EUROPEAN CENTRAL BANK

EUROSYSTEM

# Session 3: Central banks and bond market functioning

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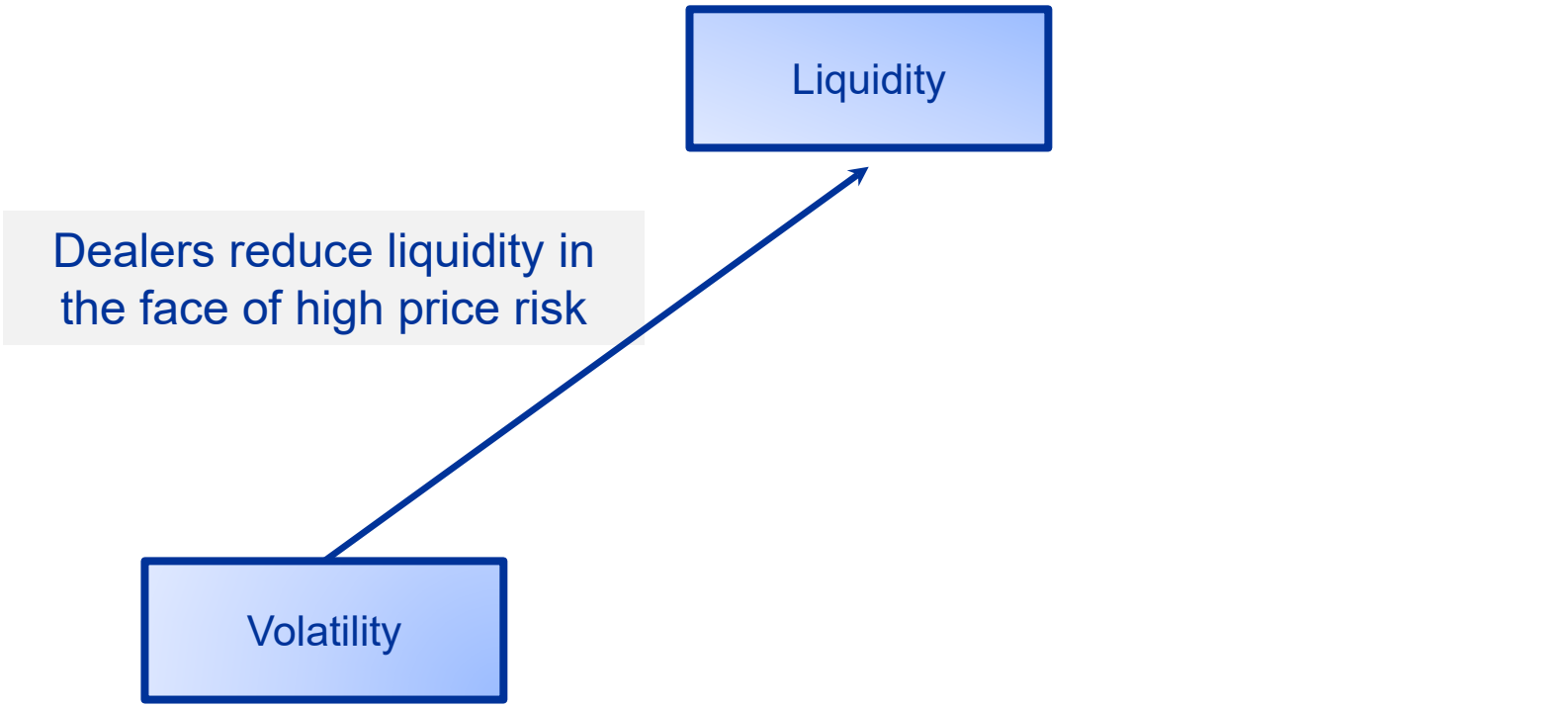
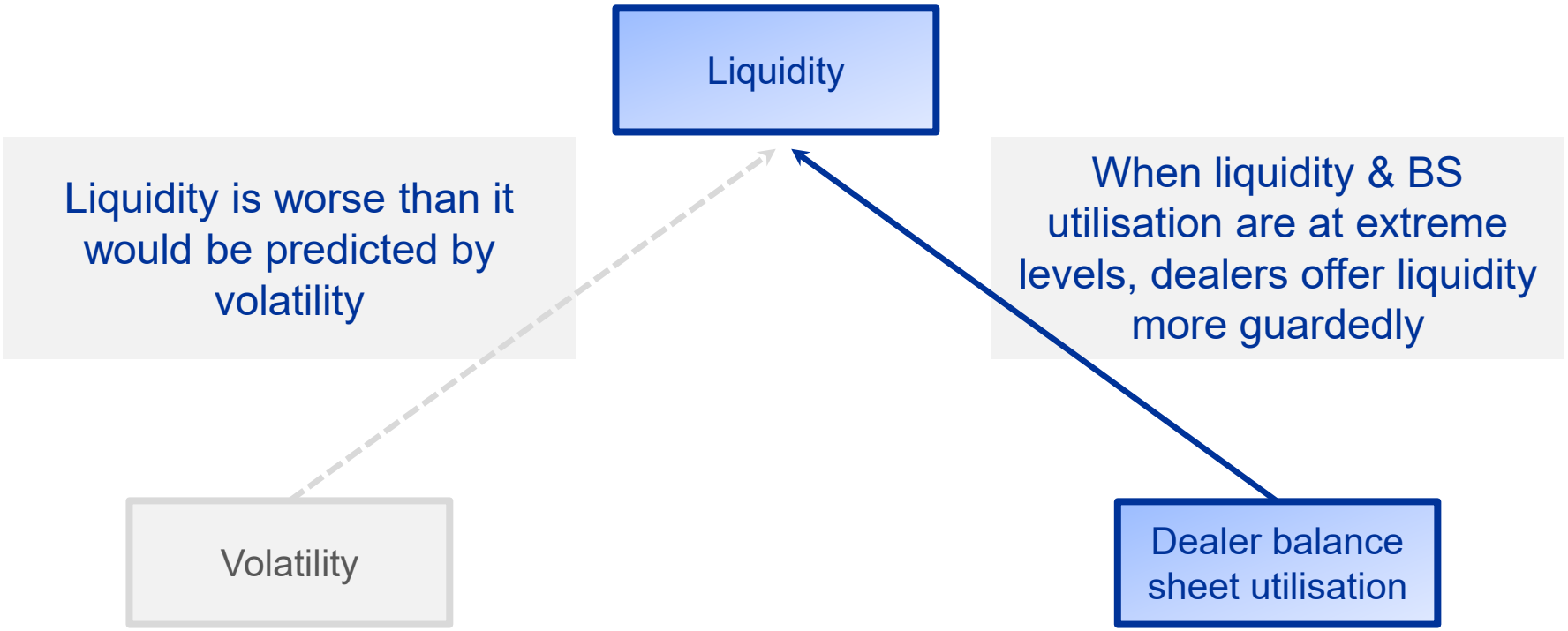
## “Normal” relationship



## During episodes of market dysfunction

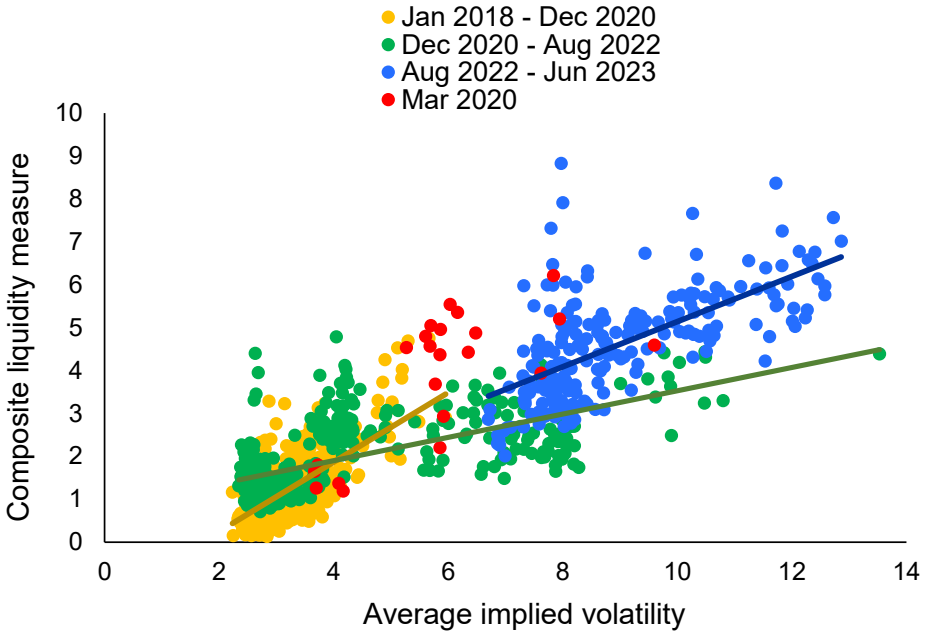


# The link between volatility and liquidity: the case for the euro area

- The relationship between volatility and liquidity looks **more dispersed** in the most liquid euro area market than in US treasuries
- **Time-varying correlation coefficients** suggest that the relationship tends to be driven by specific episodes
- In the euro area, we also observe **periods where liquidity outperforms the level suggested by volatility** alone

## German government bond liquidity and volatility

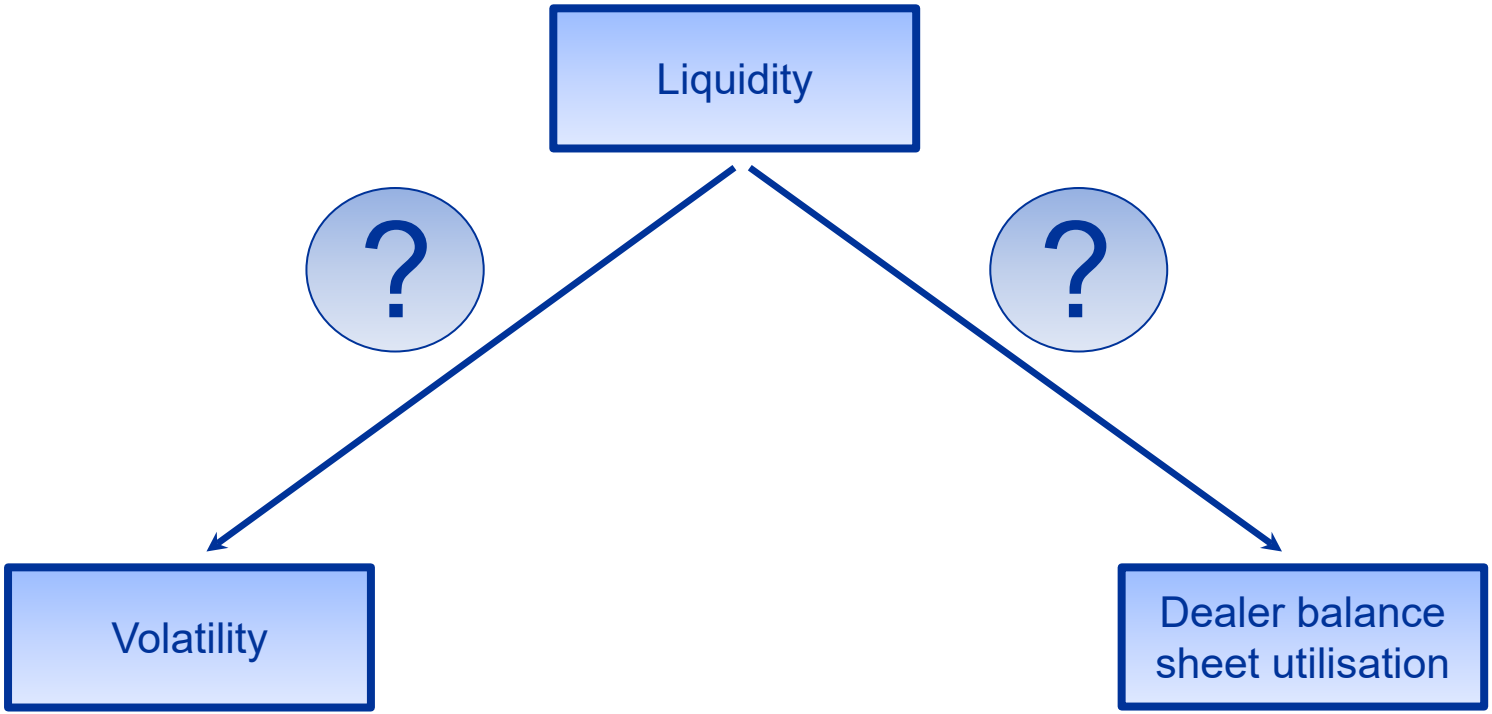
*(y-axis: bps per year; x-axis: bps)*




Source: Bloomberg, ECB calculations.
Note: Composite liquidity measure based on principal component of several liquidity measures (TW, MTS Order Book, Spline Spreads, Bid-ask spreads). Volatility based on average implied volatility of bund futures 5 and 10Y contract.
Latest observation: 08.06.2023.

# What is the causal link between liquidity and the two explanatory variables?

## During episodes of market dysfunction



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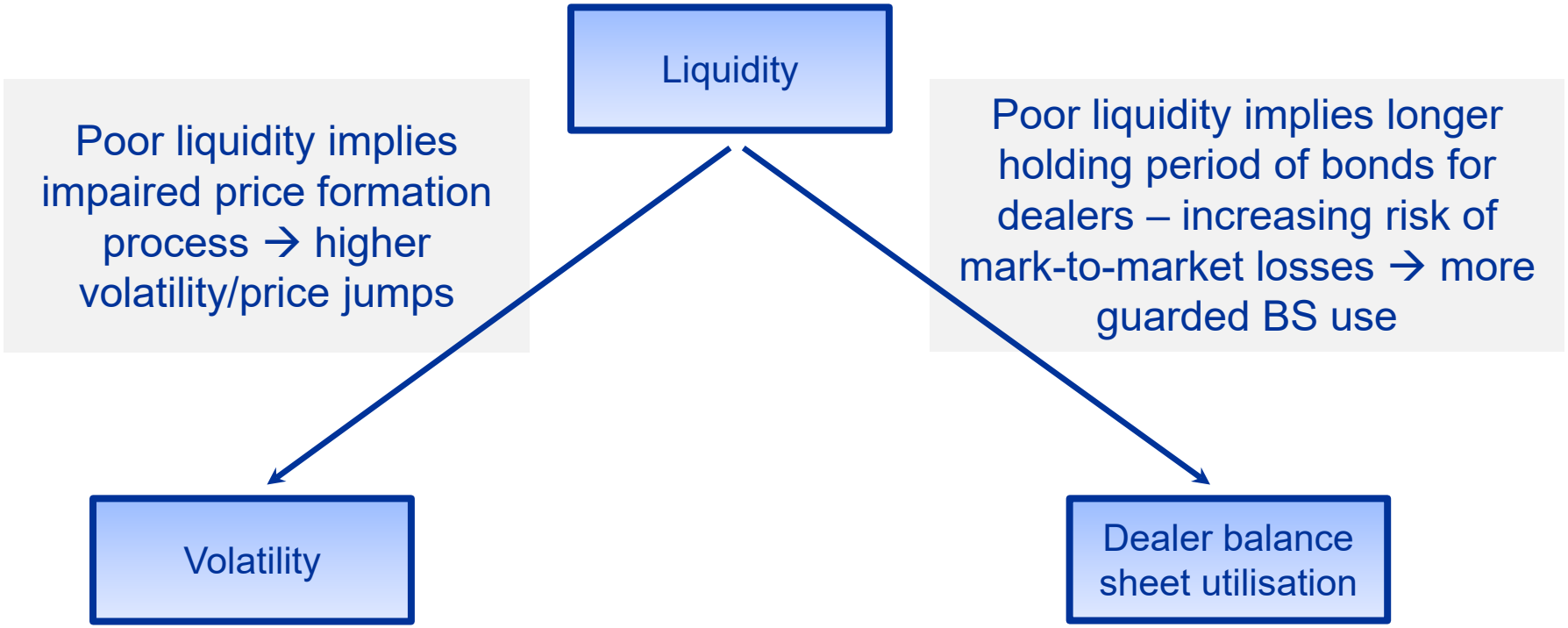
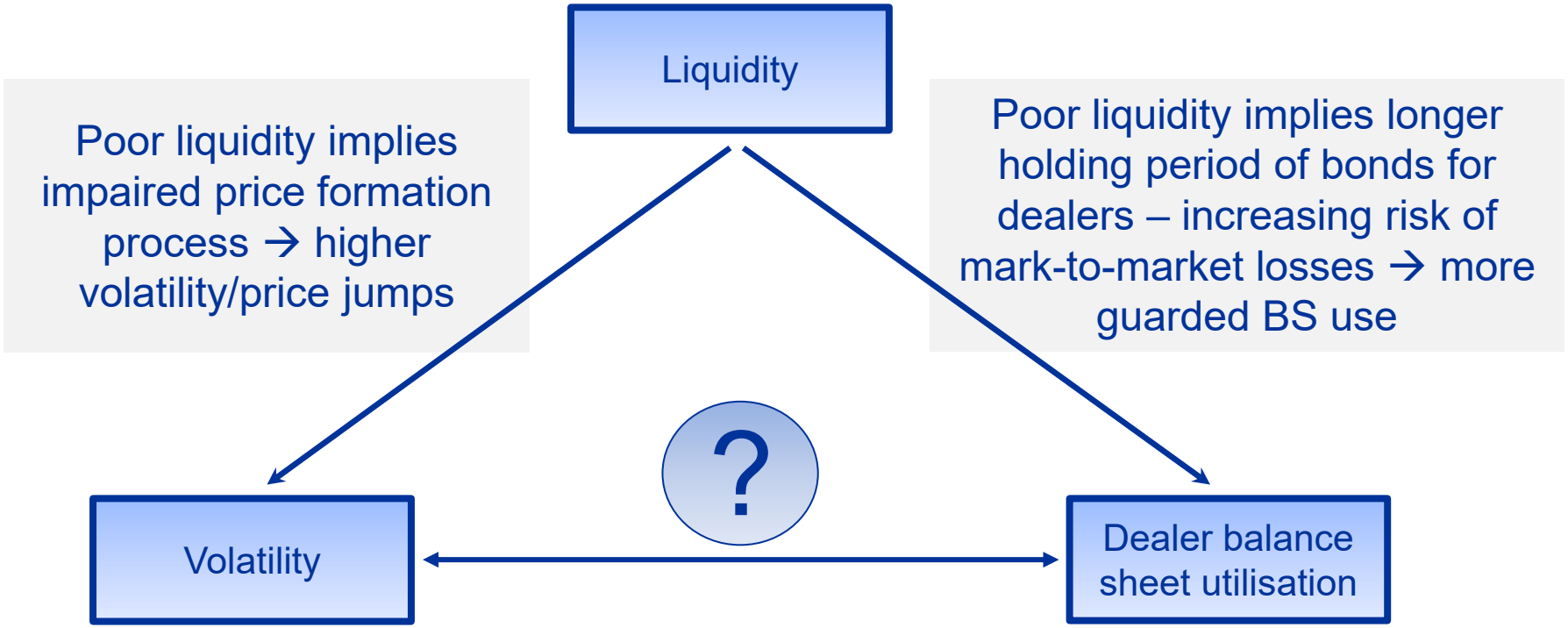


# Is there an additional link between volatility and balance sheet utilisation?

## During episodes of market dysfunction

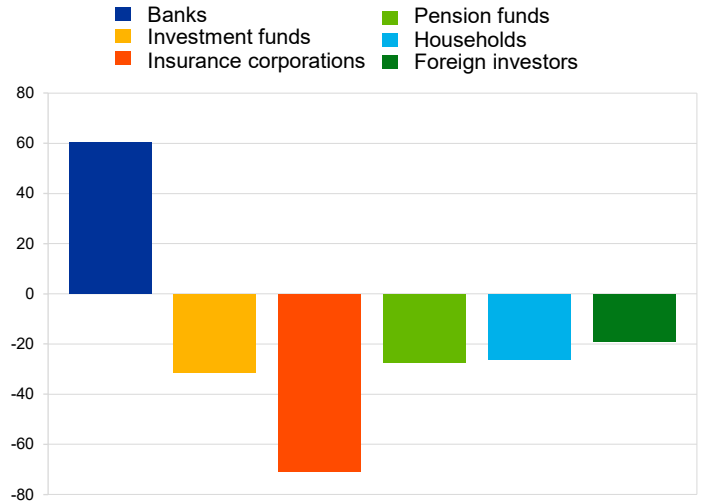


# Is there an additional link between volatility and balance sheet utilisation?

- Evidence on market absorption capacity in the euro area shows that **banks tend to behave countercyclically**
- **Most sectors reduce holdings** of government debt **when macro/financial market uncertainty is higher**
- However, **in times of high volatility, banks increase purchases** making use of their balance sheet capacity

**Changes in nominal holdings of euro area government bonds after one percentage point increase in financial market uncertainty (VSTOXX)**

*(EUR billion)*

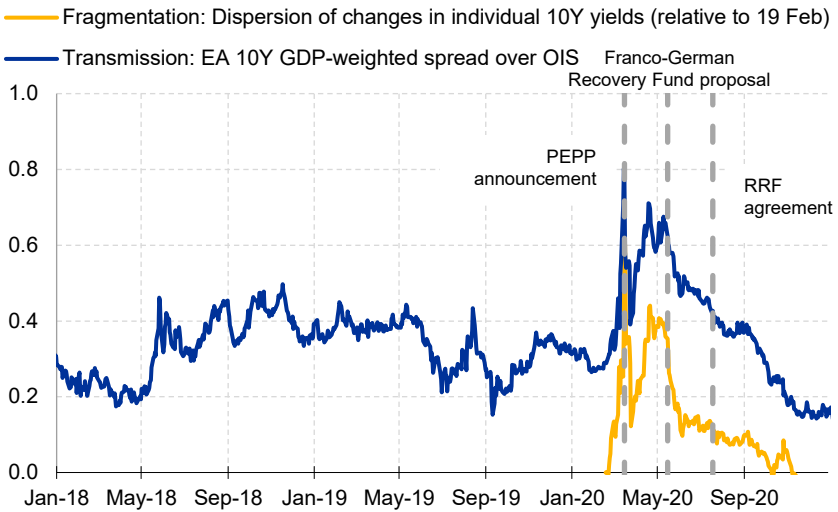



Sources: ECB SHSS, SHSE, CSDB and ECB DG-MF calculations.
Notes: Bars show coefficients from separate regressions where the dependent variable is the log of nominal holdings of euro area government bonds. Sample includes observations between 2014 Q2 and 2022 Q4. All regressions include a constant, security and holder area fixed effects, yield to maturity, US 10-year yields, and "financial market uncertainty", measured by VSTOXX volatility index.

# When should market dysfunction trigger central-bank purchases?

- Within its mandate, the ECB has a **dual view on the case to intervene** to preserve the transmission of monetary policy
- The history of ECB interventions includes **both lending operations and asset purchases**
- **Several safeguards pose limits** to central bank interventions in the euro area

**Measures of transmission and fragmentation in euro area sovereign debt markets**
*(Percentage points)*




Sources: Refinitiv, ECB calculations.
Notes: The dispersion measure is shown starting on 19 February 2020, i.e. the day before the intensification of COVID-19-related financial market turmoil. It is the standard deviation across 20-day rolling averages of changes in individual countries' 10-year sovereign bond yields, measured relative to 19 February 2020 and to the change in the 10-year euro area GDP-weighted rate over the same period. The vertical lines refer to the days before the PEPP announcement (18 Mar) and the June GovC meeting (2 Jun).
Latest observation: 31 December 2020.

# BACKGROUND

# The link between volatility and liquidity: the case for the euro area

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## Bid-ask spread and implied volatility of bund futures

*(y-axis: bps per year; x-axis: bps)*

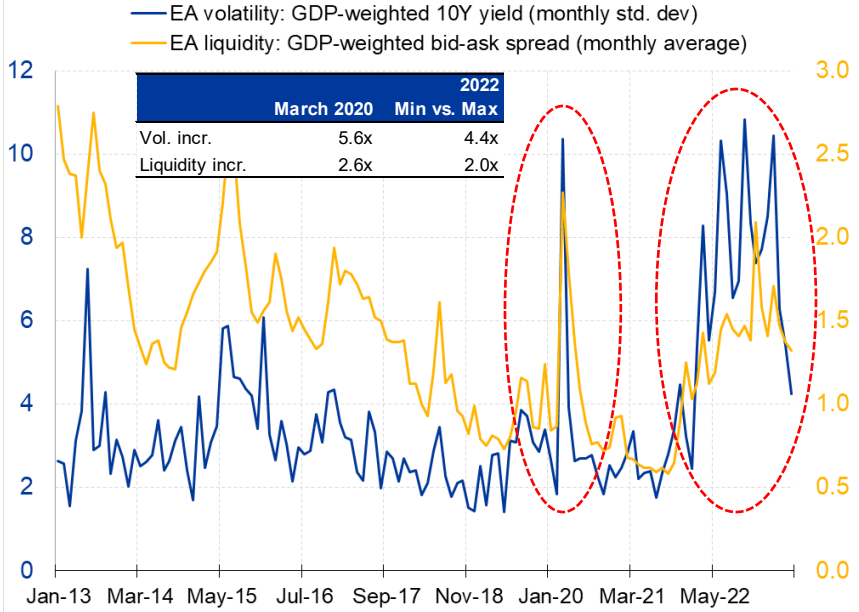

Source: Bloomberg, ECB calculations.
Note: The scatterplot shows the relationship between the bid-ask spreads of Bunds (y-axis) and implied volatility of bund futures (x-axis) in 2021, 2022 and 2023, respectively. Latest observation: 08.06.2023.

# Is there an additional link between volatility and balance sheet utilisation?

- Volatility may affect balance sheet utilisation via **risk management limits**
- At the same time, balance sheet utilisation may affect volatility via liquidity: **"who catches the falling knife?"**
- In the euro area, **dealer intermediation may have played an attenuating role**
  - ➢ Bid-ask spreads have been less sensitive than volatility would suggest

**Average bid-ask spreads and 10-year yield volatility**

*(Monthly average spread in bps / volatility in bps)*




Sources: Reuters, ECB calculations.

Notes: Bid-ask spread is based on GDP-weighting the bid-ask spreads of 11 euro area countries (DE, FR, IT, ES, NL, BE, AT, PT, FI, IE, GR). Bid-ask spreads refer to 10-year government bonds. Yield volatility is measured by the monthly standard deviation of GDP-weighted 10-year yields of the same set of EA countries.

## Conceptual framework on combined effects of volatility and dealer holding period on market functioning