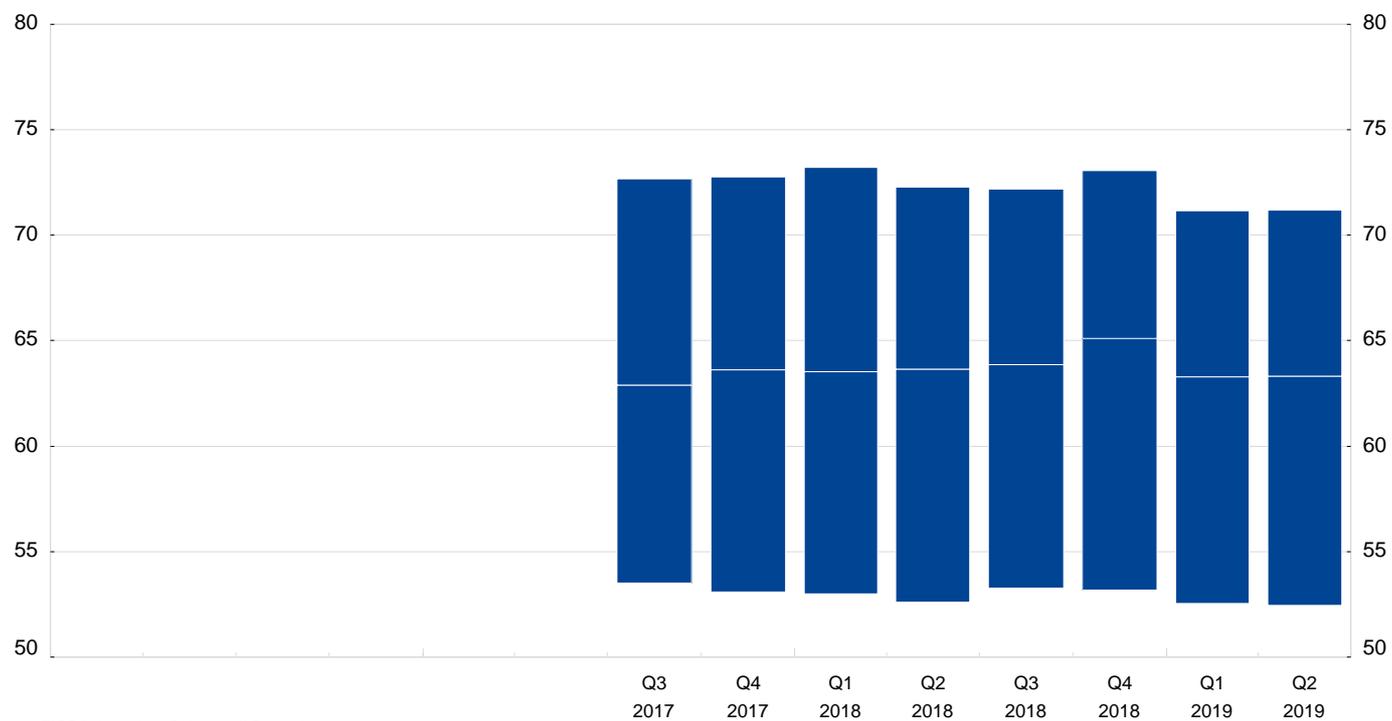
Sources: Thomson Reuters Datastream, CMA and ECB calculations.

Notes: Data available for a sample of 39 large EU banks. Shift in data as of 22 September 2014 due to the implementation of the ISDA 2014 Credit Derivatives Definitions.

## 4. Funding and liquidity

### 4.9 Insurance groups' liquid asset ratio

(EU; percentages; interquartile range and median; last observation: Q2 2019)



Source: EIOPA, based on Solvency II Reporting.

Notes: Liquid asset ratio is expressed as proportion of liquid assets to total assets.

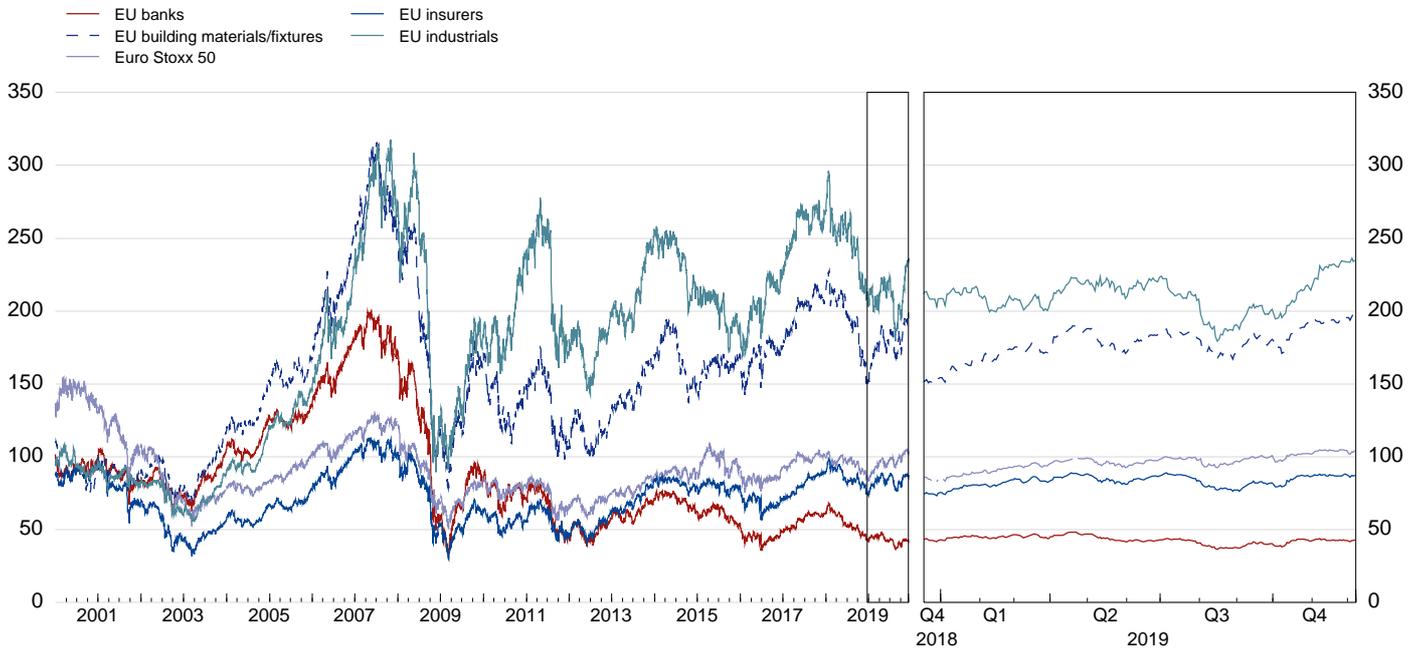
For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 5. Market risk

### 5.1 Equity indices

#### a. By sector

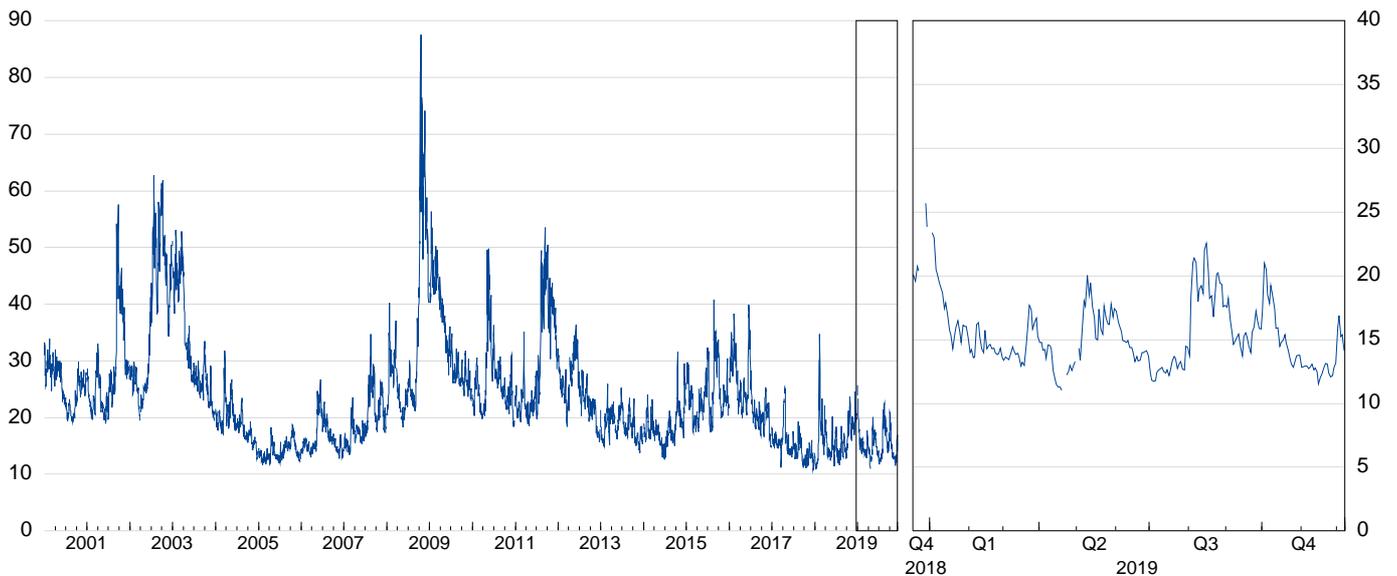
(EU, index: 4 Jan. 1999 = 100; last observation: 6 Dec. 2019)



Sources: Bloomberg (Euro Stoxx 50) and Thomson Reuters Datastream (others).

#### b. Implied volatility

(Euro Stoxx 50 index; last observation: 6 Dec. 2019)



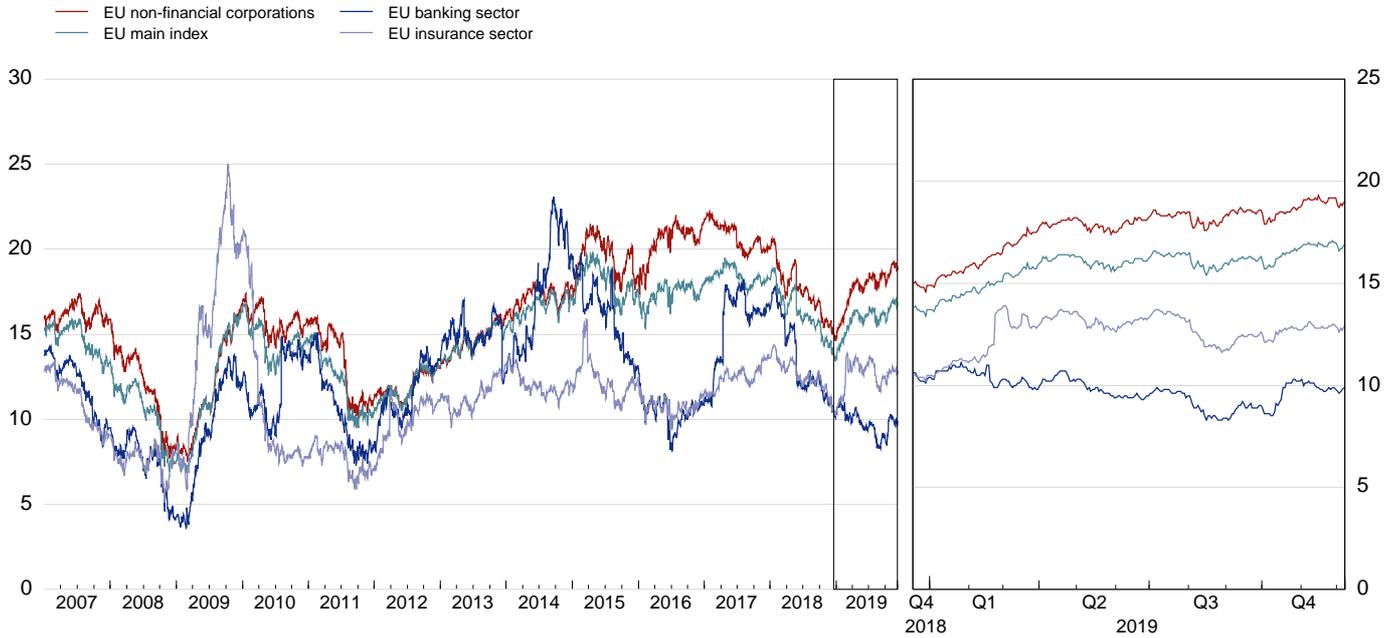
Source: Bloomberg.

Notes: Volatility is implied by at-the-money options observed in the market. The implied volatility is based on EURO STOXX 50 Volatility Index (VSTOXX) traded on Eurex. It measures implied volatility on options across all maturities. The blank spots in the plot of the index come from a lack of data series during public holidays when the financial markets are closed.

## 5. Market risk

### 5.2 Price/earnings ratio of equity indices

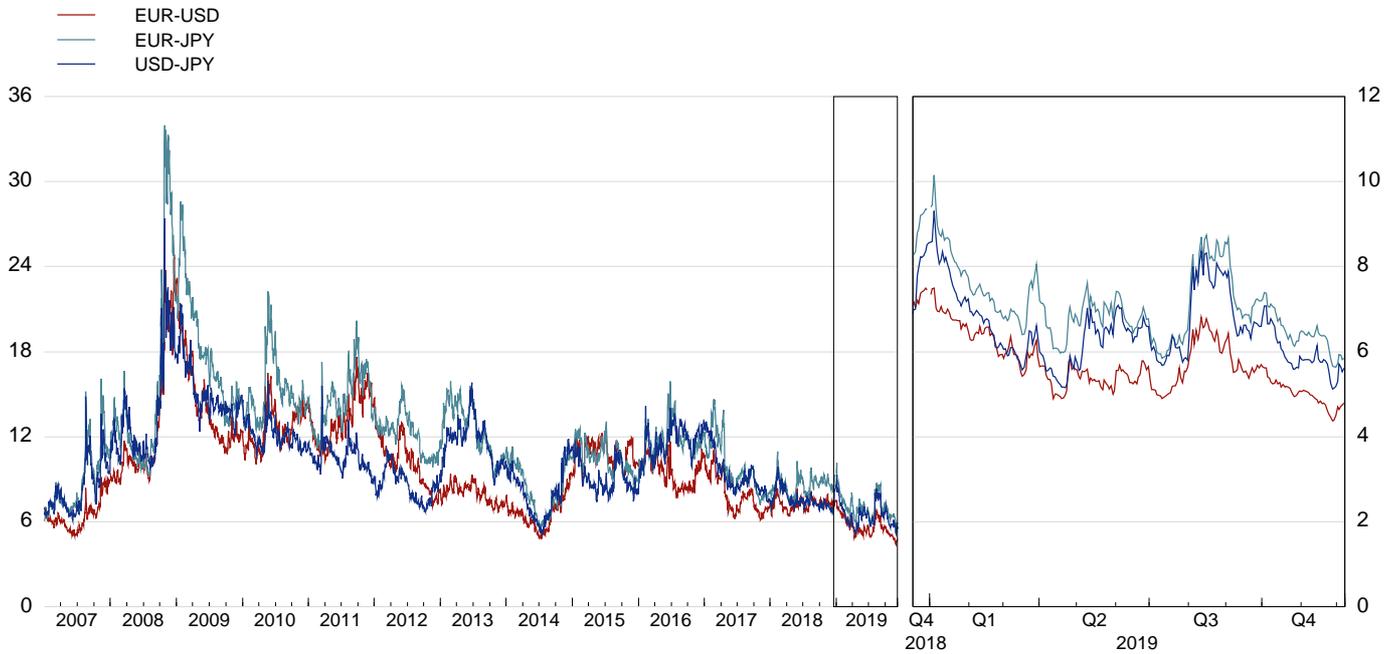
(EU; last observation: 6 Dec. 2019)



Source: Thomson Reuters Datastream.

### 5.3 Exchange rate volatility

(Last observation: 6 Dec. 2019)



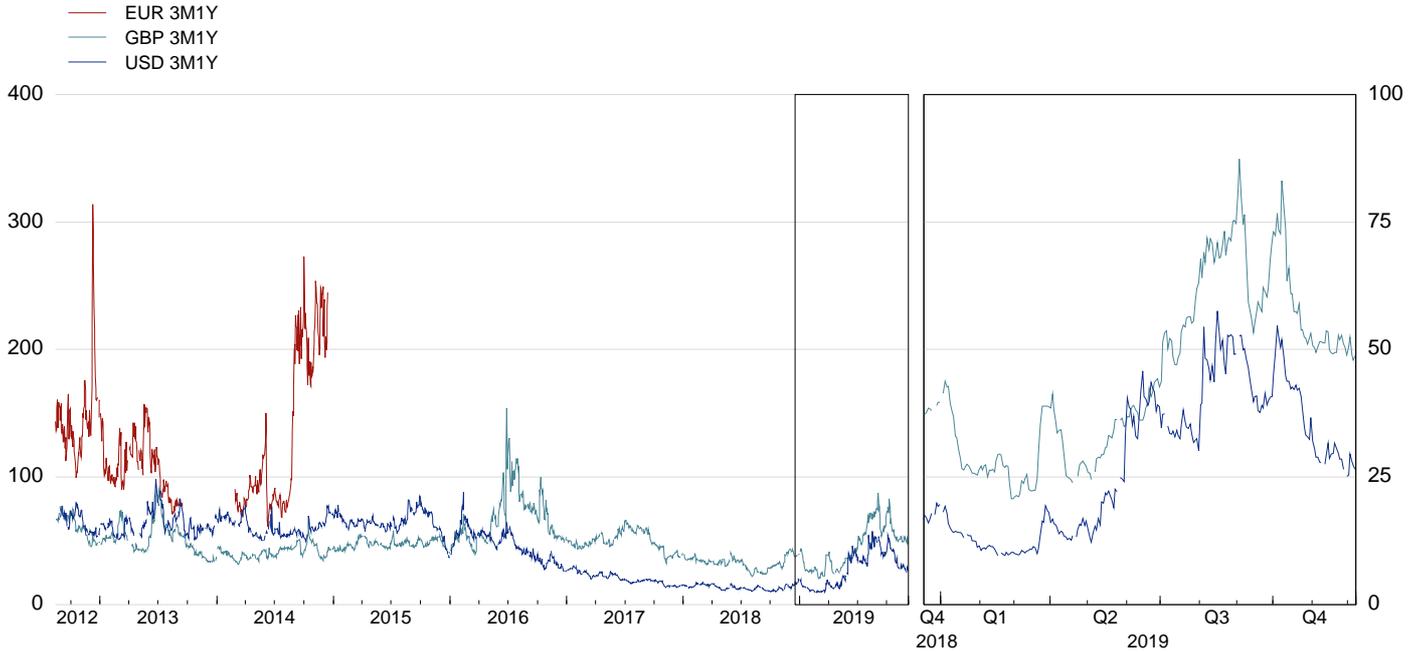
Source: Bloomberg.

Note: Volatility is implied by at-the-money option prices observed in the market for major currencies, based on three-month maturity.

## 5. Market risk

### 5.4 Short-term interest rates - implied volatility <sup>1) 2)</sup>

(three months - one year; last observation: 6 Dec. 2019)



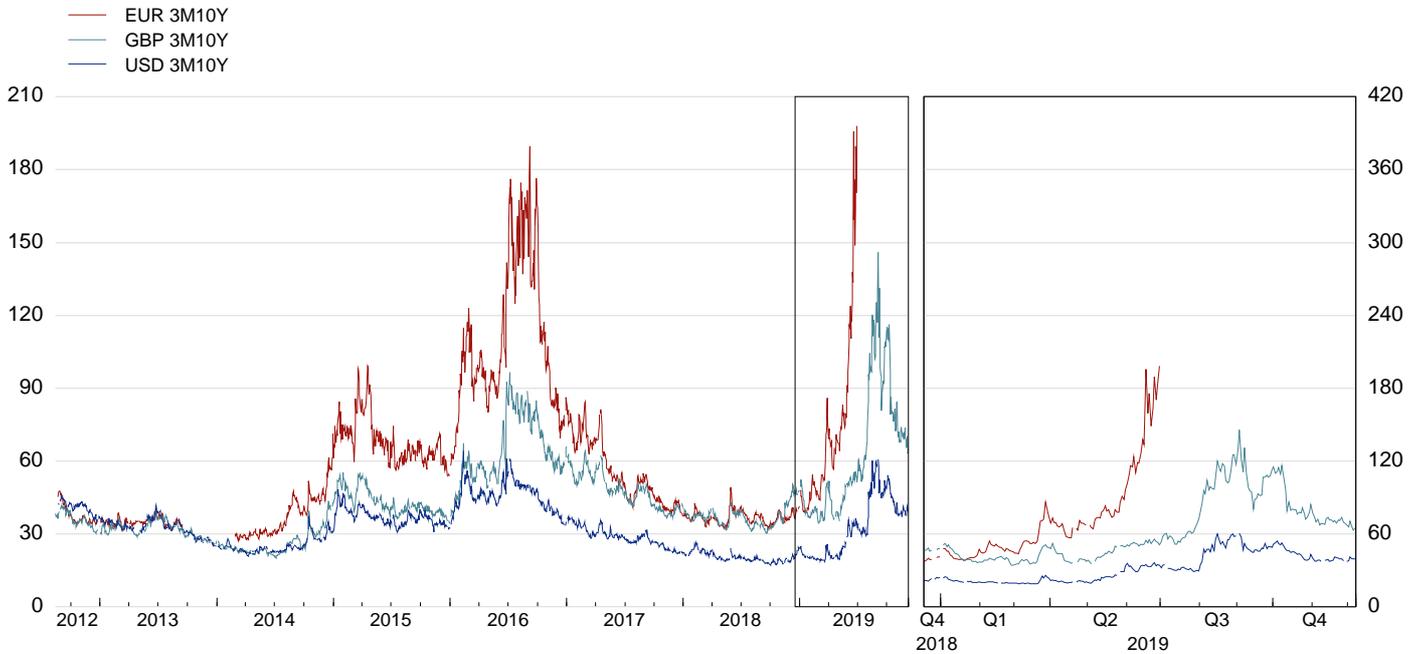
Source: Reuters.

1) Volatility is implied by at-the-money swaption prices observed in the market.

2) For technical reasons related to negative interest rates EUR 3M1Y rate is not available after 15 December 2014.

### 5.5 Long-term interest rates - implied volatility <sup>1) 2)</sup>

(three months - ten years; last observation: 6 Dec. 2019)



Source: Reuters.

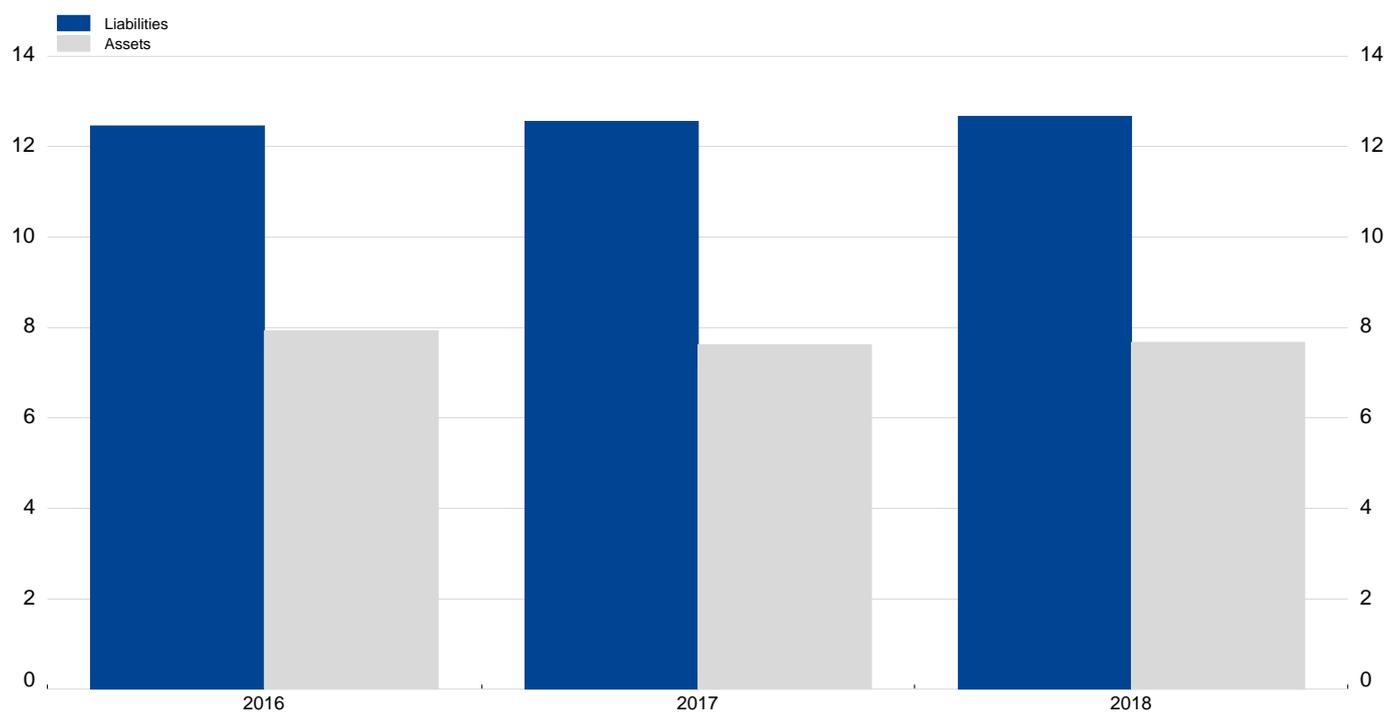
1) Volatility is implied by at-the-money swaption prices observed in the market.

2) For technical reasons related to negative interest rates the EUR 3M10Y rate is not available after 28 June 2019.

## 5. Market risk

### 5.6 Insurance groups' assets and liabilities duration

(EU; years; last observation: 2019)



Source: EIOPA, based on Solvency II Reporting.

Notes: asset duration is calculated as Weighted Average Modified Duration.

Liability duration is calculated as Weighted Average Macaulay Duration.

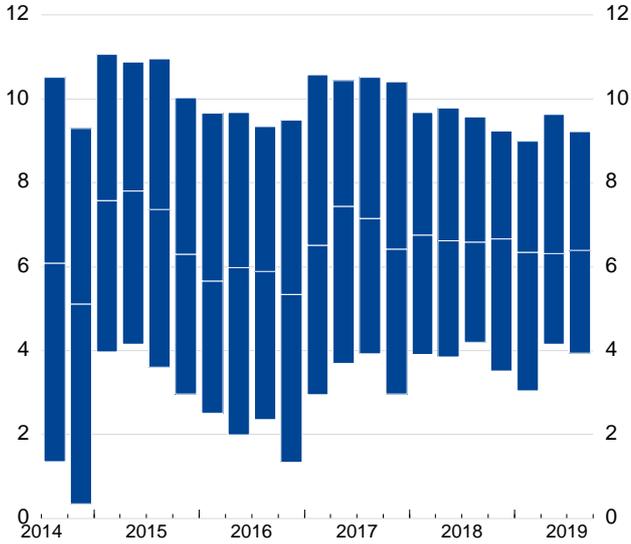
For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 6. Profitability and solvency

### 6.1 Banking groups' profitability indicators\*

#### a. Return on equity

(EU; percentages; interquartile range and median; last observation: Q3 2019)

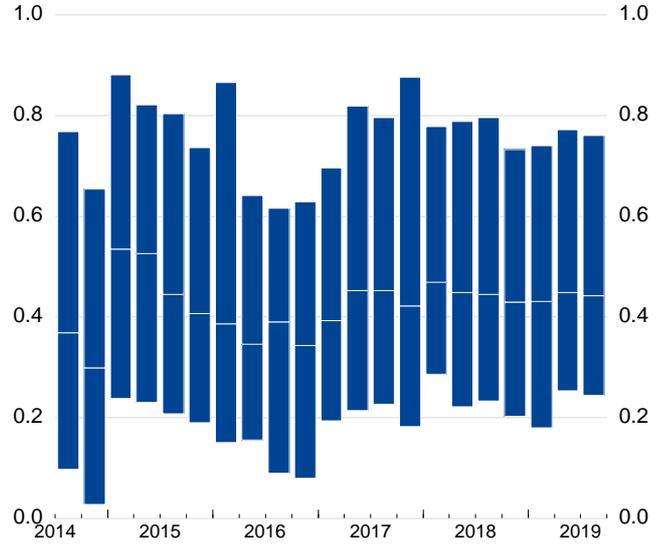


Source: EBA.

Note: Quarterly flows are annualised.

#### b. Return on assets

(EU; percentages; interquartile range and median; last observation: Q3 2019)

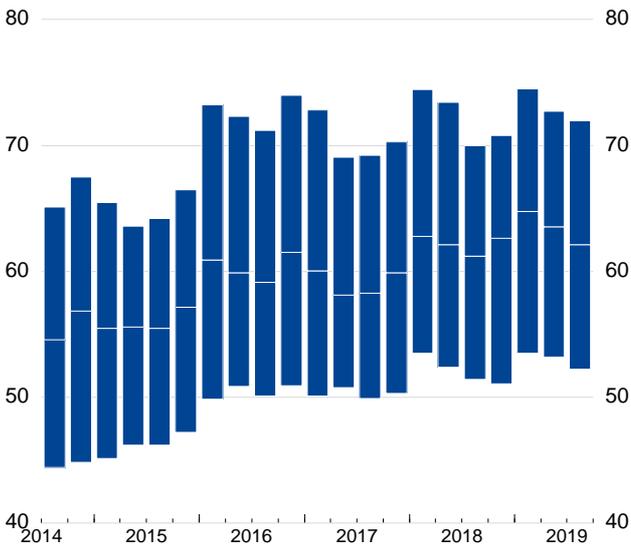


Source: EBA.

Note: Quarterly flows are annualised.

#### c. Cost-to-income ratio

(EU; percentages; interquartile range and median; last observation: Q3 2019)

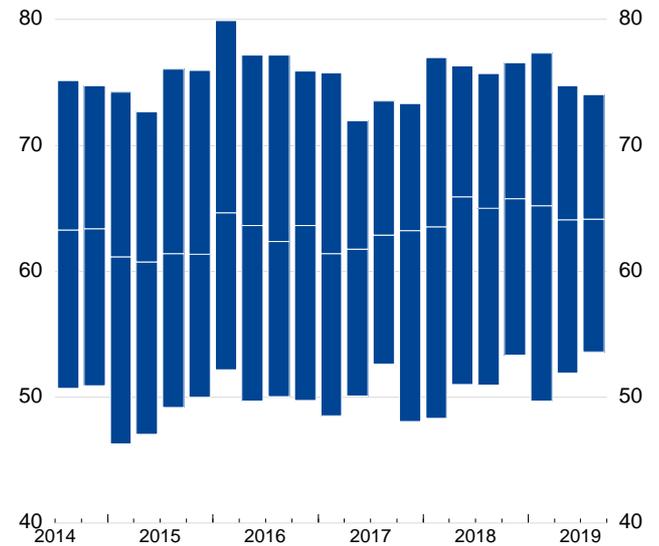


Source: EBA.

Quarterly data refer to cumulative flows over the corresponding year.

#### d. Net interest income to total operating income

(EU; percentages; interquartile range and median; last observation: Q3 2019)



Source: EBA.

Quarterly data refer to cumulative flows over the corresponding year.

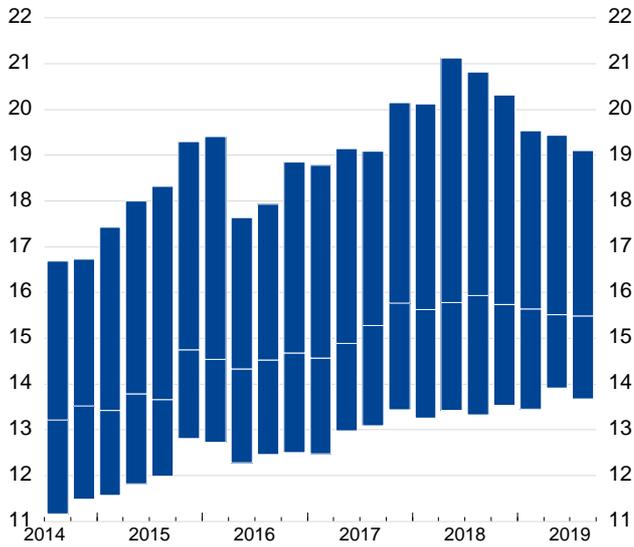
\* The EBA data presented are subject to changes in the composition of the sample over time. The figures are subject to revision. Data are fully based on the EBA's ITS on supervisory reporting. Further details on the main methodological aspects of the EBA's ITS are available on EBA's website: [www.eba.europa.eu](http://www.eba.europa.eu).

## 6. Profitability and solvency

### 6.2 Banking groups' solvency, liquidity and balance sheet structure indicators\*

#### a. CET1 to risk weighted assets ratio

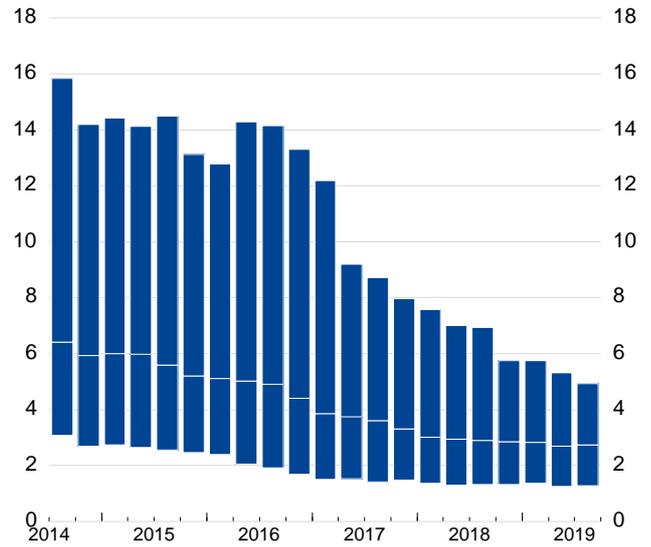
(EU; percentages; interquartile range and median; last observation: Q3 2019)



Source: EBA.

#### b. Non-performing loans to total gross loans and advances

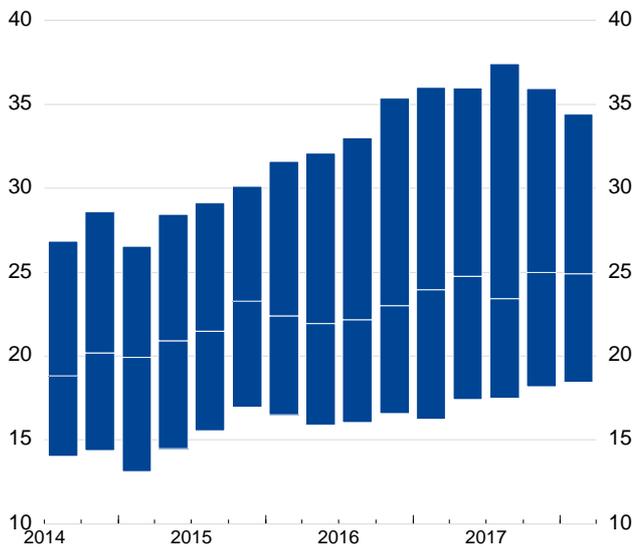
(EU; percentages; interquartile range and median; last observation: Q3 2019)



Source: EBA.

#### c. Ratio of liquid assets to short term liabilities

(EU; percentages; interquartile range and median; last observation: Q1 2018)\*

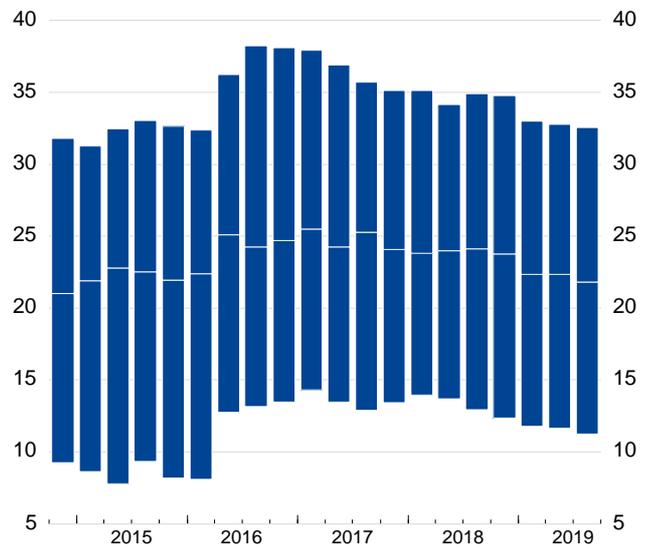


Source: EBA.

\*Indicator discontinued in Q1 2018

#### d. Asset encumbrance ratio

(EU; percentages; interquartile range and median; last observation: Q3 2019)



Source: EBA.

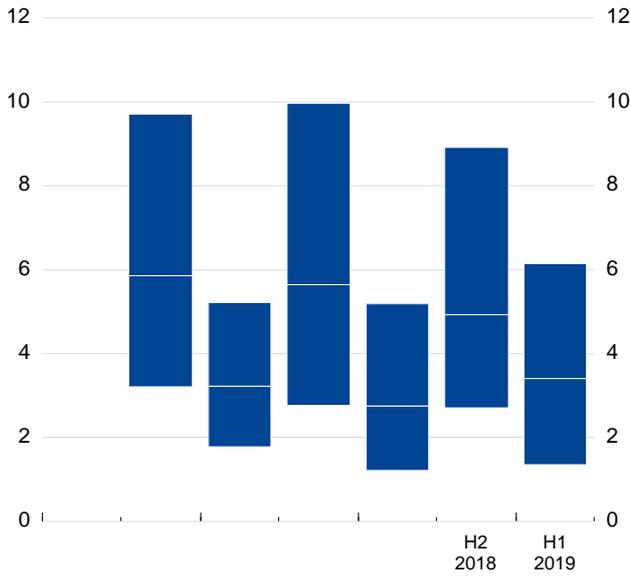
\* The EBA data presented are subject to changes in the composition of the sample over time. The figures are subject to revision. Data are fully based on the EBA's ITS on supervisory reporting. Further details on the main methodological aspects of the EBA's ITS are available on EBA's website: [www.eba.europa.eu](http://www.eba.europa.eu).

## 6. Profitability and solvency

### 6.3 Insurance groups' profitability indicators

#### a. Return on equity

(EU; percentages; interquartile range and median; last observation: H2 2015)



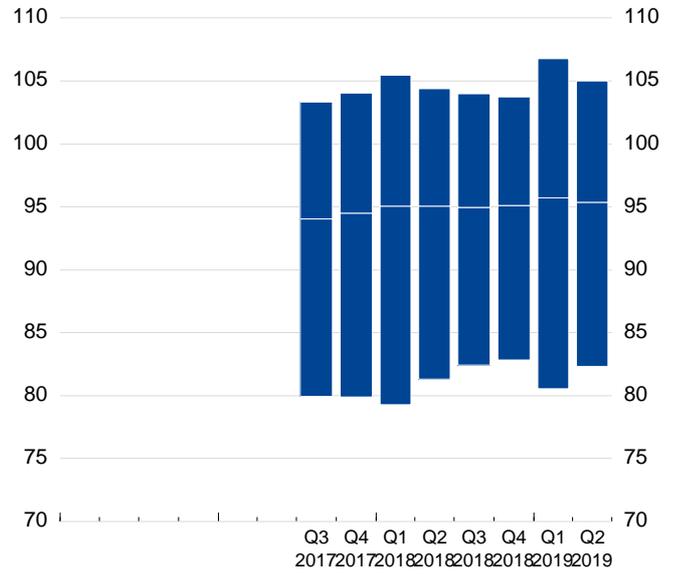
Source: EIOPA, based on Solvency II Reporting.

Notes: The return on equity is defined as the cumulated profit (loss) after tax and before dividends, divided by the excess of assets over the liabilities for the current quarter. Data not annualised.

For more details on the Solvency II reporting please see Annex I to the risk dashboard.

#### b. Combined ratio - non-life insurance

(EU; percentages; interquartile range and median; last observation: Q2 2019)

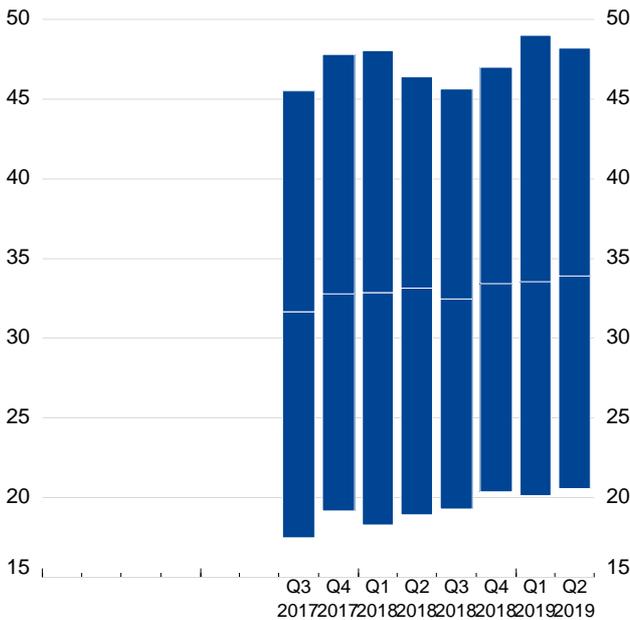


Source: EIOPA, based on Solvency II Reporting.

Notes: The combined ratio is defined as net claims incurred and expenses incurred divided by net written premiums. For more details on the Solvency II reporting please see Annex I to the risk dashboard.

#### c. Expense ratio - non-life insurance

(EU; percentages; interquartile range and median; last observation: Q2 2019)

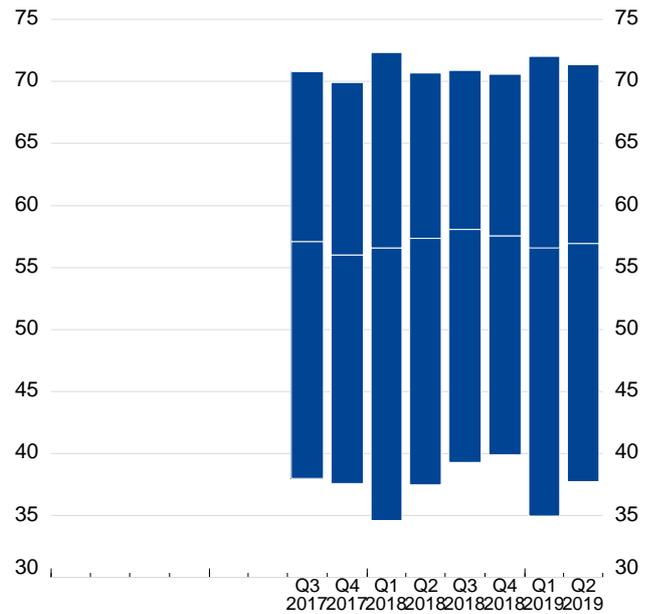


Source: EIOPA, based on Solvency II Reporting.

Notes: Expense ratio is defined as expenses incurred divided by net written premiums. For more details on the Solvency II reporting please see Annex I to the risk dashboard.

#### d. Loss ratio - non-life insurance

(EU; percentages; interquartile range and median; last observation: Q2 2019)



Source: EIOPA, based on Solvency II Reporting.

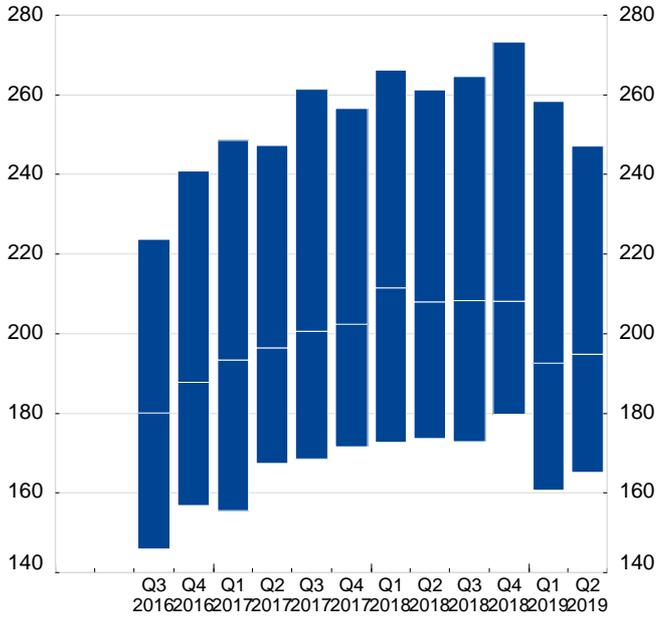
Notes: Loss ratio is defined as net claims incurred divided by net written premiums. For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 6. Profitability and solvency

### 6.4 Insurance groups' solvency indicators

#### a. Insurance groups' solvency ratio

(EU; percentages; interquartile range and median; last observation: Q2 2019)

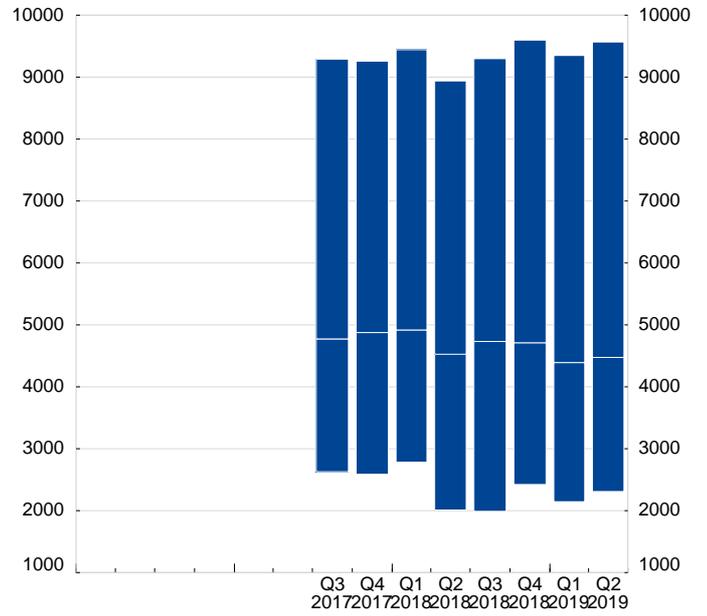


Source: EIOPA, based on Solvency II Reporting.

Note: For more details on the Solvency II reporting please see Annex I to the risk dashboard.

#### b. Insurance groups' excess of assets over liabilities

(EU; EUR billions; interquartile range and median; last observation: Q2 2019)

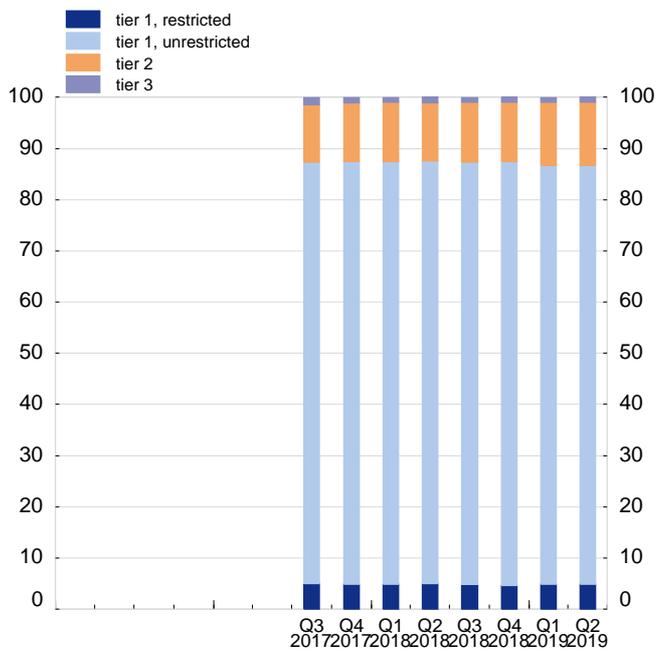


Source: EIOPA, based on Solvency II Reporting.

Note: For more details on the Solvency II reporting please see Annex I to the risk dashboard.

### 6.5 Insurance groups' quality of own funds

(EU; percentages; share of total eligible own funds; last observation: Q2 2019)



Source: EIOPA, based on Solvency II Reporting.

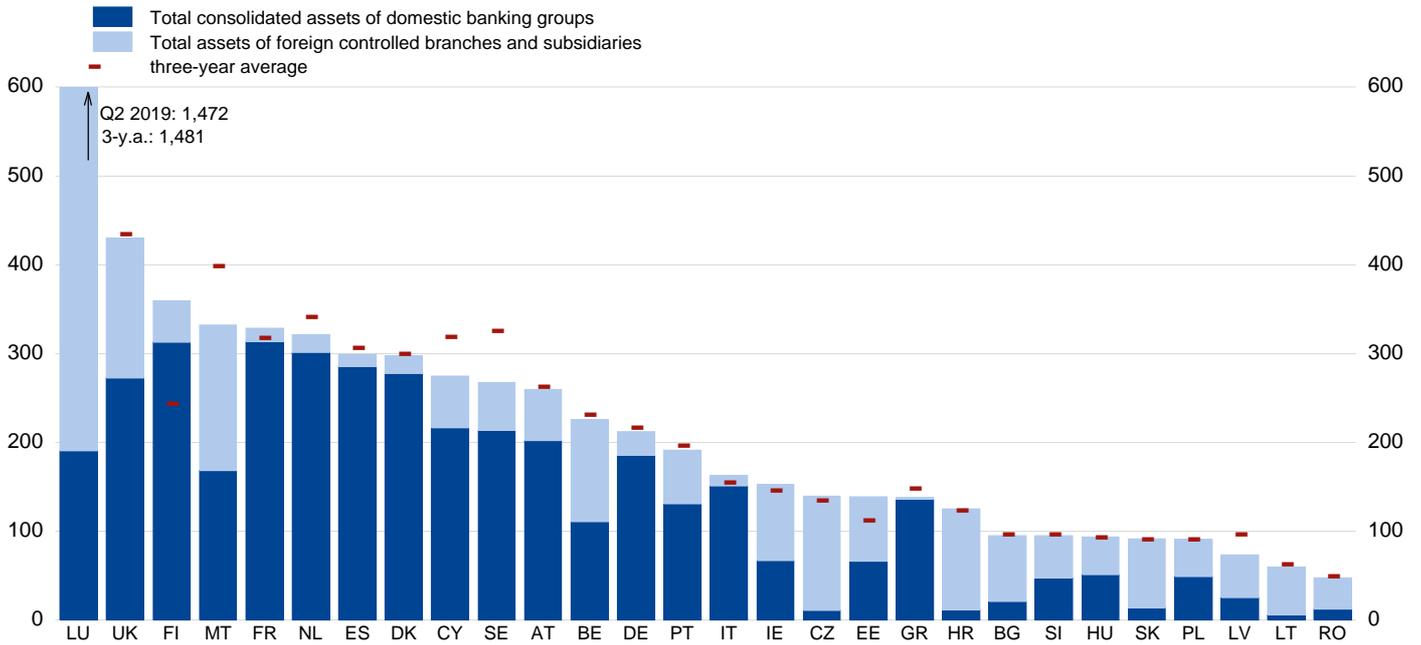
Note: indicator presents breakdown of the quality of the Solvency II own funds according to the different tiers.

For more details on the Solvency II reporting please see Annex I to the risk dashboard.

## 7. Structural risk

### 7.1 Banking sector size

(EU; share of nominal GDP; percentages; last observation: Q2 2019)

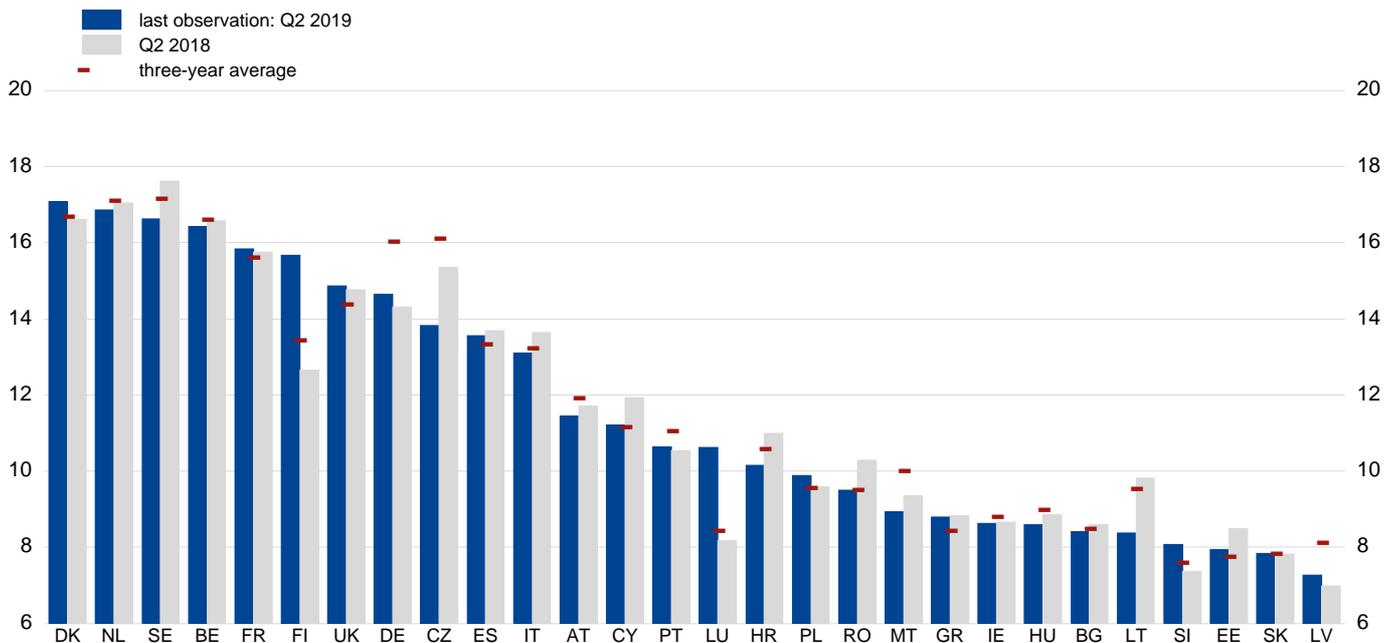


Sources: ECB and Eurostat.

Notes: Based on Consolidated Banking Data. The three-year average is based on quarterly data.

### 7.2 Banking sector leverage

(EU; share of total assets in capital)



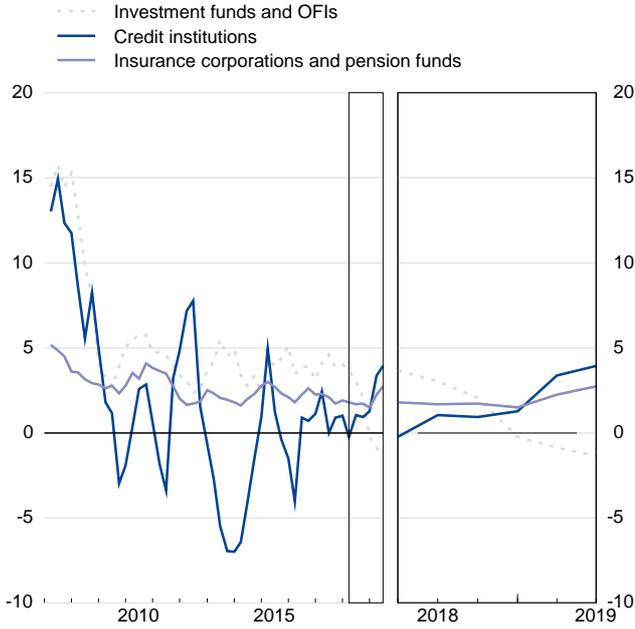
Sources: ECB.

Notes: Share of total assets in capital for domestic banking groups and stand-alone credit institutions. Consolidated data. The three-year average is based on quarterly data.

## 7. Structural risk

### 7.3 Growth of components of the EU financial sector

(EU; percentages; total assets annualised growth rates; last observation: Q2 2019)

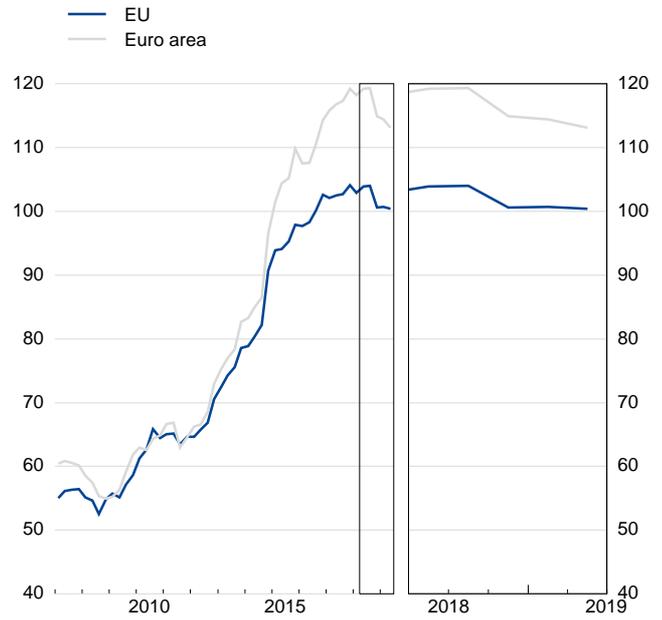


Source: ECB.

Notes: Data based on financial accounts and monetary statistics. Data refer to the non-consolidated balance sheets of the respective entities.

### 7.4 Total assets of investment funds and OFIs

(as per cent of credit institutions' total assets; last observation: Q2 2019)

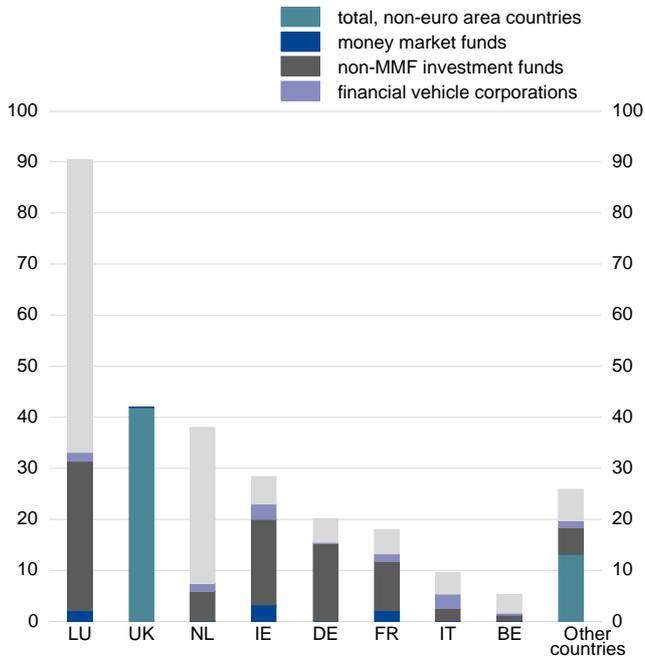


Source: ECB.

### 7.5 Total assets of investment funds and OFIs in the EU

#### a. Outstanding amounts

(EU; percentages of EU GDP; last observation: Q2 2019)

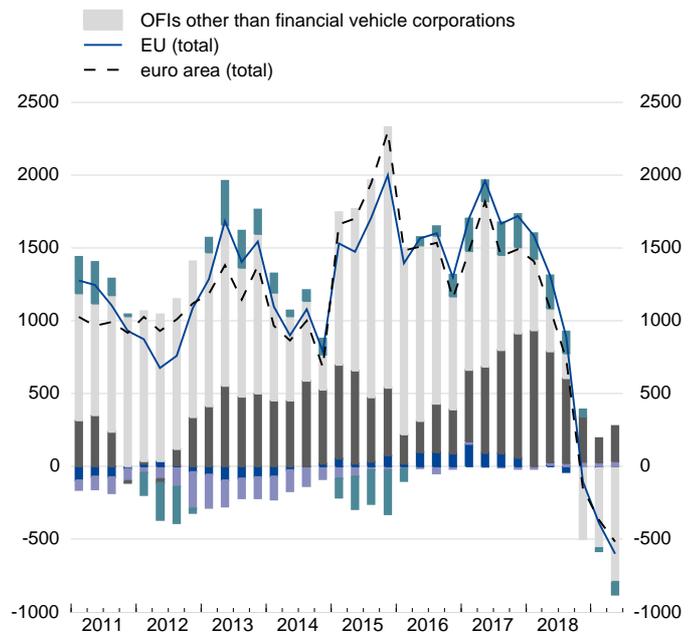


Sources: ECB and European Commission.

Note: Breakdowns are available only for euro area Member States.

#### b. Cumulated flows

(EU; EUR billions; four-quarter cumulated flows; last observation: Q2 2019)

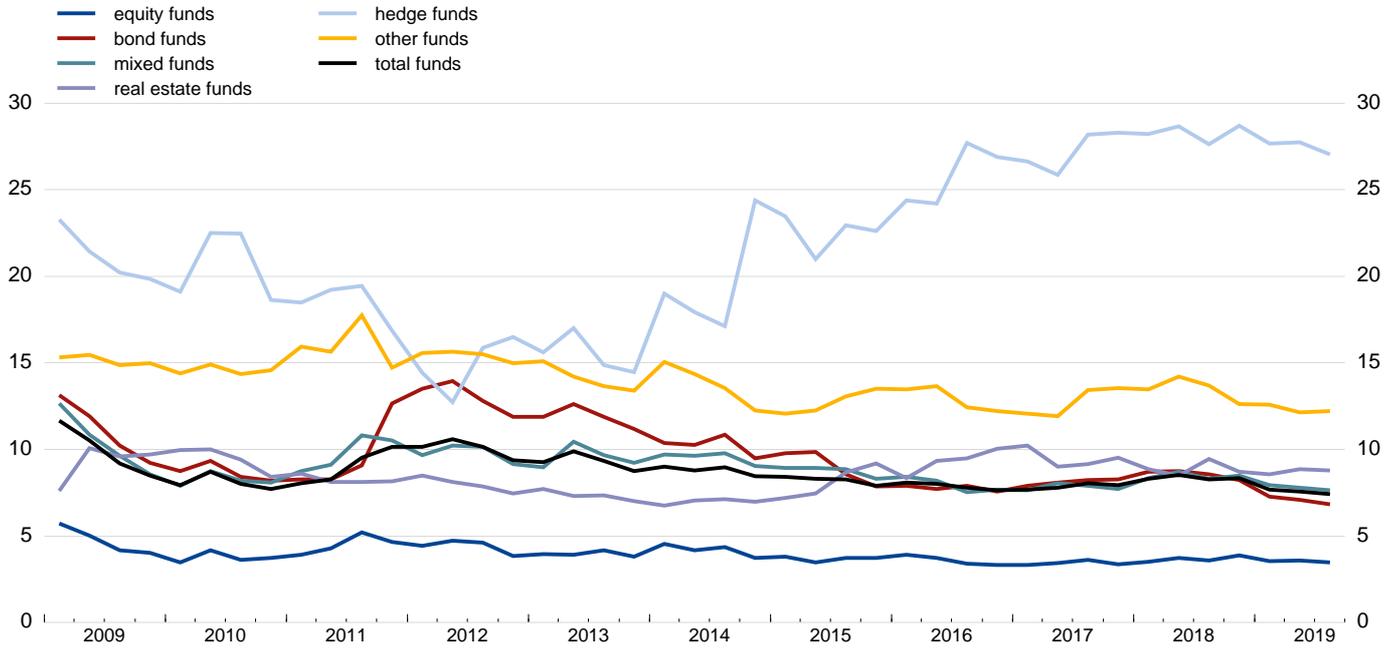


Source: ECB.

## 7. Structural risk

### 7.6 Non-MMF investment funds ratio of short term assets to short term liabilities

(euro area; percentages; last observation: Sep. 2019)



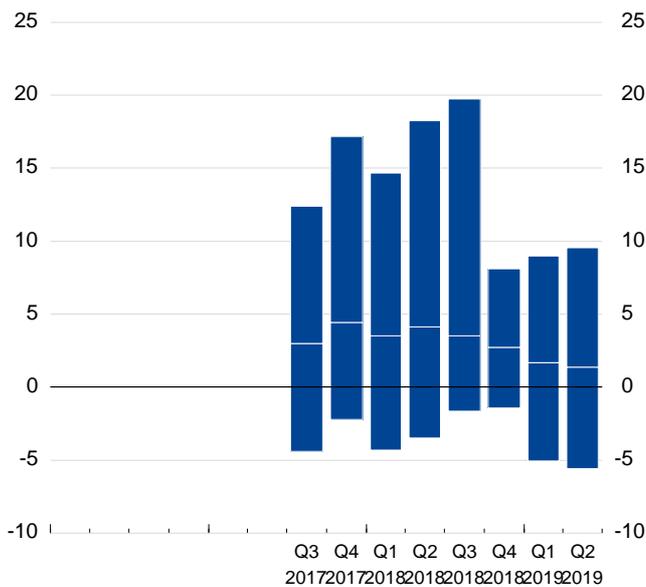
Source: ECB.

Notes: Short-term assets include non-MMF investment funds' holdings of debt securities and loans and deposits with original maturity up to one year; short-term liabilities include open-ended fund units issued and loans received with original maturity up to one year. Maturity breakdowns for loans and deposits are available from 2014 Q4 and are estimated for prior periods based on the maturity breakdowns in 2015 for these instruments (for respective counterparty sectors).

### 7.7 Insurance groups' profitability indicators

#### a. Gross premiums written - life insurance

(EU; annual growth rates; interquartile range and median; last observation: Q2 2019)

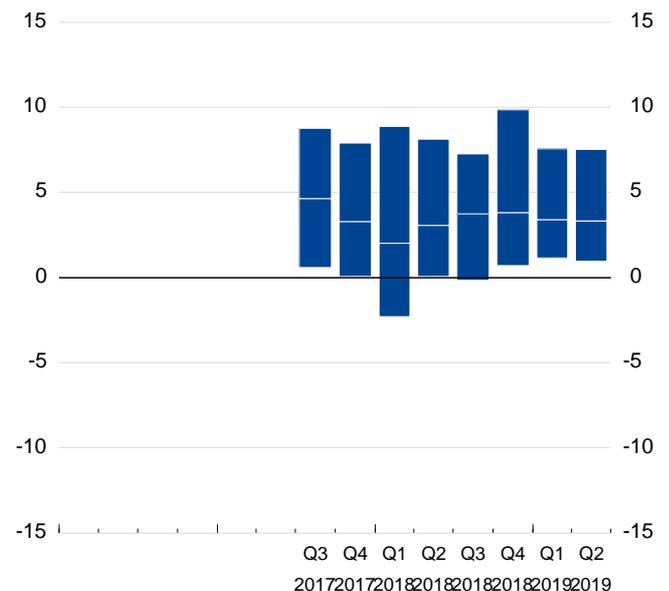


Source: EIOPA, based on Solvency II Reporting.

Notes: For more details on the Solvency II reporting please see Annex I to the risk dashboard

#### b. Gross premiums written - non-life insurance

(EU; annual growth rates; interquartile range and median; last observation: Q2 2019)



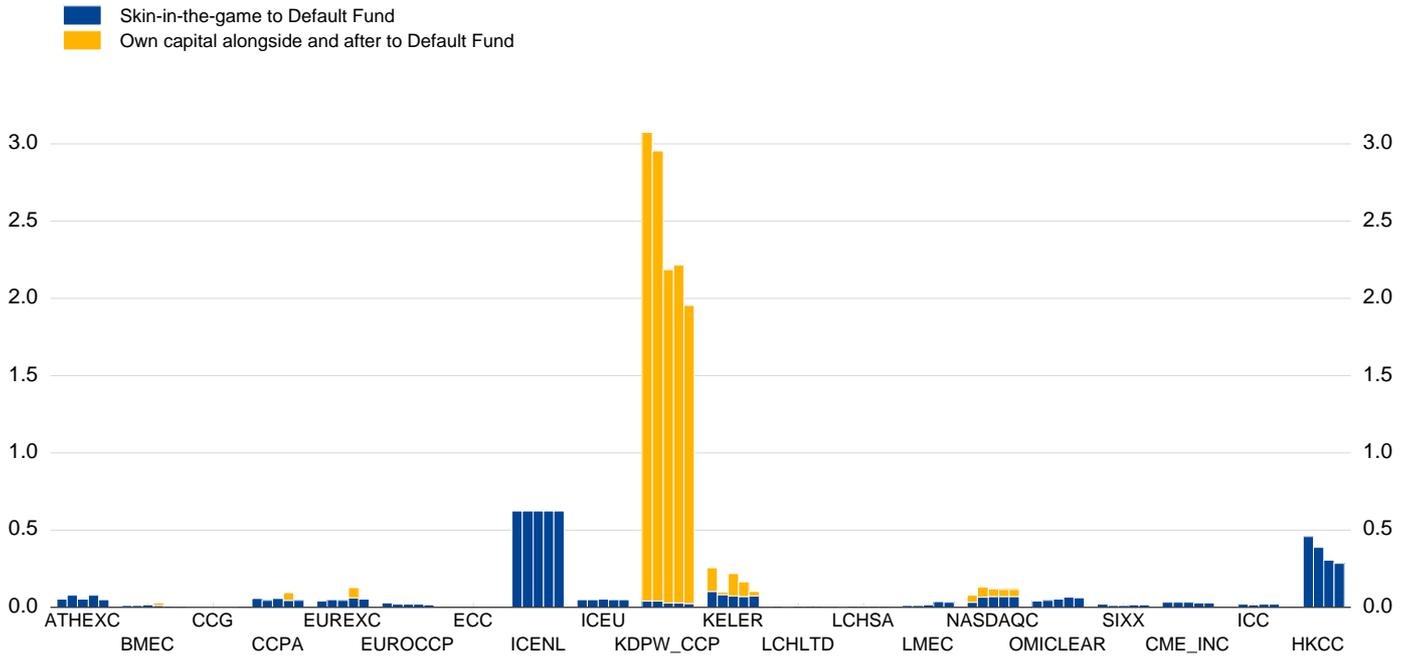
Source: EIOPA, based on Solvency II Reporting.

Notes: For more details on the Solvency II reporting please see Annex I to the risk dashboard

## 8. Risk related to central counterparties

### 8.1 Prefunded default resources

Ratio of own capital to default funds (ratio, quarter-end, last observation: Q2 2019)

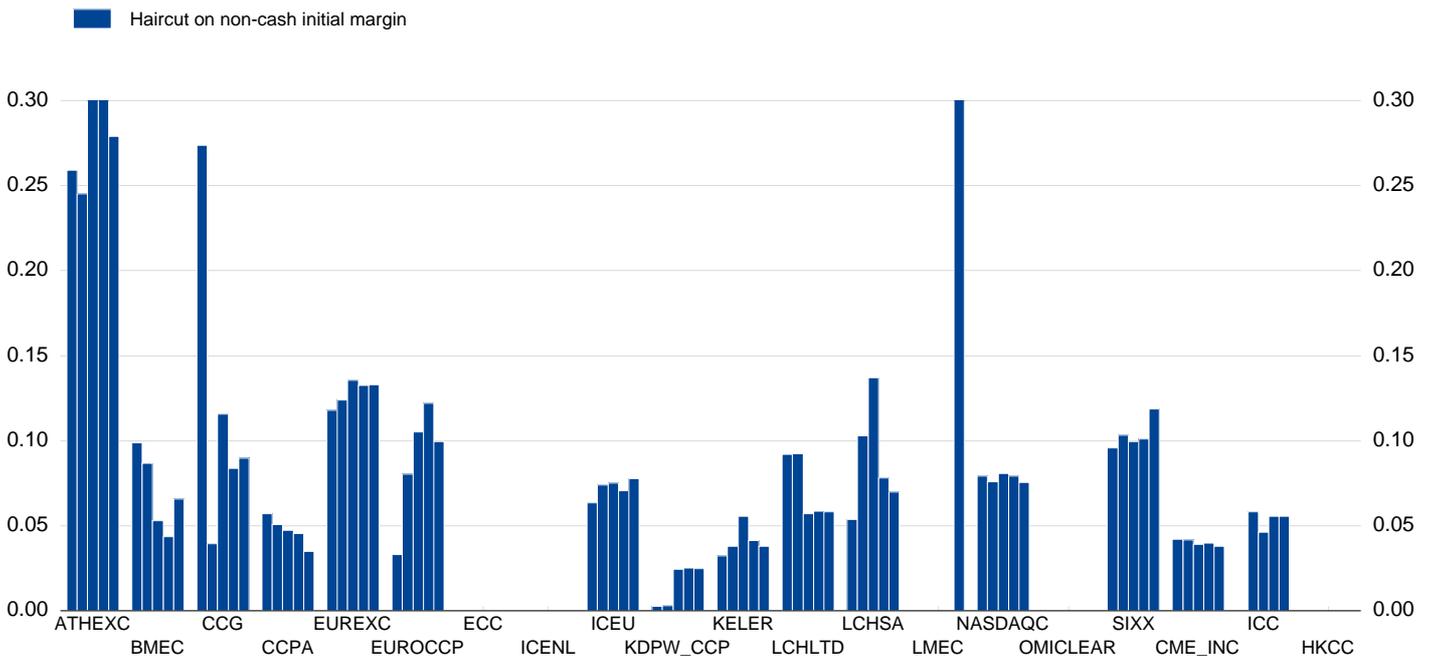


Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: Mutualised default funds are only used to absorb losses if the defaulting member's variation margin, initial margin, and CCP's skin-in-the-game, respectively, are insufficient. Initial margin is the first line of defence against loss mutualisation and calculated in relation to the risk brought by clearing members. The primary purpose of skin-in-the-game is to ensure CCPs' incentives are aligned with those of their clearing members. It is calculated in relation to a capital requirement. The chart shows a ratio of own capital (with graphical distinction of its subparts) to the default fund contributions provided by the clearing members. Information provided for segregated clearing services have been aggregated into a single structure. Each bar represents a quarter. Data for Keler CCP and ICE NL not included for 2017 Q3, Q1, Q2 and Q3 2018 observation of "Own capital alongside and after to Default Fund" for KDPW\_CCP taken out due to quality checks. No data are reported for ECC

### 8.2 Haircut and margining policies

Haircut on non-cash initial margin (in fractions, quarter-end, last observation: Q2 2019)



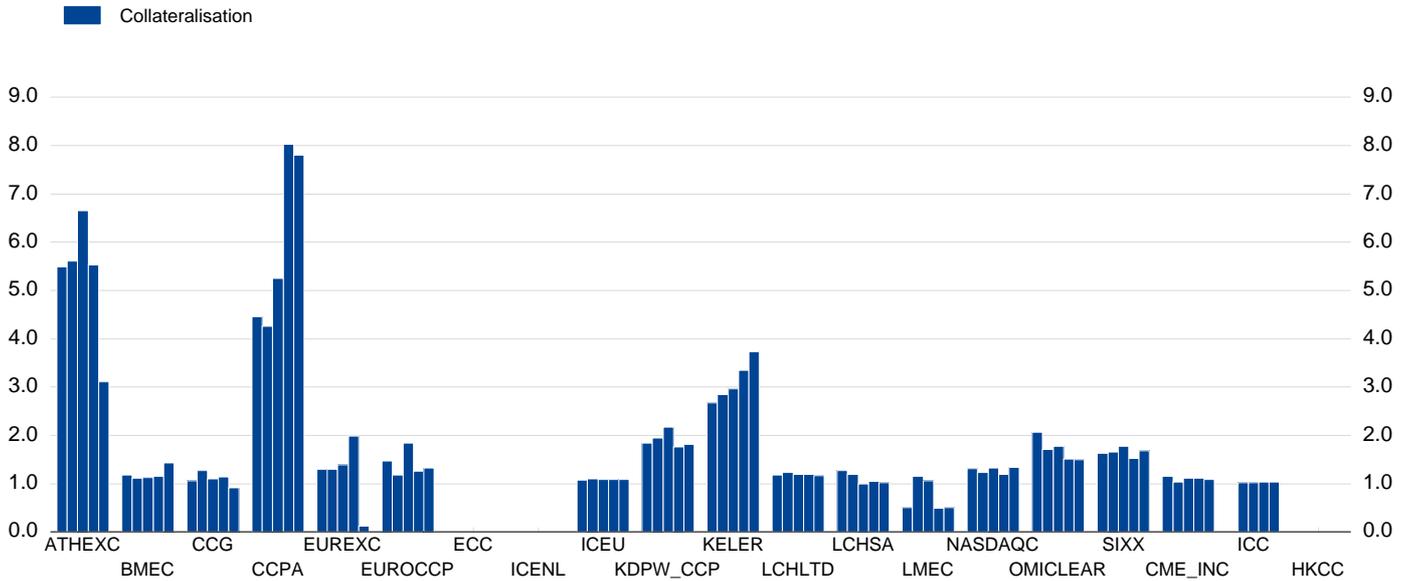
Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: Margins and haircuts are essential parts of the CCP risk management frameworks. Initial margins are designed to protect a CCP against losses stemming from the default of a clearing member while haircuts aim to mitigate a fall in market value of collateral in case the collateral has to be sold. Reported haircuts for ICE NL, and OMIClear equal zero. PQD 20.2.1 is added to PQD 6.2.15 for CC&G from 2016 Q3 onwards as they do not include initial margin resulting from interoperability arrangements in PQD 6.2.15. ECC and HKCC do not report PQD 6.2.15

## 8. Risk related to central counterparties

### 8.3 Collateral policies

Collateralisation (ratio, quarter-end, last observation: Q2 2019)

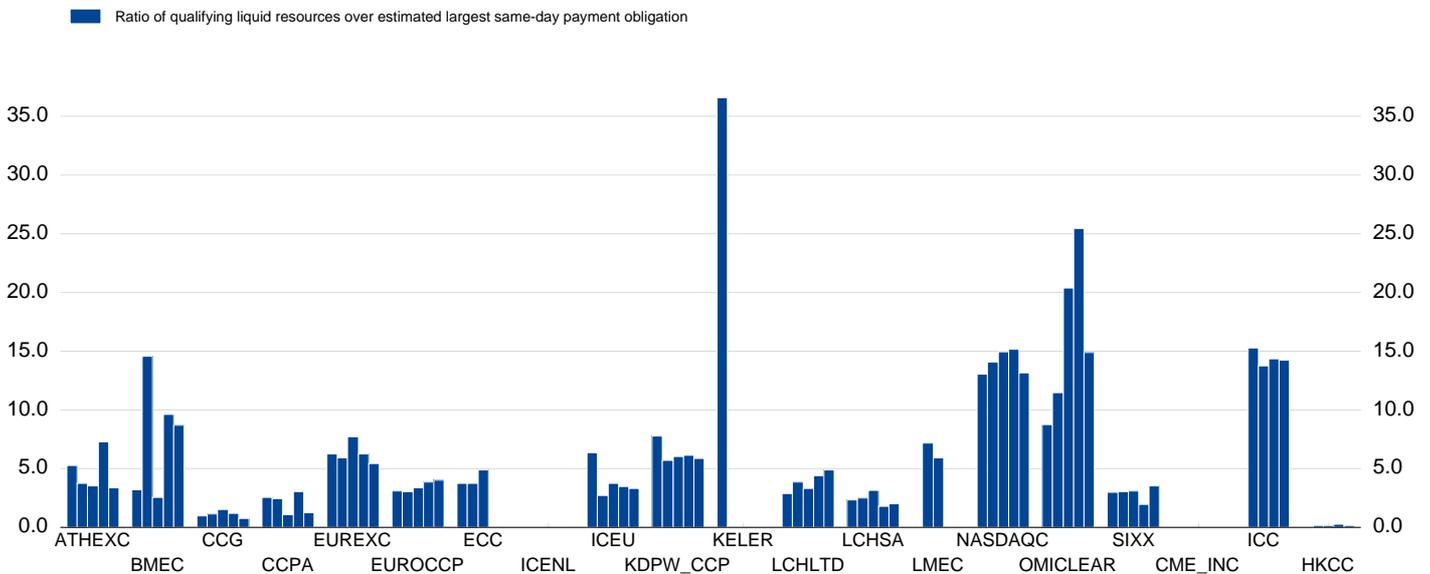


Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: A level above 1 indicates an overcollateralisation, while a level below 1 an undercollateralisation. Clearing members may voluntarily hold a buffer of excess collateral to reduce operational complexity. CPMI-IOSCO final guidance on CCP resilience recommends that CCPs do not rely on the additional collateral posted by their members over the margin required when assessing the adequacy of their financial resources. This is because the additional collateral might be withdrawn in a stressed period. No data available for LMEC in 2017 Q1 for PQD 6.2.15 and no data for PQD 6.1.1 and 6.2.15 for ICE NL in 2017 Q2 and Q3. PQD 20.2.1 is added to PQD 6.2.15 for CC&G from 2016 Q3 onwards as they do not include initial margin resulting from interoperability arrangements in PQD 6.2.15. Information provided for segregated clearing services has been aggregated into a single structure. Each bar represents a quarter. ECC and HKCC do not provide PQD 6.2.15

### 8.4 Liquidity policies: qualifying liquid resources to the estimated largest same-day payment obligation

Ratio of qualifying liquid resources over estimated largest same-day payment obligation (ratio, in quarter, last observation: Q2 2019)



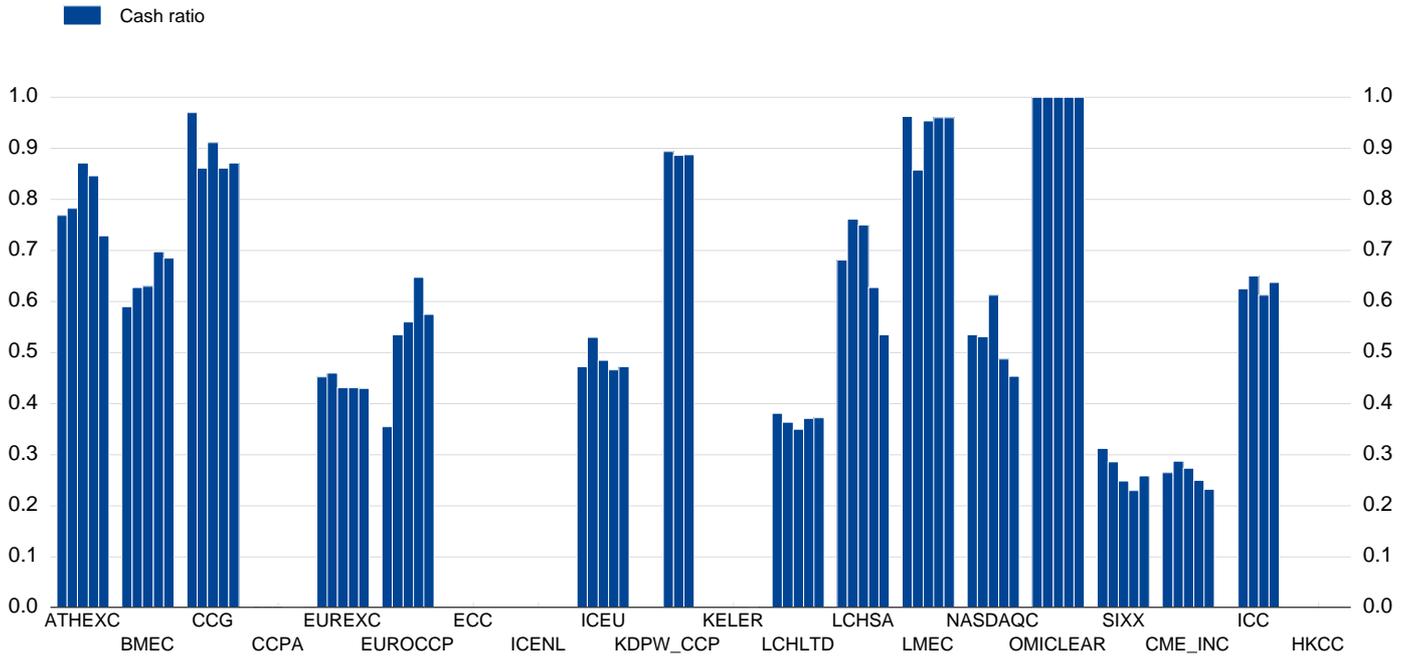
Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: EMIR requires CCPs to cover liquidity risk generated by the default of at least the two clearing members to which the CCP has the largest exposures. No data available for OMIClear for PQD 7.3.1 for 2017 Q3 and for PQD 7.3.1. Data for Keler CCP was not included for 2018 Q2. ICE NL reports zeros for PQD 7.3.1. in 2017 Q3. Each bar represents a quarter. Average values have been taken for PQD 7.1.2-7.1.9 in order to align stocks with flows. No data available for CME Inc for PQD 7.3.1

## 8. Risk related to central counterparties

### 8.5 Liquidity policies: cash ratio

Cash ratio (ratio, quarter-end, last observation: Q2 2019)



Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

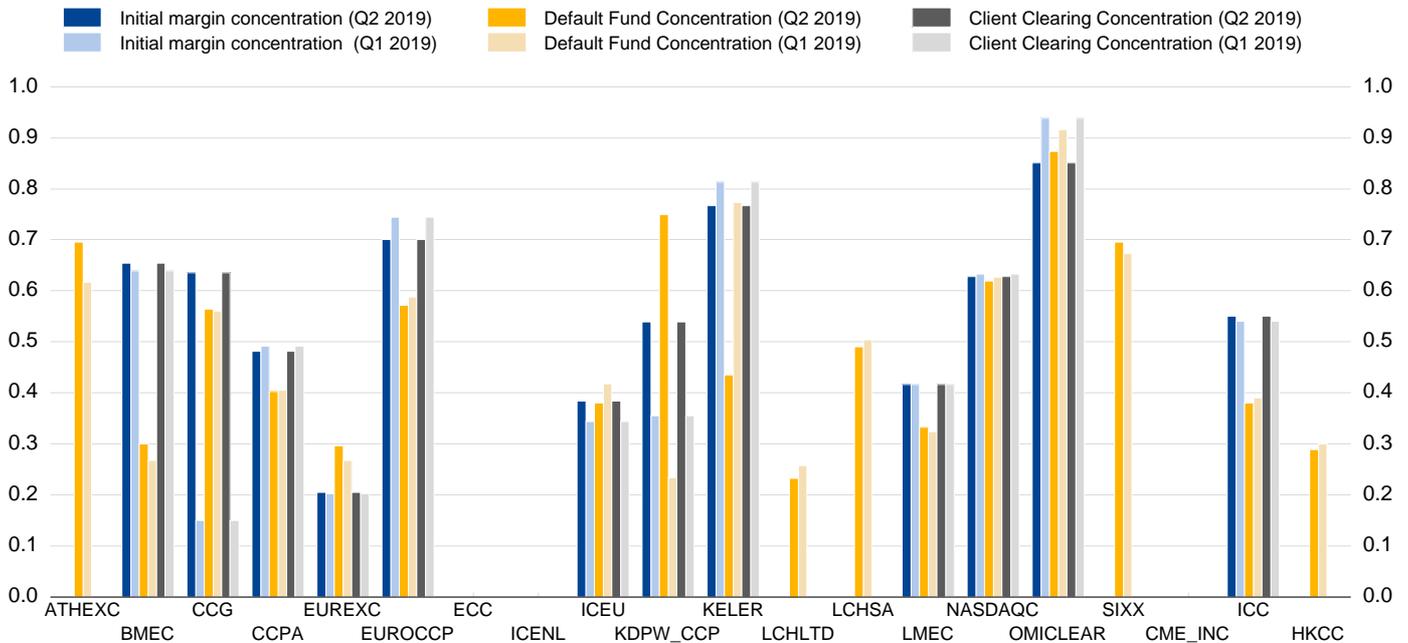
Note: EMIR requires that CCPs maintain sufficient liquid resources commensurate with their liquidity requirements. This indicator shows the share of initial margin provided and held in cash.

Keler CCP reports zero values for PQD 16.1.1 and no data are available for ECC, ICE NL and HKCC on 6.2.15. Each bar represents a quarter.

PQD 20.2.1 is added to PQD 6.2.15 for CC&G from 2016 Q3 onwards as they do not include initial margin resulting from interoperability arrangements in PQD 6.2.15.

### 8.6 Concentration at CCP level

Initial margin, default fund and client clearing concentration (ratio, average in quarter, last observation: Q2 2019)



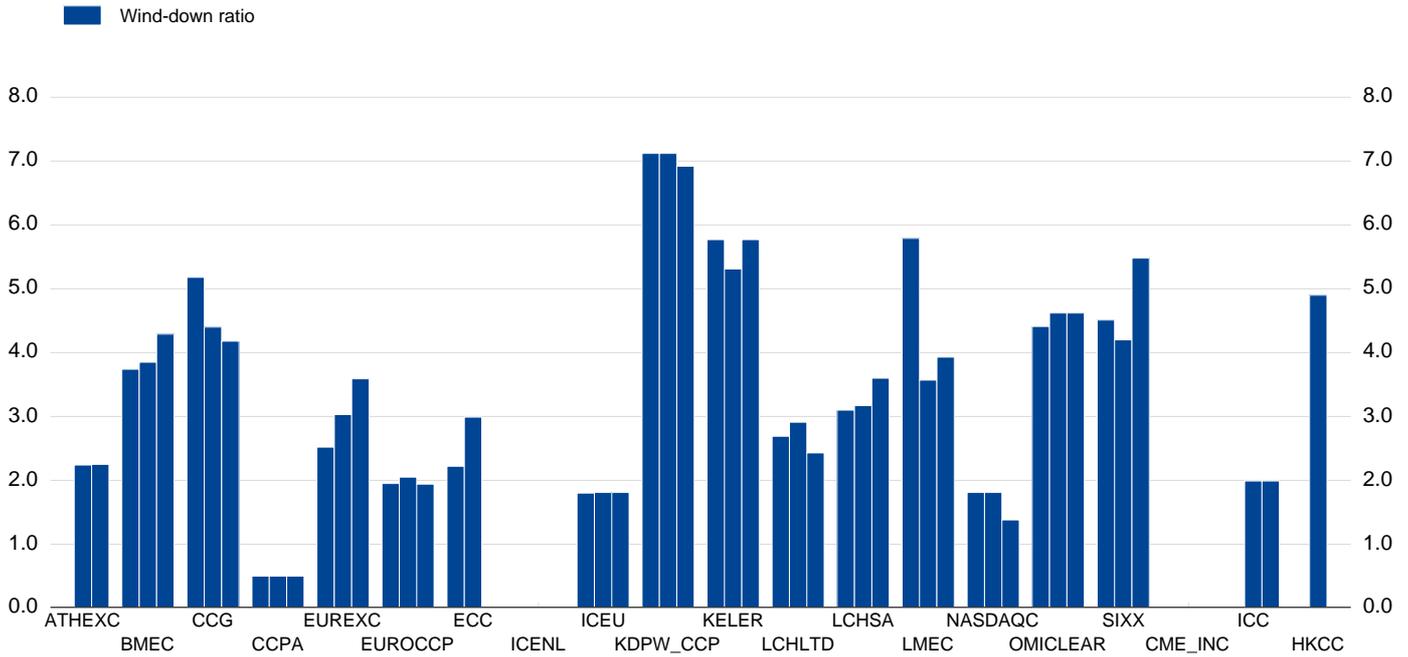
Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: This indicator shows an estimate of the five largest clearing members' average contributions to total initial margin, default fund contributions and client clearing at the clearing service level within a CCP. All bars refer to 2017 Q2 and Q3. PQD 18.3 and 18.4 show quarter averages and therefore averages are taken for PQD 6.2.15 and 4.1.5 to match stocks with flows. No data available for CME Inc and ICE NL in any quarters, as well as for AthexC, ECC, LCH Ltd., LCH SA and SIXX on initial margin and client clearing concentration measures.

## 8. Risk related to central counterparties

### 8.7 Wind-down ratio

Wind-down ratio (ratio, annual, last observation: 2019)



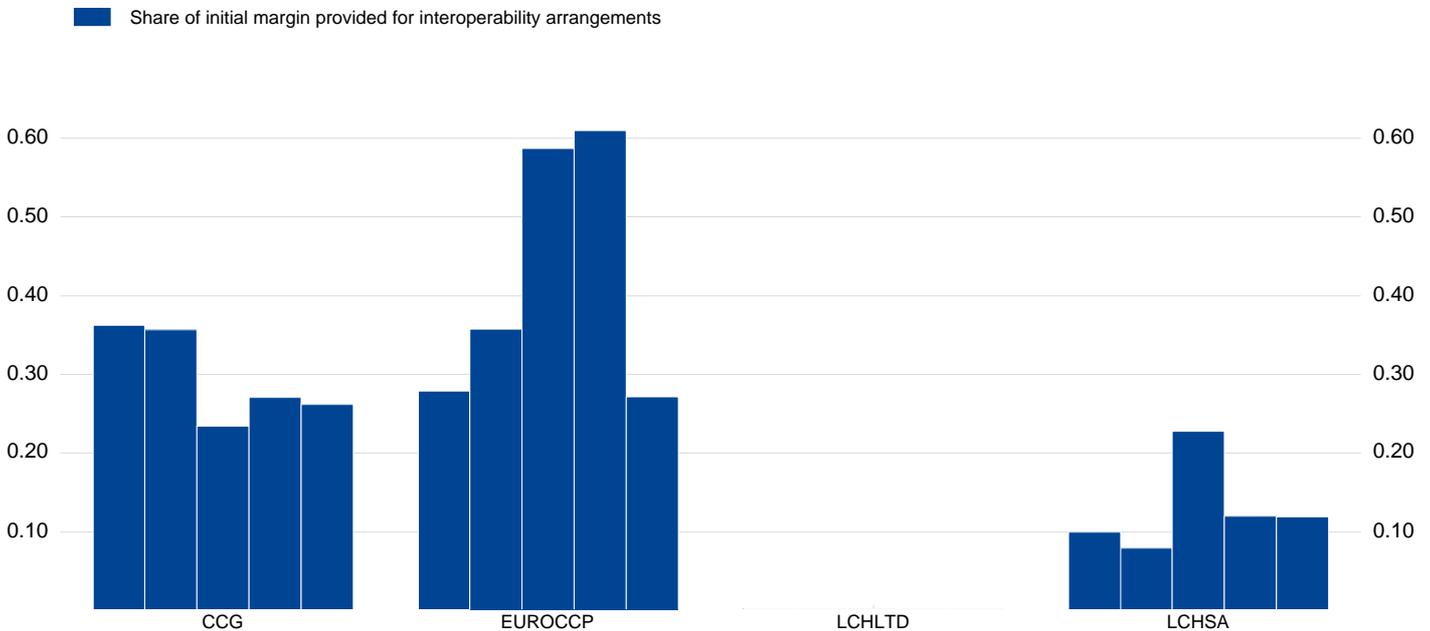
Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: A ratio above 0.5 indicates that a CCP has liquid net assets funded by equity to cover 6 months of operating costs. No data for ICE NL were reported for 2017 Q4 onwards.

No data reported for CME Inc. and HKCC. Each bar represents a quarter.

### 8.8 Interoperability arrangements

Share of initial margin provided for interoperability arrangements in total margin at clearing service level (ratio, quarter-end, last observation: Q1 2019)



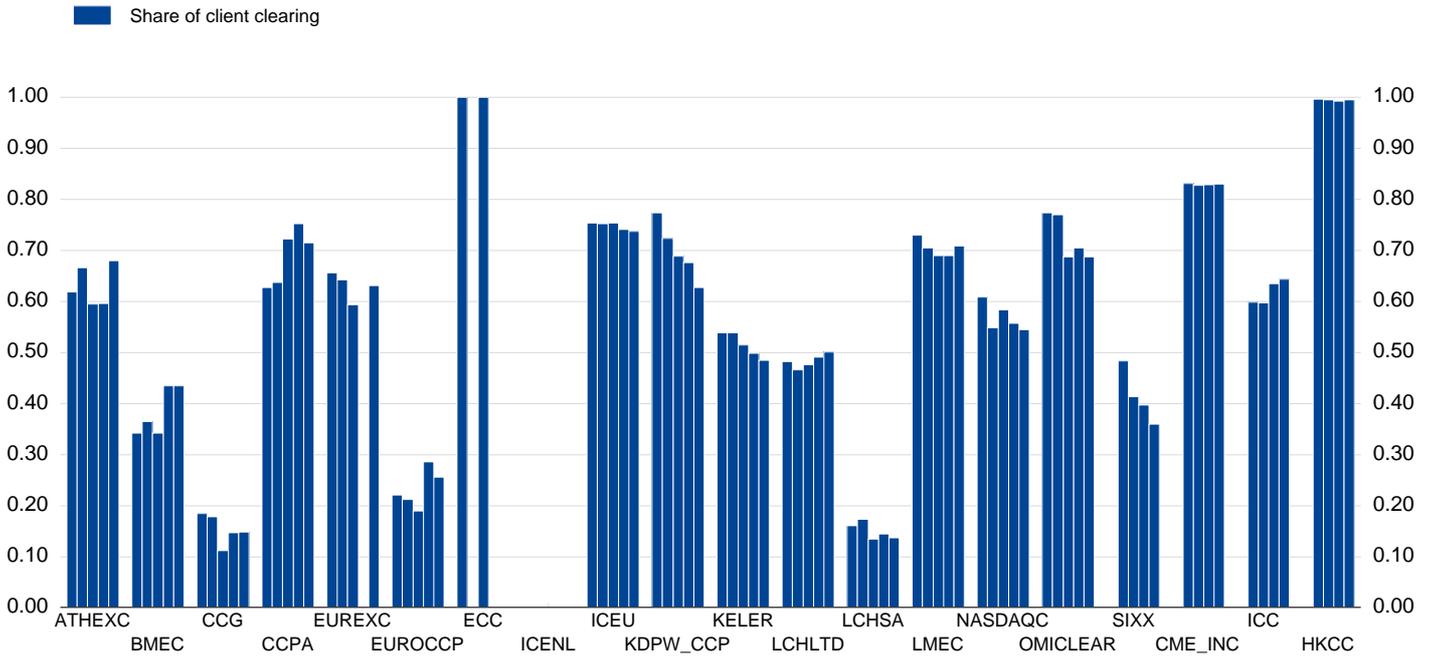
Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: Interoperability arrangements allow clearing members of a CCP to clear their trades through a different CCP. Currently, there are five interoperability arrangements in Europe in place: CC&G - LCH SA, Euro CCP - LCH Ltd., EuroCCP - six x-clear AG (CH), LCH Ltd. - six x-clear AG (CH), LCH Ltd. - six x-clear Norwegian branch (CH/NO). The indicator shows the initial margin provided for interoperability arrangements as a share of total initial margin. Each bar represents a quarter. PQD 20.2.1 is added to PQD 6.2.15 for CC&G from 2016 Q3 onwards, as they do not include initial margin resulting from interoperability arrangements in PQD 6.2.15.

## 8. Risk related to central counterparties

### 8.9 Share of client clearing

Share of total initial margin required for client clearing (last observation: Q2 2019)

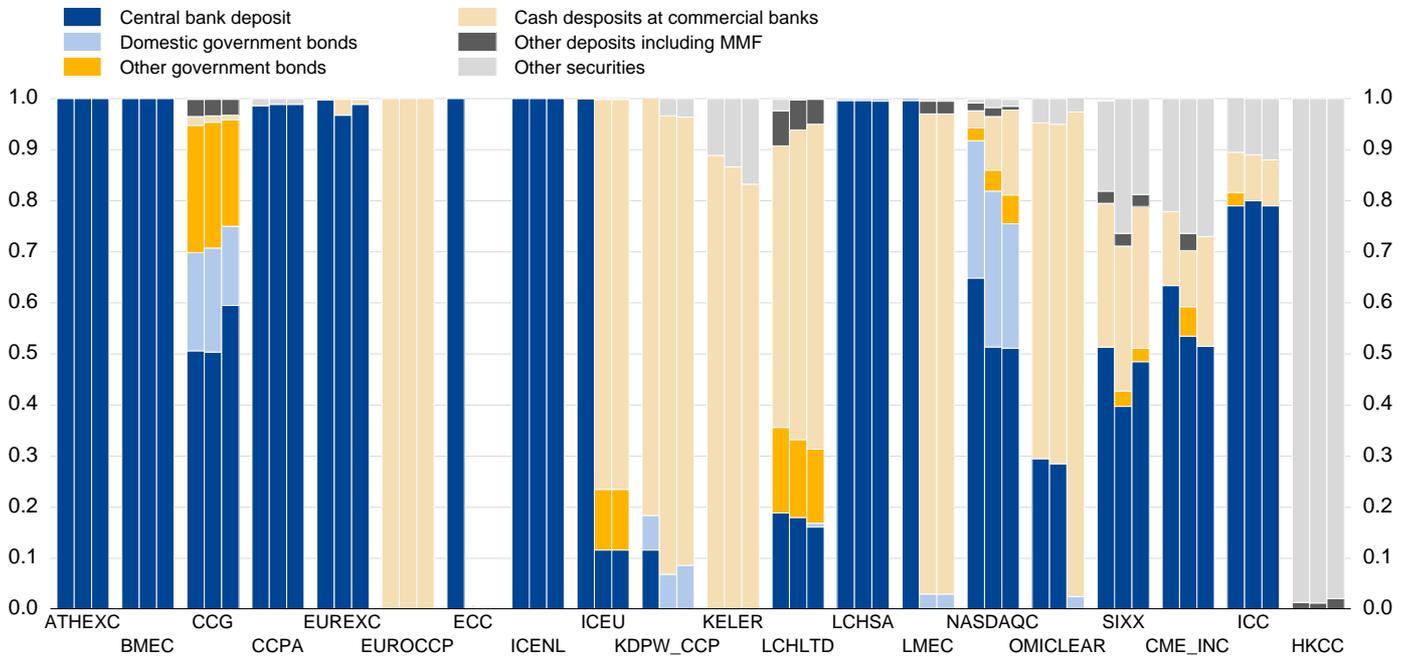


Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: This indicator considers the extent of direct and indirect clearing at a CCP. Client clearing is an essential part of a well-functioning clearing market, but a high share of client clearing may indicate an increased dependence on some direct members offering client clearing.

### 8.10 Cash reinvestment policies

Breakdown info (last observation: Q2 2019)



Source: CPMI-IOSCO quantitative public disclosure data & ESRB Secretariat calculations.

Note: This indicator shows the investment strategies applied by a CCP. In line with EMIR requirements, a CCP could either deposit the cash received from clearing members in a central bank or other financial institution, or reinvest it in securities, including domestic or foreign government bonds. 'Other deposits' include unsecured deposits at commercial banks, deposits in MMF and in other forms. 'Other securities' include agency bonds, state/municipal bonds and other instruments.