The Negative Interest Rate Policy (NIRP) and its Role in the Euro Area

FAIR Working Paper: CS/EURO/2025

Sriya Marellapudi

January 2025

THE NEGATIVE INTEREST RATE POLICY (NIRP) AND ITS ROLE IN THE EURO AREA

Sriya Marellapudi[1]

Introduction

Against the background of falling inflation and diminishing growth, several central banks have experimented with negative interest rates as a monetary policy stimulus. Low interest rates lead to falling returns on safe assets, diminishing technological progress as well as a higher demand for safe assets as compared to their supply. With policy rates approaching zero and it being perceived as the lower bound on interest rates, it made it difficult for central banks to introduce accommodative monetary policies in the light of falling inflation and expected inflation. The ZLB was believed to be the norm as households and firms might start storing cash instead of deposits to avoid devaluation. However, sticking to this lower bound meant that real interest rates could not be adjusted to encourage aggregate demand and reduce debt burden. There appeared to be a spare capacity in these economies with inflation targets not being met.

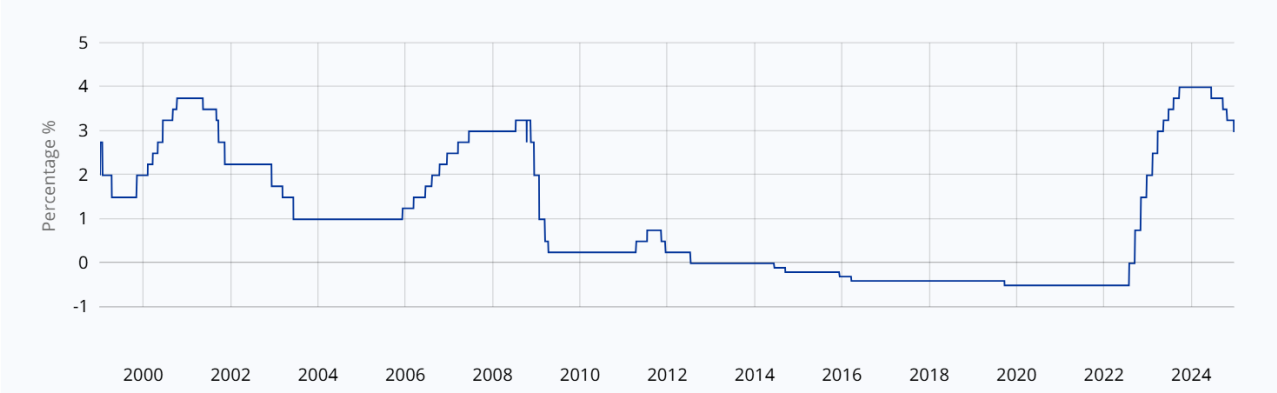
The European Central Bank (ECB) was the first major central bank to implement negative rates in June, 2014 in order to align with the ECB's price stability objective of bring inflation close to two percent in the medium run. The ECB, however, was not the only economy to implement negative rates. The Danmarks Nationalbank (DN), Bank of Japan, Swiss National bank (SNB), Norges Bank, Riksbank and the Hungarian National bank (Nemzeti bank) are some of the other central banks who implemented NIRP. In fact, these economies constitute roughly ¼ of the world's total GDP.

The objective behind implementing NIRP has, however, varied. The central banks of Japan, Euro area, Sweden and Hungary introduced negative rates to

[1] Master's student in Economics at IIT Madras; all views expressed in this paper are the author's and does reflect the views and opinions of the institutions she is affiliated to. sriyam3006@gmail.com

meet inflationary targets whereas the central banks of Denmark and Switzerland did so to combat currency appreciation.

Moreover, the central banks of Norway, Japan and Hungary also implemented NIRP only on the deposits of excess reserves with the central bank, with the repo rate and marginal lending rate remaining positive.



A look at the trend of policy rates in the Euro area from 2000-2024

Source: ECB Data Portal

Against the background of low inflation and low interest rates, removing the zero lower bound and implementing negative marginal policy rates can lower the real component too allowing for inflation expectations to rise and helping in boosting aggregate demand.

Why NIRP?

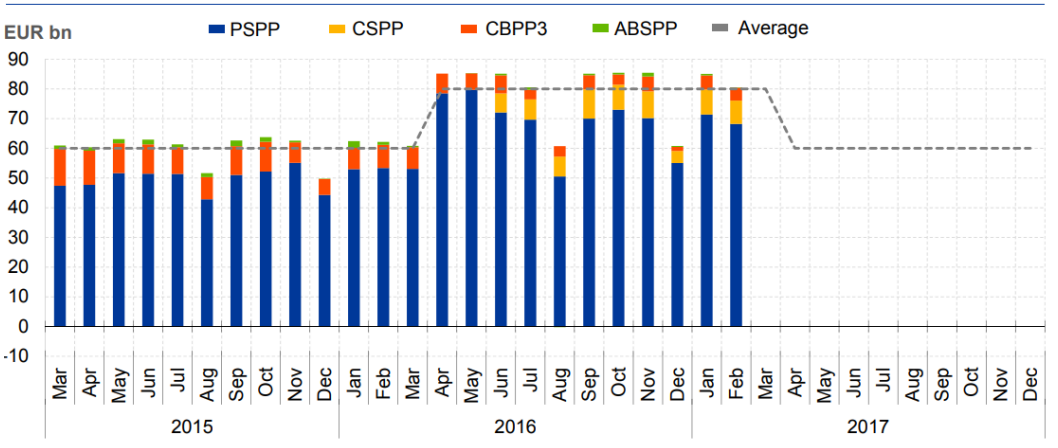
There are 3 major reasons why the limits to the zero lower bound constraint were removed and the NIRP was added to the existing menu of unconventional measures.

1. To facilitate the central bank in achieving its policy objectives: It is evident that central banks resolve to combat disinflationary risks and pursue an expansionary monetary policy through conventional measures. However, when these downside risks materialise, the ZLB imposes constraints on achieving these objectives. Thus, relaxing the non-negativity constraint and implementing NIRP shows a

commitment to undertaking additional measures to maintain these objectives.

2. To complement asset purchase programs and forward guidance measures: The transmission of NIRP is reinforced and supplemented by other tools in the present policy arsenal, including asset purchases, forward guidance, targeted longer-term refinance operations (TLTROs), and the two-tier scheme for reserve remuneration. The amount of surplus liquidity in the banking system is increased via asset purchases, which increases the pressure on individual banks to transfer their excess liquidity to other banks through asset acquisition. Uncertainty regarding the future trajectory of interest rates is decreased by forward guidance. By guaranteeing that banks may get funding at extremely low interest rates (down to the DFR), TLTROs assist in directing the ensuing decrease in funding costs toward new lending to businesses and people (apart from home purchases). The reserve compensation system's two tiers enable the accommodating effects of NIRP to be maintained while countering the impact on bank profitability due to excess liquidity holdings. Asset purchases by the ECB in fact have actually drawn down the pool of eligible assets. Asset purchases (mainly consisting of sovereign bonds) by the ECB amounted to about 80 billion euros a month up till March 2017.

APP monthly net purchases



Source: ECB

3. Diminishing returns from quantitative easing programmes: Studies have shown that the effectiveness of QE has been declining and that earlier QE programmes have generated larger impacts than more recent QE programmes, thus showing diminishing returns over time.

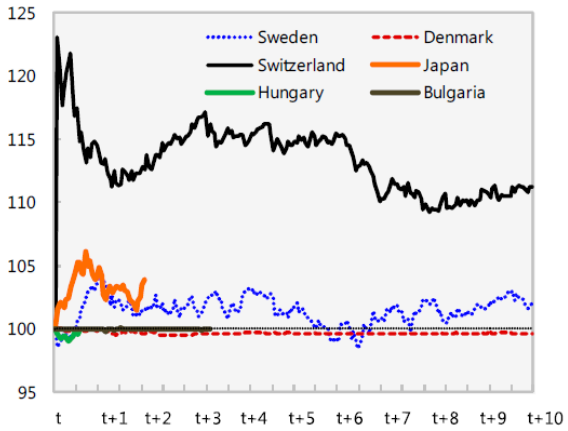
Transmission of monetary policy and its impact on key financial variables

1. Impact on interest rates: Cutting policy rates to negative changes the rates of borrowing and lending conducted by financial intermediaries. It especially effects bond yields and money market rates, which is talked about later in the paper. The introduction of negative policy rates leads to an array of rates to expand into negative territory. They also impact future rates. For example, penalizing banks for hoarding cash leads them to purchase debt securities which can lower long term yields.

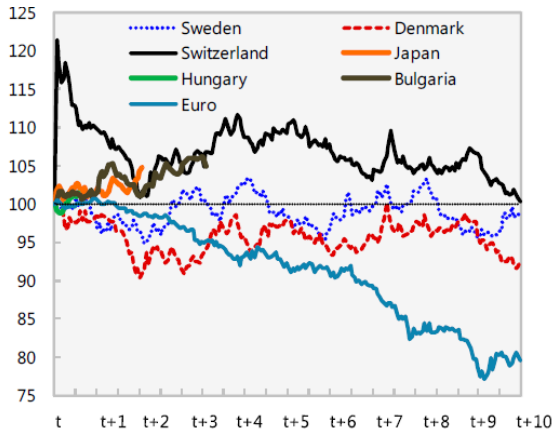
2. Portfolio rebalancing: The effect of NIRP could lead an excess demand to higher yield assets such as equities as well as assets with longer maturities. Although this compression of longer-dated asset yields also happens after policy rate cuts in positive territory, it is more noticeable when rates are below zero because some investors are especially reluctant to accept negative nominal returns, such as when they are obligated to give their final beneficiaries positive nominal returns. In the end, this puts additional downward pressure on the term premium. However, NIRP could also lead to distorted valuation of assets which poses the risk of asset price bubbles.

3. Credit expansion: With banks effectively being penalised for maintaining excess liquidity, there is more incentive to lend so as to offset the pressure on their profitability. Thus, banks too modify their portfolios towards loans or purchasing securities. This could however have an adverse effect if banks charge higher lending rates to recover any damage to profitability or are unwilling to lend due to a reduced capital base.

4. Does NIRP have an impact on exchange rates? : It has been observed that negative rates in fact have a minimal and muted impact on exchange rates. A deprecatory effect on exchange rates can be observed as capital moves out of the country to jurisdictions that produce higher yields. However, high inflation and inflationary expectations might counter this effect. Additionally, the negative rates also act as a boost to aggregate demand while also rising real asset prices, once again countering the depreciation effect. Another reason for the minimal impact on negative rates on exchange rates can also be attributed to the disinflationary trends present in these countries that prevent the real interest rates from declining further.



Exchange rates relative to Euro



Exchange rates relative to the dollar

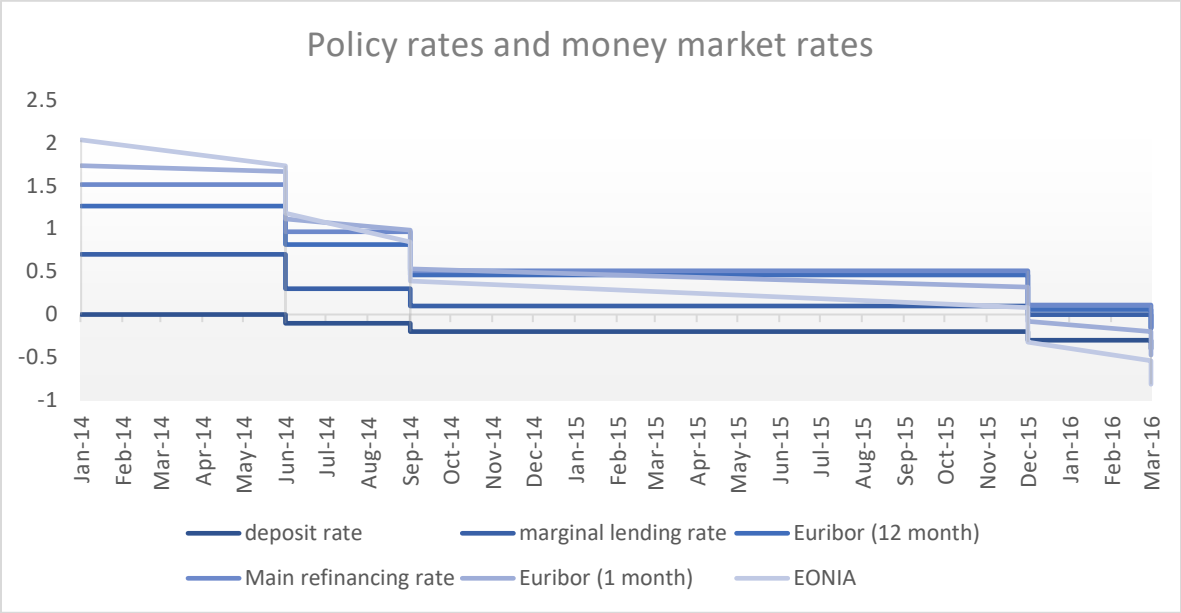
Index: t=100 is the day before the introduction of negative rates

(Source: Haver Analytics)

What has been the impact of NIRP on key financial variables?

The transmission of negative policy rates is usually reflected in money market, deposit and lending rates. Money market accounts are the securities that are invested which have a shorter maturity period of less than one year and are highly liquid. Following the announcement of NIRP, it is observed that the overnight, 1-month and 3-month money market rates decreased in all economies except Hungary. Negative money market rates have also acted as an incentive for investors to switch to longer term and risky assets.

Since banks use short-term interest rates as their primary benchmarks for determining the cost of loans to businesses and people, they are essential to the transmission of monetary policy in the euro area. Therefore, changes in the ECB's main interest rates must be promptly followed by changes in money market rates in order for monetary policy to be transmitted effectively. In the end, unsecured overnight rates like the euro overnight index average (EONIA) or the euro short-term rate (€STR) differ from the market rates that are most important for bank loan pricing.



Source: Plotting based on figures taken from the ECB data portal

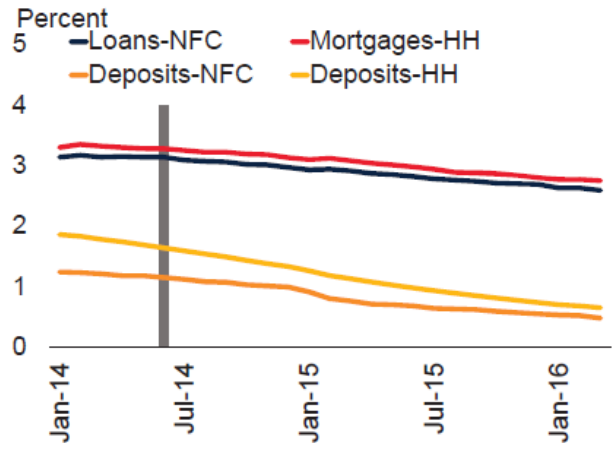
From the figure, we can see that the trend of the negative deposit facility rate (DFR) has been passed on to short term rates.

Overnight lending rates tend to fluctuate around the interest rate of main financing operations (MRO) when the central bank provides sufficient reserves to meet the reserve requirements in the banking system. However, in situations of excess liquidity, the overnight lending rates tend to fluctuate around the DFR. When the ECB pushed DFR rates below 0 in June, 2014, there was already excess liquidity of about 200 billion euros which led to short term rates fluctuating between the DFR and MRO rates. The EONIA can be seen fully tracing changes in DFR. Any reduction in DFR has been seen replicated by the various money market rates.

Some money market benchmark rates have fallen below the DFR as a result of banks' decreased demand for short-term liquidity in the money markets due to the surplus liquidity created by the ECB's unconventional actions. This illustrates that banks in the euro region have the alternative of putting their surplus liquidity in the deposit facility rather than lending it out on the open market. Because of this, unsecured interbank rates—like the EONIA historically—are based on ever lower trading volumes, yet they have managed to stay above the DFR.

The impact of negative rates has been reflected in lending rates but there is a reluctance on passing them on to deposit rates. Deposits can be classified into wholesale and retail deposits. Wholesale deposits refer to the deposits made by sole proprietors, legal entities or partnerships whereas retail deposits are those made by people. Retail deposits especially have a potential zero lower bound as households do not face the same setting up costs as businesses when it comes to storing cash. Due to retail deposits being a key source of funding for banks, there exists a downward rigidity of interest rates. When banks are unable to reduce their retail deposit rates, it is expected that they cannot reduce their lending rates too, so as not to diminish their profitability. However, NIRP had proven otherwise, especially in the Euro area. With increasing competition amongst banks and a higher proportion of variable rates and shorter lending maturities, lending rates have fallen to levels below policy and wholesale funding rates.

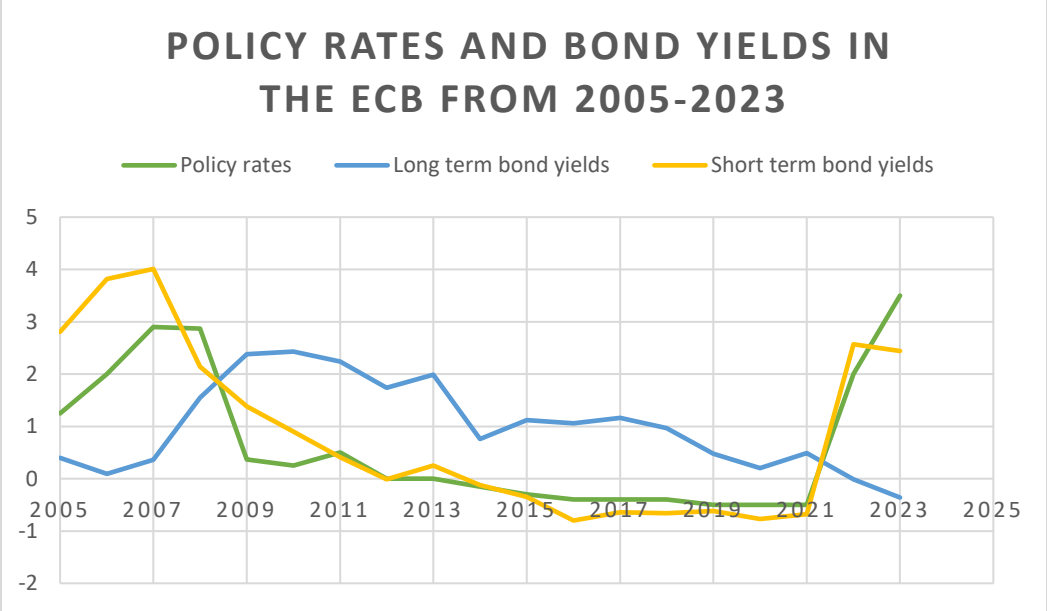
Deposit and lending rates



Source: ECB

Transmission of negative rates to bond yields

NIRP has led to a downward shifting yield curve. There exists an inverse relationship between interest rates and bond prices. The bond yield is essentially the coupon rate of the bond. The amount of interest rate paid on a bond is fixed throughout the life of the bond thus the coupon of a bond never changes although prevailing interest rates change. The relationship between the coupon and the current price of the bond gives us the bond yield. When interest rates rise, the price of existing bonds fall, causing the yield to go up. When interest rates fall, the price of existing bonds increase with a simultaneous decrease in their yield. Consistent with the above, the yield curve has shifted downward in all the NIRP economies.



Source: Plotting based on figures from the ECB data portal

While corporate bond yields fell and equities prices increased, the DFR's overall reduction of 50 basis points from June 2014 to the end of 2019 was accompanied by a sharp decline in sovereign bond and swap rates across maturities. In addition to shifts in the present and anticipated ECB policy rates, a variety of other factors have affected bond yields across maturities. Long-term rates, for example, also take into account risk premia, which are influenced by a variety of variables, including global risk factors and other policy actions, such as asset purchases.

How has NIRP affected bank profitability

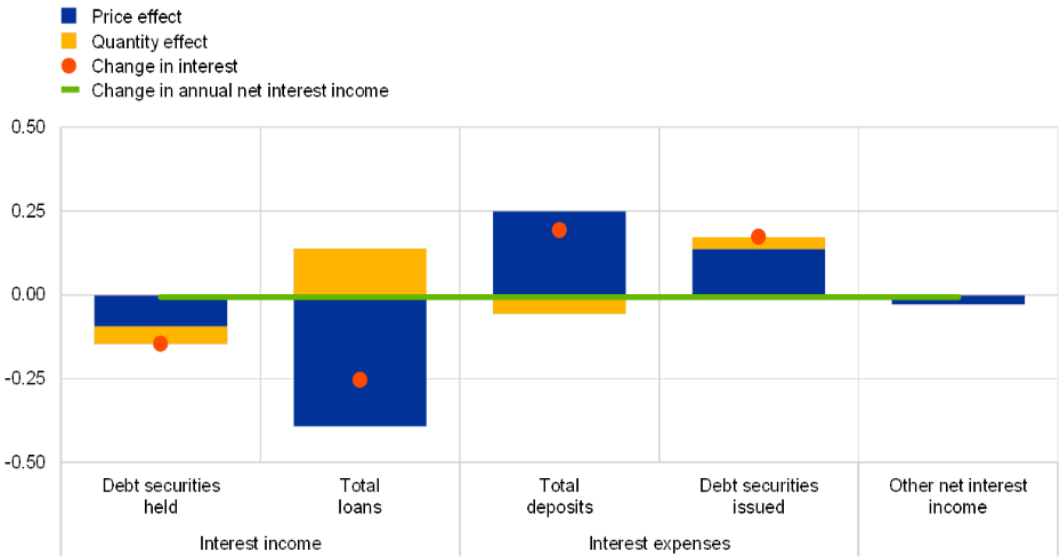
As discussed earlier, with retail deposits forming the bulk of deposits with commercial banks, the deposit rates are downward sticky and hence do have a zero lower bound rendering the banks incapable of passing negative rates to depositors. Net interest margin rates are the defined as the difference between deposit rates and lending rates. When the decline in lending rates is not met by a commensurate decline in deposit rates, there exists a pressure on the profitability of banks. Studies show a positive relationship between short-term interest rates and bank profitability, with bank profitability taking an adverse hit in a low interest environment. The effect of closing net interest margins on bank profitability depends on the volume of wholesale and retail deposits as well as their ability to raise bank fees and divert to other income-generating activities. A modest plunge into the negative territory for interest rates does not have a big impact on bank profitability.

It has however been observed that negative rates in fact have both a positive as well as a negative impact on bank profitability, with the end result being an empirical question. Banks usually undergo a maturity transformation by obtaining funds at shorter maturities than they lend which further squeezes their net interest margins. However, NIRP also leads to the increase in prices of financial long-term and risky assets and can support bank profits through its impact on asset valuations. Higher intermediation volumes result from the policy's beneficial effects on macroeconomic conditions, which sustain net interest income. Additionally, the better economic outlook and lower interest rates increase borrower creditworthiness, which lowers loan loss provision costs. Banks see (temporary) financial gains as a result of the NIRP-driven declines in rates, which are mirrored in an increase in the value of the securities they own.

In fact, in the Euro area, net interest margins have not had much of an impact on bank profitability as they have been offset by higher intermediation volumes. Based on real changes in interest rates and volumes, decreased interest costs on deposits and debt securities issued have balanced the decline in income from loans and securities. The changes in these interest rates are reflected by the circle in the figure below. On the liability side, the

money holding sector increased their deposits as a result of the APP's infusion of liquidity, making this financing source more significant for banks. At the same time, net interest revenue was supported by reduced interest rates on issued debt instruments and deposits.

Changes in net interest income after the introduction of NIRP



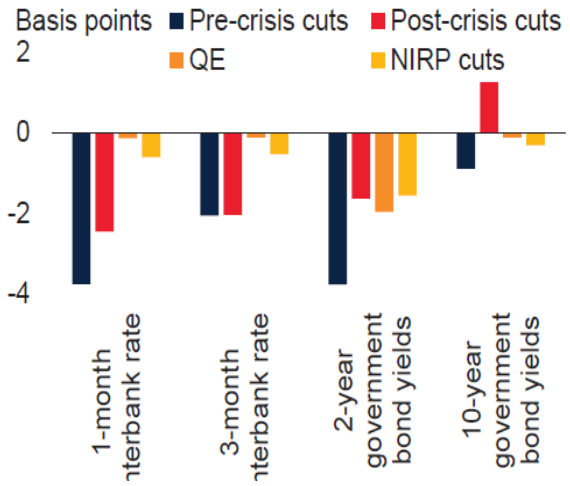
Source: ECB and ECB calculations

It is agreed that a persistent state of negative interest rates will have an adverse impact on bank profitability. The ECB took varied measures in mitigating this risk through its Asset Purchase Programs as well as the Targeted Long-Term Refinancing operations (TLTRO) which let banks borrow at zero or even negative rates conditional on them expanding it in the form of credit to the private sector.

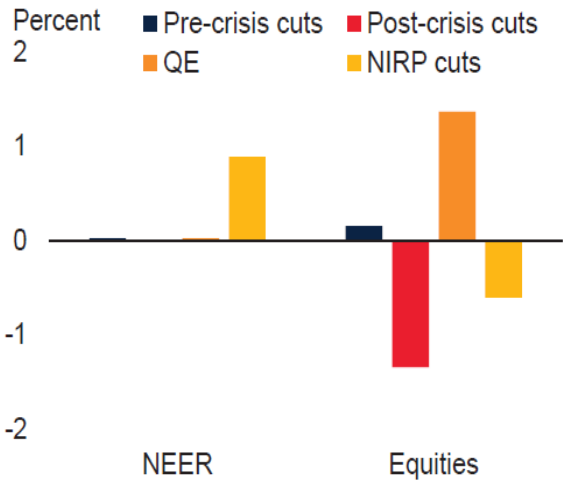
Comparison of NIRP with other monetary policies in the euro area

We can compare NIRP with quantitative easing and conventional monetary policy cuts in the Euro area. An event study was conducted comparing the NIRP measures to policy cuts in the 2000s. When compared with policy rate cuts of the early 2000s, it was observed that the cuts in money market rates and bond yields was smaller in the introduction of NIRP, mainly seen in the

cut of marginal refinancing operation (MRO) rates by 25 basis points and deposit rates by 40 basis points.



Money market rates and bond yields



Exchange rates and equities

Sources: Bloomberg, Haver Analytics

In the above diagrams, pre-crisis cuts include 7 cuts to the MRO rates from 2001-2003 and post-crisis cuts include 12 cuts to the MRO rates from 2008-2013. The quantitative easing measures include 9 expansions to the securities market, asset purchase program, the covered bond purchase program, the corporate sector purchase program etc.

The aftermath of the global financial crisis the euro area debt crisis was succeeded by a significant decrease in short term interest rates. The initial market reaction of NIRP is consistent with interest rate cuts in the positive territory.

How are emerging market and developing economies (EMDEs) affected by the NIRP?

As central banks undertake more unconventional monetary policies such as NIRP, we can see a shift towards riskier and higher yielding assets, including capital flow towards EMDEs. Event studies have shown that the responses of EMDE assets is consistent with expectations. On the day of announcement,

EMDE currencies appreciated, bond spreads shrank and equity prices rose. Additionally, the average effect on EMDEs is directionally consistent with earlier projections for major central banks' QE strategies. While financial stability issues may combine with internal vulnerabilities to cause interruptions in capital inflows to EMDEs, NIRP and other unconventional monetary policies in advanced countries may have immediate beneficial impacts on EMDE financial circumstances. To effectively lessen the effects of erratic capital flows, EMDEs should reestablish the required policy buffers and put measures in place.

Conclusion

Negative rates have so far had a positive outcome for the economy. The lowering of the deposit rate has led to banks shifting to riskier assets for excess reserves thus supporting the ECB's asset purchasing program in its portfolio rebalancing channel. With money market rates following the trend of deposit rates, it has strengthened the ECB's objective of keeping policy rates low in order to achieve price stability. Credit volumes have also changed with lower lending rates and the concerns regarding bank profitability have not materialized in the Euro area.

NIRP involves a trade-off between boosting aggregating demand and mitigating any effects to bank profitability. Future monetary accommodation may be contingent on additional ECB balance sheet expansion and credit easing policies. Prioritizing asset acquisitions would increase aggregate demand and asset values, while also assisting the bank lending system. More broadly, structural measures to enhance aggregate demand moving forward and more centralized fiscal policy assistance would also be advantageous for future easing.

References

Arteta, C., Kose, M. A., Stocker, M., & Taskin, T. (2016). Negative interest rate Policies: sources and implications. In *World Bank, Washington, DC eBooks*. https://doi.org/10.1596/1813-9450-7791

Jobst, A., & Lin, H. (2016). Negative Interest Rate Policy (NIRP): implications for monetary transmission and bank profitability in the euro area. *IMF Working Paper*, *16*(172), 1. https://doi.org/10.5089/9781475524475.001

Kamber, G., Meeks, R., & Brandao-Marques, L. (2021). *Negative interest rates: Taking stock of the experience so far*. https://www.elibrary.imf.org/view/journals/087/2021/003/article-A001-en.xml

Boucinha, M., & Burlon, L. (2020). Negative rates and the transmission of monetary policy. *ECB Economic Bulletin*, *3*(3/2020). https://ideas.repec.org/a/ecb/ecbart/202000032.html

European Central Bank. (2024, December 12). *Official interest rates*. https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html

Euro area yield curves | ECB Data Portal. (n.d.). https://data.ecb.europa.eu/publications/financial-markets-and-interest-rates/3030672

Claanen, & Claanen. (2024, December 18). *Yield curve responses to introducing negative policy rates - San Francisco Fed*. SF Fed. https://www.frbsf.org/research-and-insights/publications/economic-letter/2019/10/yield-curve-responses-introducing-negative-policy-rates/

Back to basics: What are negative interest rates? – IMF F&D. (2020, March 1). IMF. https://www.imf.org/en/Publications/fandd/issues/2020/03/what-are-negative-interest-rates-basics