International Money and Banking: 12. How Central Banks Set Interest Rates: The ECB

Karl Whelan

School of Economics, UCD

Autumn 2023

The Early Years: M3 Reference Value

- The ECB's Monthly Bulletin of January 1999 described its monetary policy strategy as follow: *"The strategy consists of three main elements: (i) a quantitative definition of the primary objective of the single monetary policy, namely price stability; and the "two pillars" of the strategy used to achieve this objective: (ii) a prominent role for money, as signaled by the announcement of a reference value for the growth of a broad monetary aggregate; and (iii) a broadly based assessment of the outlook for future price developments and the risks to price stability in the euro area as a whole."*
- Price stability was defined as inflation below 2 percent.
- A reference value (i.e. a target) was initially set at 4.5% growth rate for M3 and was used to produce a "monetary overhang" measure: the difference between actual M3 growth and the reference value, with higher numbers representing higher risks for medium term inflation.
- After 2001, the growth of M3 started to accelerate to values well above the 4.5%, hitting 10.9% in December 2001. According to the monetary overhang framework, this suggested significant risks for inflation. But this did not then show up in the data.

Post 2003: Less Emphasis on Money

- In May 2003, the ECB published a review of the monetary policy framework including the following elements.
  1. The medium-term target for inflation was redefined to a value "below but close to 2%"
  2. The presentation of the monetary policy decisions would start with the "economic analysis to identify short- to medium-term risks to price stability".
  3. The monetary analysis would mainly serve as a means of cross-checking, from a medium- to long-term perspective, the indications coming from the economic analysis
  4. An annual review of the M3 growth reference value was dropped. While still at 4.5%, the reference value has, in fact, not been mentioned or used since then.
- See the speech by former ECB Vice-President, Vitor Constancio, "Past and future of the ECB monetary policy" for further discussion of the early years of the ECB.

European Short-Term Rates and the ECB's Policy Tools

- Traditionally, the ECB's target interest rate was the **EONIA**, a measure of average interest rates in overnight interbank markets.
- In October 2019, EONIA was replaced as the standard reference rate by **€STR** (or **ESTER**) which is published by ECB. This is a broader measure of short-term interest rates based on a superior sample of quotes to EONIA.
- The ECB controls market interest rates via a range of tools, including a weekly lending operation to banks and the use of two "standing facilities".
- The Eurosystem conducts a weekly lending operation, known as the "main refinancing operation", with funds due back a week later.
- The loans take the form of repurchase agreements (repos): The central bank takes a security from a financial institution, provides it with a short-term loan by boosting its reserve account and sells the security back later at an agreed higher price.
- Because all banks in the Eurosystem can borrow from the ECB as an alternative to interbank money markets, the terms of the ECB's lending programmes have traditionally had a key influence on short-term loan rates.

The ECB's Pre-2008 Operational Strategy

Prior to 2008, the ECB's operational strategy worked as follows:

- Banks need a certain supply of liquidity, to use to supply banknotes to the public and to satisfy reserve requirements. This must be supplied by the central bank.
- The ECB decided how much money it would loan out and then conducted an auction for these funds.
- It announced the minimum interest rate that banks would have to pay for the loans and then rationed the loans by giving them out to those who are willing to pay the highest rate.
- This "minimum bid rate on the main refinancing operation" was the "headline" interest rate during the ECB's first decade.
- The ECB also had a three-month refinancing operation that provided about one third of the liquidity.
- The ECB maintained a list of high-quality assets that it was willing to accept in the refinancing operation as well as a list of "haircuts" it would apply to these assets (so, for example, an asset worth €100 million might be used to obtain a loan of €95 million).

The Eurosystem's Risk Control Framework

- There are various systems in place to ensure that banks repay the loans made to them by the Eurosystem or, alternatively, that the Eurosystem obtains an asset equivalent in value to the loan.
- Banks that don't repay their loans lose the asset pledged as collateral.
- The ECB loans feature "haircuts", meaning the collateral needs to be higher in value than the loan provided to the bank.
- The haircuts get bigger (i.e. the value of the loans get smaller) as the central bank's assessment of the quality of the asset declines. So, for example, if a bond gets downgraded by a ratings agency, then a bank pledging this bond will only be eligible for a smaller loan.
- The Eurosystem also has a "risk control framework" that allows the ECB to deny credit to any bank or reject any assets as collateral should it see fit "on the grounds of prudence".
- This risk control framework has been invoked at various times over the past decade, without much transparency as to how these decisions are made.

Risk Sharing

- What happens, however, if there is a default and the value of the collateral turns out to be less than the value of the loans? In this case, the central bank that made the loan writes down the value of its assets (without writing down the value of its liabilities, i.e. the money it has created). This reduces the capital of that central bank.
- However, Article 32.4 of the ECB statute states that losses on monetary policy operations can be shared. In practice, this has meant that any losses incurred on standard monetary policy operations are shared among the various central banks in the Eurosystem.
- The shares of losses taken are determined by each country's ECB capital key. This is the share of the money that each national central bank provided to give the ECB its initial amount of capital.
- Could losses on monetary policy operations mean some NCBs lose all their capital? The Eurosystem as a whole can take losses of almost €500 billion before liabilities would exceed assets so this is unlikely, though possible. Not clear it matters though.
- Note that losses (or profits) on QE purchases by NCBs are not being shared.

Emergency Liquidity Assistance

- In some cases, banks run out of Eurosystem collateral but still need to borrow from the central bank to pay off the liabilities that are flowing out of the bank.
- Eurosystem central banks generally have a lender of last resort power that pre-dates the euro. This allows them to make loans to banks even if these banks don't have eligible collateral.
- These loans are called **Emergency Liquidity Assistance** (ELA) and the central banks of the Eurosystem do not share risks with the central bank that makes these loans.
- Article 14.4 of the ECB statute implies that the ECB Governing Council can decide by a two thirds majority to prevent any programmes (including ELA) that "interfere with the objectives and tasks" of the ECB. So while the risk stays with the central bank (and ultimately government) granting the loan, the ECB Governing Council still needs to approve these loans.
- ELA featured heavily in the Irish banking crisis (almost all the money Anglo/IBRC owed was ELA), in Cyprus in 2013 (where the Cypriot banks were granted large amounts of ELA prior to their crisis) and in Greece in 2015. See my paper "Banking Union and the ECB as Lender of Last Resort"

Changes to ECB Strategy Since 2008

- From late 2008 onwards, many European banks lost deposit and non-deposit funding because of fears they may fail or that their country may leave the Euro. Volume in interbank markets like Euribor fell steeply.
- This meant the Eurosystem has had to step in to become a major source of funds for the euro area banking system.
- There have been a number of major changes to ECB operations:
  - **Full Allotment**: Since October 2008, the MRO has been conducted on a fixed-rate basis and all bidders have been allocated their requested amount of funds. Of course, they still need to have the eligible collateral to obtan a loan.
  - **Longer Terms**: The weekly MRO ceased to be the major source of funding provided by the ECB, replaced by longer-term refinancing operations (LTROs) which are loans with a term of months or years.
  - **Looser Collateral Requirements**: The list of eligible collateral for all ECB operations has been widened. In particular, starting in early 2012, the ECB widened the amount of "credit claims" (i.e. bank loans) that it will accept as collateral.

The LTRO Operations

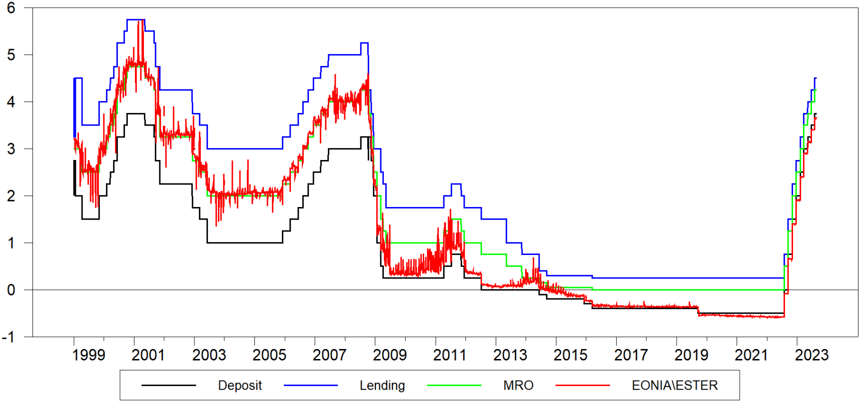
- The chart on the next page shows the size of ECB refinancing operations, broken into the main (short-term) operation and longer-term operations.
- As financial tensions increased from 2008 on, the ECB moved to six month and one year operations.
- By late 2011, the Euro crisis was entering an intense phase and banks in Spain, Italy and other European countries were having severe trouble obtaining non-deposit funds (e.g. from the bond market).
- The ECB thus introduced a new long-term refinancing operation (LTRO) which saw banks borrowing large amounts of money for three years.
- This LTRO had an influence on the sovereign debt crisis. Many banks used the funds they borrowed from the ECB to buy sovereign bonds.
- LTRO borrowings declined from early 2013 to early 2015 but ECB then introduced a new "Targeted LTRO" (TLTRO) scheme which provided low-cost loans as long as banks used them to provide additional credit. Longer-term borrowings now account for almost all of the borrowing from the the Eurosystem.

Size of the ECB's Refinancing Operations (Orange=Long-Term, Blue=Main)

Standing Facilities

- In addition to its regular weekly and three-month refinancing operations, the ECB also has "standing facilities" that are always available.
  - A lending facility ("marginal lending facility") traditionally set 1% above the rate on main refinancing operation.
  - A deposit facility traditionally set 1% below the rate on main refinancing operation. From 2014 to 2022, this rate was negative so banks needed to pay ECB to have money in their deposit account.
- The interest rate in the main refinancing operation was traditionally the key policy rate and, until recent years, EONIA was close to this rate most of the time. The standing facilities are intended to set an interest rate "corridor" for money market rates.
  - Since banks can borrow from the lending facility, they do not need to pay a higher interest rate than this in the money market.
  - Similarly, banks don't need to lend at a rate lower than they can get from the deposit facility.
- These tools have done a good job of controlling Euro area money market interest rates. EONIA has never gone outside the "corridor".

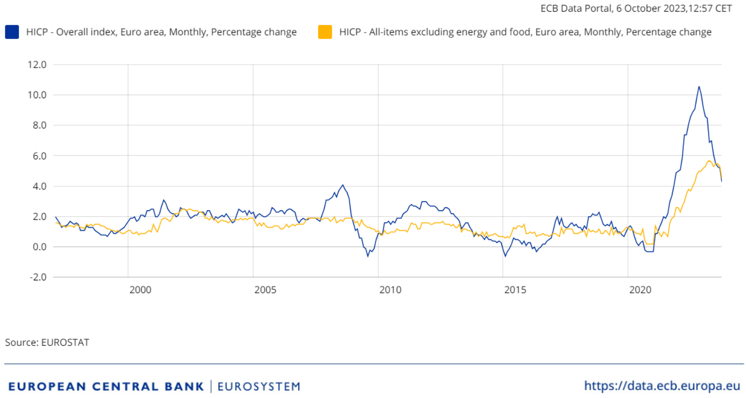
How the ECB Controls Money Market Interest Rates



Low Inflation and Pre-Pandemic ECB Policy

- After years of recession after 2008, the euro area economy began to recover in 2012. Unemployment in the euro area recovered back to its pre-crisis levels.
- However, despite a number of years of steady growth and falling unemployment, the ECB failed to get inflation back towards its target of "close to but below 2 percent".
- The ECB has been gradually increases monetary stimulus to try to reach this target, introducing various new elements to monetary policy.
- In a July 2019 speech "Monetary Policy and Below-Target Inflation" by ECB Chief Economist, Philip Lane, he described four different policies the ECB was pursuing to boost the economy and raise inflation.
  1. Setting the interest rate on its deposit facility to negative values.
  2. Forward guidance on the future path of policy (we will discuss this more soon)
  3. Targeted Long-Term Refinancing Operations incentivising banks to make loans.
  4. The Asset Purchase Programmes, i.e the ECB's version of QE.

Total (Blue) and Core (Yellow) HICP Inflation



Source: ECB Data Portal

TLTROs

- Targeted Longer-Term Refinancing Operations (TLTROs) provide financing to credit institutions over maturities of up to three years.
- They are "targeted" because the amount banks can borrow, and the interest rate, are linked to their loans to non-financial corporations and households.
- The first series of TLTROs was announced on 5 June 2014, a second series (TLTRO-2) on 10 March 2016 and a third series (TLTRO-3) on 7 March 2019.
- When TLTRO-3 was introduced, the borrowing rate for banks that met the various lending "benchmarks" was 10 basis points above the average rate on the deposit facility over the period of the loan.
- In April 2020, the TLTRO-3 programme was amended so that the borrowing rate for banks that met the various lending "benchmarks" was 50 basis points below the average rate on the deposit facility over the period of the loan.
- When TLTRO-3 was announced, the deposit facility rate was minus 50 basis points, this meant banks could borrow from ECB at the rate of minus 100 basis points (minus one per cent per annum).
- The ECB subsequently revised the terms of these loans and banks paid most of them back.

Negative Deposit Rates and Market Interest Rates

- In the past, the EONIA rate tended to be close to but slightly higher on average than the MRO rate, reflecting the fact that banks could substitute between borrowing from ECB and borrowing in interbank markets.
- Until recently, the MRO rate was zero but the interest rate on deposits with the ECB was negative.
- With the QE programme creating huge amounts of reserves, the deposit rate has become the key interest rate for banks and short term money market rates have followed the deposit rate in recent years, going negative during the period when the deposit rate was negative.
- Other market interest rates (such as for mortgages) did not go negative (because banks still have to account for credit risk) but the negative deposit facility rate contributed to a general lowering of market rates.
- Why would banks keep money in the deposit facility when they are being charged money for it? Shouldn't they just take the money out as cash and store it in warehouses? So far we see little evidence of banks doing this. Storage costs for large sums of cash could be high and there is risk (it could be stolen or burn) and insurance costs.

Tiering of Reserves

- While the negative interest rate in the deposit facility was successful in reducing market interest rates, there were concerns about a possible negative side effect.
- This policy acted effectively as a "tax" on the euro area banking sector at a time when banking profitability was already quite low.
- This raised concerns that by reducing bank profits and thus their capital levels, it may lead to a reduction in the provision of credit. Alternatively, banks may decide to increase the interest rates they charge customers to compensate for the costs associated with the deposit facility.
- In response to these concerns, in September 2019, the ECB Governing Council introduced a new "tiering" policy for reserves. For each bank, the negative deposit facility rate was only applied to reserves they held in excess of six times their reserve requirements.
- This maintained the negative deposit facility rate as the key "marginal" rate in the banking system but reduces the impact on bank profits.

The Pandemic Emergency Purchase Programme (PEPP)

- The ECB's pandemic emergency purchase programme (PEPP) is an unconventional monetary policy measure initiated in March 2020 to counter the risks to the euro area economy due to the COVID-19 outbreak.
- In March 2020, it was announced that PEPP would see the Eurosystem acquire €750 billion in assets. In June 2020, the Governing Council decided to increase this figure to €1,350 billion.
- As well as increasing the size of the ECB's balance sheet, the programme expanded the set of assets the Eurosystem could purchase.
    - While PEPP acquisitions are still benchmarked to capital keys, its purchases are "*conducted in a flexible manner*" which "*allows for fluctuations in the distribution of purchase flows over time, across asset classes and among jurisdictions*."
    - The corporate sector purchase programme was expanded to include to non-financial commercial paper (i.e. short-term debt issued by non-financial businesses.)
    - An agreement to purchase Greek government bonds, which had previously been considered to be of insufficiently high credit quality.

The ECB's Monetary Policy Strategy Review

- In July 2021, the ECB concluded a review of its monetary policy strategy
- This review included the following
  1. A 2% inflation target over the medium term, replacing the previous "close to but below 2%". This target is symmetric, meaning negative and positive deviations of inflation from the target are equally undesirable.
  2. A decision to continue using forward guidance, asset purchases and longer-term refinancing operations, as appropriate.
  3. A replacement of the "monetary analysis" focus in preparation for Governing Council meetings with "monetary and financial analysis"
  4. The adoption of a climate-related action plan. The Governing Council will adapt the design of its monetary policy operational framework in relation to disclosures, risk assessment, corporate sector asset purchases and the collateral framework.
  5. Recommending the inclusion of a measure of the costs of owner-occupied housing in the HICP in the coming years.

High Inflation: What Does the ECB Do Now?

- HICP inflation reached a high of about 10% in September 2022 but is now falling. Year-over-year inflation was 4.3% partly due to energy prices falling relative to a year earlier.
- The "core inflation" measure—excluding food and energy—was 4.5% in September, still much higher than the ECB's target.
- The ECB has reacted to higher inflation by raising its policy rates by 4.5% in a series of rake hikes since July 2022.
- What should they do now?
  1. **Stop**: The main underlying source of the high inflation—the surge in energy prices due to the was in Ukraine—is now easing and inflation is falling. Perhaps the ECB's next move should be cut rates?
  2. **More Interest Rate Increases**: Some argue that interest rates still too low given that inflation is still quite a bit above target. Some would argue that, to act in line with its primary objective, the ECB need to still raise interest rates. .
- Which do you think?

Recap: Key Points

1. The ECB's original formulation of its monetary policy strategy.
2. How the monetary policy strategy changed in 2003.
3. The ECB's refinancing operations and how they have changed in recent years.
4. Risk control and risk sharing in the Eurosystem.
5. Emergency Liquidity Assistance in the Eurosystem.
6. How the ECB's "corridor" system affects market interest rates.
7. Why the deposit rate has become the ECB's key policy rate.
8. Why we see people making negative interest investments.
9. Recent changes to ECB policy: Asset purchases, TLTRO and a tiered reserves system.
10. Policy options now that inflation is high.