

Dual interest rates and the transmission of monetary policy*



By Francesca Barbiero (ECB), Lorenzo Burlon (ECB), Maria Dimou (ECB), and Jan Toczyński (University of Zurich and Swiss Finance Institute)

Keywords: unconventional monetary policy, dual interest rates, bank lending, risk-taking.

JEL codes: E51, E52, G01, G21.

The recent experience in the euro area with dual interest rates, that is, central bank funding at rates below the level at which central bank reserves are remunerated, showed that such a tool can constitute a new form of monetary accommodation. On top of supporting bank credit, central bank funding with dual interest rates enables an easing of bank lending conditions without the increased risk appetite that a standard rate cut might bring about, especially if considered after a prolonged period of low or negative interest rates.

Introduction

Whether a low monetary policy rate spurs excessive risk-taking by banks is a much debated question in academic and policy circles since the start of the Global Financial Crisis (Dell’Ariccia, Laeven, Marques, 2011). While the impact of a monetary policy easing sustains bank profits even in a low interest rate environment via larger intermediation volumes and lower provisioning costs (Altavilla et al., 2018; Rohde, 2021), a prolonged period of low or even negative policy rates may compress banks’ profit margins if banks were not able to lower deposit rates below their effective lower bound (Brandao Marques et al., 2021). This could in turn either reduce the room for maneuver for further monetary policy accommodation (Brunnermeier and Koby 2019) or raise financial stability concerns as banks try to recoup intermediation margins by lending to increasingly riskier borrowers (Bubeck et al., 2020).

*Disclaimer: This paper should not be reported as representing the views of the European Central Bank (ECB). The views expressed are those of the authors and do not necessarily reflect those of the ECB.

Funding for lending schemes by central banks may partially compensate for the challenges brought forth by a prolonged low interest rate environment (Minenna, 2019). The euro area version of such schemes, the so-called targeted longer-term refinancing operations (TLTROs), are an example of this design in action. The second series of TLTROs (TLTRO II) launched in 2016 leveraged on the negative interest rate policy (NIRP) by setting the lowest rate at which banks could obtain the funds, subject to conditions related to their lending performance, equal to the rate at which excess reserves are remunerated (the deposit facility rate, DFR, at that time -0.4%), thus shielding banks from excessive pressure on their margins (Rostagno et al. 2021). Similarly, the lowest borrowing rate under the third series of the operations (TLTRO III) launched in 2019 was indexed to DFR (which was lowered again to -0.5% at the inception of the programme). Yet, the fire power of the scheme was greatly increased with the adoption of so-called 'dual interest rates', that is, central bank funding with an interest rate *below* the interest rate on reserves (Lonergan, 2020; The Economist, 2020).

In a new paper (Barbiero et al., 2022), we look at the experience of TLTRO III during the pandemic, which offered an unprecedented example of dual interest rates on a large scale. We find that central bank funding with dual interest rates enables an easing of bank lending conditions without the increased risk appetite that a standard rate cut might bring about, especially if considered after a prolonged period of low or negative interest rates.

At the height of the COVID-19 pandemic, the TLTRO tool was recalibrated to further support the continued access of firms and households to bank credit (Altavilla et al., 2020). Crucially, the interest rate charged on borrowed funds could reach a minimum of 50 basis points *below* the DFR, which was well below the cost of any alternative funding source at the inception of the pandemic. The new design led to the largest liquidity injection in the history of the ECB and provided a large reduction in funding costs for euro area banks.

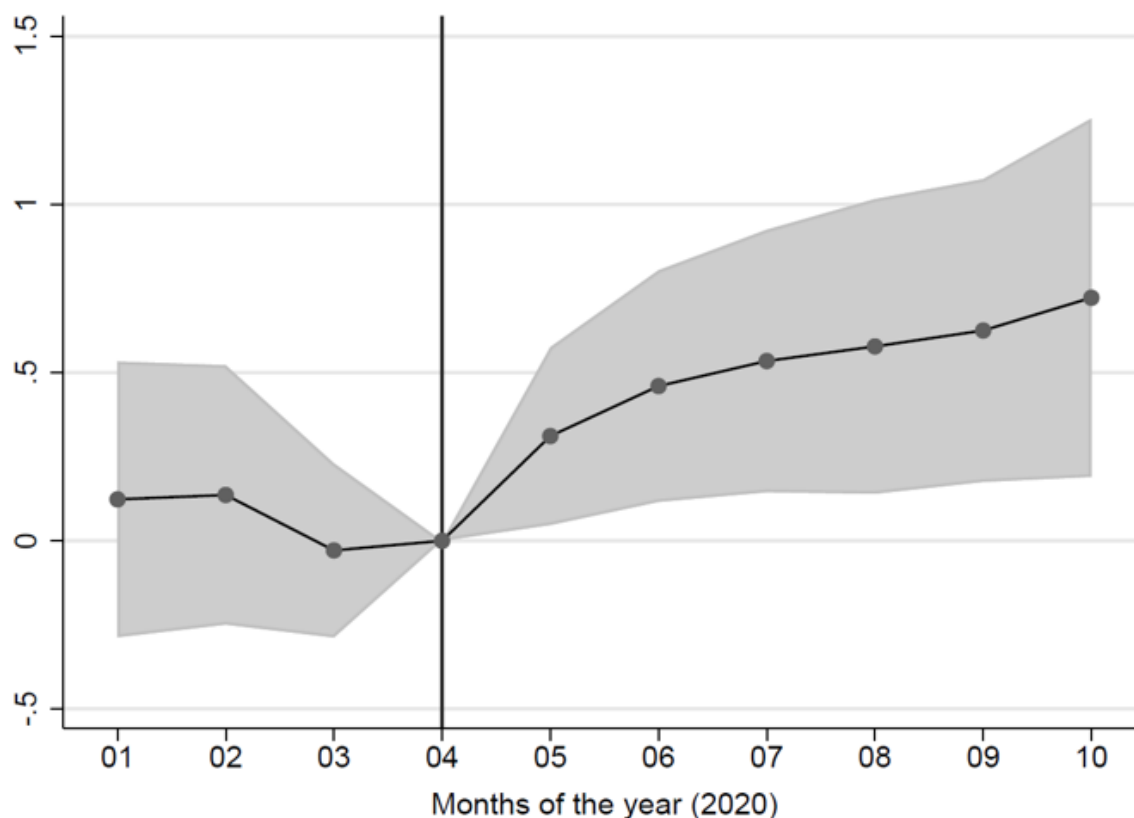
In the paper, we address two questions. First, we ask whether the recalibrations of the TLTRO interest rate to levels potentially below the remuneration of central bank reserves generated an increase in the supply of bank credit. Second, we investigate whether the policy affected the qualitative composition of this credit. To the best of our knowledge, this is the first paper that illustrates empirically the potential of a new form of monetary accommodation associated with dual interest rates.

Empirical results

We exploit the unexpected recalibration of the programme announced on 30 April 2020, which reduced the interest rate charged on borrowed funds to a minimum of 50 basis points below the deposit facility rate (DFR).¹ We measure exposure to the policy using high-frequency bank bond yield reactions, which are an effective proxy of the bank funding cost relief conveyed by the policy. Central to our analysis is transaction-level information from the euro area credit register (AnaCredit), which allows us not only to disentangle credit supply and demand, but also to control for the riskiness underlying each credit contract.

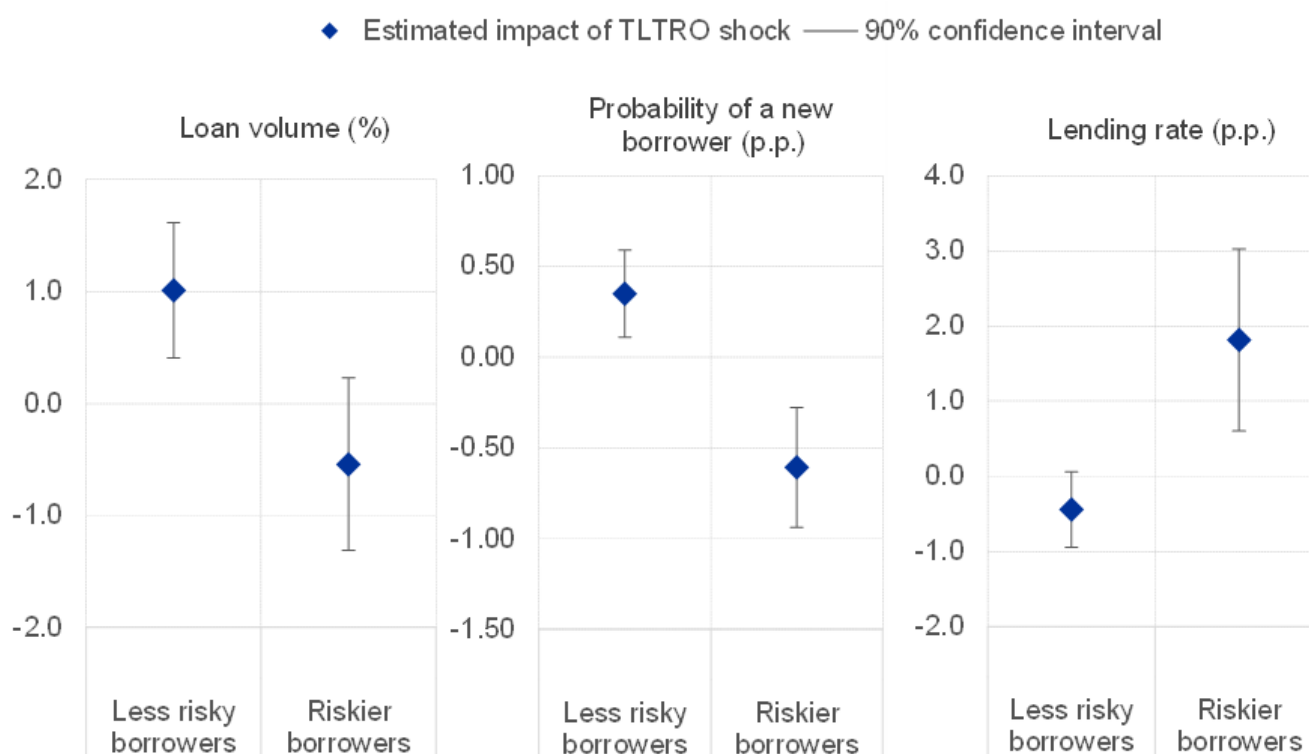
The first empirical question relates to the effectiveness of central bank funding in stimulating bank credit. Recent work has highlighted the relevance of TLTROs and their targeting feature for sustaining the flow of credit to households and firms and for reducing fragmentation (e.g. Boeckx et al. 2020; Altavilla et al. 2020; Benetton and Fantino 2021). We find that the funding cost relief coming from the recalibration of TLTROs had a strong positive effect on bank credit provision during the COVID-19 crisis, helping to sustain economic activity. Exposure to the TLTRO shock is associated with a gradual increase in credit growth after the announcement and is robust to the inclusion of bank and firm characteristics (see **Figure 1**). Our baseline model shows that a standard deviation in the exposure to the funding cost relief coming from TLTROs translated into an impact on loan growth of around half of the actual lending registered over the six months after the announcement of the policy measure.

¹ See the [ECB press release on 30 April 2020](#).

Figure 1: Impact of TLTRO shock on credit growth

Notes: The figure reports the coefficients resulting from regressions of credit growth on TLTRO shock. TLTRO shock is defined as a one-day change in volume-weighted bank bond yields (in percentage points per annum) around the TLTRO III recalibration announcement of 30 April 2020. The reported coefficients represent the effect at different horizons. The grey-shaded areas report 95% confidence intervals with standard errors clustered at the bank level.

The second question relates to whether the TLTRO policy affected the qualitative composition of credit in the aftermath of the pandemic. In particular, we look at the riskiness of lending by banks more exposed to TLTROs and at the effect of the policy on the interest rates charged on corporate loans depending on their underlying risk. In this sense, our paper contributes to the literature on the risk-taking channel of monetary policy that emerged after the financial crisis and flourished during the period of low policy interest rates and central bank liquidity operations (Jiménez et al. 2014; Acharya and Steffen 2015; Crosignani et al 2020; Andreeva and García-Posada 2021). At the inception of TLTRO III in September 2019, the policy rate had already been in negative territory for more than five years. Moreover, the unprecedented surge in loan demand at the onset of the pandemic, coupled with the large economic uncertainty and the sharp deterioration in borrower creditworthiness, bore the potential to generate a marked increase in the riskiness of banks' loan portfolios and even a mispricing of the underlying risks. We find instead that banks exposed to TLTROs did not increase their supply of credit disproportionately more to ex-ante riskier borrowers, and we also do not find evidence of an increased mispricing of riskier loans (see **Figure 2**). Finally, we show that these results are particularly pronounced for banks with low intermediation margins to begin with. We interpret this evidence through the lens of the funding cost relief that TLTROs provide to banks in a low interest rate environment, allowing them to expand credit supply without necessarily having to scale up the risk profile of their loan portfolios to recoup intermediation margins.

Figure 2: TLTRO shock and the qualitative composition of credit

Notes: The figure reports the coefficients of interaction terms between TLTRO shock and a dummy variable equal to one for borrowers with an ex ante probability of default (PD) below the 90th percentile of the distribution (“Less risky borrowers”) and a dummy variable equal to one for borrowers with an ex ante PD above the 90th percentile. TLTRO shock is defined as a one-day change in volume-weighted bank bond yields around the TLTRO III recalibration announcement of 30 April 2020. The dependent variable is: i) the percentage point change in loan growth between April and October 2020 (left-hand side panel); ii) the percentage point change in the probability of a new lending relationship (middle panel); 3) the percentage point change in the lending rate (right-hand-side panel).

Conclusions

The experience with TLTRO III during the pandemic points to a large potential for the monetary policy toolbox constituted by dual interest rates, that is, central bank funding at rates below the level at which reserves are remunerated. The increase in bank lending attributable to the impact of central bank funding with dual interest rates was not accompanied by excessive risk-taking. Banks with lower intermediation margins could extend more credit as a result of central bank funding and did not need to scale up the risk profile of their loan portfolio.

Contrary to a “standard” rate cut in negative territory, borrowing rates below the interest rate on central bank reserves imply that intermediation margins are not compressed despite the consequent general decrease in lending rates (Freriks and Kakes, 2021), affording a continued transmission of monetary policy even in presence of an effective lower bound on deposit rates. This partially shields the banking system from some potential side effects of monetary policy accommodation highlighted in the literature, as increases in lending volumes are not accompanied by heightened risk taking or changes in the pricing of underlying risks.

This illustrates how central bank funding with dual interest rates enables an easing of credit conditions without the increased risk appetite that a standard rate cut might spur under the same circumstances, especially if considered after a prolonged period of low interest rates. ■

References

- Acharya, V. V., and Steffen, S. (2015), "The "greatest" carry trade ever? Understanding eurozone bank risks". *Journal of Financial Economics*, 115(2):215–236.
- Altavilla, C., Boucinha, M., and Peydró, J.-L. (2018), "Monetary Policy and Bank Profitability in a low interest rate environment". *Economic Policy*, 33(96):531–586.
- Altavilla, C., Barbiero, F., Boucinha, M., and Burlon, L. (2020), "The Great Lockdown: pandemic response policies and bank lending conditions", ECB working paper, 2465, 2020.
- Andreeva, D. C., and García-Posada, M. (2021). "The impact of the ECB's targeted long-term refinancing operations on banks' lending policies: The role of competition". *Journal of Banking & Finance*, 122:105992.
- Barbiero, F., Burlon, L., Dimou, M., and Toczynski, J., (2022) "Targeted monetary policy, dual rates and bank risk taking", ECB working paper, 2682.
- Benetton, M., and Fantino, D. (2021), "Targeted monetary policy and bank lending behavior". *Journal of Financial Economics*, 142(1): 404–429
- Boeckx, J., de Sola Perea, M., and Peersman, G. (2020), "The transmission mechanism of credit support policies in the euro area". *European Economic Review*, 124:103403.
- Brandao Marques, L., Casiraghi, M., Gelos, G., Kamber, G., & Meeks, R. (2021), "[Negative interest rate policy – The experience so far](#)", SUERF policy note, Issue No 235.
- Brunnermeier, M., and Koby, Y. (2019), "The reversal interest rate", IMES Discussion Paper Series 19-E-06, Institute for Monetary and Economic Studies, Bank of Japan.
- Bubeck, J., Maddaloni, A., and Peydró, J.-L. (2020), "Negative Monetary Policy Rates and Systemic Banks' Risk-Taking: Evidence from the Euro Area Securities Register". *Journal of Money, Credit and Banking*, 52: 197-231.
- Crosignani, M., Faria-e Castro, M., and Fonseca, L. (2020), "The (Unintended?) consequences of the largest liquidity injection ever". *Journal of Monetary Economics*, 112(C):97–112.
- Dell'Ariccia, G., Laeven, L., and Marquez, R. (eds.) (2011), "Monetary Policy, Leverage, and Bank Risk-taking", CEPR Press Discussion Paper No. 8199.
- Freriks, J., and Kakes, J. (2021) "[Negative interest rates and the erosion of banks' interest margins](#)", SUERF policy brief, No 196.
- Lonergan, E. (2020) "[European Central Bank has one item left in its toolkit: dual rates](#)", *Financial Times*, 2 January 2020.
- Minenna, M. (2019), "[Dual interest rates to stimulate the economy, that's why it can be done](#)", *Il Sole 24 Ore*, 30 December 2019.
- Jiménez, G., Ongena, S., Peydró, J.-L., and Saurina, J. (2014). "Hazardous times for monetary policy: What do twenty-three million bank loans say about the effects of monetary policy on credit risk-taking?". *Econometrica*, 82(2):463–505.
- Rohde, L. (2021), "[Ultra low interest rates from the perspective of a central banker](#)", SUERF policy note, No 256.
- Rostagno, M., Altavilla, C., Carboni, G., and Yiangou, J., (2021). "Monetary Policy in Times of Crisis: A Tale of Two Decades of the European Central Bank". Oxford University Press.
- The Economist (2020), "[Has the ECB found a way around the lower bound on interest rates?](#)", 13 August 2020.

About the authors

Francesca Barbiero is an Economist in the Monetary Policy Analysis Division of the European Central Bank. She is interested in empirical research in monetary and financial economics, with a particular focus on the real and financial effects of central bank policies. Francesca is completing a doctoral degree in Economics from Goethe University Frankfurt and holds a Master of Science from Bocconi University in Milan. Prior to joining the ECB, she worked at the think tank Bruegel in Brussels.

Lorenzo Burlon is a Lead Economist in the Directorate General Monetary Policy of the European Central Bank (ECB). Prior to joining the ECB, he worked at the Directorate General for Economics, Statistics and Research of the Banca d'Italia and at the University of Barcelona. He holds a Ph.D. from Universitat Autònoma de Barcelona. His research interests cover monetary policy and its transmission mechanism, empirical banking and structural modelling.

Maria Dimou is an Economist in the Monetary Analysis Division in the Directorate General (DG) Monetary Policy of the European Central Bank (ECB). Before joining her current department in 2017, she worked in the Monetary Policy Research Division in DG Research of the ECB and in the Research Centre of the Deutsche Bundesbank. In her current role, Maria contributes to the assessment of monetary policy transmission via banks, with a particular focus on the analysis of bank heterogeneity using firm/bank-level information and granular data from credit and security registers. She holds a M.Sc. in Economics from Stockholm School of Economics.

Jan Toczyński is a Ph.D. candidate in Finance at the University of Zurich and the Swiss Finance Institute. His research interests focus on household finance, empirical banking, and monetary policy. He holds an M.Sc. in Applicable Mathematics from the London School of Economics and Political Science.

SUERF Publications

Find more **SUERF Policy Briefs** and **Policy Notes** at www.suerf.org/policynotes



SUERF is a network association of central bankers and regulators, academics, and practitioners in the financial sector. The focus of the association is on the analysis, discussion and understanding of financial markets and institutions, the monetary economy, the conduct of regulation, supervision and monetary policy.

SUERF's events and publications provide a unique European network for the analysis and discussion of these and related issues.

SUERF Policy Briefs (SPBs) serve to promote SUERF Members' economic views and research findings as well as economic policy-oriented analyses. They address topical issues and propose solutions to current economic and financial challenges. SPBs serve to increase the international visibility of SUERF Members' analyses and research.

The views expressed are those of the author(s) and not necessarily those of the institution(s) the author(s) is/are affiliated with.

All rights reserved.

Editorial Board

Ernest Gnan
Frank Lierman
David T. Llewellyn
Donato Masciandaro
Natacha Valla

SUERF Secretariat
c/o OeNB
Otto-Wagner-Platz 3
A-1090 Vienna, Austria
Phone: +43-1-40420-7206
www.suerf.org • suerf@oenb.at