



EUROPEAN CENTRAL BANK

EUROSYSTEM

(Indicators of) Financial Integration



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Stefano Borgioli
European Central Bank

Introduction

This presentation

- ✓ Looks at various dimensions of financial integration,
- ✓ Introduces a set of measures of financial integration across different financial market segments,
- ✓ Presents an overview of the impact of the COVID-19 pandemic on financial fragmentation using a new set of high-frequency indicators.

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.

Overview

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

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Financial Integration

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**;
2. have **equal access** to the set of financial instruments and/or services;
3. are **treated equally**.

- 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.

The Eurosystem and Financial Integration



“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”



Financial integration and structure in the euro area

Statistical annex

- In September 2005 the ECB published a first set of indicators of financial integration and a report assessing the state of euro area financial integration.
- Since then the work on financial integration has evolved and widened.

April 2022

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Measures of Financial Integration

Measures of financial integration

Since September 2005 the ECB has been publishing a set of indicators of financial integration for the euro area

- Price-based measures;
- Quantity-based measures.

The indicators allow an overall assessment of the degree of financial integration in the main financial market segments:

- money market;
- bond markets;
- equity markets;
- banking markets.

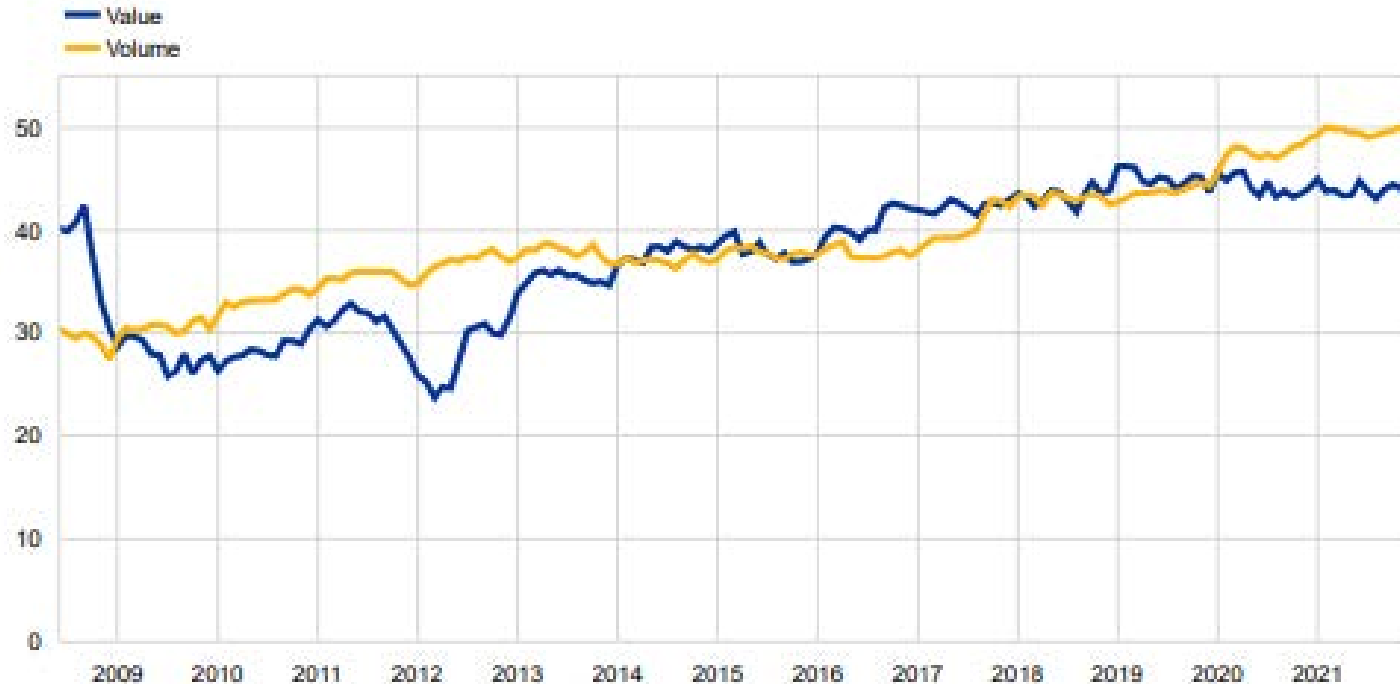
Measures of financial integration



Indicators of financial integration and structure in the euro area

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

Share of cross-border activity in TARGET2



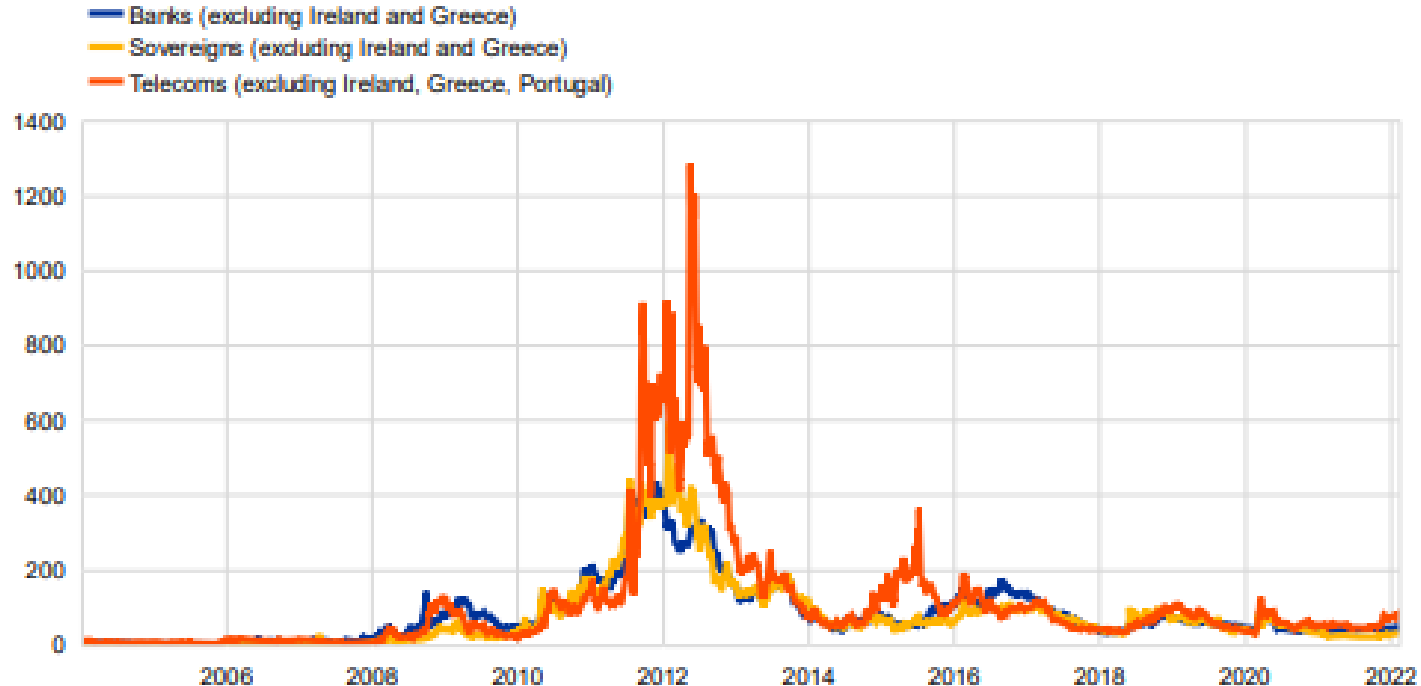
Sources: ECB

Dispersion of euro area ten-year sovereign bond yields



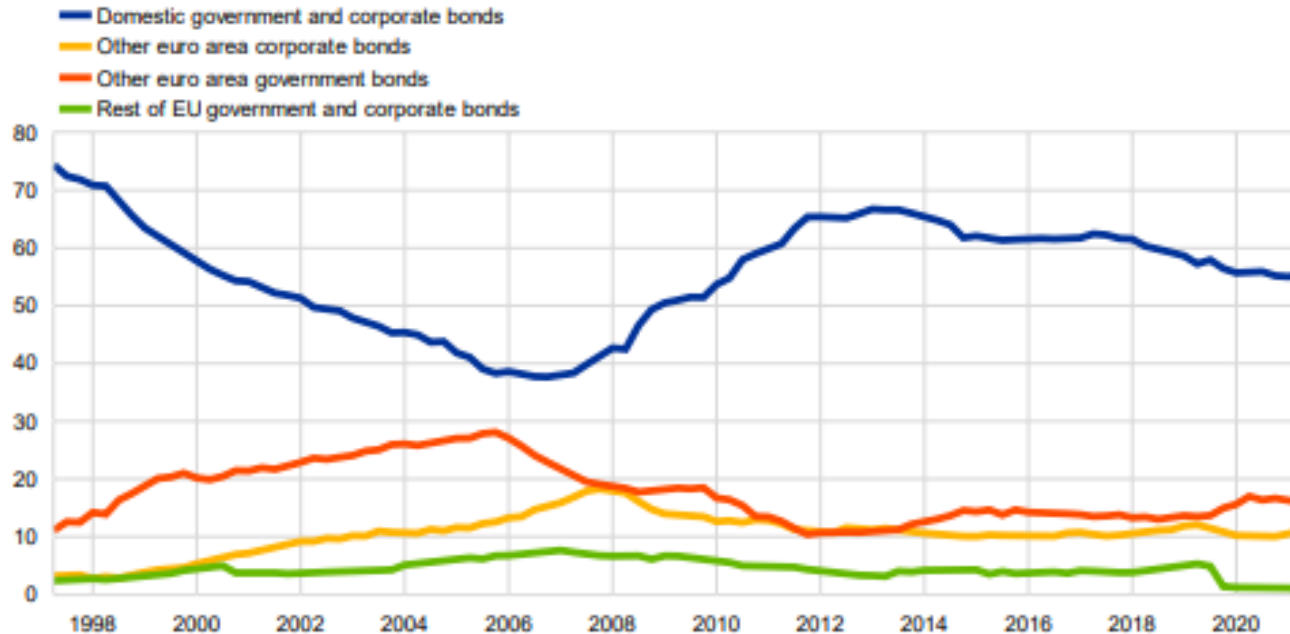
Sources: Bloomberg and ECB calculations.

Five-year CDS premia dispersion across the euro area



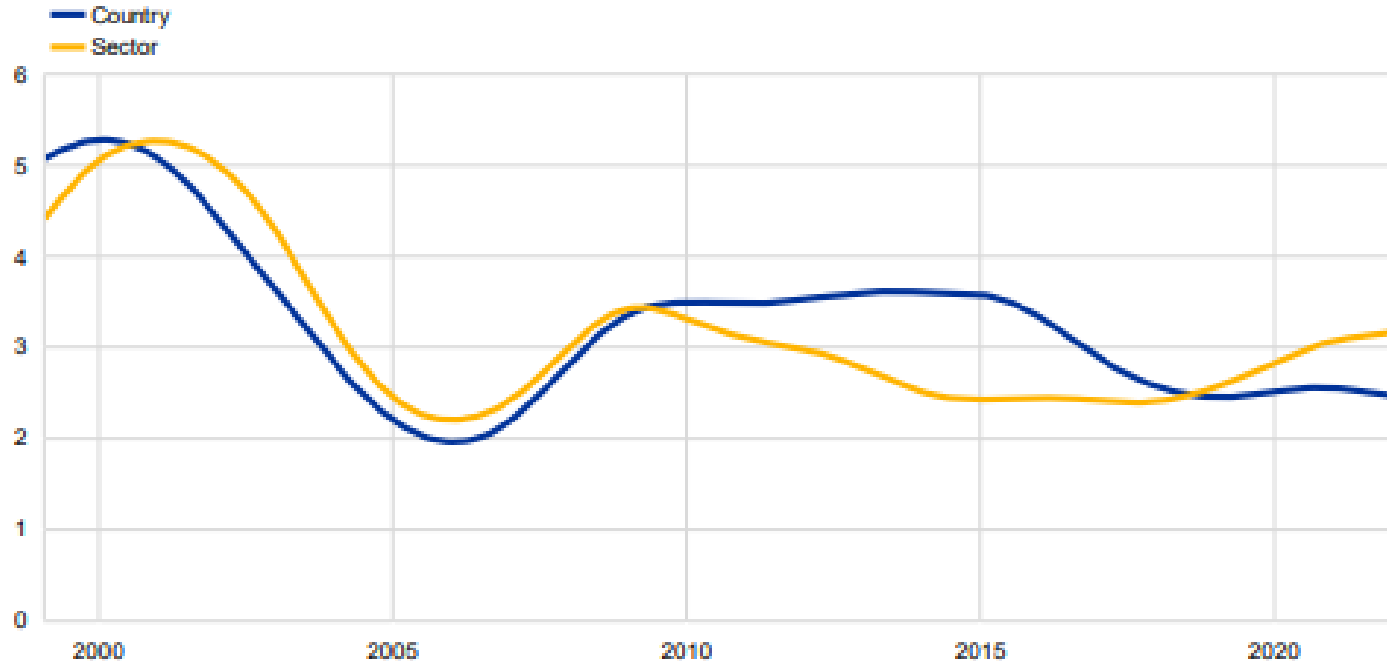
Sources: Refinitiv and ECB calculations.

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



Source: ECB

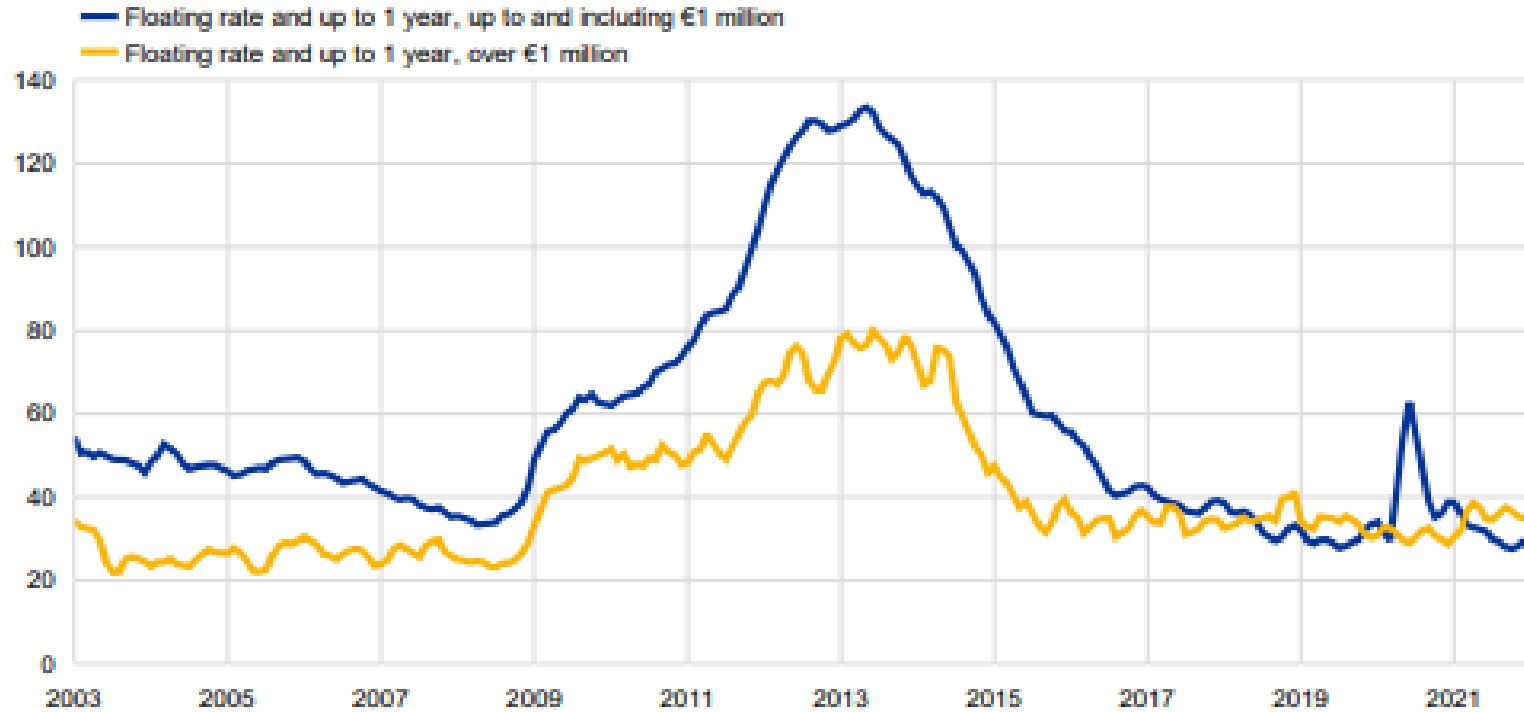
Country and sector dispersions in euro area equity returns



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

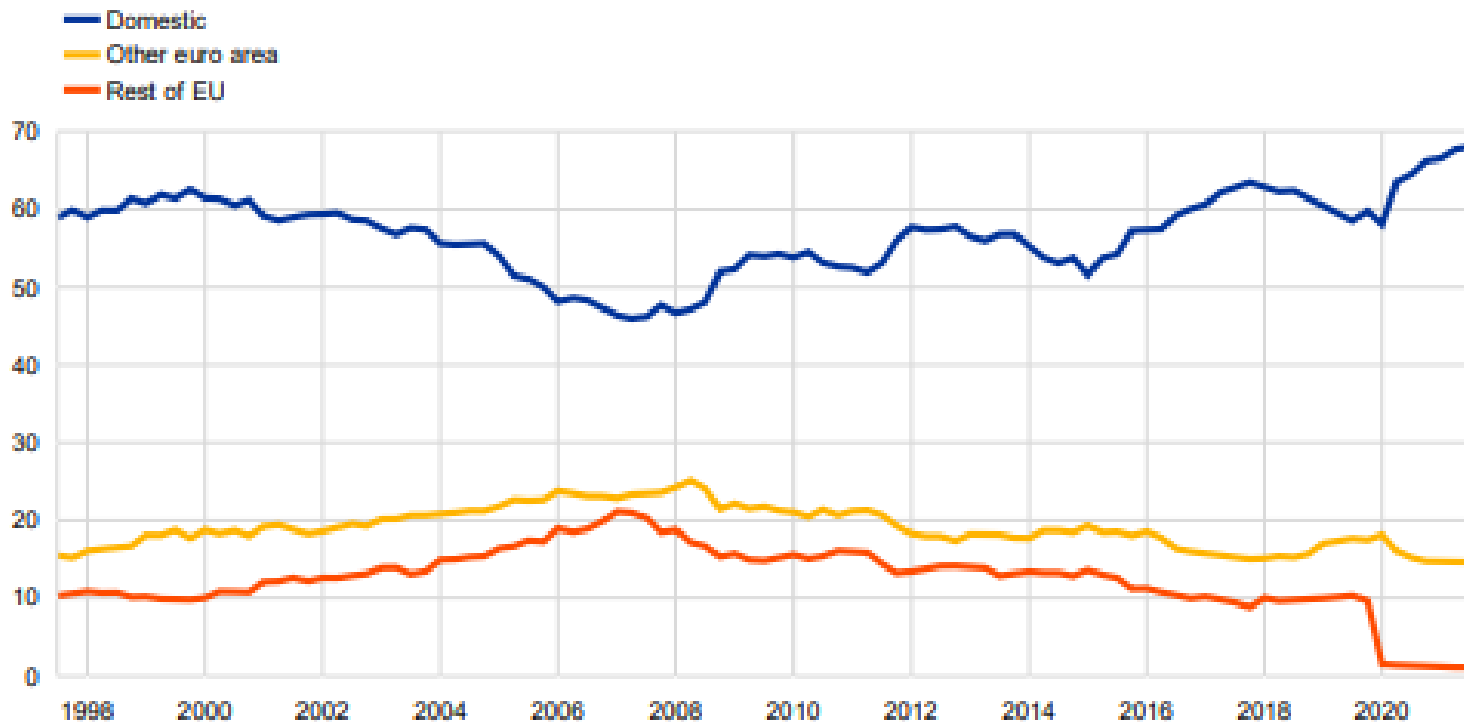
Sources: Refinitiv and ECB calculations.

Cross-country standard deviation of MFI interest rates on new loans to NFCs



Source: ECB and ECB calculations.

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



Source: ECB

Composite indicators of financial integration in Europe

- The price and quantity-based financial integration **composite** indicators aggregate 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 set of indicators that cover the four main market segments:

- the money market;
- the bond market;
- the equity market;
- the banking market.



Price-based financial integration composite indicator

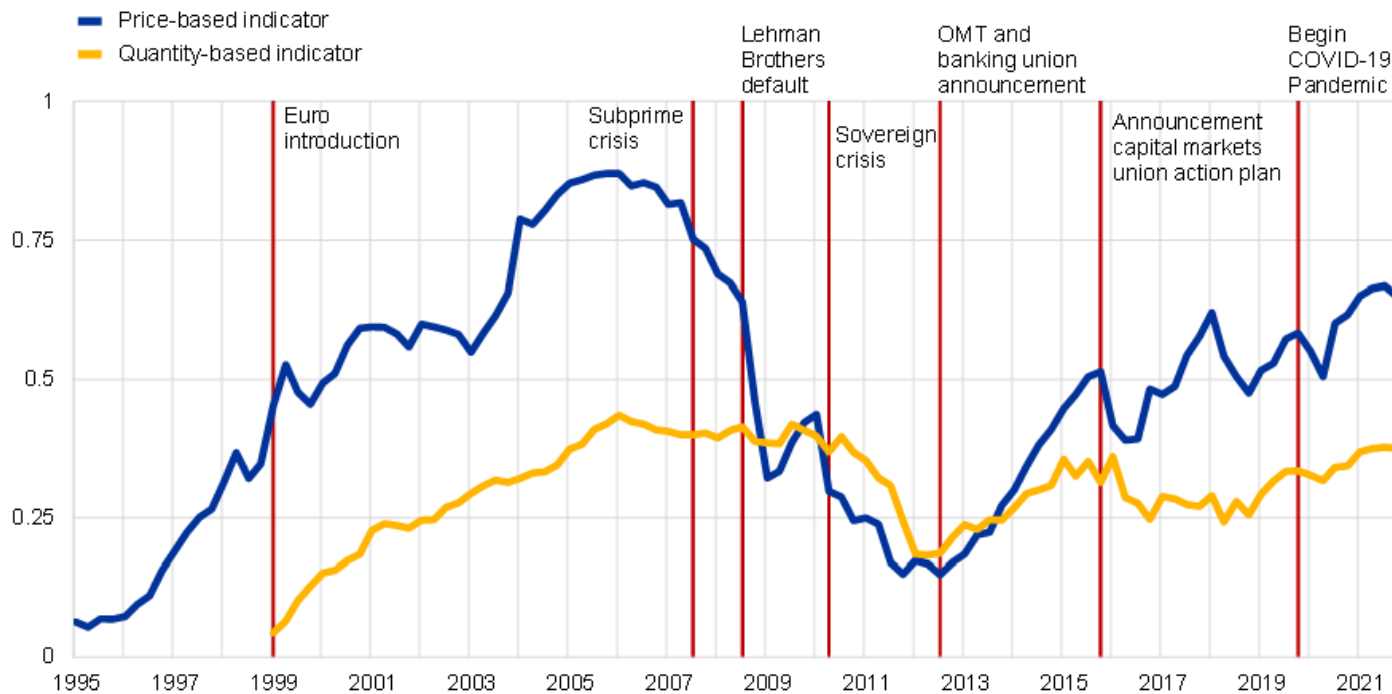
- All the input series used **measure price dispersion** and are then aggregated into sub-indices for the segments;
- The sub-indices are then aggregated into the price-based composite indicator by computing **weighted averages** using size weights that reflect the relative size of the underlying four financial market segments.

Quantity-based financial integration composite indicator



Source: ECB and ECB calculations

Price- and quantity-based financial integration composite indicators



Source: ECB and ECB calculations

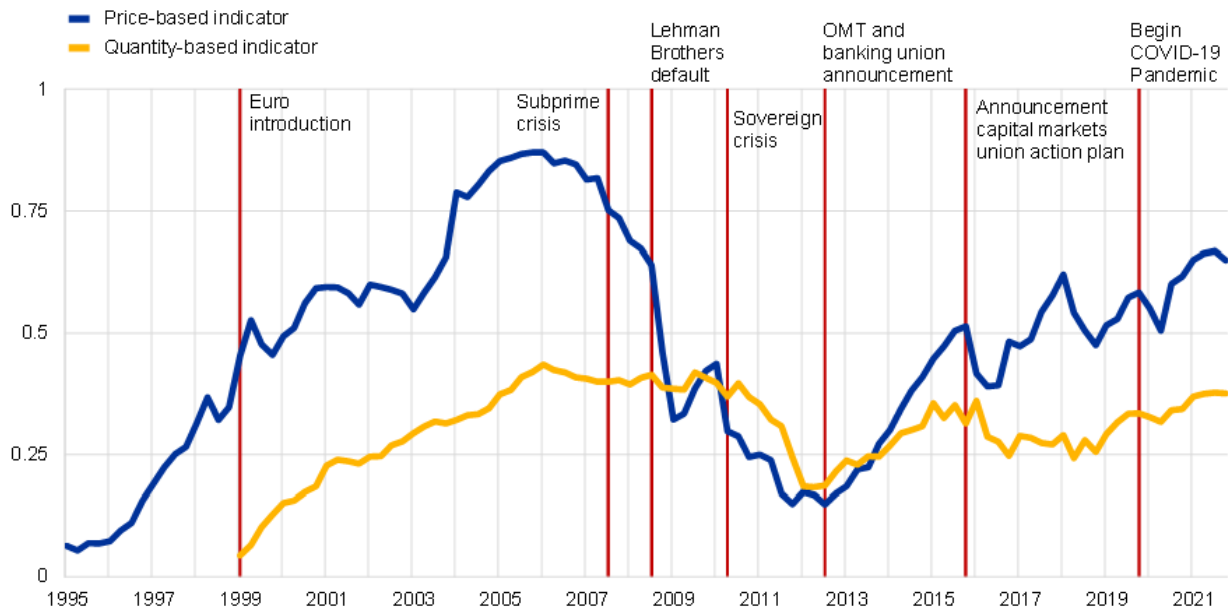
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European financial
integration during the
COVID-19 crisis

European financial integration during the COVID-19 crisis

- ECB (2022), “*Financial Integration and Structure in the Euro Area*”, April.
- Hartmann P., Borgioli S., Kempf A., Molitor P., Mongelli P. (2021), “*Financial integration and structure in EMU during the corona crisis*”, VOX EU/CEPR, May.
- Borgioli S., Horn K., Kochanska K., Molitor P., Mongelli P., Mulder E., Zito A. (2020), “*European financial integration during the COVID-19 crisis: Insights from a new indicator*”, VOX EU/CEPR, December.
- Borgioli S., Horn K., Kochanska U., Molitor P., Mongelli P. (2020), “*European financial integration during the COVID-19 crisis*”, ECB Economic Bulletin, Issue 7/2020, November

Price- and quantity-based financial integration composite indicators



The original frequency of the composite indicators posed a challenge to the timely analysis of financial integration

Source: ECB and ECB calculations

European financial integration during the COVID-19 crisis

- Contrary to previous major crises, material financial disintegration in the euro area at the start of the pandemic – while material in particular in terms of cross-border price divergences – **stopped and reversed relatively quickly**.
- The most influential policy measures first containing re-fragmentation in the euro area and then bringing it back to pre-pandemic levels were first **the fast series of ECB monetary policy measures** and then, decisively, **the EU agreement about a very large COVID recovery fund**.

European financial integration during the COVID-19 crisis

- Once pre-pandemic levels were reached again, measured financial integration gradually further increased and **remained resilient to further COVID waves.**

However ...

European financial integration during the COVID-19 crisis

- 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**.
- Available 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 integration**, given their instant reaction to incoming news.

European financial integration during the COVID-19 crisis

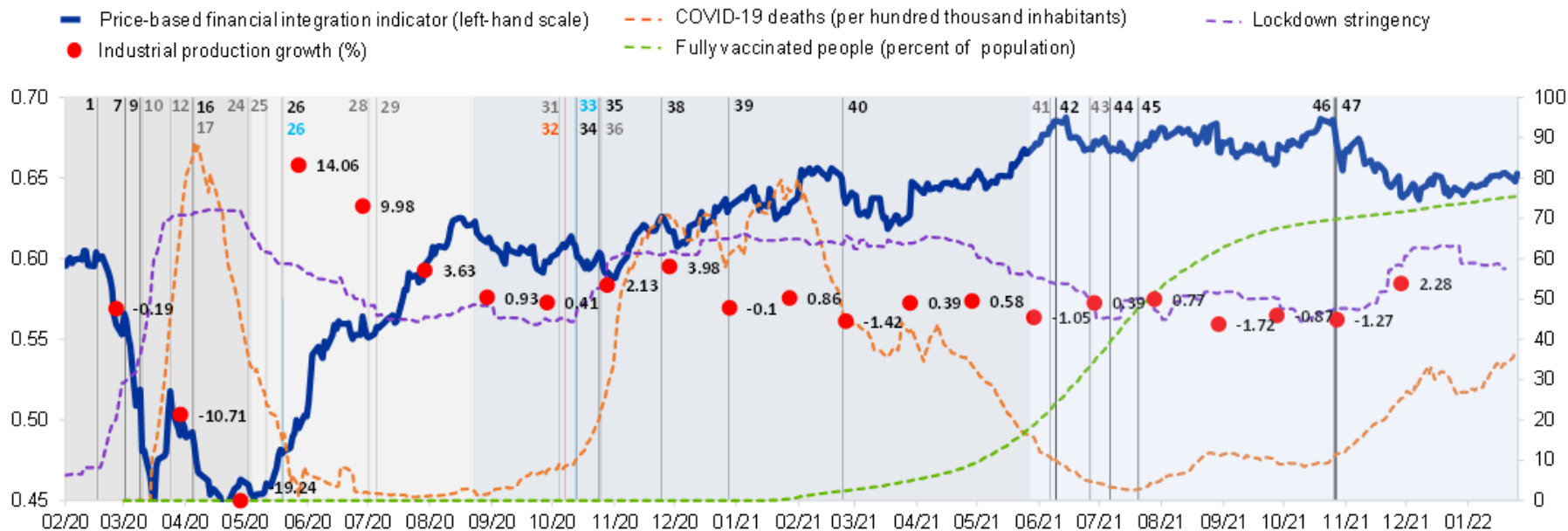
- A **higher-frequency version** of the price-based composite indicator (among others) was developed.

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

Prepared by Urszula Kochanska, Eva Mulder and Alessandro Zito

The technical details of the development of the high-frequency financial integration indicators are presented in Box 1 of **Borgioli S., Horn K., Kochanska U., Molitor P., Mongelli P.** (2020).

European financial integration during the COVID-19 crisis



See Annex for events description

European financial integration during the COVID-19 crisis

- 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.

European financial integration during the COVID-19 crisis

- Besides the price-based composite indicator, the toolkit comprises **other high-frequency statistical indicators** like 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**.

See Borgioli S., Horn K., Kochanska U., Molitor P., Mongelli P. (2020)



Thank you for your
attention!

Annex

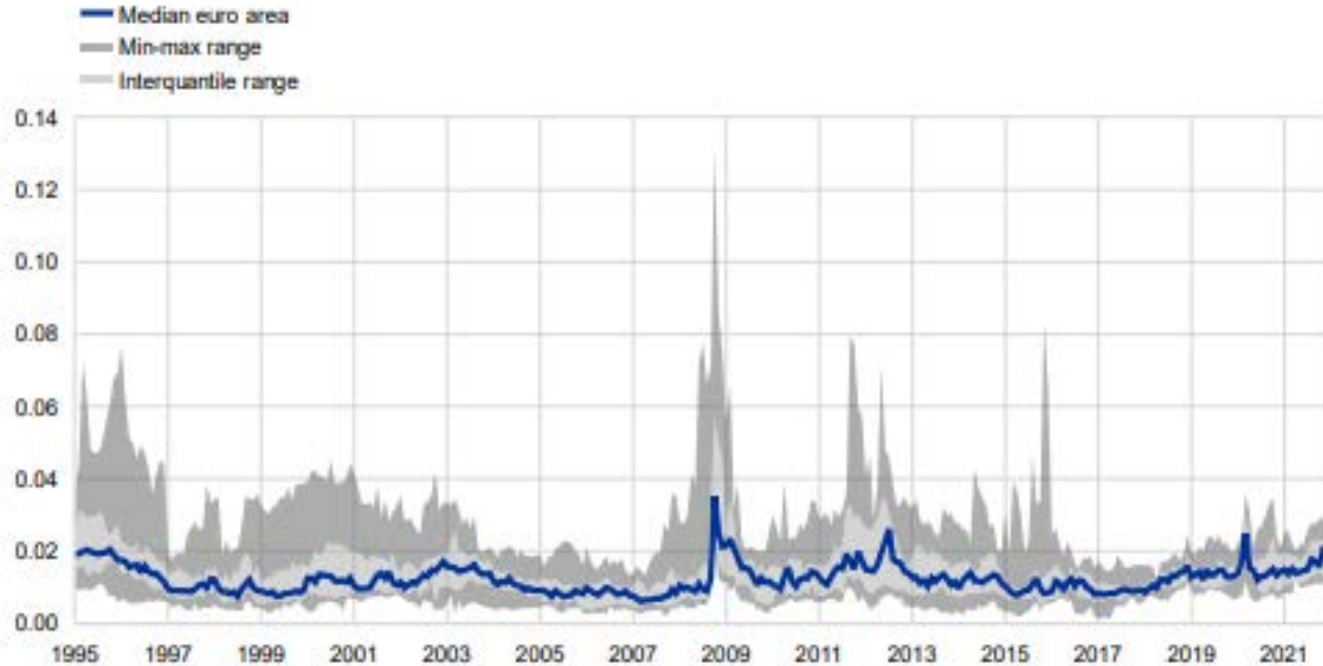
Financial Integration

- 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

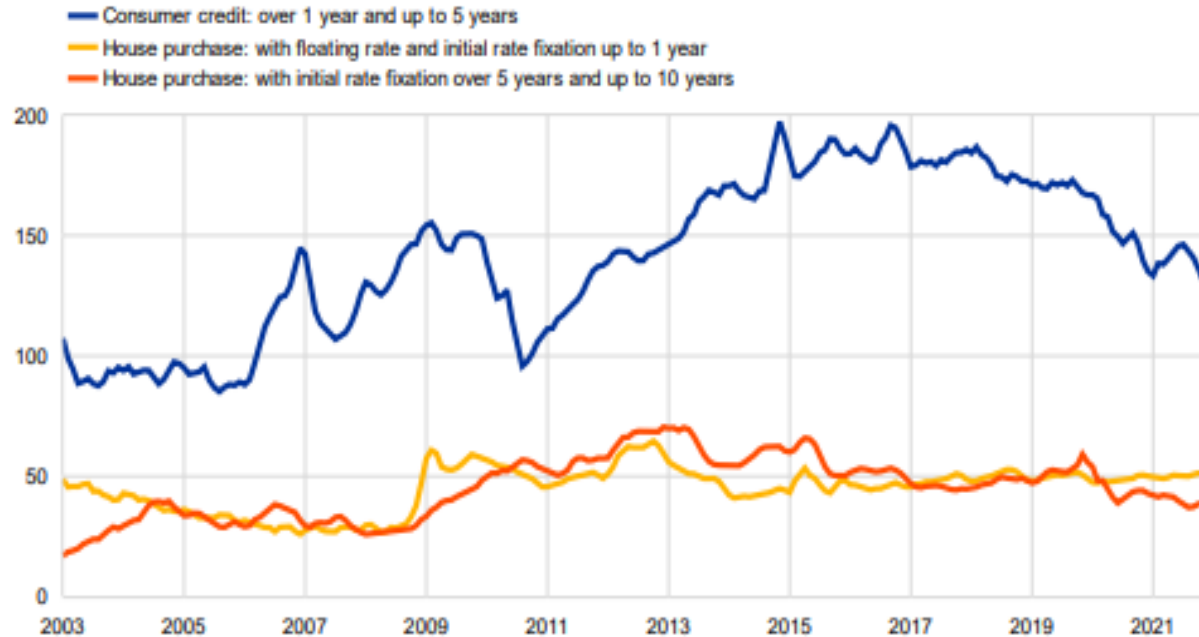
- On the other hand, destabilising effects of financial integration may occur particularly through **risk-taking** and **contagion**.
- **Asymmetric information** problems associated with cross-border lending could lead to **misaligned incentives** and **increased risk-taking**.
- If negative shocks occur, **contagion** across economies could be amplified due to the interconnected nature of global financial markets.

Equity Market Segmentation



Sources: Refinitiv and ECB calculations.

Cross-country standard deviation of MFI interest rates on loans to households



Source: ECB and ECB calculations.

High-frequency indicators - significant events

1. Closure of Italian schools and universities (4 March 2020), 7. ECB PEPP announcement (18 March), 9. PEPP legal documentation published (25 March 2020), 10. Third European Council with divergent views on coronabonds (26 March 2020), 12. Eurogroup agreement on comprehensive policy response (9 April 2020), 16. ECB collateral rating freeze (22 April), 17. Fourth European Council with endorsement of Eurogroup's comprehensive policy response and plans for recovery fund (23 April), 24. Franco-German EUR 500 bn. European recovery fund proposal (18 May 2020), 25. European Commission EUR 750 bn. "Next Generation EU" recovery instrument proposal (27 May 2020), 26./26. ECB PEPP expansion and Germany announces major fiscal stimulus package (4 June 2020), 28. Start of special European Council on recovery fund (17 July 2020), 29. End of special European Council on recovery fund with final agreement on size and structure (21 July 2020), 31. First issuance of EU Commission SURE bonds (21 October), 32. S&P upgraded the outlook on the Italian sovereign bond rating from negative to stable (23 October 2020), 33. Germany adopts toughest health restrictions since first lockdown (28 October 2020), 34. ECB hints at December monetary policy stimulus (29 October 2020), 35. BioNTech/Pfizer vaccine announcement (9 November 2020), 36. Second issuance of EU Commission SURE bonds (10 November 2020), 38. ECB expands PEPP envelope and announces to "preserve favourable financing conditions" (10 December 2020), 39. Announcement of US economic relief package (15 January 2021), 40. ECB temporarily increases PEPP purchases (11 March 2021), 41. Commission successfully placed 800 billion euros of bonds, "Next Generation EU" (8 June 2021), 42. European Union countries agreed on an easing of travel restrictions over summer (11 June 2021), 43. EU hands out first payments from COVID-19 recovery fund, "Next Generation EU" (28 June 2021), 44. ECB reformulates inflation goal to 2%, allows overshoot (8 July 2021), 45. ECB extends forward guidance on rates (22 July 2021), 46. ECB Governing Council (28 October 2021). 47. Inflation in the euro area is estimated at 4.1% in October (29 October 2021). Omitted numbers are relevant events suppressed for readability.