

How to cite this paper:

Gunther Schnabl and Nils Sonnenberg, With a Carrot and a Stick: The Effects of the European Central Bank's Negative Interest Rate Policy on the Banking System, Austrian Institute Paper No. 40-EN (2021)



AUSTRIAN
INSTITUTE
ECONOMICS & SOCIAL PHILOSOPHY

Austrian Institute Paper

No. 40-EN / 2021

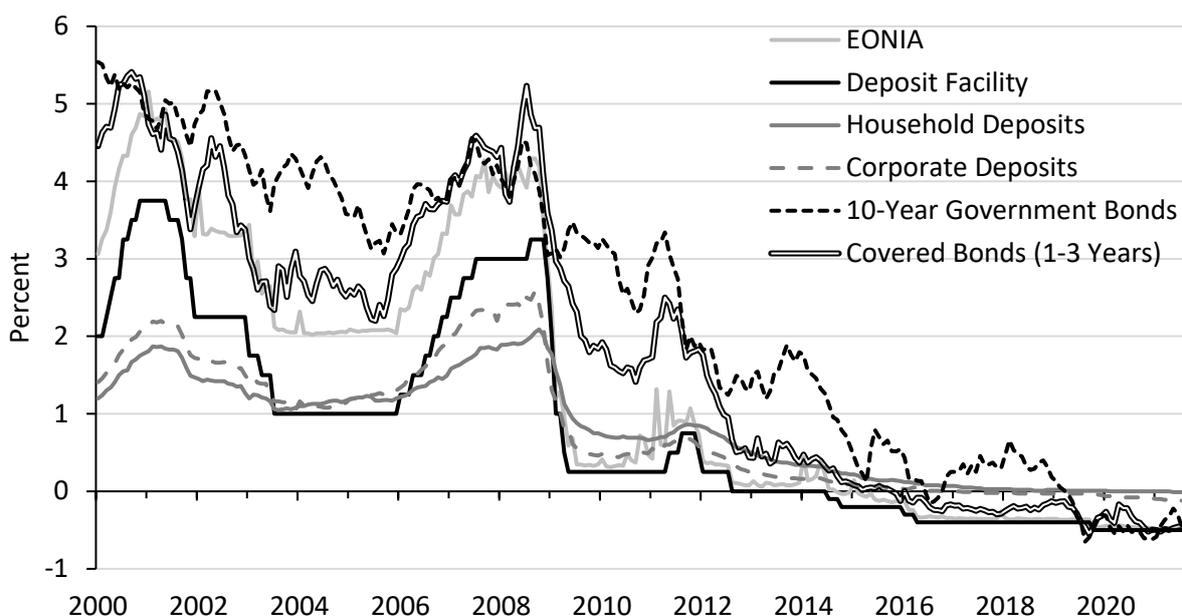
Gunther Schnabl and Nils Sonnenberg

With a Carrot and a Stick: The Effects of the European Central Bank's Negative Interest Rate Policy on the Banking System

While the U.S. central bank, the Fed, is in the process of cautiously scaling back its extensive bond purchases and may even raise interest rates in 2022, the European Central Bank (ECB) remains hesitant. Similarly, the Fed has used so-called reverse repurchase agreements to prevent money market rates from falling below zero, while the ECB has

pursued a negative interest rate policy. It has pushed the money market interest rate (EONIA) into negative territory. Also, the interest rates on government bonds of some euro area countries, along with the interest rates on bank deposits of an increasing number of depositors have become negative (fig. 1, Schnabl and Sonnenberg 2021).

Fig. 1: Interest Rates in Germany



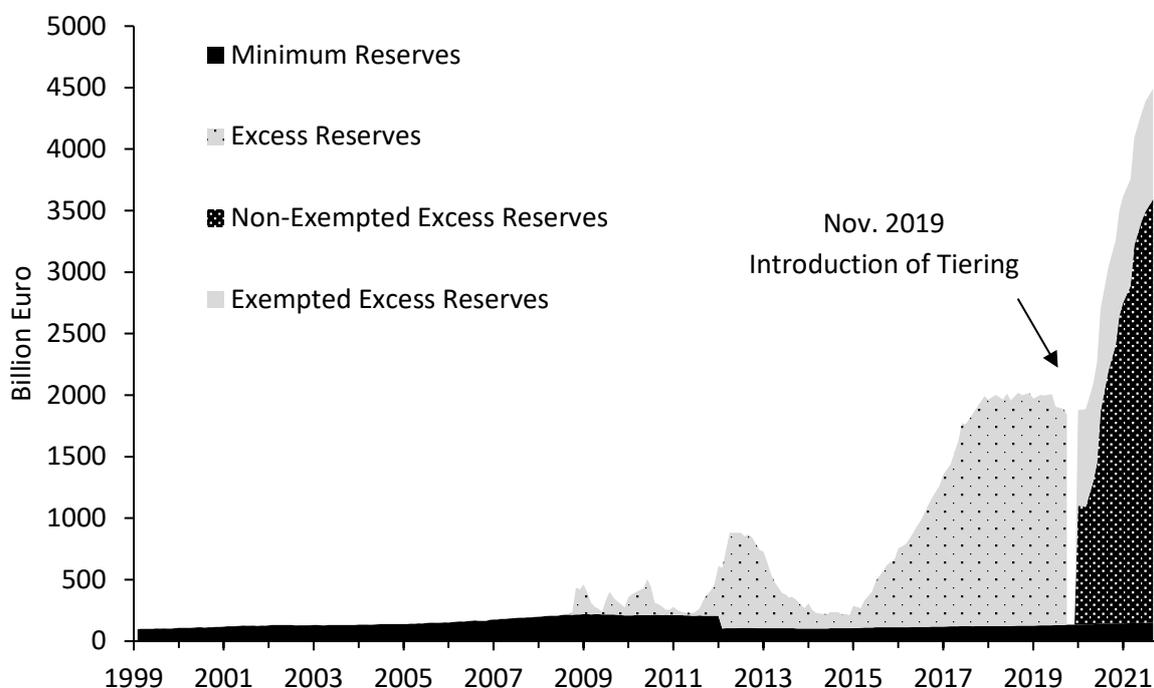
Source: ECB, Deutsche Bundesbank, Refinitiv.

Negative Interest Rates on Excess Reserves

At the beginning of the ECB's—or more precisely the Eurosystem's¹—negative interest rate policy there was a strong increase in commercial banks' excess reserves at the ECB (fig. 2). In the wake of the European financial and debt crisis, since 2010 the ECB has been buying assets—especially government and corporate bonds—on a large scale. Since gov-

ernment bonds may not be purchased directly from sovereign states, the ECB has purchased them from banks and credited the equivalent value to the banks' accounts at the ECB. The stock of government bonds on the ECB's balance sheet has grown to approximately €3.7 trillion. In addition, the ECB's longer-term refinancing operations, which can rise to as much as €3.3 trillion, have also increased banks' balances with the ECB.

Fig. 2: Commercial Banks' Deposits with the Eurosystem



Source: ECB. Non-exempted excess reserves defined as excess reserves minus allowances in the course of tiering (exempted excess reserves).

In June 2014, the ECB set the deposit facility interest rate, which is levied on excess reserves, into negative territory for the very first time at -0.1% and gradually lowered it to -0.5% (fig. 1). Annual interest payments by

commercial banks to the ECB have increased from €3.3 billion in 2016 to €15 billion so far in 2021 (Jan-Sept), according to our estimates (fig. 3). In total, according to our estimates, €48 billion in “penalty interest” has been paid

¹ This consists of the ECB and the 19 national central banks of the euro area, which implement the

ECB's monetary policy with regard to the commercial banks in the respective countries.

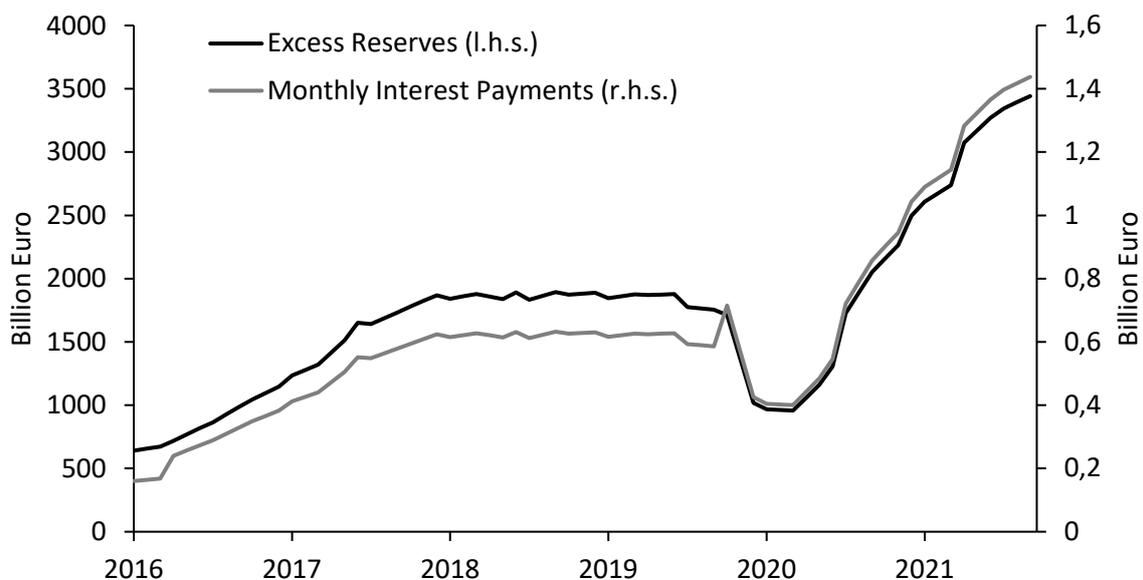
to the ECB by commercial banks in the euro area since 2016.

Negative Interest Rates on Refinancing Operations

In addition, the so-called Targeted Longer-Term Refinancing Operations (TLTROs) were introduced in the wake of the European financial and debt crisis (Schnabl and Sonnenberg 2020). For the sake of economic stabilization,

banks and companies were provided with additional favorable credit lines via this route. Until mid-2016, commercial banks still had to pay interest for refinancing with the ECB. Since then, a negative interest rate has been charged, which acts like a subsidy for the banks. The interest rate was most recently -0.5% to -1%.² According to our estimates, commercial banks' income from TLTRO borrowing has risen from €1.8 billion in 2016 to around €20 billion so far in 2021 (Jan. - Sep.) (fig. 4).

Fig. 3: Commercial Banks' Excess Reserves and Monthly Interest Payments to the ECB



Source: ECB. Excess reserves defined as deposits of commercial banks with the Eurosystem minus minimum reserves and allowances in the course of the tiering process (see fig. 2).

Commercial banks' deposits at the ECB are only partly voluntary, as the excess reserves are to a large extent the result of the ECB's ex-

tensive bond purchases. Individual banks can hardly reduce the deposits on their accounts at the ECB. Additional lending does convert a

² Information on how the interest rate is determined can be found [here](#) and [here](#). The calculation appears to be very complex. The tendency is to

incentivize banks to maintain existing loans to enterprises and to make additional loans.

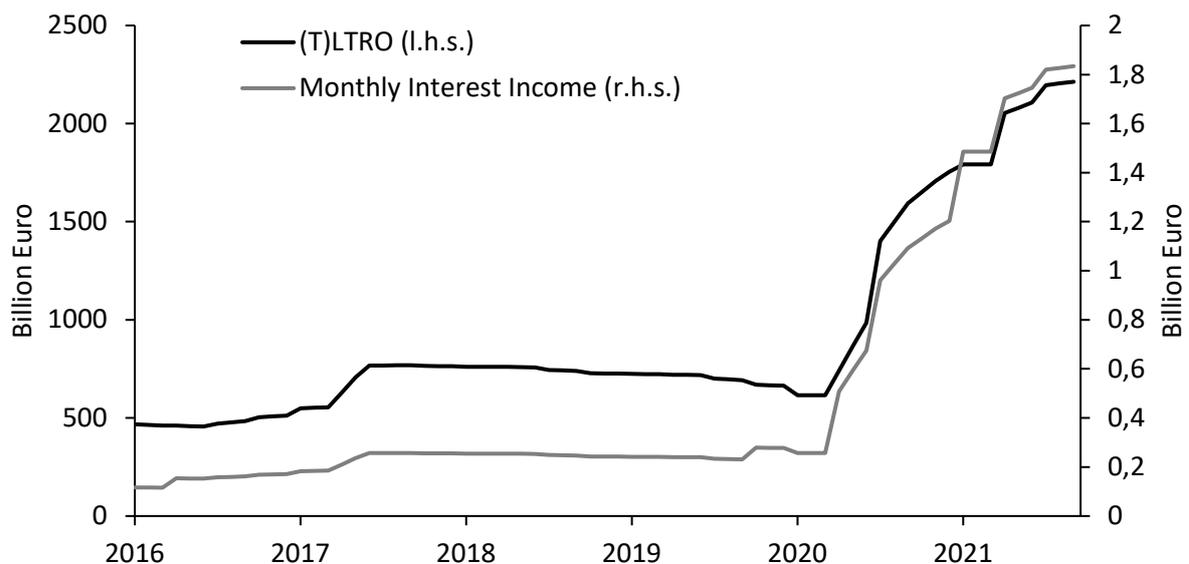
small share of excess reserves into minimum reserves, but the credit demand is limited.³

Although banks can exchange their claims for cash,⁴ the ECB has significantly increased the cost of holding cash by ending the issuance of the 500-euro-note.

However, the ECB has reduced the burden of the negative interest rate on the deposit facility through two channels. First, so-called tiering was introduced in November 2019, which exempts excess reserves from negative interest rates in the amount of six times a bank's

minimum reserves (fig. 2).⁵ In addition, the volume of TLTRO loans was expanded from €466 billion in January 2016 to a level of around €2.2 trillion in October 2021 (fig. 4), while at the same time the negative interest rate on TLTRO loans was lowered to a maximum of -1%. According to our estimates, banks in the euro area have thus received (at maximum) interest of €40 billion from the ECB so far since 2016. This has reduced the net negative interest burden on the deposit facility to around €8 billion for the period from January 2016 to September 2021.

Fig. 4: Outstanding TLTRO Loans and Banks' Monthly Interest Income from the ECB



Source: ECB and own calculations.

Distribution Effects

Although the burdens for the banking sector in the euro area are thus increasingly moderate

and the negative interest rate policy may even generate profits in the aggregate, there are distribution effects between the banks. The balances of the TARGET2 payment system

³ Regulation related to capital and liquidity also works against a reduction in excess reserves through higher lending.

⁴ Indeed, banks' cash holdings have risen sharply since 2015.

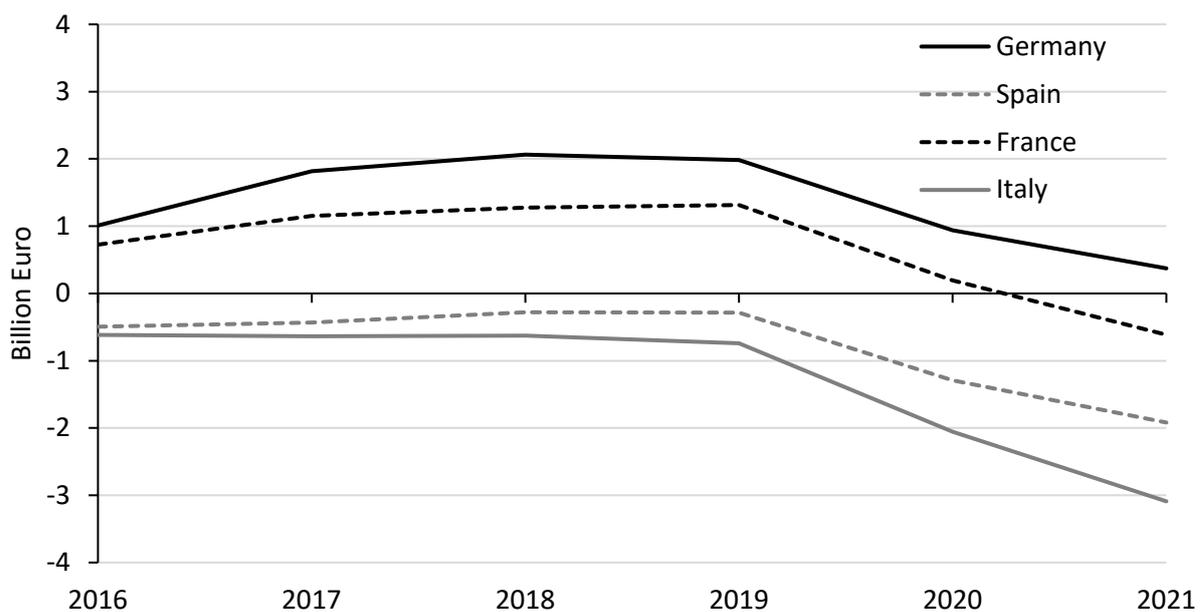
⁵ The ECB followed a similar decision made by the Bank of Japan, which largely neutralized the burden on Japanese commercial banks by imposing a negative interest rate of -0.1% on their deposits with the Bank of Japan.

indicate that private capital has flown from the southern part of the euro area to the north since the outbreak of the European financial and debt crisis (Sinn 2020). Moreover, the Eurosystem's bond purchases have increased commercial banks' deposits with the Deutsche Bundesbank more than with the central banks of the southern euro area. The corresponding interest burdens on excess reserves are therefore higher for commercial banks in the northern euro area than for those in the southern euro area.

Figure 5 shows our estimates of the annual net interest payments to the Eurosystem of the commercial banking sectors of the four largest

euro area countries. On an aggregate basis, German and French commercial banks have paid more negative interest to the Eurosystem since 2016 than they have received negative interest. By contrast, the commercial banks of Spain and Italy have received more negative interest than they have paid negative interest. In total, the “net penalty interest” since 2016 amounts to €8.18 billion for the German banking system and €4.04 billion for the French banking system (fig. 5). The “net interest subsidies” since 2016 are €7.77 billion for the Italian banking system and €4.70 billion for the Spanish banking system.⁶

Fig. 5: Net Interest Balance of National Commercial Banking Sectors with the ECB.



Source: ECB. Annual net interest payments to the ECB (own calculations).

On the other hand, there are indications of distribution effects within the countries, which depend on the business model of the

respective banks. This is apparent for instance with the German banks. Both large banks and regional banks (e.g., savings banks and credit

⁶ Branches of foreign banks operating in the relevant national banking systems are included in the national banking systems.

unions) have seen a sharp rise in deposits with the ECB in the wake of the unconventional monetary policy, so that no clear differences can be identified in this area.

On the interest expenditure side, however, there are differences due to the financing structures. In the case of the savings banks and credit unions, the lending business is largely financed by deposits. Deposits are often higher than the volume of lending. In contrast, the large banks such as Deutsche Bank or Commerzbank have in the past also refinanced themselves by issuing bonds. The large banks were able to replace positive-interest refinancing on the capital market with negative-interest refinancing at the ECB (Barbiero et al. 2021). Since 2015 the ECB has also pushed the interest rate of covered bonds issued by banks on the capital market into negative territory (Fig. 1), albeit the rate is still less favorable as the one from the TLTROs.⁷ In total this has brought significant interest savings for the respective banks.⁸

Conclusion

The ECB is thus acting with both a stick and a carrot vis-à-vis the commercial banks in the euro area. On the one hand, the extensive bond purchases drive up commercial banks' deposits with the ECB and negative penalty interest rates are imposed on these deposits. This weakens the profitability of banks. At the same

time, the ECB strengthens banks by enabling TLTRO lending. However, the most favorable TLTRO-rate (-1%) is dependent on the condition that the banks pass on the ECB's loans to companies.

This allows the ECB to implement policy objectives with the help of commercial banks. Our analysis suggests that, with the help of the negative interest rate policy, banks from the southern euro area have tended to be supported, and banks in the northern euro area (including France until 2020) have been burdened. Moreover, in Germany, large banks, which have been severely affected by the global financial and debt crisis, appear to have been propped up.

The redirection of capital flows could be further expanded in the future. ECB President Christine Lagarde (2021) advocates a green monetary policy, which could herald preferential lending to “green companies.” What constitutes green investments could be determined by the taxonomy which the European Commission (2021a, 2021b) is currently developing. For some time now, the ECB's influence has been growing as it undermines the private capital market with negative interest TLTRO loans. The ECB's negative interest rate policy could thus herald that the allocation of loans in the common capital market will be even more controlled by the ECB in the future. ■

⁷ In addition, covered bonds are also purchased under the Asset Purchase Program (APP).

⁸ Bank customers usually do not accept negative interest rates for legal and economic reasons or

evade them—e.g., by holding cash. Therefore, the interest rate on bank deposits is higher than the TLTRO interest rate.

Literature

Barbiero, Francesca / Boucinha, Miguel / Bur-lon, Lorenzo, 2021. "TLTRO III and Bank Lending Conditions." *ECB Economic Bulletin* 6/2021.

European Commission, 2021a. "A European Green Deal. Striving to Be the First Climate-Neutral Continent."⁴⁴

European Commission 2021b. "EU Taxonomy for Sustainable Activities. What the EU Is Doing to Create an EU-Wide Classification System for Sustainable Activities."

Lagarde, Christine (2021): "Climate Change

and Central Banks: Analysing, Advising and Acting." Speech by Christine Lagarde, President of the ECB, at the International Climate Change Conference in Venice. Venice, 11 July 2021.

Schnabl, Gunther / Sonnenberg, Nils (2020). "The (T)LTRO-Tracker." *Mimeo.*

Schnabl, Gunther / Sonnenberg, Nils 2021. "Negativzinsen und die schöne neue Kreditwelt der EZB." *Wirtschaftliche Freiheit* 9.10.2021.

Sinn, Hans-Werner (2020). *The Economics of Target Balances: From Lehmann to Corona.* Palgrave-Macmillan, Basingstoke.

* * *

Translation from German by Thomas and Kira Howes.



About the authors:

Gunther Schnabl is a Professor of Economic Policy and International Economic Relations at the University of Leipzig, where he directs the Institute for Economic Policy. He received his doctorate and habilitation from the University of Tübingen, and his doctoral research focused on current account imbalances and monetary integration in East Asia and Europe. He has been a visiting scholar at Stanford University, the Catholic University of Leuven, Pantheon-Sorbonne University, the Deutsche Bundesbank, the Bank of Japan, the Federal Reserve Bank of New York, and the European Central Bank. Before his appointment to the University of Leipzig, he worked as an advisor at the European Central Bank.

Schnabl's writings on monetary integration, exchange rate policy, current account imbalances, and boom-and-bust cycles in financial markets have been published in many international peer-reviewed journals. In the rankings of the international scientific database IDEAS, he is ranked in the top 3 percent of economists in Germany and Europe. The *Frankfurter Allgemeine Zeitung* ranks him among the 100 most influential economists in the German-speaking world.

Schnabl is co-editor of *Ordo – Jahrbuch für die Ordnung von Wirtschaft und Gesellschaft*.

Nils Sonnenberg is a research fellow at the Institute for Economic Policy at the University of Leipzig. As a doctoral student at the University of Leipzig, he participates in the Central-German Doctoral Program in Economics (CGDE) and is currently an Adam Smith Fellow at the Mercatus Center at George Mason University. His research interests include the analysis of the economic order in which financial cycles arise. The focus of his work is on applications of dynamic market process economics and the analysis of political economy with respect to regulatory, monetary, and fiscal policy interventions. Nils Sonnenberg holds a Master of Science in Economics from the University of Muenster. His academic education was supplemented by studies abroad in Buenos Aires and Bilbao.

How to cite this paper:

Gunther Schnabl and Nils Sonnenberg, With a Carrot and a Stick: The Effects of the European Central Bank's Negative Interest Rate Policy on the Banking System, Austrian Institute Paper No. 40-EN (2021)

Original version (online) and Download of the Working Paper:

<https://austrian-institute.org/en/blog/with-a-carrot-and-a-stick-the-effects-of-the-european-central-banks-negative-interest-rate-policy-on-the-banking-system>

© Gunther Schnabl and Nils Sonnenberg, 2021

© Austrian Institute of Economics and Social Philosophy, Vienna, 2021