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(Indicators of) Financial Integration

Firenze, May 2021

Disclaimer: Any views expressed are only the speaker's own and should not be regarded as views of the European Central Bank or the Eurosystem.

This presentation

Looks at various dimensions of financial integration and …

… introduces a set of measures of financial integration across different financial market segments ...

… presents an overview of financial fragmentation during the COVID-19 crisis using a new set of high-frequency indicators.

Outline

1 **Financial Integration**

2 Measures of Financial Integration

3 European financial integration during the COVID-19 crisis

Definition of Financial Integration

“ … we **define financial integration** as a situation whereby there are no frictions that discriminate between economic agents in their access to – and their investment of – capital, particularly on the basis of their location. This means that financial integration is achieved when there is equal market access, de facto and de jure. … “

“*The way back to financial integration*”, Speech by Benoît Cœuré, Member of the Executive Board of the ECB, Madrid, 12 March 2013

Definition of Financial Integration

For the ECB, the market for a given set of financial instruments and/or services is fully integrated if all potential market participants with the same relevant characteristics:

1. face a single set of rules when they decide to deal with those financial instruments and/or services;
2. have equal access to the above-mentioned set of financial instruments and/or services; and
3. are treated equally when they are active in the market.

ECB,"*Financial integration in Europe*", May 2018

Baele, L. et al., "*Measuring financial integration in the euro area*", ECB Occasional Paper Series, No 14, ECB, Frankfurt am Main, April 2004.

The Eurosystem and Financial Integration

The Eurosystem has a keen interest in the integration and efficient functioning of the financial system in the euro area,

Financial integration

- fosters a smooth and balanced transmission of monetary policy throughout the euro area.
- It is relevant for financial stability
- It is important for the Eurosystem's task of promoting well-functioning payment systems.

Without prejudice to price stability, the Eurosystem also supports the objective of completing the EU Single Market, of which financial integration is a key aspect.

Eurosystem mission

"The Eurosystem, which comprises the European Central Bank and the national central banks of the Member States whose currency is the euro, is the monetary authority of the euro area. We in the Eurosystem have as our primary objective the maintenance of price stability for the common good. Acting also as a leading financial authority, we aim to safeguard financial stability and **promote European financial integration**..."

https://www.ecb.europa.eu/ecb/orga/escb/eurosystem-mission/html/index.en.html

ECB Report on “Financial integration and Structure in the Euro Area”


EUROPEAN CENTRAL BANK
EUROSYSTEM

Financial Integration and Structure in the Euro Area

March 2020

- In September 2005 the ECB published a first set of indicators of financial integration and an accompanying report assessing the state of euro area financial integration.
- Since then the work on financial integration has evolved and has resulted in the publication of a regular report.

Financial Integration

- Financial integration could have both stabilising and destabilising effects
- Stabilising effects from increased portfolio diversification; as banks and other investors are more diversified across borders, they could reduce their exposure to domestic shocks, with increasing (income and consumption) risk-sharing and smoothing
- Benefit also from improved allocative efficiency
  - Large cross-border banks and integrated financial markets can improve overall economic performance by channelling productive capital towards the most efficient firms

Financial Integration

- On the other hand, destabilising effects of financial integration may occur particularly through risk-taking and contagion.

- Asymmetric information problems associated with cross-border lending could lead to misaligned incentives and increased risk-taking.

- If negative shocks occur, contagion across economies could be amplified due to the interconnected nature of global financial markets

Outline

1. Financial Integration
2. **Measures of Financial Integration**
3. European financial integration during the COVID-19 crisis

Measures of financial integration

Since September 2005 the ECB is publishing a set of indicators of financial integration

Two broad categories of indicators

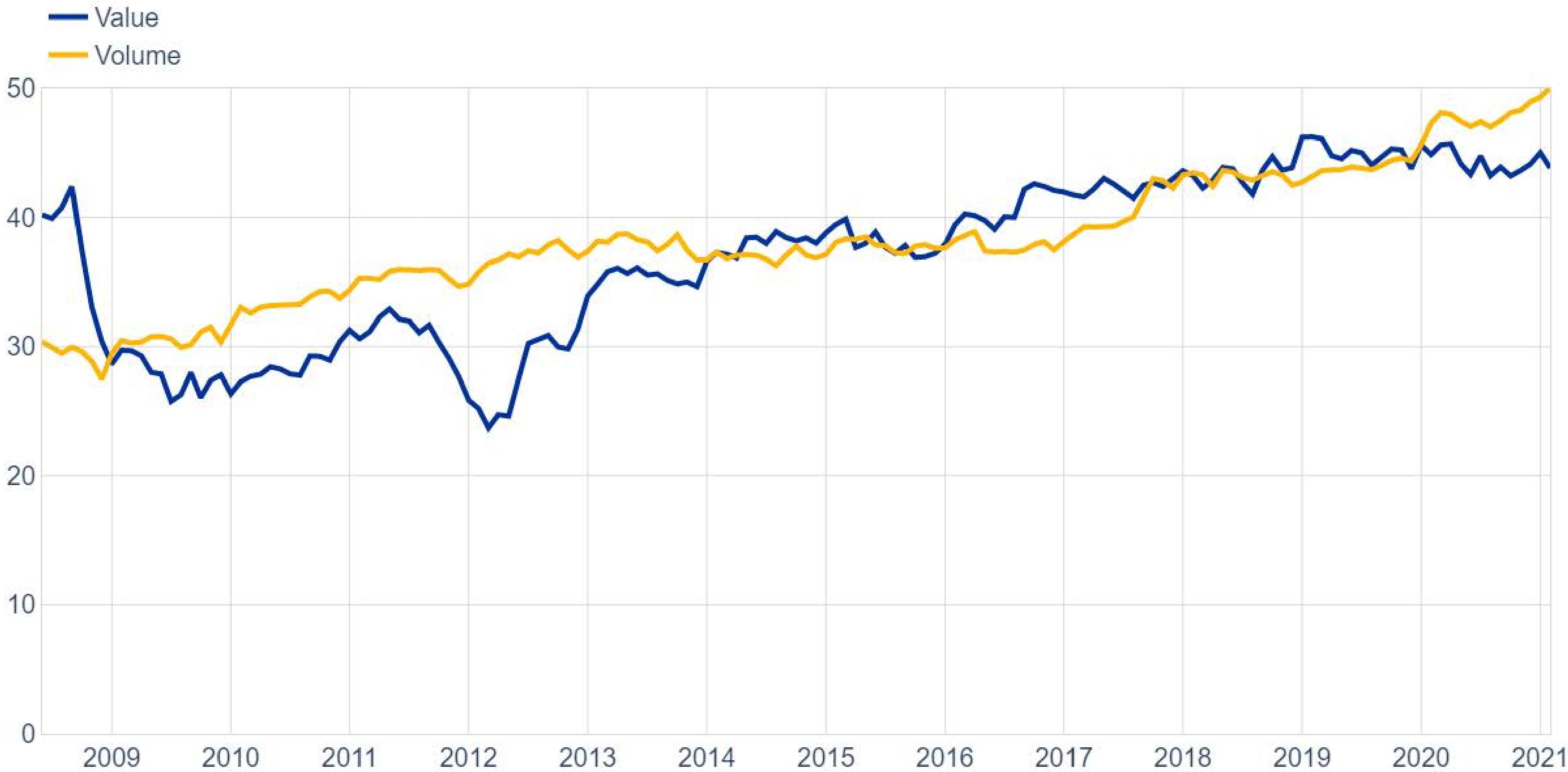
- Price-based measures
- Quantity-based measures

The indicators allow an overall assessment of the degree of financial integration in the main financial market segments of the euro area: the money market, bond markets, equity markets and banking markets, including also indicators related to market infrastructures.

https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/financial_integration/html/index.en.html

Share of cross-border activity in TARGET2

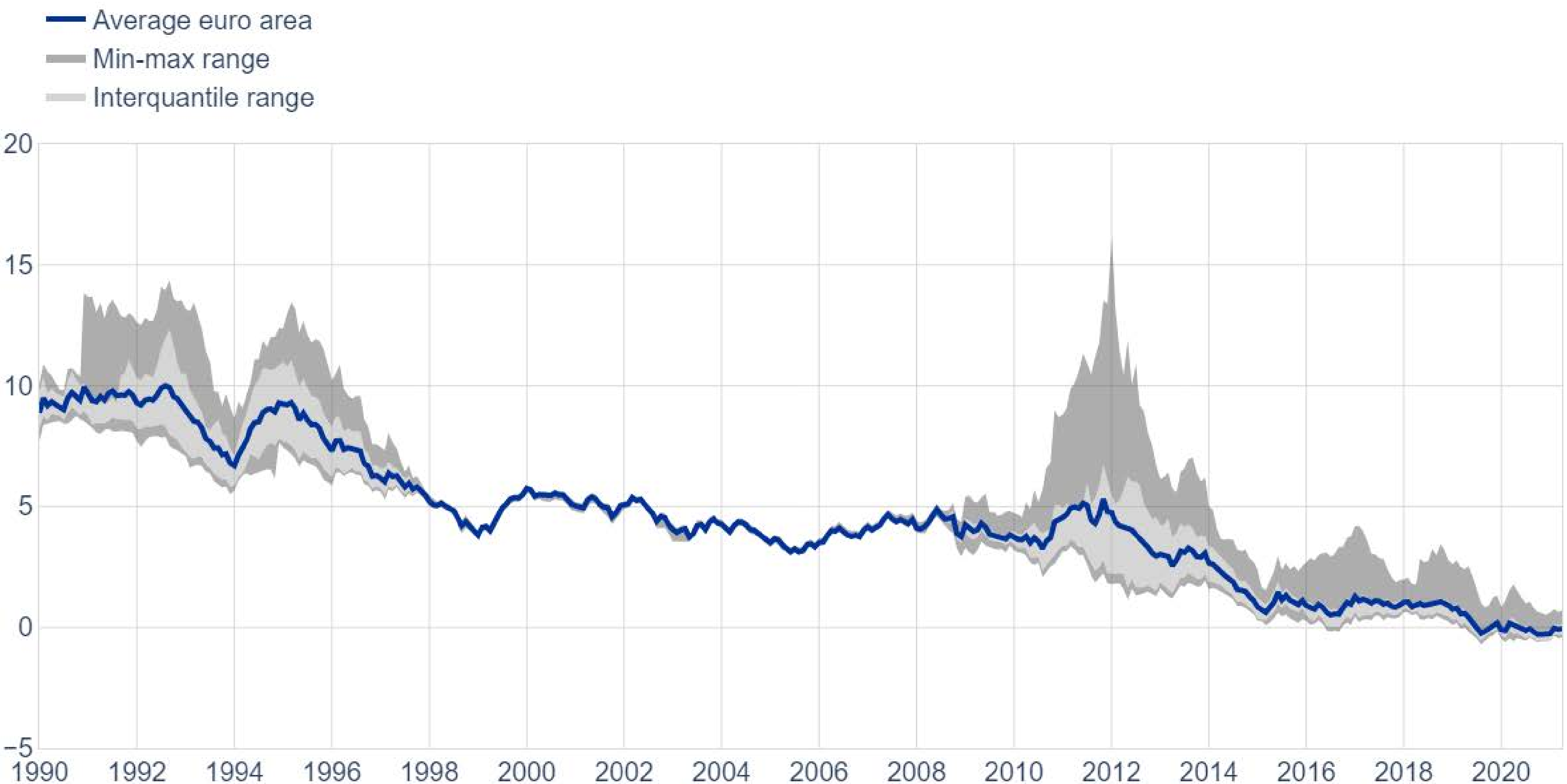
Share of euro-denominated cross-border activity in the TARGET2 payment system *(Cross-border value(EUR) and volume(number of transactions), percentage of total)*



Sources: ECB

The share of intra-euro area euro-denominated cross-border volume in TARGET2 declined rapidly after Lehman Brothers' bankruptcy in September 2008. It then recovered gradually, before again declining markedly when the sovereign debt crisis intensified between mid-2011 and the beginning of 2012. The subsequent re-activation of the cross-border market took gradually place.

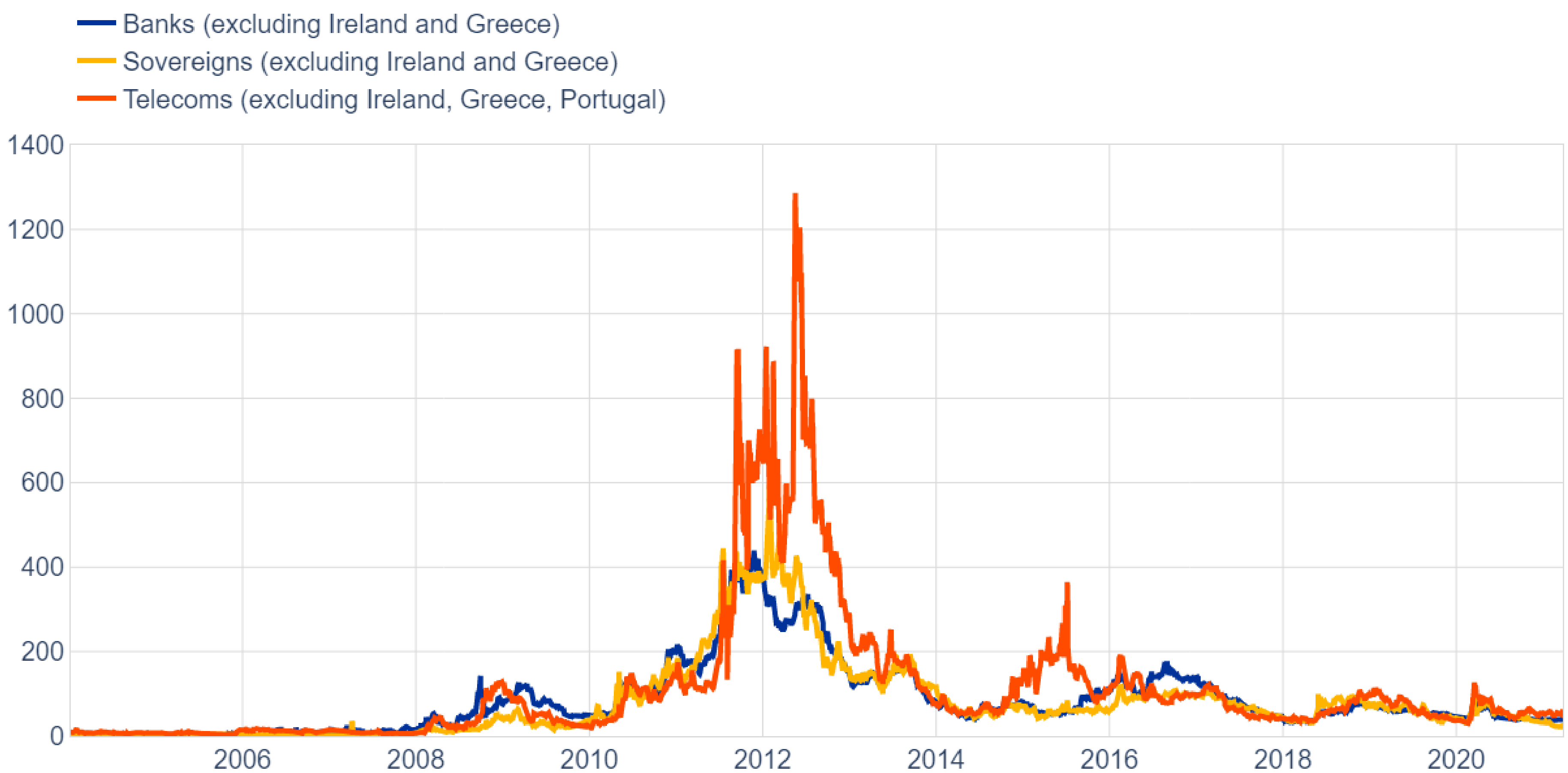
Dispersion of euro area ten-year sovereign bond yields *(percentages, monthly data, Jan. 1990 – Apr. 2021)*



In a well-integrated market, there should be low dispersion, because investors will not demand such a high premium to compensate for the risk of idiosyncratic shocks, while in a fragmented market, dispersion is higher.

Sources: Bloomberg and ECB calculations.

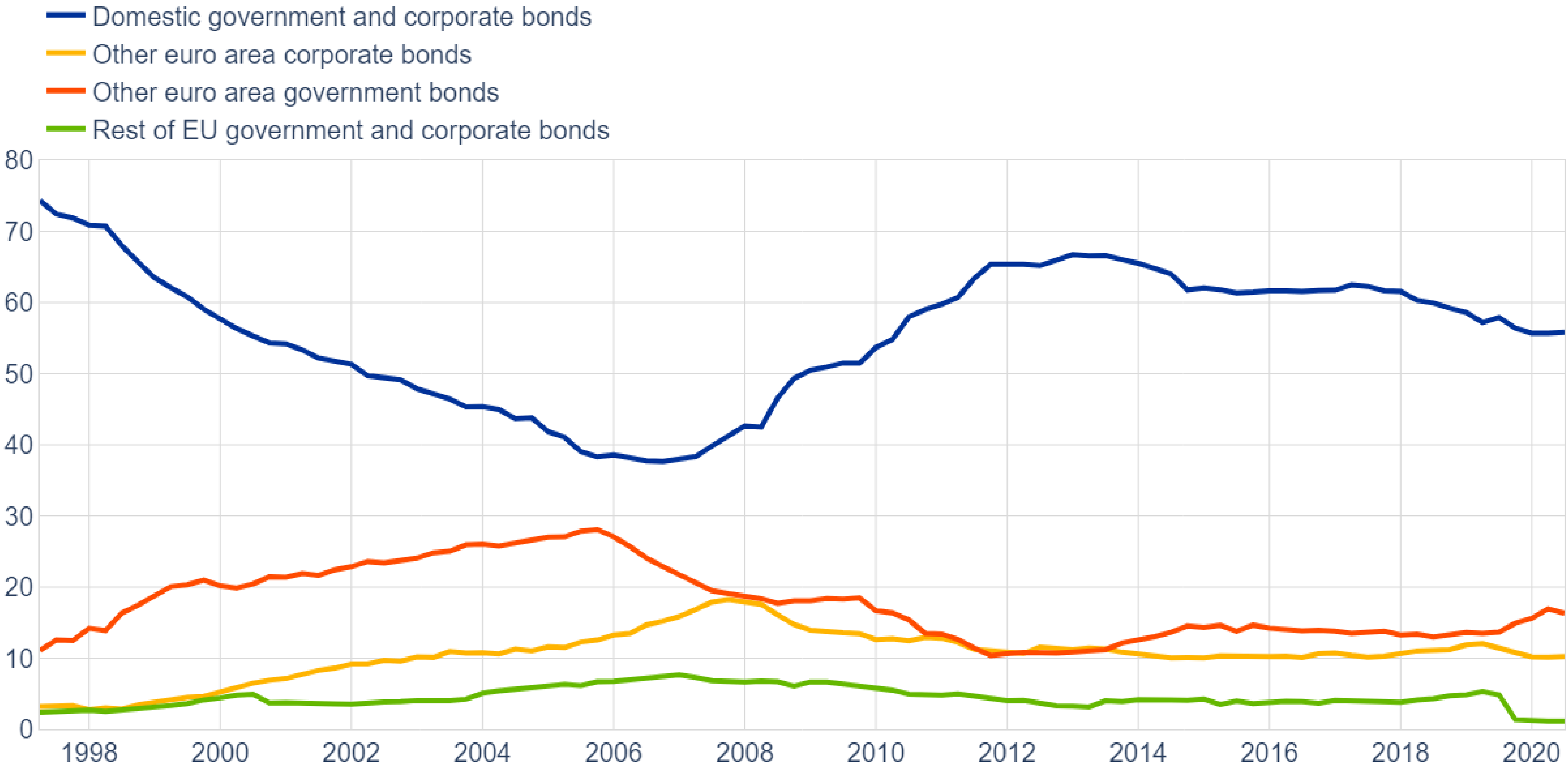
Five-year CDS premia dispersion across the euro area *(basis points, daily data)*



The dispersion of credit default swap (CDS) premia for different sectors is considered to indicate the degree of dispersion of the cost of funding.

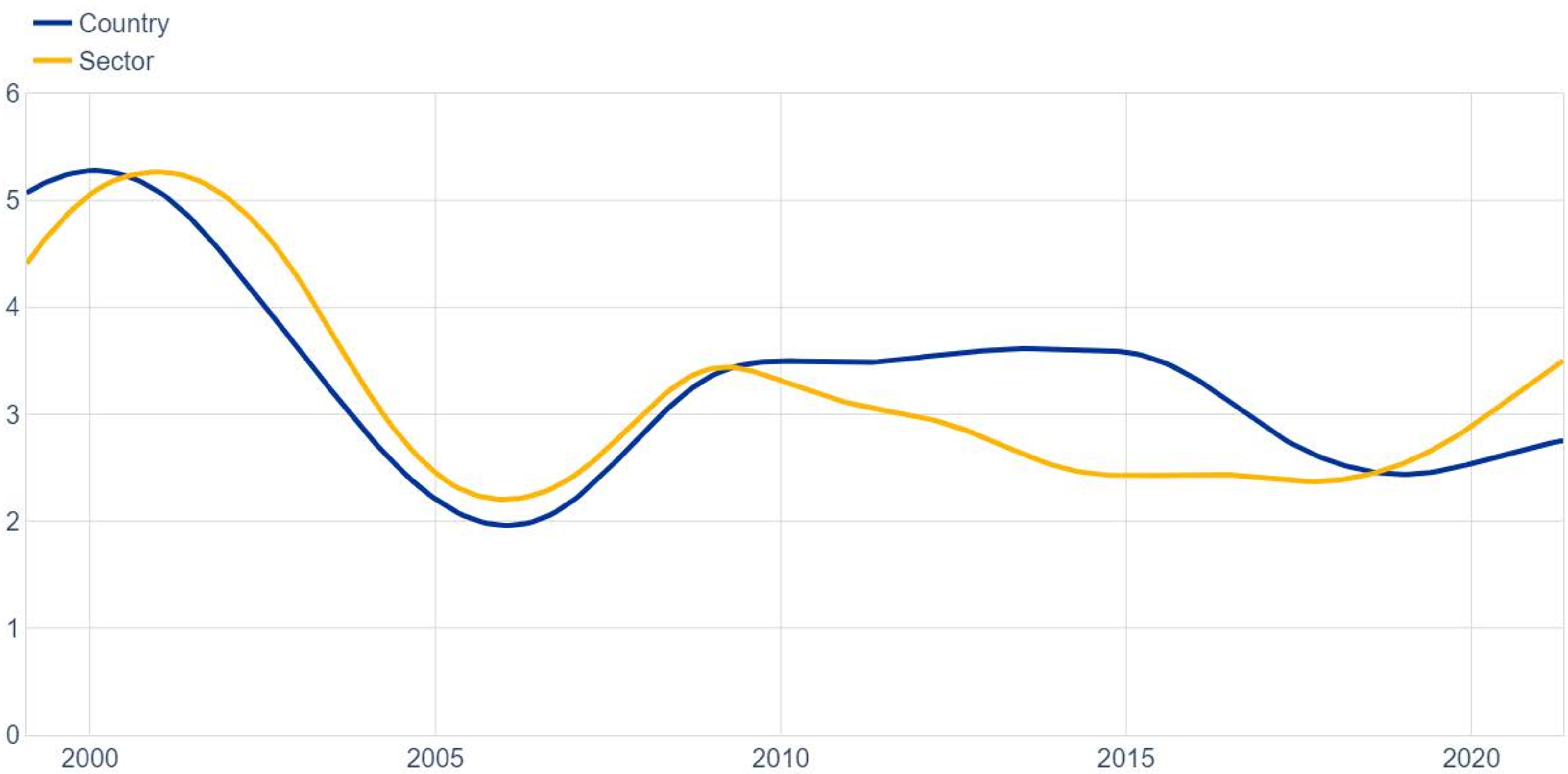
Sources: Refinitiv and ECB calculations.

Share of MFI cross-border holdings of debt securities issued by euro area and EU corporates and sovereigns *(percentages, quarterly data)*



Source: ECB

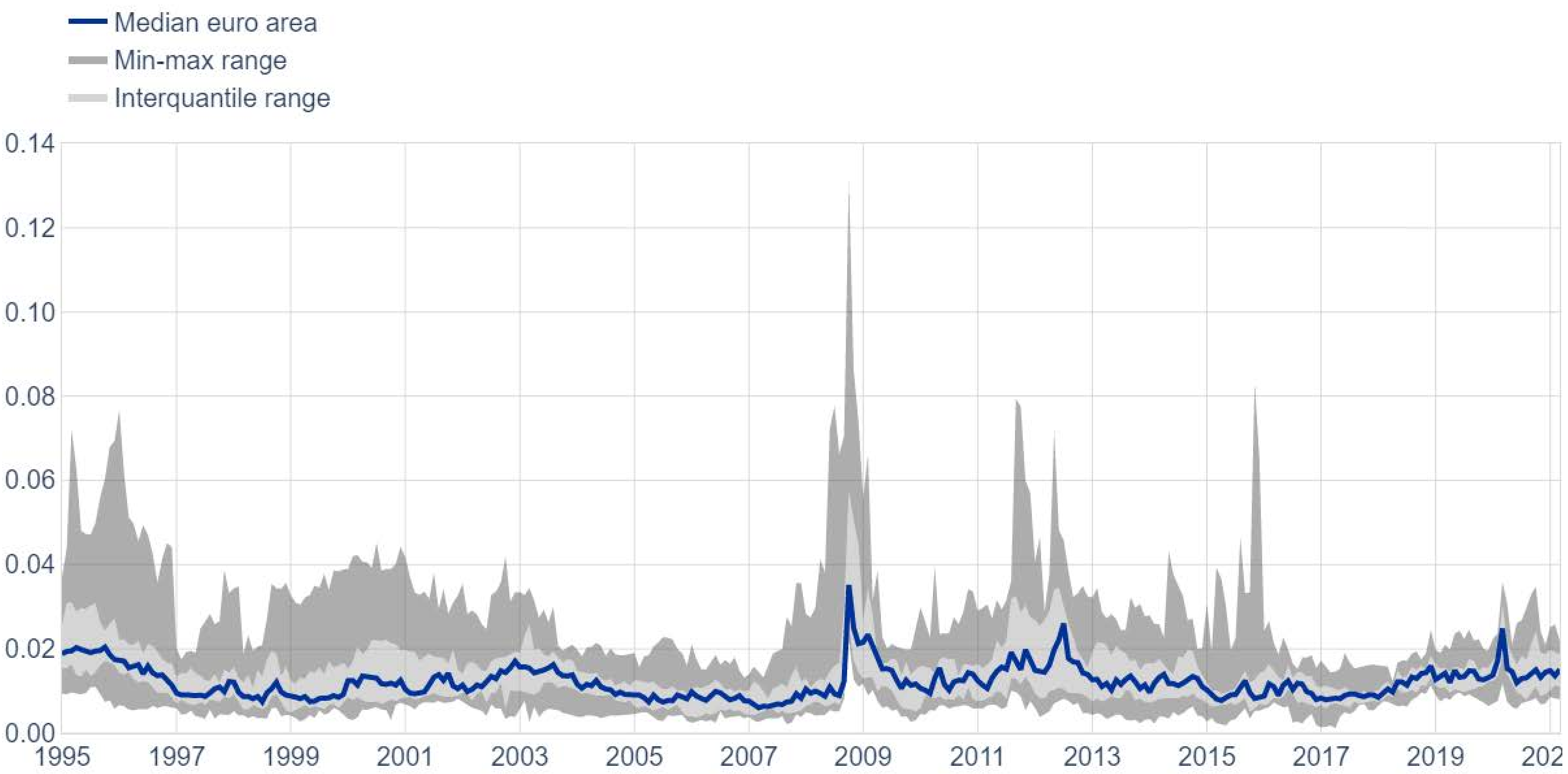
Country and sector dispersions in euro area equity returns *(percentages, monthly data)*



This indicator is derived by calculating the cross-sectional dispersions in both sector and country index returns for the euro area countries.

Sources: Refinitiv and ECB calculations.

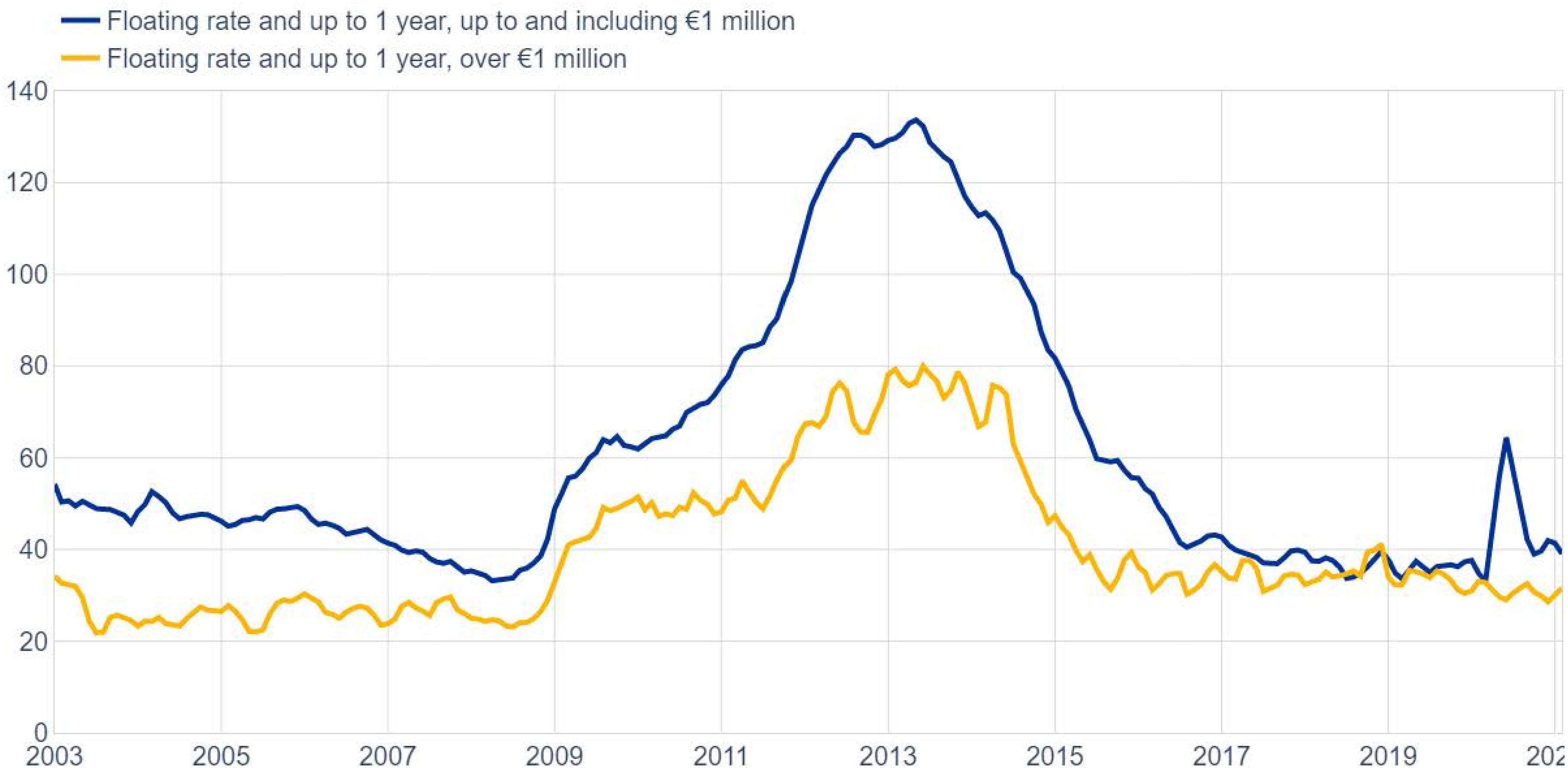
Equity market segmentation *(monthly data)*



This indicator measures the segmentation (the opposite of integration) of euro area equity markets via industry-level valuation differentials across countries.

Sources: Refinitiv and ECB calculations.

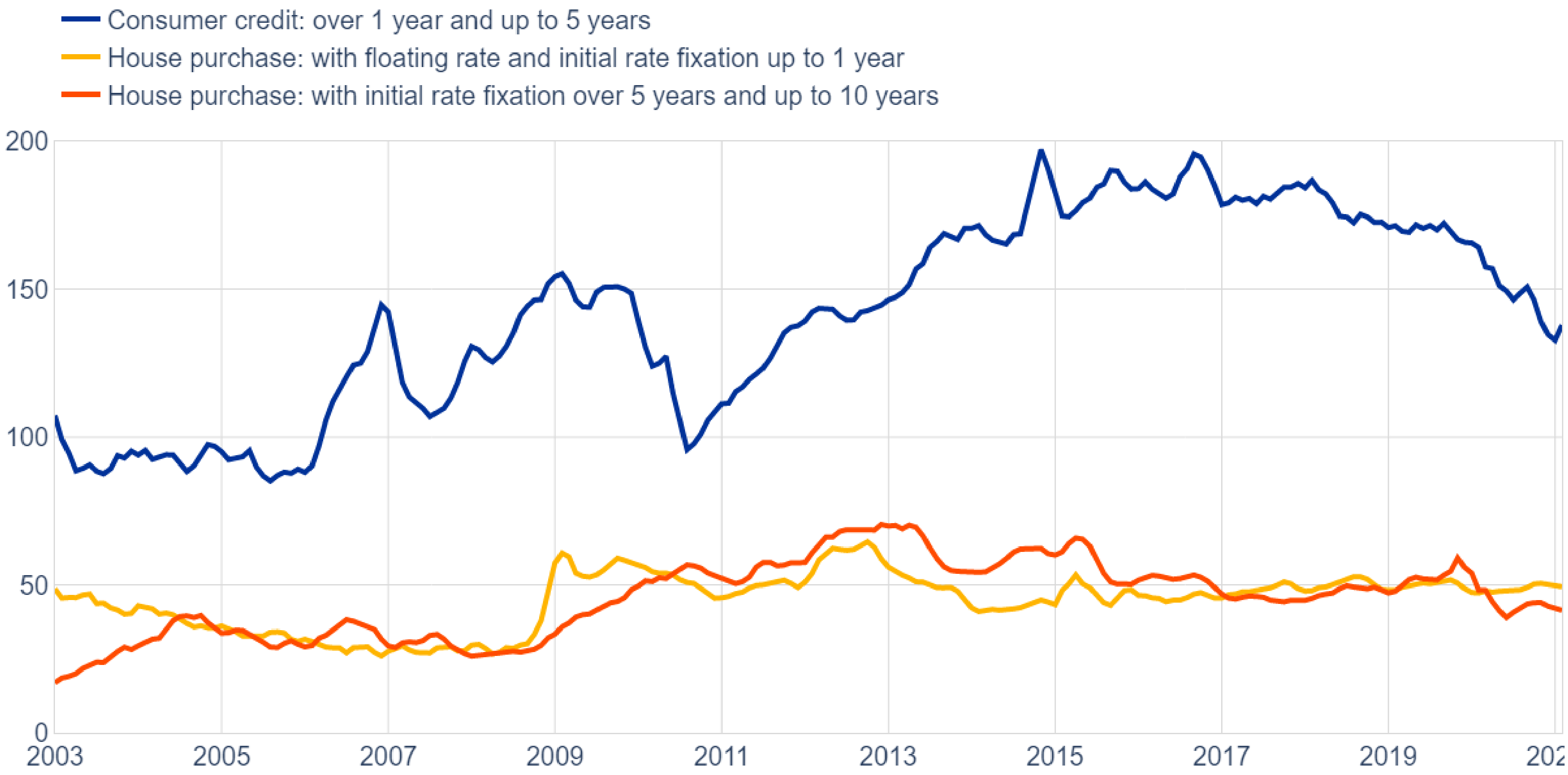
Cross-country standard deviation of MFI interest rates on new loans to NFCs *(basis points)*



Reduction in rates fragmentation

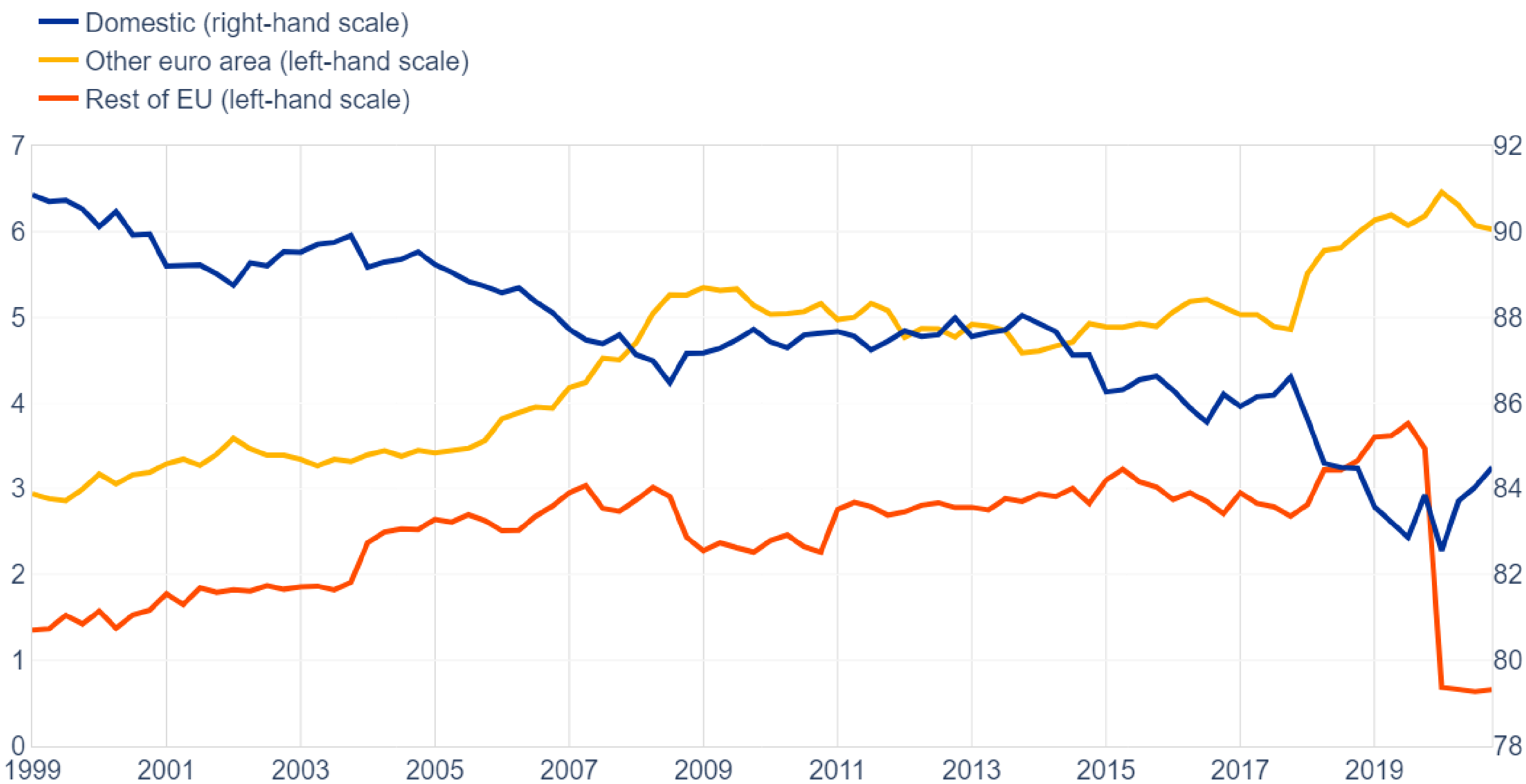
Source: ECB and ECB calculations.

Cross-country standard deviation of MFI interest rates on loans to households *(basis points)*



Source: ECB and ECB calculations.

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



Quantity-based indicators of banking sector integration continued to signal fragmentation in retail banking

Source: ECB

Composite indicators of financial integration in Europe

- The price and quantity-based financial integration **composite** indicators aggregate the data from a selection of market-specific indicators and provide a comprehensive overview of financial integration in the euro area
- The indicators are bounded between zero (full fragmentation) and one (full integration)

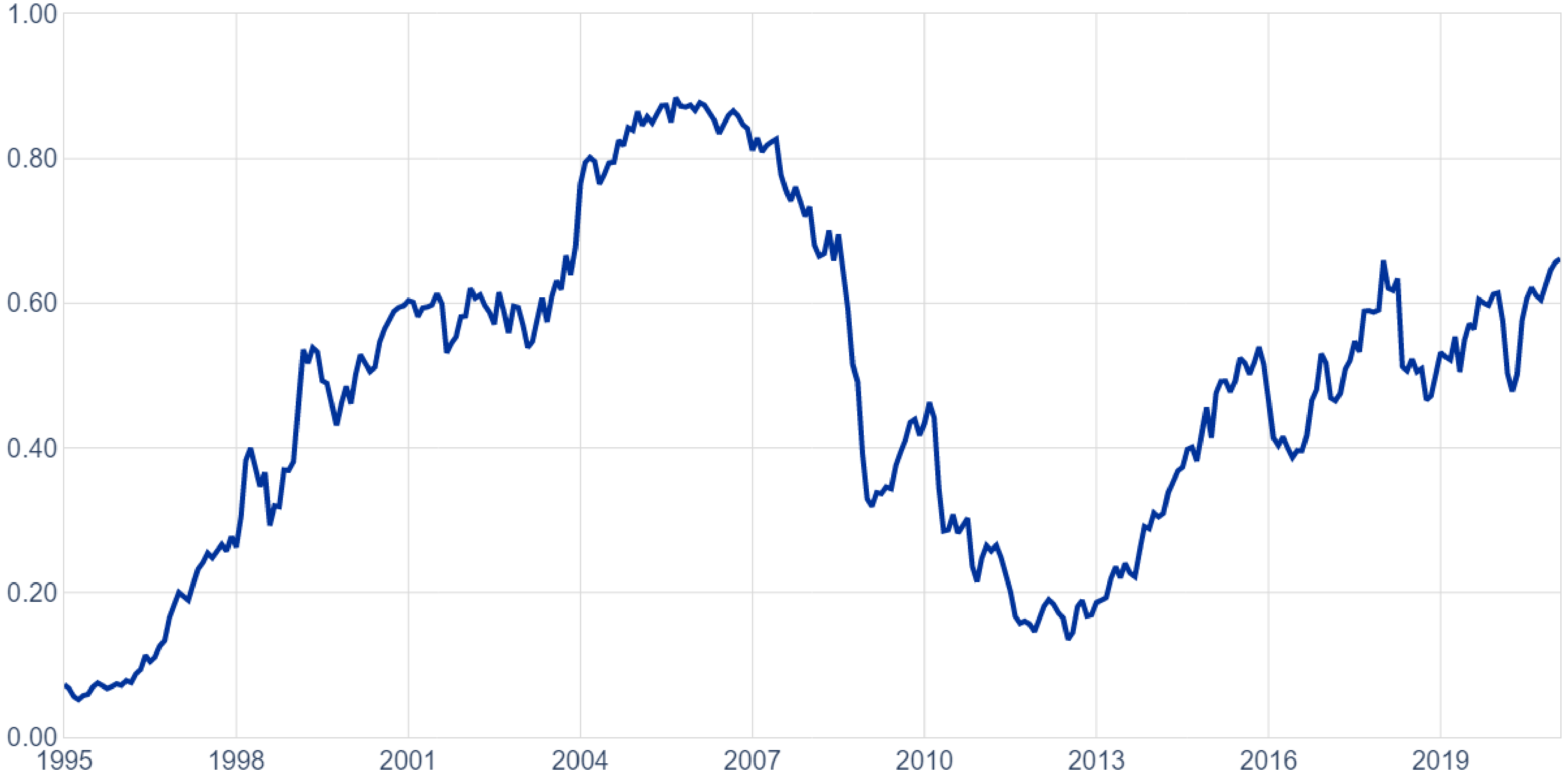
  - Based on:
    - Hollo, D., Kremer, M. and Lo Duca, M., "*CISS – A composite indicator of systemic stress in the financial system*", Working Paper Series, No 1426, ECB, March 2012
    - Hoffmann, P., Kremer, M. and Zaharia, S., "*Financial integration in Europe through the lens of composite indicators*", mimeo 2015.

Price-based financial integration composite indicator

- The price-based financial integration composite indicator is constructed from a selection of price-based indicators that cover these four main market segments:
  - the money markets
  - the bond markets
  - the equity markets
  - the banking markets
- All the input series used for this indicator measure price dispersion and are then aggregated into sub-indices for the four segments
- The sub-indices are then aggregated into the price-based composite indicator by computing weighted averages using size weights that reflect the relative size of the underlying four financial market segments

Price-based financial integration composite indicator

Price-based financial integration composite indicator*(monthly data, Jan. 1995 - Feb. 2021)*



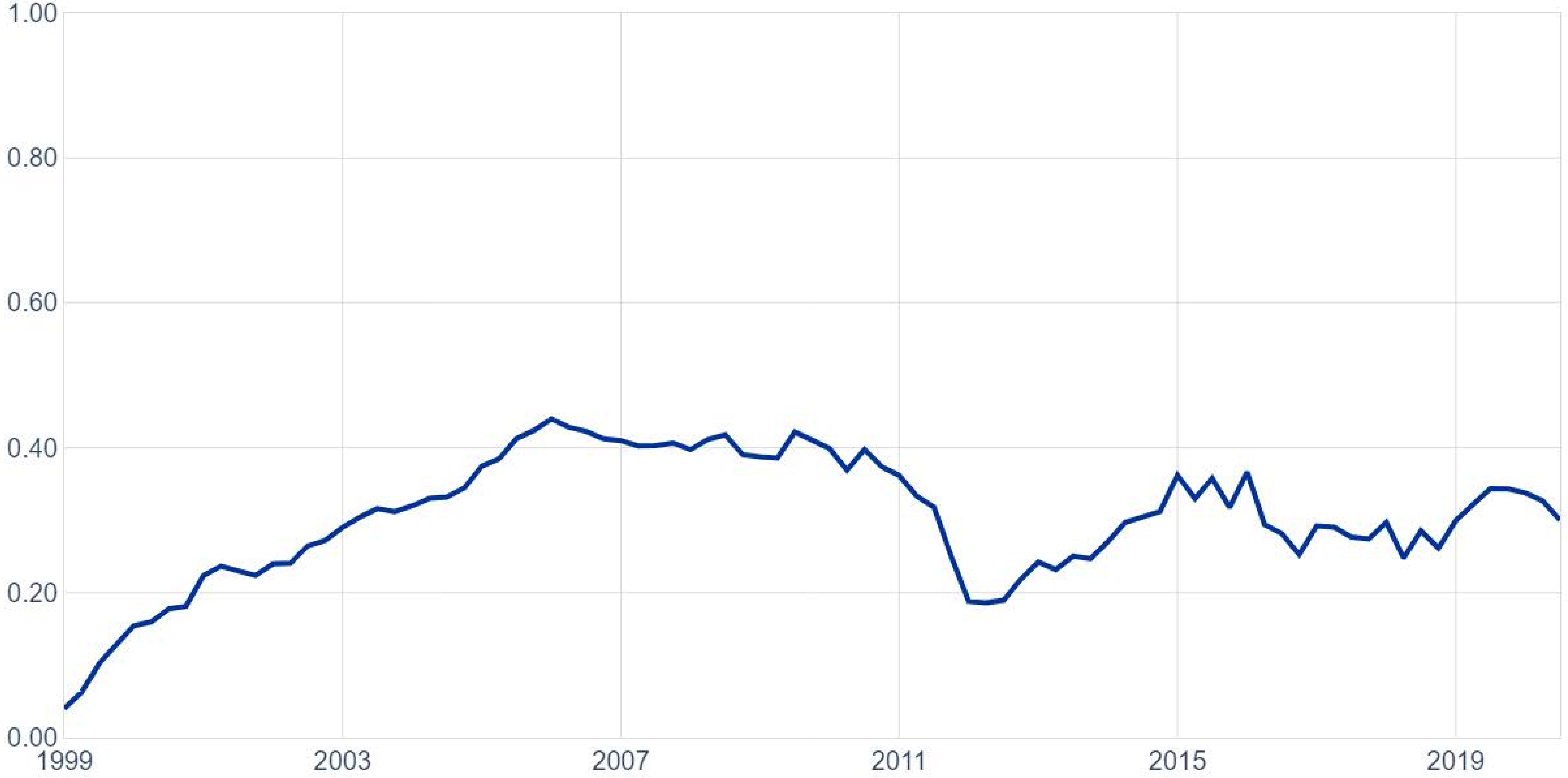
Source: ECB and ECB calculations

Quantity-based financial integration composite indicator

- The quantity-based financial integration composite indicator is constructed from a selection of quantity-based indicators that cover these three main market segments:
  - interbank markets (money and banking markets)
  - the bond markets
  - the equity markets
- The quantity-based financial integration composite indicator is then calculated as the weighted average of the sub-indices

Quantity-based financial integration composite indicator

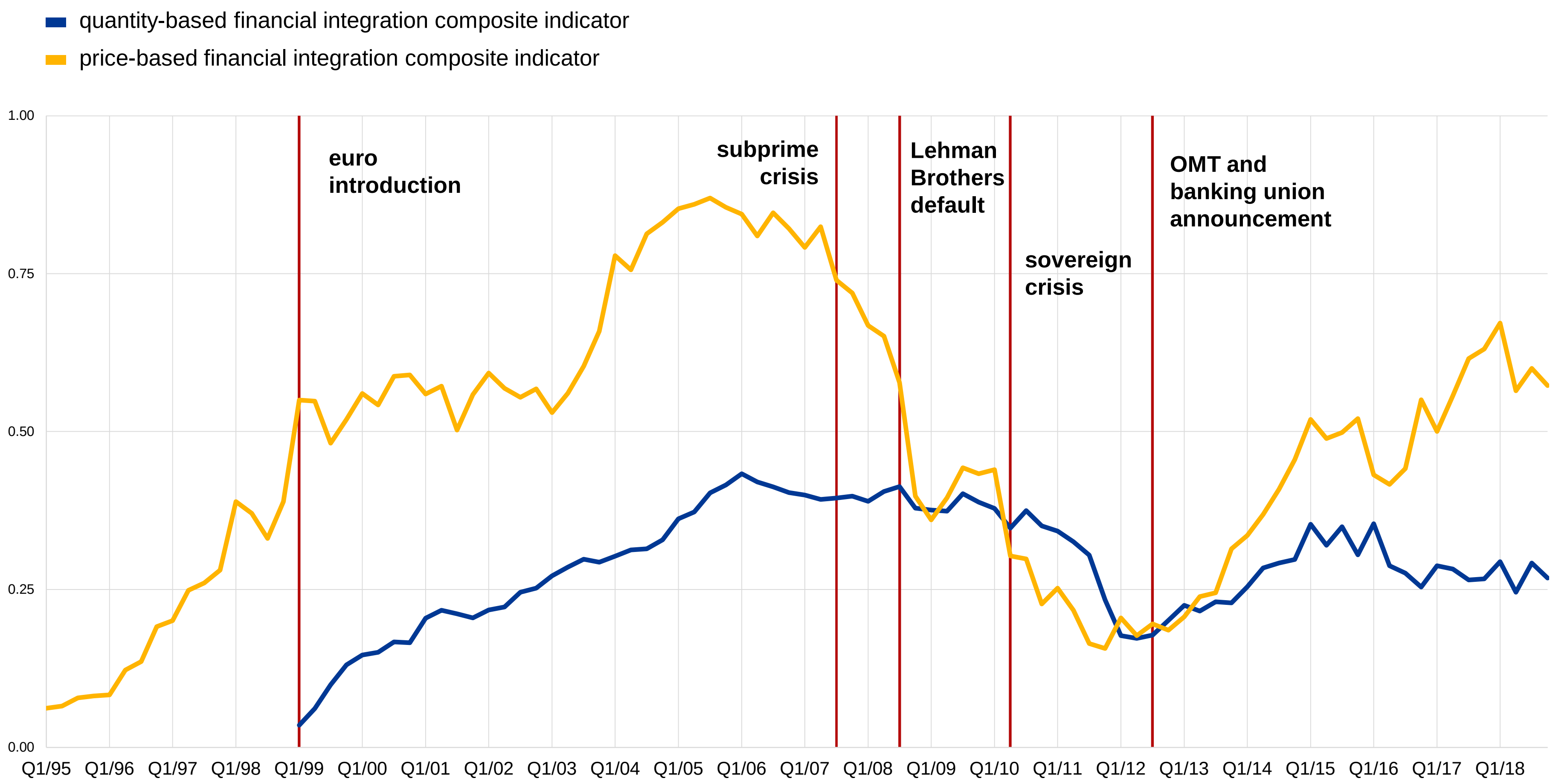
Quantity-based financial integration composite indicator *(quarterly data, Q1 1999 - Q3 2020)*



Source: ECB and ECB calculations

Price- and quantity-based financial integration composite indicators

Price-based and quantity-based financial integration composite indicator



Price reacts more quickly than quantity that are sticky

Outline

1 Financial Integration

2 Measures of Financial Integration

3 **European financial integration during the COVID-19 crisis**

European financial integration during the COVID-19 crisis

European financial integration during the COVID-19 crisis

« Publications | European financial integration during the COVID-19 crisis

European financial integration during the COVID-19 crisis

Prepared by Stefano Borgioli, Carl-Wolfram Horn, Urszula Kochanska, Philippe Molitor and Francesco Paolo Mongelli

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10 November 2020

European financial integration during the COVID-19 crisis: Insights from a new indicator

Stefano Borgioli, Carl-Wolfram Horn, Urszula Kochanska, Philippe Molitor, Francesco Paolo Mongelli, Eva Mulder, Alessandro Zito 03 December 2020

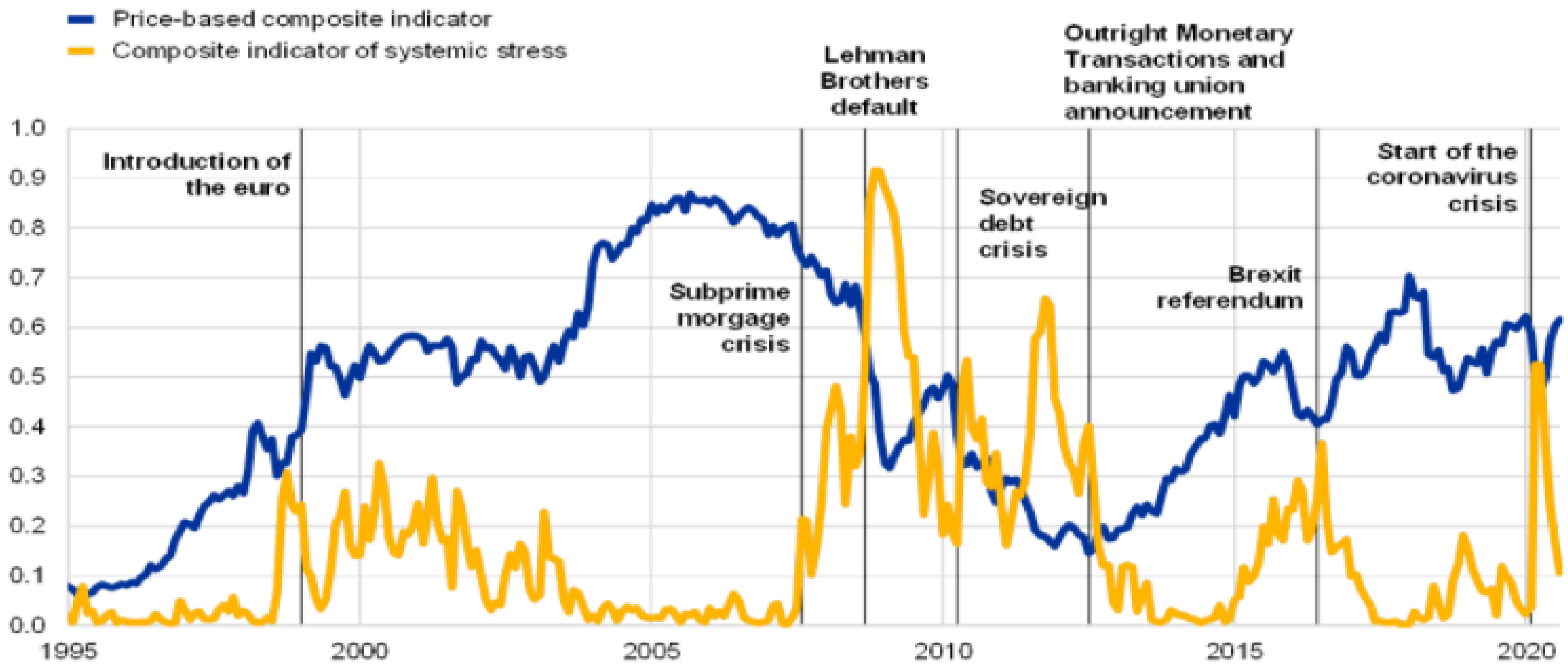
The COVID-19 shock is unprecedented in terms of the scale and speed of its effects. This column provides an overview of financial fragmentation in the euro area during the crisis through the lens of a novel high-frequency composite indicator. It reveals that after an initial sharp deterioration, euro area financial integration broadly recovered to pre-crisis levels by mid-September, thanks to unprecedented fiscal, monetary and prudential policy responses.

European financial integration during the COVID-19 crisis

Financial integration and systemic risk in the euro area

a) Historical price-based financial integration and systemic risk from January 1995 to August 2020

(monthly data)



Sources: ECB and ECB calculations.

The monthly observation frequency of the price-based composite indicator posed a challenge to the timely analysis of financial integration.

- The rapid unfolding of the COVID-19 crisis triggered **the need for high-frequency monitoring** of financial fragmentation developments across different market segments.
- Need for an **agile and comprehensive real-time monitoring toolkit**.
- To develop such a toolkit, the available financial integration indicators were reviewed to identify those which could be updated at a sufficiently high frequency.
- Most of the selected indicators relate to the **price-based dimension of financial integratio**n, given their instant reaction to incoming news.
- A higher-frequency version of the price-based composite indicator (among others) was developed.

b) Price-based financial integration and systemic risk during the COVID-19 crisis from 30 January to 15 September 2020

See Annex for events description

(daily data)

European financial integration during the COVID-19 crisis

The events shown as numbered lines in panel (b) of this chart are as follows:

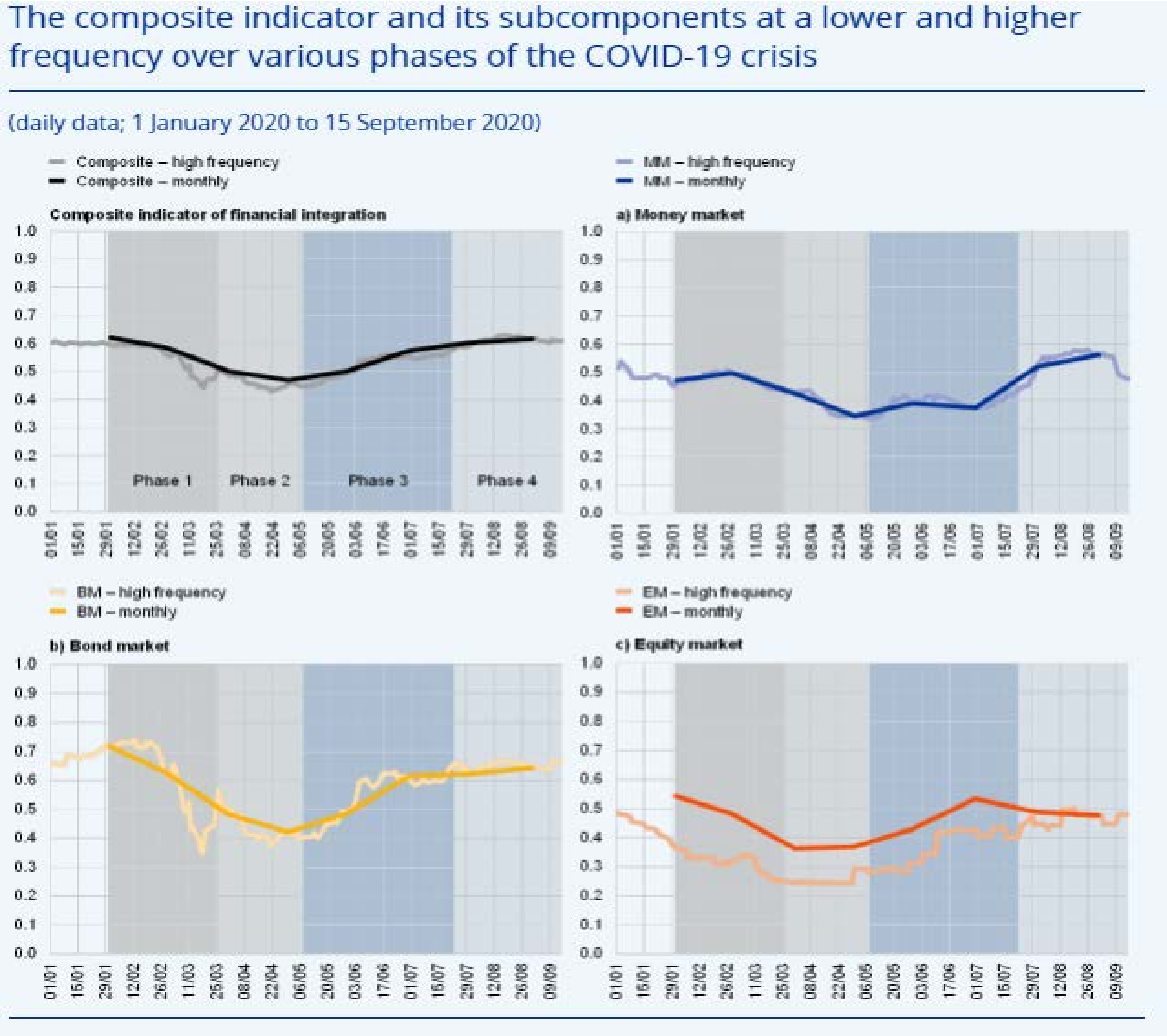
1. First European Council meeting on the European response (10 March)
2. ECB Governing Council meeting (12 March)
3. Second European Council meeting on the European response (17 March)
4. ECB announcement of the PEPP (18 March)
5. PEPP legal documentation published (25 March)
6. Third European Council meeting on the European response (26 March)
7. ECB collateral rating freeze (22 April)
8. Fourth European Council meeting on the European response, with endorsement of the Eurogroup's comprehensive policy response and plans for a recovery fund (23 April)
9. ECB Governing Council meeting (30 April)
10. Franco-German €500 billion European recovery fund proposal (18 May)
11. European Commission €750 billion "Next Generation EU" recovery instrument proposal (27 May)
12. ECB expansion of the PEPP (4 June)
13. Fifth European Council meeting on the European response (19 June)
14. ECB Governing Council meeting (16 July)
15. Start of special European Council meeting (17-21 July)
16. ECB Governing Council meeting (10 September).

The four phases of the COVID-19 crisis

Phase	Time frame	Salient characteristics and major events
1	30 January to 25 March	Outbreak of the COVID-19 pandemic, sharp financial fragmentation, national fiscal responses, the ECB's monetary policy response – including the PEPP – and swift supervisory measures
2	26 March to 7 May	Increasing economic damage, some financial re-integration and uncertainty about the European fiscal response
3	8 May to 21 July	Gradual relaxation of lockdowns and agreement on a common European fiscal response with the EU Recovery and Resilience Facility under Next Generation EU. Substantial financial re-integration
4	22 July to 15 September	Continuing financial re-integration, albeit unevenly across financial segments

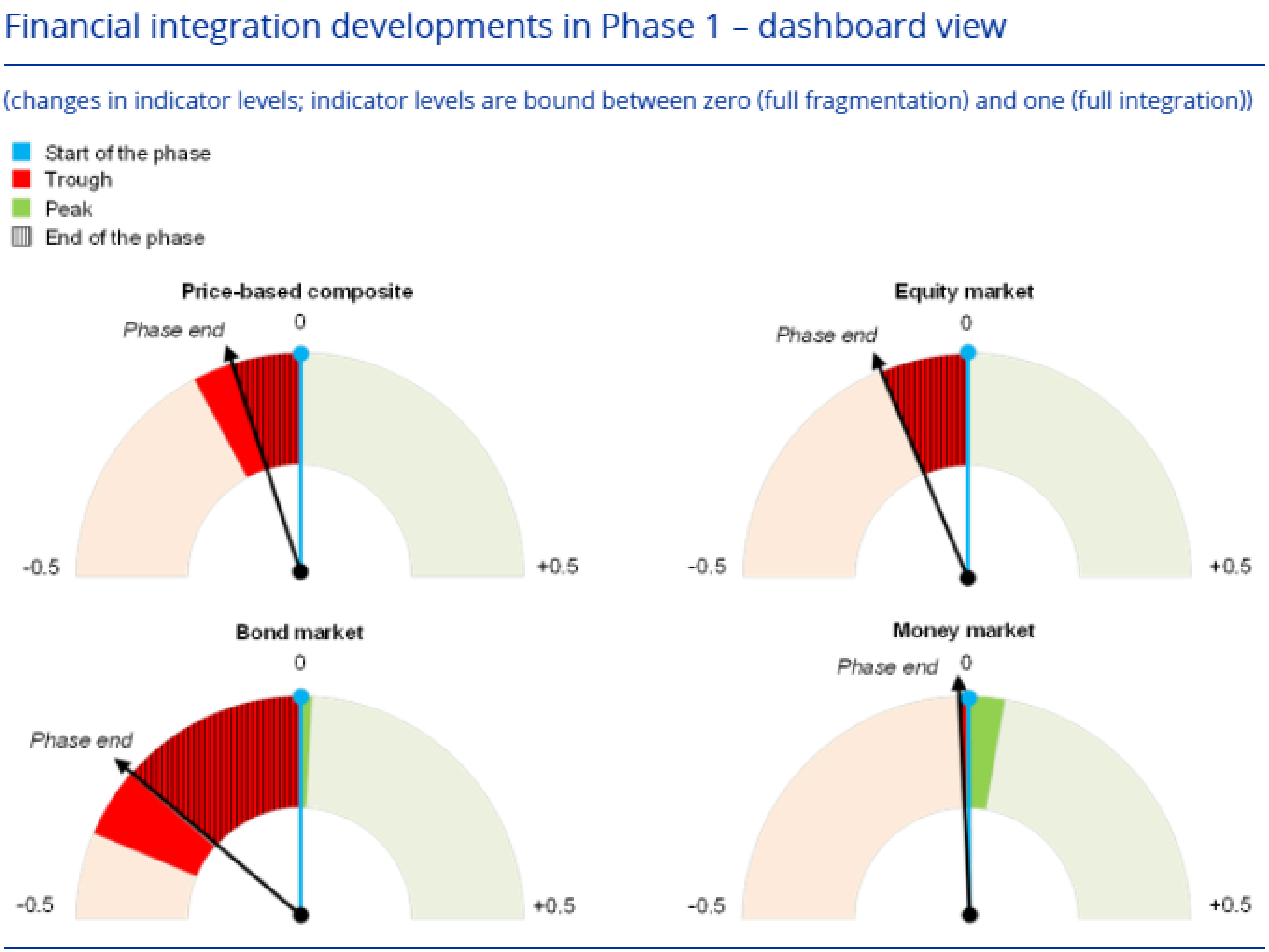
The price-based composite indicator of financial integration and its subcomponents suggest that the coronavirus crisis has, broadly speaking, unfolded in four phases

European financial integration during the COVID-19 crisis



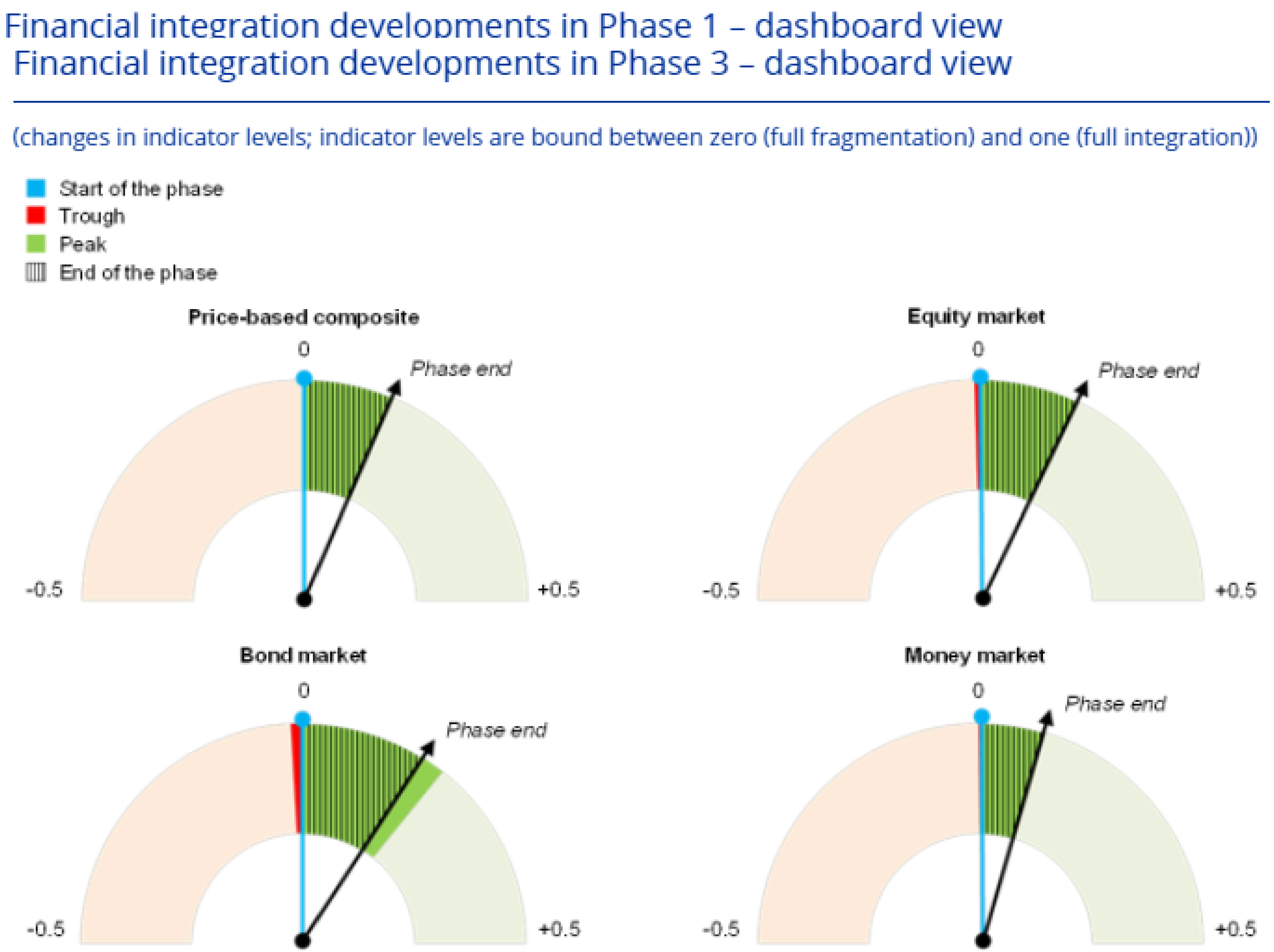
High-frequency financial integration indicators within a real-time monitoring toolkit

European financial integration during the COVID-19 crisis



Price-based composite indicator of financial integration and its subcomponents since the onset of the COVID-19 crisis – **dashboard view**

European financial integration during the COVID-19 crisis



Price-based composite indicator of financial integration and its subcomponents since the onset of the COVID-19 crisis – **dashboard view**

- Besides the price-based composite indicator, the toolkit comprises other high-frequency statistical indicators.
- To gain further insights into money market developments, the toolkit includes a new dispersion indicator for money markets.
- For the sovereign and corporate segments of the bond market, the toolkit includes both the level and dispersion of spreads or yields at different maturities.
- To deepen the cross-country analysis of the government sector, the toolkit further includes daily credit default swap (CDS) premia and a market assessment of redenomination risk premia.

The details of the development of the high-frequency financial integration indicators are presented in Box 1 of the Article

Box 1 High-frequency financial integration indicators within a real-time monitoring toolkit

Prepared by Urszula Kochanska, Eva Mulder and Alessandro Zito

Conclusions

- The **price-based composite** indicator of financial integration and its subcomponents was transformed – with the support of big data techniques – so that they give higher-frequency observations.
- This toolkit is **flexible and can be expanded over time**.
- The data from these high-frequency indicators can be used to track the unfolding of the COVID-19 crisis and **interpret the effects** of monetary, fiscal and financial policy responses from the viewpoint of euro area financial integration.

Conclusions

- The indicators suggest that the most significant challenge for the resilience of financial integration in the euro area came in **the initial phases** of the COVID-19 crisis.
- The onset of the crisis was severe in terms of fragmentation developments, **especially prior to the PEPP announcement**.
- Thereafter, **sustained signs of financial re-integration emerged** as progress was made on a joint European fiscal response, highlighting the powerful effects of monetary and fiscal policy coordination in weathering economic crises

It is prudent to also consider:

- Owing to the need for high-frequency data, this article is **solely focused on price-based measures** of financial integration.
- Many of our indicators do not control for **fundamentals**, including firm or country risks.
- **The analysis of causal relationships**, or counterfactuals, is beyond the scope of this article.

Thank you for your attention!