Advanced Monetary Economics

Lecture 6

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Last week(s)

- Monetary policy determines the overnight rate.

- How does a change in the short-term interest rate change the remaining interest rates?

- The yield curve connects interest rates for different time horizons.

- A yield curve represents the relationship between interest rates and the remaining time to maturity.
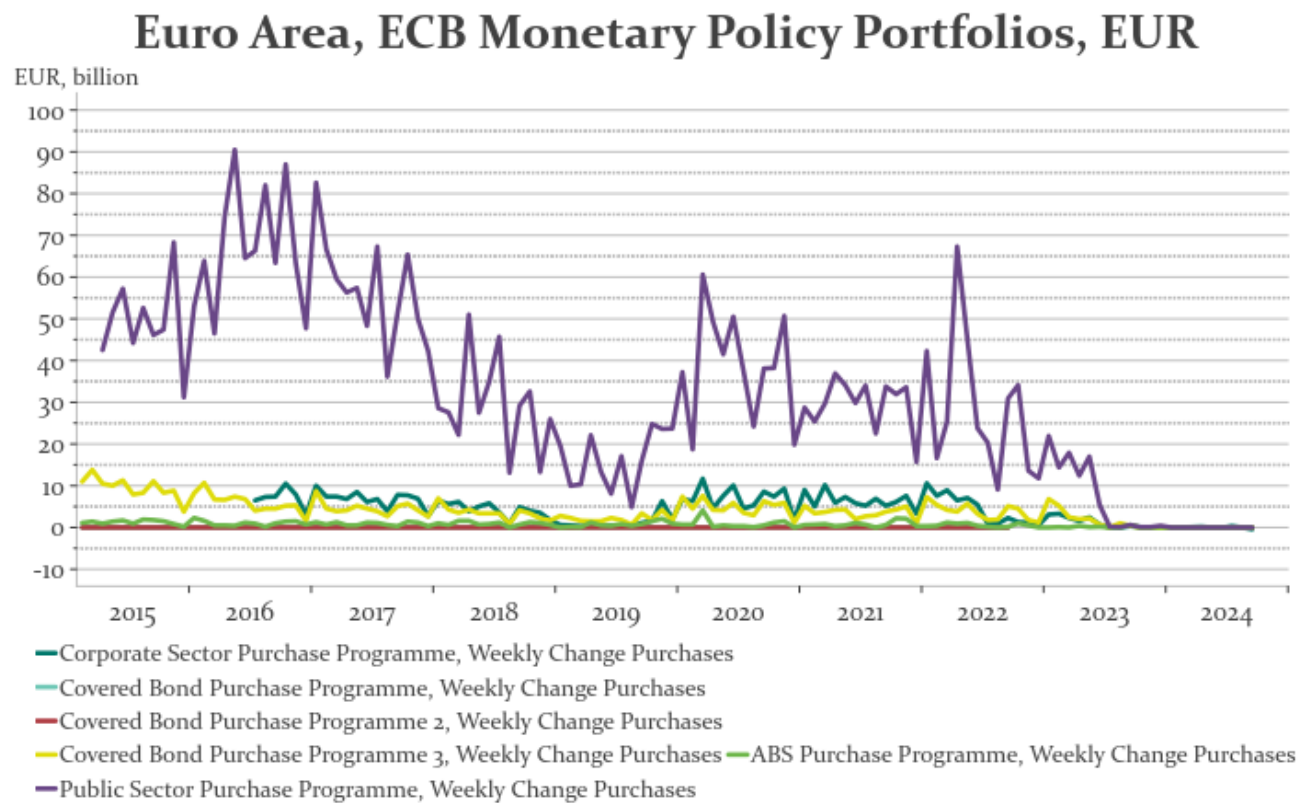
1 Monetary policy and the yield curve

- Monetary policy can influence the long-term interest rates in three ways:

  1. Changing the short-term interest rate.

  2. Changing expectations about future interest rates.

 3. Influencing long-term interest rates.

- ECB PRESS RELEASE:

"Net purchases under the *asset purchase programme (APP)* will continue at a monthly pace of €20 billion, together with the purchases under the additional €120 billion temporary envelope until the end of the year. The Governing Council continues to expect monthly net asset purchases under the APP to run for as long as necessary [...]"

- The APP is part of a package of non-standard monetary policy measures that also includes targeted longer-term refinancing operations, and which was initiated in mid-2014 to support the monetary policy transmission mechanism and provide the amount of policy accommodation needed to ensure price stability.

- It consists of the

    - corporate sector purchase programme (CSPP)

    - public sector purchase programme (PSPP)

    - asset-backed securities purchase programme (ABSPP)

    - third covered bond purchase programme (CBPP3)

- ECB asset purchase programmes (Source: `https://www.ecb.europa.eu/mopo/implement/omt/html/index.en.html`)

- Monthly APP purchases:

Euro Area, ECB Monetary Policy Portfolios, EUR

EUR, billion

—Corporate Sector Purchase Programme, Weekly Change Purchases
—Covered Bond Purchase Programme, Weekly Change Purchases
—Covered Bond Purchase Programme 2, Weekly Change Purchases
—Covered Bond Purchase Programme 3, Weekly Change Purchases —ABS Purchase Programme, Weekly Change Purchases
—Public Sector Purchase Programme, Weekly Change Purchases

- The quantitiative easing policy led to a massive expansion of the ECB's balance sheet:
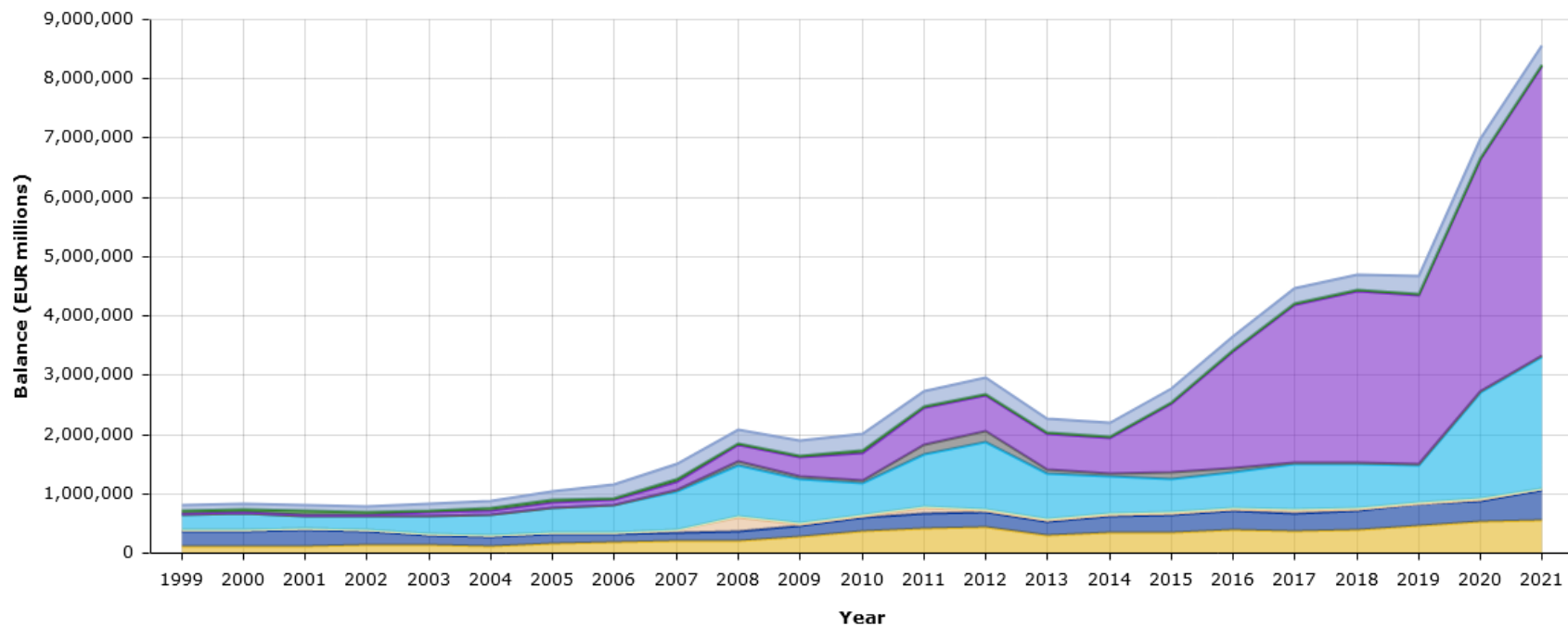
- The composition of the balance sheet has change drastically:

	Balance (EUR millions) 2014
☑ ▢ A1 Gold and gold receivables	343,630
☑ ▢ A2 Claims on non-euro area residents denominated in foreign currency	270,250
☑ ▢ A3 Claims on euro area residents denominated in foreign currency	27,940
☑ ▢ A4 Claims on non-euro area residents denominated in euro	18,905
☑ ▢ A5 Lending to euro area credit institutions related to monetary policy operations denominated in euro	630,341
☑ ▢ A6 Other claims on euro area credit institutions denominated in euro	59,942
☑ ▢ A7 Securities of euro area residents denominated in euro	590,265
☑ ▢ A8 General government debt denominated in euro	26,715
☑ ▢ A9 Other assets	240,254
Total:	2,208,240

	Balance (EUR millions) 2021
☑ ▢ A1 Gold and gold receivables	559,373
☑ ▢ A2 Claims on non-euro area residents denominated in foreign currency	500,191
☑ ▢ A3 Claims on euro area residents denominated in foreign currency	24,529
☑ ▢ A4 Claims on non-euro area residents denominated in euro	12,983
☑ ▢ A5 Lending to euro area credit institutions related to monetary policy operations denominated in euro	2,201,882
☑ ▢ A6 Other claims on euro area credit institutions denominated in euro	26,627
☑ ▢ A7 Securities of euro area residents denominated in euro	4,886,410
☑ ▢ A8 General government debt denominated in euro	22,168
☑ ▢ A9 Other assets	330,198
Total:	8,564,361

The idea behind asset purchases

- Asset purchases increase the demand for these assets and thus their price.

- As the price is inversely related to the effective interes rate on bonds, this lowers interest rates (especially mid- and long-term rates).

- The purchases aim at lowering the yield curve and further interest rates in the economy, like credit rates.

- They also signal the future stance of conventional monetary policy. They are a committment not to raise rates to much in the future because this would generate huge balance sheet losses as the bought securities would loose value. Their price is inversely reated to the interest rate in the economy.

- Yield curve before and after unconventional monetary policies (disclaimer: only correlation, no proven causation)

Euro area yield curves
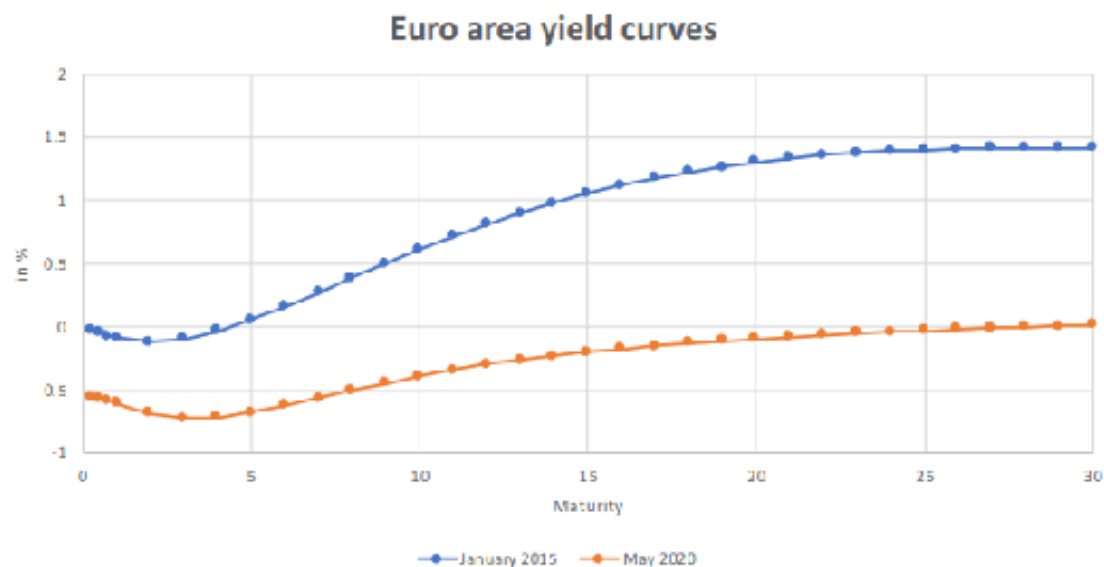
- The asset purchases of the ECB stirred another controversy about the side effects of the policy.

- Buying government securities decreases interest rate payments for governments.

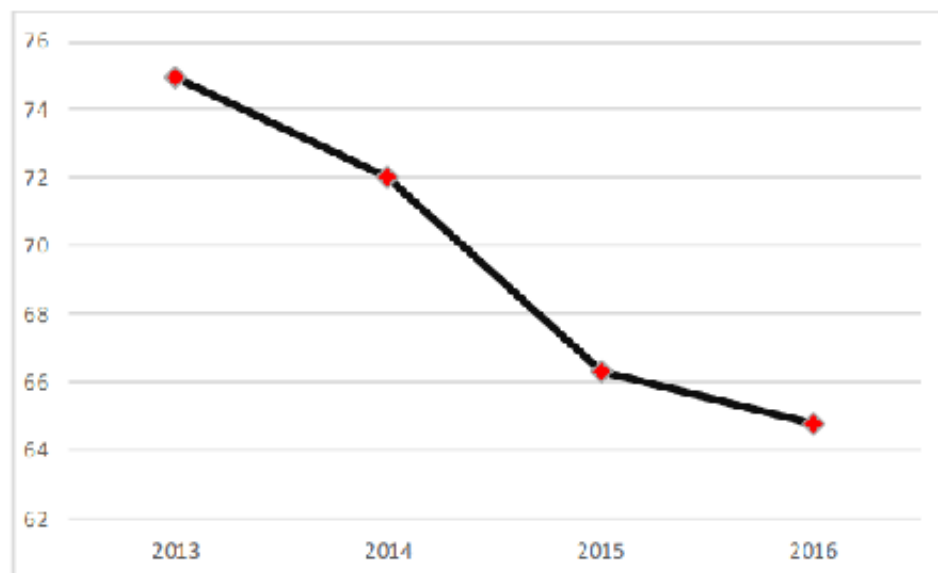- Interest rate payments on Italian government debt

Figure: € Billion interest rate payments by year

- Interest rate payments "artificially" low due to ECB interventions

- Does the ECB help to finance the government budget in Italy (and other coun-tries)? Does this lead to reform fatigue because the ECB reduces the pressure on these countries to implement structural reforms?

- The evidence suggests that the opposite is the case.

- Response of reform rate to contractionary monetary policy shock in the euro area:

M. Rieth and J. Wittich / European Economic Review 122 (2020) 103361

Cumulative response
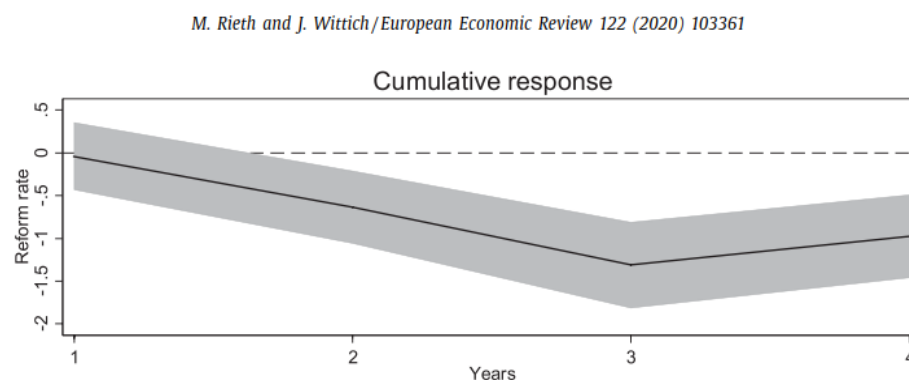
- The asset purchases also raised the question whether they are debt monetization.

- "Treaty on the Functioning of the European Union" (Article 123) forbids it explicitly.

- European Court of Justice ruled that purchases are legal.

- German economists and politicians led a lawsuit against the ECB.

- May 5th, 2020, the German constitutional court ruled "no state financing". But the ECB has to justify its policy.

- But this could back fire if other countries also charge the ECB. At the end such trials could undermine the ECB's indepence and crediblity.

2 Transmission mechanism

Three types of channels

1. Interest-rate channels

2. Asset-price channels

3. Credit channels

2.1 Interest-rate channel

- **Fisher Equation:** ex ante real interest rate i_r equals the nominal interest rate i minus inflation expectation π^e:

$$i_r = i - \pi^e$$

- Ex ante real interest rates are important for consumption (housing and durable consumption goods) and investment decisions.

- Assumption: Price rigidities in the economy $\rightarrow$ decrease in nominal interest rates (policy instrument) decreases the real interest rate

- lower real interest rate lowers the cost of capital and increases investments of firms and households

- higher investment and consumption increases GDP

- **Expectations:** Monetary policy influences real interest rates through expectations about future monetary policy, which influences expectations about prices today (forward guidance and quantitative easing as a signal), $\pi^e \uparrow$.

- Real interest changes without change in nominal interest rate, $i_r \downarrow$.

- Effects on the real economy as in the case of the interest rate channel, GDP↑.

## 2.2   Asset-price channel

- Three subchannels:

  1. Exchange rate channel

  2. Tobin's q theory

  3. Wealth channel

- **Exchange rate channel:** Decrease in the interest rate makes domestic assets less attractive → decrease in demand for currency → depreciation of currency

- Depreciation leads to an increase in exports → increase in GDP

- Imports more expensive → Substitution to home products → GDP↑

- Evolution of EURUSD nominal exchange rate (up means depreciation):

Euro Area, FX Spot Rates, WM/R, EUR per USD, Fixing
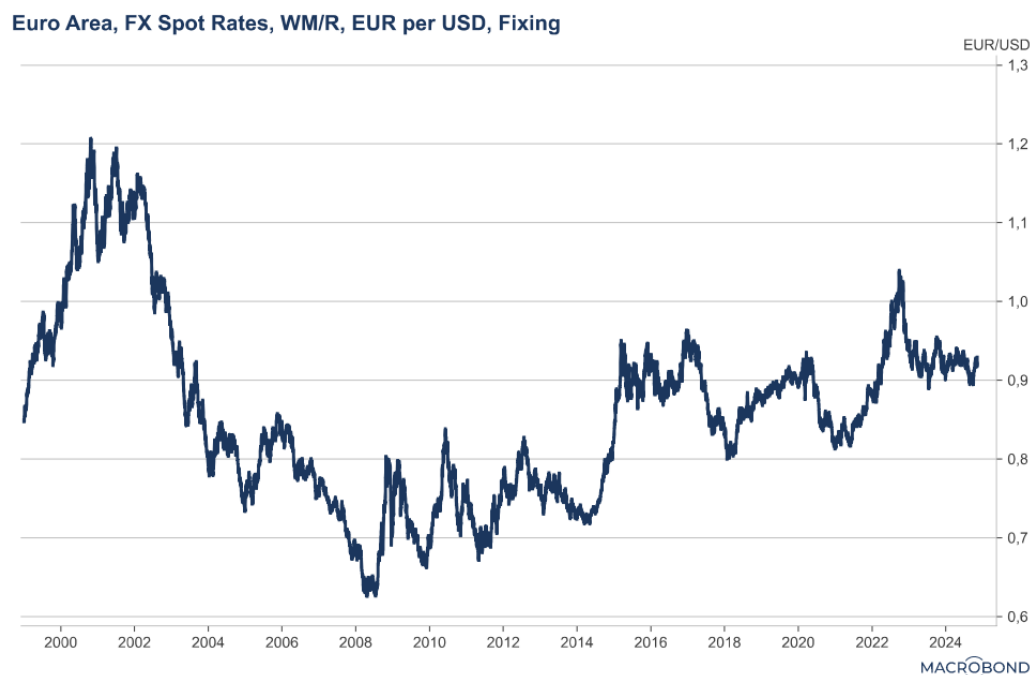
- **Tobin's q theory:** Tobin's q = market value of firms (stock price) / replacement cost of capital

- *If q is high*, firms will issue new stocks to finance new investment.

- Expansionary monetary policy leads to an increase in the market value of firms (higher stock prices)

- Increase in market value of firms $\rightarrow$ Incentive to issue stocks and finance new investments

- Increase in investment increases GDP

- *If q is low*, rather buy other firm and don't invest in new capital

- Evolution of monthly ECB balance sheet and euro area stock prices:
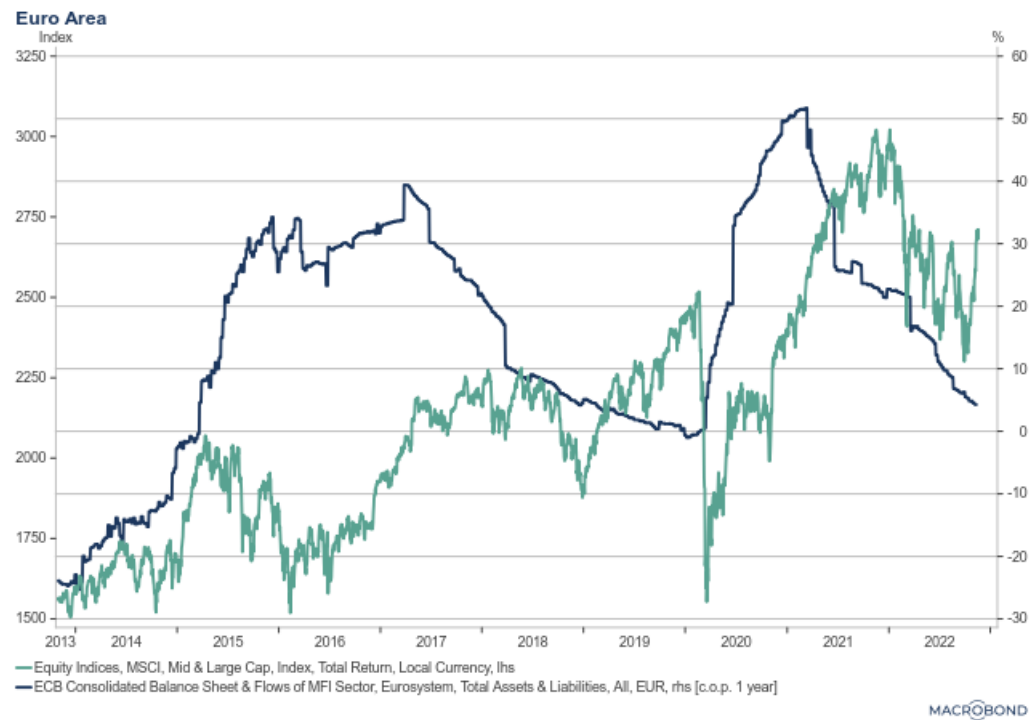
- **Wealth channel:** Hypothesis: consumers smooth consumption over life cycle

- Increase in life cycle income leads to an increase in consumption

- Assumption: expansive monetary policy leads to an increase in the market value of firms (and other assest like houses, see tutorial)

- Increase in wealth of the consumers leads to an increase in consumption and to an increase in GDP
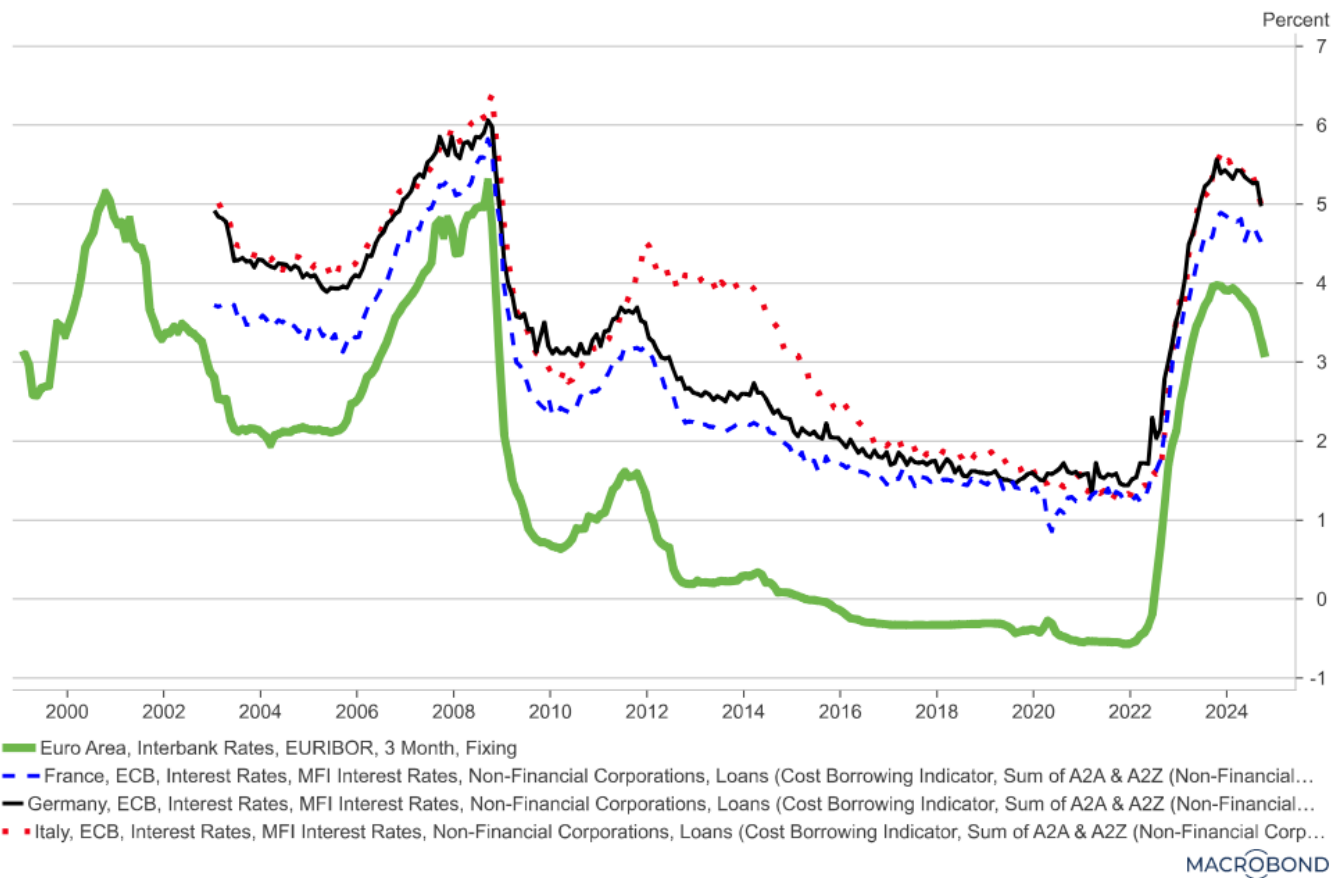
2.3 Credit channels

- Two subchannels

1. Bank lending channel

2. Balance sheet channel

- **Bank lending channel:** affects investment and consumption financed by banks

- Open market operations lead to an increase in reserves and cash.

- Banks can use these reserves to give credit to firms and households.

- Higher investment and consumption raise GDP.

- The bank lending channel in the euro area:

- **Balance sheet channel:** Increase in firms value leads to an increase in firms assets, banks become more confident lending to the firm $\rightarrow$ increase in credit provision

- Assumption: expansive monetary policy leads to an increase in the market value of firms

- Increase in confidence of banks to lend and thus increase in credit provision

- Increase in investment and increase in GDP

Summary

- How does monetary policy influence the economy?

- Monetary policy sets short-term interest rates, gives forward guidance and buys assets.

- All tools affect the yield curve.

- These interest rates influence the economy via:

  1. Interest-rate channels

  2. Asset price channels

  3. Credit channels