

Targeted Longer-Term Refinancing Operations – history and evolution from the perspective of commercial banks' ability to meet liquidity requirements

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Abstract

The outbreak of the Great Financial Crisis in 2008 forced the largest central banks to use new tools, which gradually began to become part of their unconventional monetary policy. The most spectacular example of the new policy was asset purchases. However, due to the specific nature of the euro area, the ECB has long abstained from launching such purchases and, as a result, has long resorted to its constantly improved refinancing operations. As a result, these refinancing operations have become one of the most important tools of the Eurosystem. They retained their important role even after the ECB launched its expanded asset purchases in 2015, and the subsequent pandemic crisis further underlined their importance. Such operations contributed (together with asset purchases) to the creation of a huge excess liquidity, which had a significant impact on the behaviour of the participants of the banking system. The application of these operations coincided with the efforts of the supervisory authorities to gradually enforce the new liquidity requirements on banks. The aim of this article is to answer the question of how both the course of refinancing operations and their subsequent phasing out affected the ability of banks to meet these requirements.

Keywords: interest rates, monetary policy, liquidity management, refinancing operations, macroprudentials

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1. Introduction

Targeted Longer-Term Refinancing Operations (TLTROs) were designed in an era of intensifying deflationary risks in the middle of the second decade of the 21st century. These operations have become an important tool for stimulating lending (credit supply) in the euro area. The European Central Bank (ECB) undertook this type of unconventional monetary policy mainly due to banks' low activity in the credit market, which negatively affected the real economy. Since 2014, TLTROs and the Asset Purchase Programme (APP) have become two main pillars of quantitative easing.

TLTRO programmes were first launched in an environment determined by economic factors (primarily due to the aforementioned deflation), while their further continuation was already determined by non-economic factors (the 2020–2021 pandemic shock which led to supply-demand disruptions in the euro area economy). The TLTRO III programme seems particularly interesting under which banks were able to lend funds at an interest rate below that of bank reserves. The full expiry of these programmes is scheduled for December 2024. If this is indeed the case, the application of TLTROs will last for more than a decade, which is likely to make these operations one of the most important ECB tools in over 25-years of ECBs history.

TLTRO programmes had an impact on commercial bank liquidity and macroprudential policy, which is the second major area of central banks' impact on individual banking systems. The excess liquidity generated by central banks through both APPs and TLTROs was conducive to falling interest rates, while the successively introduced Basel III prudential standards ensured that banks avoided excessively risky behaviour in an era of extremely cheap money. The point is that the resulting excess liquidity was becoming a kind of shock absorber to facilitate banks' adjustment to the new regulatory norms.

The context of the internationally agreed regulatory liquidity measures, LCR and NSFR, which form part of macroprudential policy, is particularly important here. Their common objective is to mitigate the risks associated with the term transformation function, although the specific objectives of these indicators are different, as the first measure addresses reducing liquidity risk by ensuring an adequate volume of highly liquid assets, while the second measure emphasises the stability of funding sources and reducing banks' reliance on short-term cash.

The aim of this article is to capture the relationship between TLTROs and their evolution due to economic and non-economic factors and the development of bank liquidity measures in the euro area. We looked at TLTROs from the perspective of the central bank and commercial banks' objectives.

To the best of our knowledge, the literature on TLTROs is rather limited and fragmented, as it usually deals with individual euro area countries. The issue of the relationship between unconventional monetary policy and liquidity offers enough room for further research. This is due, among others, to the fact that unconventional monetary policy tools are still relatively new instruments.

Our study is part of an important broader research problem of the relationship between unconventional monetary policy and macroprudential policy. Therefore, in order to highlight this problem, in this text we wanted to focus on analysing the historical evolution of the TLTROs and the interaction between them and the liquidity indicators already mentioned. Accordingly, a detailed description of the TLTRO is not included here. The focus is only on those elements of the TLTRO that proved helpful in highlighting the interactions that are interesting for us. In addition, we would also like to ascertain whether the repayments of TLTRO loans conducted so far actually had a significant impact on the deterioration of the relatively recently introduced indicators.

The article is structured as follows. Its first part presents the transformation from conventional to unconventional monetary policy using the example of Enhanced Credit Support Policies (ECSP) in the euro area. It boils down to a description of the situation that existed in the euro area prior to the launch of the TLTRO. Part two focuses on the description of the TLTROs with particular emphasis on the advantages of this programme and its evolution in the years from 2014 to 2022. The third section outlines the relevance of the TLTRO from an ECB operational policy perspective. On the other hand, the last two parts of the article present the relationship between TLTROs and liquidity ratios when banks are developing and actively using these programmes and when they are extinguished.

The content of our text is closely linked to the theory of the transmission mechanism in monetary policy and the theory of bank liquidity. While working on this article, we have tried to link these two theories and formulate new conclusions that add to the knowledge of the relationship between TLTROs and the liquidity regulatory standards. The empirical nature of this text also plays an important role. Indeed, we have traced the evolution of the TLTRO programmes. In studying the process and evolution of the TLTROs, we used statistical data collected in the ECB Statistical Data Warehouse.

2. Transformation from conventional monetary policy towards unconventional tools using the example of the lending support measures in the euro area

The outbreak of the Great Financial Crisis (GFC) at the end of 2007 and the beginning of 2008 forced central banks to review their previously pursued monetary policies. Ben Bernanke (2022) believed that further recourse to controlling short-term interest rates in times of crisis would mean the need to lower them to minus 6.5%. Such a radical reduction in interest rates was not an option, since it could itself pose a threat to the stability of the financial system. Therefore, the Federal Reserve decided to launch an asset repurchase programme with some similarities to the programme launched by the Bank of Japan back in March 2001, but conducted by the Fed on an incomparably larger scale and with a duration of securities repurchased that is far longer than twelve months. Thus, with the launch of unconventional monetary policy, central banks have moved away from trying to control the short-term interest rate to controlling the monetary base. The effect of the new policy has been to create massive excess liquidity in many countries, in particular in the euro area.

The date and event most commonly associated with the outbreak of the GFC is the bankruptcy of Lehman Brothers on 15 September 2008. However, the ECB often emphasises that the onset of the crisis was as early as August 2007, when the euro area money market experienced severe tensions.¹ On 9 August 2007, the French bank, BNP Paribas suspended the operational activities of three of its investment funds (with large exposure to the US subprime real estate segment), resulting in the ECB lending EUR 95 billion (mainly through fine tuning operations with O/N tenors) on the same day (ECB 2007a). Unlike other central banks (the Fed and the Bank of England as well as the Bank of Japan of 2001–2006), the ECB did not want to resort to asset purchases, and to sovereign bond purchases in particular. This was due, among other things, to concerns that such a purchase could violate the fiscal criteria imposed by the Maastricht Treaty. In addition, the ECB emphasised the structural nature of the euro area, where the share of the banking system in the overall financial system was much higher than in the USA or the UK.

¹ <https://www.ecb.europa.eu/press/pr/date/2007/html/pr070822.en.html>.

As a consequence, it is possible to refer to the start of a new stage in the ECB policy, which only in mid-2009 was referred to as the ECSP by the then ECB President Jean-Claude Trichet.² As part of the new policy, the first operation with a duration exceeding the three-month threshold and lasting 189 days took place as early as April 2008,³ while the first operation with a duration exceeding 12 months (371 days) took place in June 2009.⁴

A turning point was the introduction on 8 October 2008 of a new bidding formula (Full Allotment Fixed Rate – FAFX),⁵ whereby all the needs of market participants were taken into account and implemented by the ECB. In addition to the operations forming part of the A5 item of the Eurosystem balance sheet total, the ECB launched two Covered Bond Purchased Programmes, namely, CBPP1 in June 2009 and CBPP2 in November 2011⁶ amounting to an intended EUR 60 billion and EUR 40 billion respectively. The outbreak of the 2010 sovereign debt crisis in the euro area contributed to the launch in May 2010 of a programme referred to as the Security Market Programme, which involves the secondary market purchase of sovereign bonds of the euro area countries affected by the crisis. The total volume of bonds bought at its peak was EUR 219.5 billion.

A very significant moment for the ECSP was the launch of the three-year longer-term refinancing operations (3YLTRO) in December 2011. Such loans were settled on 22 December 2011⁷ (EUR 489.19 billion, with a maturity of 1134 days) and on 1 March 2012 (for the amount of EUR 529.53 billion, with a maturity of 1092 days). However, the 3Y LTRO demonstrated the weakness of the monetary policy carried out so far. Although the conduct of these two tenders contributed to an increase in the euro area balance sheet total above the EUR 3 trillion threshold, unfortunately the programme did not contribute to the development of lending. On the contrary. A significant symbol demonstrating the inability of the 3Y LTRO operation to translate into the economy is that private sector lending has turned negative throughout this programme. One reason for this was that many banks (especially in the areas mostly hit by the debt crisis) incurred debt in order to buy sovereign bonds.⁸ Another factor that may explain the inability of the 3Y LTRO to translate into lending was the fact that participating banks decided to repay their loans under the programme as soon as possible. When describing the 3Y LTRO, it should be recalled that this programme was launched at the time of the greatest escalation of the debt crisis and, as a result, many banks used this programme primarily due to the so-called precautionary motive. However, the debt crisis was unexpectedly overcome by ECB President Draghi's speech on 26 July 2012 (which was recorded in history as whatever it takes) and the announcement of the conditional Outright Monetary Transactions (OMT) programme on 6 September 2012.

² See the speech by Trichet on 13 July 2009, <https://www.ecb.europa.eu/press/key/date/2009/html/sp090713.en.html>.

³ From 3 April 2008 to 13 May 2010, the ECB conducted a total of 19 six-month operations with an average duration of 182.7 days).

⁴ From 25 June 2009 to 27 October 2010, the ECB conducted four 12-month operations with an average duration of 369.25 days). In addition, on 11 August 2011, a 203-day operation was performed.

⁵ https://www.ecb.europa.eu/press/pr/date/2008/html/pr081008_2.en.html.

⁶ https://www.ecb.europa.eu/press/pr/date/2011/html/pr111006_3.pl.html.

⁷ https://www.ecb.europa.eu/press/pr/date/2011/html/pr111208_1.en.html.

⁸ This kind of measure was confirmed by President Mario Draghi himself at a press conference on 7 March 2019, admitting that: “The first LTROs were quite effective for the time when they had been designed. But they were used – not 100% of course – but they were used also to kind of buy sovereign bonds. At that time, the yields on bonds were high and banks especially in parts of the eurozone, where to lend to the economy was very risky because these parts were in huge recession, they bought sovereign bonds. What then we wanted to achieve with the “T” was to make sure to minimise this possibility to make sure the banks borrow at a very good rate, but in order to lend to the economy and to firms and households in the private sector, not to buy sovereign bonds.” (europa.eu).

This state of affairs has begun to affect the perception of 3YLTRO borrowing. The overcoming of the sovereign debt crisis resulting in the distancing of the threat of a euro zone decomposition and also the equalisation of the deposit rate with the rate for funds held on current account (5 July 2012, since when both rates have amounted to 0%) has had an impact on the behaviour of banks and, as a result, has encouraged some banks (especially those with a good reputation) to take advantage of the opportunity offered by the 3YLTRO to repay their previous loans more quickly. The rate of early repayments of loans taken out under the 3Y LTRO were gaining in importance to the extent that waiting to repay such a loan until maturity was even associated with generating suspicions about the financial health of the borrower concerned. This state of affairs only accelerated the growth rate of early repayments, resulting in a declining level of excess liquidity. The existing conditions hampered the ECB's efforts aimed at further monetary policy easing. This was confirmed by the development of the EONIA rate. This was particularly evident in the first quarter of 2014. In March 2014, the EONIA rate at the end of the month jumped to a level close to 0.68% while the Main Refinancing Operations (MRO) reference rate stood at 0.25%. As a result of, among other things, the events described here, the ECB was forced to revise the ECSP, which had been in place for almost seven years.

The first response of the ECB was to suspend the weekly fine-tuning operation sterilising the liquidity provided under the Securities Markets Programme.⁹ However, its announcement coincided with the announcement of other decisions that initiated a new phase in the ECB's pursuit of unconventional monetary policy. In addition to another cut in interest rates (including the deposit rate to minus 0.1%) and the first significant announcement of an extension of asset purchases (including the so-called Asset Backed Securities), a key element was the announcement of targeted longer-term refinancing operations (TLTROs), which were originally intended to strengthen credit inflows to the non-financial private sector of the euro area for approximately 4 years. Targeted Longer Term Refinancing Operations: the development process and evolution of these operations.

According to the BIS, the TLTRO programme is an example of what the BIS refers to as the "funding for lending" (FFL) programme (Casanova, Hardy, Onen 2021). The main feature of such programmes is their conditionality, which boils down to the fact that a cheap (compared to the market) interest rate is offered by the central bank in return for the efforts of the beneficiary of this programme to work towards granting new loans to the real sphere, most often to small and medium-sized enterprises. According to the content of the ECB Annual Report for 2014, a key feature of the first TLTRO operation was that the amount a bank could lend depended on the amount of its previous lending.¹⁰

The origins of the FFL can be traced back to 2012, when the Bank of England and the UK government decided to encourage banks and building societies to increase lending to households and businesses (primarily small and medium-sized). The essence of this scheme was that it allowed banks and building societies to raise funding on preferential terms from the Bank of England for up to 4 years.¹¹ However, the availability of these preferential funds depended on the volume of lending generated by the bank in question. Banks that increased their lending were to pay the lowest fee for loans, while those that recorded a reduction in lending were to pay a higher fee.¹² Loan fund programmes started to spread to other countries. The Hungarian Central Bank (MNB) introduced a somewhat similar scheme (known as the Funding for Growth Scheme) back in 2013.

⁹ <https://www.ecb.europa.eu/press/pressconf/2014/html/is140605.en.html>.

¹⁰ <https://www.ecb.europa.eu/pub/pdf/annrep/ar2014pl.pdf>.

¹¹ The Term Funding Scheme: design, operation and impact (bankofengland.co.uk).

¹² Funding for lending infographic – www.gov.uk.

However, it is most likely that it is due to the ECB and its TLTROs that FFL loans gained in popularity. More importantly, FFL loans also worked well in the era of the global shock of the COVID-19 pandemic outbreak.¹³ The countries that launched such a programme exactly at that time included Australia, Brazil and the Republic of Korea. As the BIS noted in its report, these loan programmes vary from country to country, depending on their objectives and the circumstances under which they were implemented. Therefore, notwithstanding these differences, FFL loans are considered another unconventional monetary policy tool. According to the BIS, these programmes are perceived as tools to support monetary policy objectives, financial stability objectives, government lending programmes or their combination.

As already mentioned, the TLTROs promoted by the ECB contributed to the massive popularisation of FFL lending. The design and substance of these ECB-authorized operations will now be illustrated by a description of both their process and evolution since 2014, when private sector lending in the euro area had already recorded negative growth rates for a long time (since April 2012).

So far, three editions (series) of TLTRO have taken place. Other operations established in parallel with TLTRO must be added. Although the article is dedicated to FFL-type operations, it should be mentioned that the ECB additionally launched special LTROs in the era of the pandemic. Reference is made to additional LTROs and extraordinary pandemic LTROs, which, as the name suggests, were not TLTRO-type operations, but contained elements of TLTROs, such as very attractive interest rates.

TLTROs were announced in June 2014 and their first issue in the euro area took place in September 2014. During the first two tenders (of September and December 2014), banks' borrowing could not exceed an amount equivalent to 7% of their eligible loans outstanding on 30 April 2014 (Andreeva, García-Posada 2020).¹⁴ The loans in reference were defined as loans to the non-financial private sector, and they were not allowed to include loans to households for house purchases.

As for the remaining six tenders, the maximum amounts that could be borrowed depended on the evolution of the banks' net eligible lending in excess of bank-specific benchmarks. The ECB made it clear that the additional borrowing allowance was limited to three times the difference between the net lending since 30 April 2014 and the benchmark at the time of each borrowing.

The construction of the key criterion depended on whether a given institution was able to record a positive net lending in the period under review or not. In the case of the former, the benchmark was always set at zero. And in the case of the latter (namely credit institutions that exhibited negative eligible net lending in the year to 30 April 2014), a different methodology was applied. The benchmark based on the outstanding amount of eligible loans was extrapolated, as the average monthly eligible net lending achieved in the twelve months to 30 April 2014 was extended to 30 April 2015. After 30 April 2015, the benchmark based on the outstanding amount of eligible loans remained constant.¹⁵

Initially, the TLTRO interest rate was calculated on the basis of the MRO rate + 10 basis points formula, so assuming the reference rate at that time at a level of 0.05%, the actual TLTRO rate was 0.15%. It is noteworthy that the highest volume of borrowing during the first edition of the TLTRO was recorded for the second tender in December 2014, when the actual interest rate was still 0.15%. The first edition of TLTRO had some additional features which will be highlighted at the time of a comparative analysis with its successor, namely the second edition TLTRO II.

¹³ Funding for lending programmes Insights from a Markets Committee Workshop chaired by Abdul Rasheed Ghaffour (Central Bank of Malaysia) (bis.org).

¹⁴ The impact of the ECB's targeted long-term refinancing operations on banks' lending policies: the role of competition (europa.eu).

¹⁵ For more details, please see: Targeted longer-term refinancing operations: updated modalities, 29 July 2014 (europa.eu).

On 22 January 2015, the ECB reduced the TLTRO interest rate, bringing it into line with the MRO rate (so it effectively started to amount to exactly 0.05%). Despite this action, with each successive tender under the first edition its average size decreased. This was primarily due to the PSPP (Public Sector Purchase Programme), launched in March 2015, which began to reduce market rates effectively. Consequently, even the modification in January 2015 of the existing rate did not make it sufficiently attractive against the backdrop of increasingly falling market interest rates. Therefore, the TLTRO programme needed to be modified.

Table 1

First edition of TLTRO (TLTRO I)

	Ref.	Allotment	Settlement	Maturity date	Duration (days)	Amount (EUR mn)	Number of bidders
1	20140189	18.09.2014 11:15	24.09.2014	26.09.2018	1 463	82 601,6	255
2	20140242	11.12.2014 11:15	17.12.2014	26.09.2018	1 379	129 840,1	306
3	20150034	19.03.2015 11:15	25.03.2015	26.09.2018	1 281	97 848,2	143
4	20150065	18.06.2015 11:15	24.06.2015	26.09.2018	1 190	73 789,2	128
5	20150097	24.09.2015 11:15	30.09.2015	26.09.2018	1 092	15 548,3	88
6	20150125	11.12.2015 11:15	16.12.2015	26.09.2018	1 015	18 304,0	55
7	20160026	24.03.2016 11:15	30.03.2016	26.09.2018	910	7 342,1	19
8	20160063	23.06.2016 11:15	29.06.2016	26.09.2018	819	6 723,8	25

Source: own compilation based on data originating from the ECB.

Its modified version in the form of the second edition of the TLTRO was announced in March 2016. The second edition differed significantly from the first edition, among other things, due to the following reasons:

Firstly, TLTRO II consisted of only four tenders rather than eight, as in the case of TLTRO I.

Secondly, the maturity of all TLTRO II was four years. In the case of the first TLTRO, all transactions matured in September 2018. So the maturity of a transaction concluded in September 2014 was much longer than the maturity of a transaction concluded, for example, in December 2015.

Thirdly, voluntary repayments in the case of TLTRO II, could be made on a quarterly basis (in the case of TLTRO I, they repaid every six months) two years after the concluding the transaction.

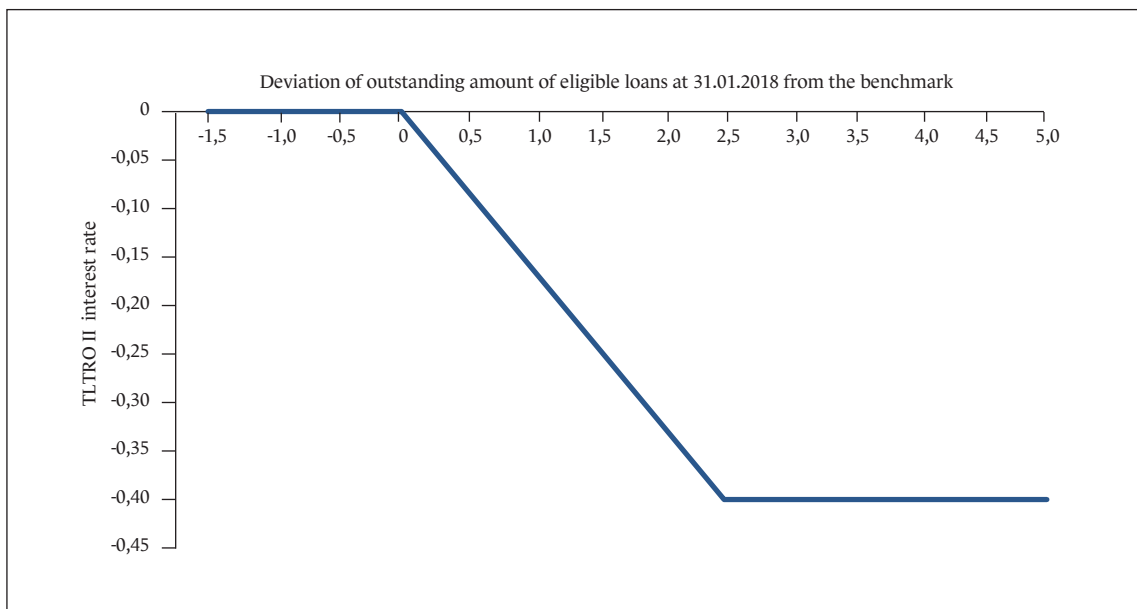
Fourthly, unlike the first edition of the TLTRO, its second edition did not include a penalty loan repayment. In the case of the first edition of the TLTRO, if a bank failed to meet a predetermined target, it was obliged to return the money borrowed in September 2016.

Fifth, a given bank was allowed to borrow 30% of its loan book as at 21 January 2016 adjusted for funds originating from the first two editions of TLTRO I (conducted in 2014).

The most important difference, however, between TLTRO II and TLTRO I was the price of a loan, i.e. the interest rate at which transactions would be concluded. The ECB seemed to have learned from the mistakes made with TLTRO I and, as a result, designed the following mechanism to calculate the interest rate with TLTRO II. Its operation is illustrated by Figure 1.

Figure 1

Interest rate determination mechanism under TLTRO II



Source: own compilation based on ECB data.

The starting point for calculating this rate was the benchmark understood as the number of loans granted between 1 February 2015 and 31 January 2016. The ECB paid attention to the so-called net lending growth. The rate was calculated differently when the net lending growth was positive and differently when the aforementioned net lending growth was negative.

When the net lending growth was positive, the starting point was the balance of loans granted as at 31 January 2016. Namely, if it amounted to one billion euros, it was necessary to obtain a positive growth rate (from 1 February 2016 to 31 January 2018) in order to achieve the rate lower than the MRO in force at the time. If the growth rate in question exceeded the 2.5% threshold, the rate reached the level of the applicable deposit rate (in 2016 it was minus 0.4%).¹⁶ If, on the other hand, the growth rate described ranged between 0% and 2.5%, the interest rate developed in a linear manner, as shown in the chart above.

¹⁶ ECB announces new series of targeted longer-term refinancing operations (TLTRO II) (europa.eu).

The situation was different when the aforementioned net lending growth turned negative. Even then, such banks could count on negative interest rates provided that they reduce their previous rate of decline in lending. It will be useful to refer to an example, similar to the one described by the ECB in its 2016 bulletin (No. 3).

Let us assume that a given bank had a negative net lending growth in the range of EUR 50 million between 1 February 2015 and 31 January 2016 with its total outstanding amount of eligible loans of EUR 1 billion, then the benchmark would amount to EUR 950 million (i.e. EUR 1 billion less the negative net lending growth in the range of EUR 50 million).

To enable a given bank to meet the criterion for access to negative interest rates (i.e. below 0% if the MRO rate was applicable at that time) under TLTRO II, it would be sufficient that its net lending growth between 1 February 2016 and 31 January 2018 was no less than minus EUR 50 million (i.e. from a benchmark set on the basis of such bank's activity (loss) in the period from 1 February 2015 to 31 January 2016).

Thus, if the net lending growth over the period analysed here (i.e. from 1 February 2016 to 31 January 2018) was less than minus EUR 50 million, the bank in question would already have the opportunity to benefit from a rate below the MRO rate. If lending growth over the same period was negative and amounted to more than EUR 50 million, then the ECB would apply the MRO rate to such a bank. If, on the other hand, the volume of lending exceeded a ceiling in the order of EUR 973,75 million, the ECB would settle the borrowing at the ECB deposit rate which would be applicable on the settlement date. This formula makes this clearer.

950 million (i.e. benchmark) * 1,025 (growth rate of 2,5%) = 973,75 million

In all TLTRO-II operations (TLTRO-II.1 to TLTROII.4), euro area banks lent a total of EUR 740,2 billion, less than a half of the total excess liquidity recorded at that time (end of March 2017) in the euro area. The weighted average interest rate of TLTRO-II was -0,365%.¹⁷

Table 2

Second edition of TLTRO (TLTRO II)

	Ref	Allotment	Settlement	Maturity date	Duration (days)	Amount (EUR mn)	Number of bidders
1	20160065	24.06.2016 11:15	29.06.2016	24.06.2020	1 456	399 288,9	514
2	20160103	22.09.2016 11:15	28.09.2016	30.09.2020	1 463	45 269,8	249
3	20160133	15.12.2016 11:15	21.12.2016	16.12.2020	1 456	62 160,8	200
4	20170028	23.03.2017 11:15	29.03.2017	24.03.2021	1 456	233 473,7	474

Source: own compilation based on data originating from the ECB.

¹⁷ The ECB Annual Report 2018 (europa.eu).

The most important edition of the TLTROs described here was their third edition. TLTRO III were first mentioned by the Governing Council in March 2019. Their original purpose was to facilitate what Draghi described as overcoming the congestion resulting from the maturity of TLTRO II, the upcoming maturity of bank bonds and the introduction of prudential standards.¹⁸ The ECB itself stated that the continuation of the TLTRO programme sought to preserve favourable conditions for credit growth, ensure the smooth transmission of monetary policy in the euro area, and further support the accommodative stance of monetary policy.¹⁹ More details regarding the TLTRO were disclosed in June 2019.

Originally, the TLTROs III were to start in September 2019 and end in March 2021 (i.e. seven tenders), with each operation maturing in two years. Their interest rate in each series was initially set at 10 basis points above the average MRO. For banks whose net lending growth meeting the programme requirements exceeded the benchmark, the interest rate applied under TLTRO III was lower, even to the point equal to the average deposit rate plus 10 basis points.

On 12 September 2019, the Governing Council decided to change the following parameters of TLTRO-III: extension of the maturity of all operations from two to three years, introducing a voluntary repayment option and removing the margin of 10 points above the average MRO and the average of the central bank deposit rate, in each case fixed for the entire term of the TLTRO-III concerned.²⁰

Another change to the terms of the third edition of TLTRO took place in March 2020 due to overall emergency measures to mitigate the adverse effects of the COVID-19 pandemic outbreak. As a result of these measures, in addition to the TLTRO III's recalibration, in March the ECB also launched a new programme called Additional Longer Term Refinancing Operations (ALTRO), which were conducted from 18 March 2020 to 10 June 2020. The total amount of lending during 14 ALTRO tenders amounted to EUR 389,41 billion. Due to this decision, the main aim was for credit institutions to be able to take advantage of the new tool offered by the ECB as soon as possible, instead of waiting until the modified TLTRO III were launched. The ECB itself, in its 2020 Annual Report, writes about ALTRO as a mean aim providing an effective "bridge" connecting the time lag between the moment of announcing new transactions and the launch of modified TLTRO III.

Returning to the TLTRO III as such, decisions were taken in March and April 2020 to apply much more favourable conditions to operations carried out from June 2020 to June 2021. The effect of these measures was the reduction in March 2020 of the interest rate for this type of operations by 25 basis points. Thus, from June 2020 to June 2021, the interest rate for all TLTRO III outstanding during this period could be a maximum 25 basis points below the average deposit rate for the period (and which then amounted to minus 0.5%). Moreover, the maximum total amount that institutions benefiting from the described programme could borrow under TLTRO III was raised to 50% of the amount of their eligible loans.

In addition, the lending growth threshold necessary to achieve the full compensation paid by the ECB was reduced from 2.5% to 1.15%. More importantly, the Governing Council took the decision on further easing of the terms of TLTRO III, reducing their interest rate (irrespective of how the eligible

¹⁸ The words spoken by Mario Draghi during the 7 March 2019 press conference were as follows: "The design of the TLTRO responds to a variety of objectives. The key objective derives from how the situation of bank funding looks like over the next few years. In the coming years we will have a congestion for bank funding caused by the coming to maturity of the existing TLTROs, the coming to maturity of sizeable amounts of bank bonds, various regulatory compliances." (europa.eu).

¹⁹ Decision (EU) 2019/1558 of the European Central Bank of 12 September 2019 amending decision (EU) 2019/1311 on a third series of targeted longer-term refinancing operations (ECB/2019/28) (europa.eu).

²⁰ Decision (EU) 2019/1558 of the European Central Bank of 12 September 2019 amending decision (EU) 2019/1311 on a third series of targeted longer-term refinancing operations (ECB/2019/28) (europa.eu).

net lending developed) for the period from June 2020 to June 2021, to 50 basis points below the average MRO rate for the same period. On the other hand, for those counterparties participating in the TLTRO that managed to meet the lending volume threshold, the interest rate was reduced to 50 basis points below the ECB deposit rate (i.e. it was, in fact, minus 1%) from June 2020 to June 2021.

Table 3
Additional LTRO

	Ref	Allotment	Settlement	Maturity date	Duration (days)	Amount (EUR mn)	Number of bidders
1	20200027	17.03.2020 12:30	18.03.2020	24.06.2020	98	109 130,5	110
2	20200034	24.03.2020 12:30	25.03.2020	24.06.2020	91	79 673,8	180
3	20200042	31.03.2020 12:30	01.04.2020	24.06.2020	84	43 713,0	107
4	20200050	07.04.2020 12:30	08.04.2020	24.06.2020	77	19 506,5	99
5	20200056	14.04.2020 12:30	15.04.2020	24.06.2020	70	4 638,3	53
6	20200064	21.04.2020 12:30	22.04.2020	24.06.2020	63	18 906,0	82
7	20200072	28.04.2020 12:30	29.04.2020	24.06.2020	56	36 657,2	74
8	20200081	05.05.2020 12:30	06.05.2020	24.06.2020	49	14 282,3	62
9	20200087	12.05.2020 12:30	13.05.2020	24.06.2020	42	6 816,5	52
10	20200095	19.05.2020 12:30	20.05.2020	24.06.2020	35	8 725,4	47
11	20200102	26.05.2020 12:30	27.05.2020	24.06.2020	28	18 539,8	40
12	20200105	27.05.2020 11:30	28.05.2020	27.08.2020	91	568,0	6
13	20200110	02.06.2020 12:30	03.06.2020	24.06.2020	21	14 480,5	30
14	20200122	09.06.2020 12:30	10.06.2020	24.06.2020	14	13 772,0	24

Source: own compilation based on data originating from the ECB.

The development and process of the pandemic forced the ECB to take further action. That is why, still in April 2020, long-term refinancing transactions took still another new form with the non-

-targeted Pandemic Emergency Longer-Term Refinancing Operations, PELTRO).²¹ Their main objective was to prevent liquidity bottlenecks preserving the smooth functioning of money markets during the first months of the pandemic. Six tenders were announced in April 2020 and a further four tenders were announced in December 2020. Under the PELTRO programme carried out from 21 May 2020 to 15 December 2022, the ECB granted loans for the amount of almost EUR 30 billion.

Obviously, neither the (additional) LTRO announced in March 2020 nor PELTRO announced in April 2020 were TLTRO-type operations. Both types of these operations were designed to inject sufficient liquidity into the banking system. However, they were based on the TLTRO innovation, with ALTRO referring to the deposit rate upon determining its interest rates, while the PELTRO's interest rate was stipulated to be unconditionally below the ECB's reference rate.

Table 4
Pandemic Emergency LTRO

	Ref	Allotment	Settlement	Maturity date	Duration (days)	Amount (EUR mn)	Number of bidders
1	20200098	20.05.2020 12:30	21.05.2020	30.09.2021	497	850,9	19
2	20200136	22.06.2020 12:30	24.06.2020	30.09.2021	463	15 611,4	45
3	20200174	05.08.2020 12:30	06.08.2020	30.09.2021	420	5 684,3	13
4	20200195	02.09.2020 12:30	03.09.2020	26.08.2021	357	793,5	13
5	20200215	07.10.2020 12:30	08.10.2020	26.08.2021	322	10 08,0	13
6	20200229	04.11.2020 12:30	05.11.2020	29.07.2021	266	747,0	12
7	20200244	02.12.2020 12:30	03.12.2020	29.07.2021	238	18 81,0	14
8	20210038	24.03.2021 12:30	25.03.2021	31.03.2022	371	420,7	6
9	20210081	22.06.2021 12:30	24.06.2021	30.06.2022	371	520,0	8
10	20210123	29.09.2021 12:30	30.09.2021	29.09.2022	364	13 38,7	15
11	20210154	15.12.2021 12:30	16.12.2021	26.01.2023	406	10 90,0	9

Source: own compilation based on data originating from the ECB.

Sticking to TLTRO III, its last modification of TLTRO III took place in December 2020 when, among other things, three more tenders were announced (increasing the total number of tenders to ten) and, in addition, the ratio of eligible loans was increased (from 50% to 55%).²²

A number of TLTRO III modifications which had already taken place throughout the lifetime of the loans have affected the valuation of the loan granted in the transactions described here.

²¹ Monetary policy decisions (europa.eu).

²² Monetary policy decisions (europa.eu).

Table 5

Third edition of TLTRO (TLTRO III)

	Ref	Allotment	Settlement	Maturity date	Duration (days)	Amount (EUR mn)	Number of bidders
1	20190097	19.09.2019 11:30	25.09.2019	28.09.2022	1 099	3 396,3	28
2	20190129	12.12.2019 11:30	18.12.2019	21.12.2022	1 099	97 718,0	122
3	20200029	19.03.2020 11:30	25.03.2020	29.03.2023	1 099	114 979,0	114
4	20200131	18.06.2020 11:30	24.06.2020	28.06.2023	1 099	1 308 433,2	742
5	20200207	24.09.2020 11:30	30.09.2020	27.09.2023	1 092	174 464,1	388
6	20200248	10.12.2020 11:30	16.12.2020	20.12.2023	1 099	50 413,6	156
7	20210034	18.03.2021 11:30	24.03.2021	27.03.2024	1 099	330 501,0	425
8	20210078	17.06.2021 11:30	24.06.2021	26.06.2024	1 098	109 829,3	224
9	20210119	23.09.2021 11:30	29.09.2021	25.09.2024	1 092	97 568,3	152
10	20210155	16.12.2021 11:30	22.12.2021	18.12.2024	1 092	51 975,0	159

Source: own compilation based on data originating from the ECB.

The measures discussed in this paragraph were aimed at easing funding conditions for banks and thus opening up the credit channel for pandemic-affected sectors.²³ The ECB developed a certain formula for calculating such interest rates, although it is clearly beyond the scope of this text to describe it in detail, it is nevertheless worth mentioning its components (five different periods of the TLTRO III life-span), as this tool makes it possible to streamline the knowledge of these operations.²⁴

1. Pre-Special Interest Rate Period (pre-SIRP): from the settlement date of the particular TLTRO III until 23 June 2020;
2. Special Interest Rate Period (SIRP) effective from 24 June 2020 to 23 June 2021;
3. Additional Special Interest Rate Period (ASIRP) effective from 24 June 2021 to 23 June 2022;
4. Post-Additional Special Interest Rate Period (post ASIRP): from 24 June 2022 to 22 November 2022 or the earlier of the early repayment date of the relevant TLTRO III operation;
5. Last Interest Rate Period (LIRP): from 23 November 2022 to the maturity date or the earlier of the early repayment date of the relevant TLTRO III operation.

The idea of discerning these five aforementioned periods paves way for the calculation of the so-called the main interest rate period (MIRP) in the period from the settlement date of each TLTRO III operation until 22 November 2022 or the applicable early repayment date of the respective TLTRO III operation.

For the full method of calculating interest rates, it is necessary here to refer the reader to the source material quoted above.

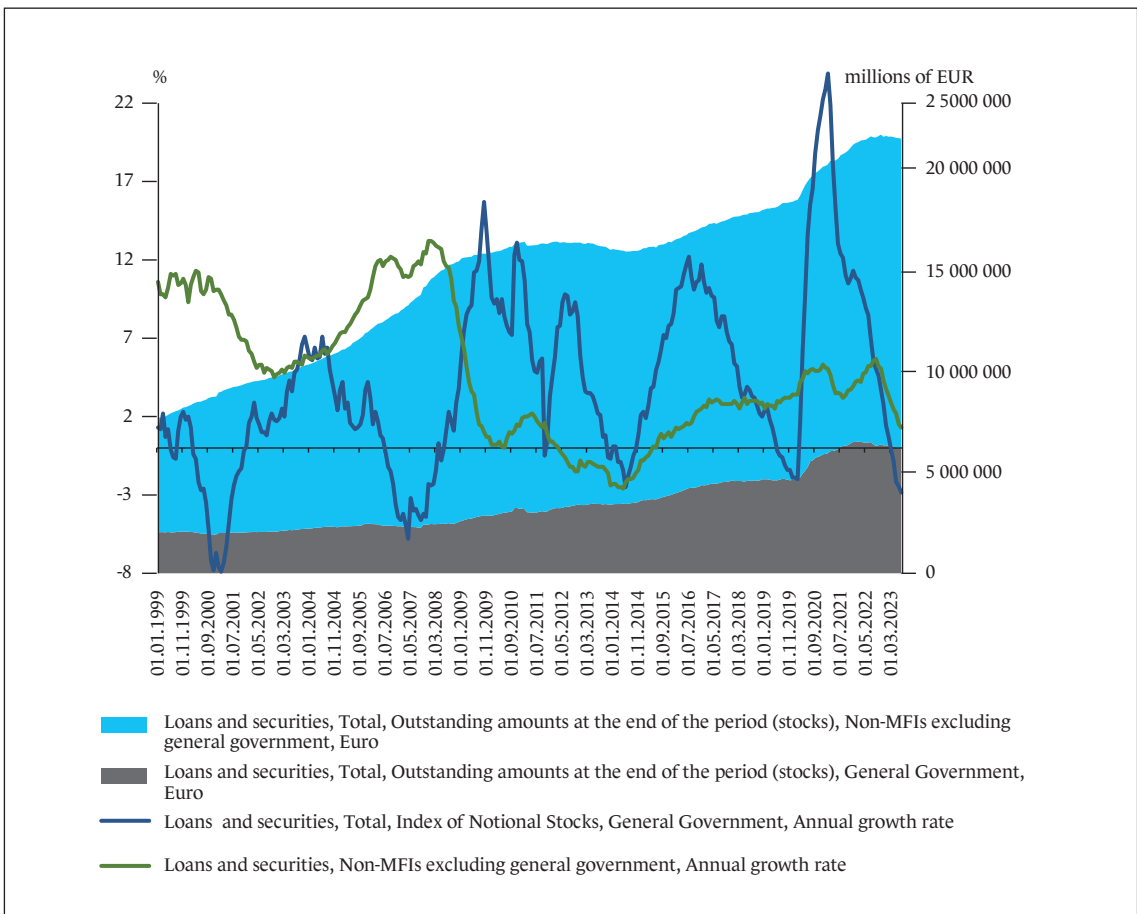
²³ The ECB Annual Report 2020 (europa.eu).

²⁴ Based on FAQ on TLTRO III operations (europa.eu).

3. The relevance of the TLTRO from an ECB policy perspective

TLTROs are perceived – alongside asset purchases, negative interest rates and forward guidance – as a classic example of unconventional monetary policy. The latter was intended, among other things, to encourage banks to support lending in the real economy more actively. The evolution of lending in the euro area both before and after the outbreak of the GFC is illustrated in the chart below. Its levels have not returned to pre-crisis levels. Nevertheless, the ECB, in defending the effectiveness of its tool, can always refer to the question of how lending would have proceeded in the private sector without the measures taken by it.

Figure 2
Lending in the euro area since 1999



Source: ECB own study.

One of the consequences of the GFC was the fear of concluding transactions in the money market. If such transactions did occur, the longest tenor was usually the seven-day tenor (euro money market

study 2015).²⁵ One of the effects of this state was a collapse in the volume of transactions concluded and a migration of transactions concluded from the unsecured segment towards the secured segment. Market participants therefore did not even believe each other. Therefore, investors preferred to hold funds in a current account or central bank depository rather than lend to other banks, not to mention participants in the real economy which faces recession. It was difficult to expect buoyant lending growth under such circumstances. Taking into account, for example, the much higher share of the banking sector in the overall euro area financial sector than in the Anglo-Saxon countries, the ECB could not be indifferent to this state of affairs.

In an effort to counteract this state of affairs, central banks (including the ECB) came up with new concepts for lending stimulation, which are still referred to today as FFLs, as already mentioned. TLTRO operations are their flagship example. One of the most important features of TLTROs (from their second edition onwards) is that the ECB, in fact, subsidises them by offering conditional incentives (in the form of charging negative interest rates instead of positive rates) to its counterparties. The question arises, however, where the ECB got the money to support credit action in this particular way? The answer lies in the aforementioned negative interest rate, which – in addition to the costs due to the TLTROs themselves – has also begun to generate a new source of revenue for the Eurosystem. The point is that this negative interest rate – at the same time – started to be perceived as fees charged from credit institutions depositing funds with the central bank (both in current account and in deposit). The ever-increasing excess liquidity in the euro area banking system (with a concomitant negative interest rate that remained in force almost until the end of July 2022) guaranteed ever-increasing revenues.

However, TLTROs cannot be seen solely from the perspective of driving lending in the euro area. The ECB often highlights the fact that TLTROs have offered and still offer opportunities to reduce funding costs for banks. The TLTRO has contributed to a significant increase in both excess liquidity and the overall balance sheet total of the Eurosystem. Therefore, TLTROs also contributed to a more efficient operation of the euro area money markets and therefore the entire monetary policy transmission mechanism.²⁶

From the point of view of generating the growth of the balance sheet total (and, in turn, excess liquidity), the role of the TLTRO was secondary to the extended asset purchase programme. The lending operations described here, however, have changed the way the ECB pursues its monetary policy and, more specifically, the way it injects liquidity into banks. From the launch of the TLTRO in 2014 until perhaps the most significant repayment of funds in late June 2023, the share of LTROs in the Eurosystem's balance sheet total was always above 14%. And during the peak of the pandemic, their share increased briefly to almost 28% of all Eurosystem assets. As a reminder, prior to the outbreak of the GFC, the share of LTROs in the Eurosystem's balance sheet total ranged between 5% and 10%.

The TLTROs have changed the structure of the loans offered by the ECB to credit institutions (the so called A5 position in the Eurosystem balance sheet and known under the name of lending to euro area credit institutions related to monetary policy operations denominated in euro). While MROs were the prevalent transactions until the outbreak of the GFC (their share, on average, exceeded 74% of all loan transactions), after the outbreak of the GFC their share began to fall in favour of LTROs. The latter's share has risen in average terms to over 86%, whereas the share since March 2017 (or, more precisely, since

²⁵ Euro money market survey, September 2015 (europa.eu).

²⁶ TLTRO III and bank lending conditions (europa.eu).

the last tender of the second edition of TLTRO) has remained above 98% practically continuously. Only the expiry of the TLTROs (20200131) on 28 June 2023 reduced the LTRO share to just under 97%.

Therefore, TLTROs were certainly an important element of the excess liquidity occurring in the euro area. With excess liquidity often exceeding EUR 4 trillion and a deposit rate in the range of minus 0.5%, the ECB charged fees in the amount of at least EUR 20 billion a year.²⁷ However, over time, the negative interest rates introduced in the Eurosystem in 2014 started to generate risks to financial stability, both in the euro area and in other countries resorting to such policies. Therefore, central banks decided to implement various types of shields to protect credit institutions against all the effects of negative rates. After all, negative interest rates were not introduced to increase central bank profits.

One such shield was the diversified interest rate in September 2019, when the ECB introduced a two-tier system of interest rates on funds in the central bank account. Pursuant to the ECB decision, banks were relieved of negative interest rates for funds that represented six times the reserve requirement discharged by a particular bank. The ratio – or, as the ECB used to call it, the multiplier (equal to six times the reserve requirement) – was determined by the Governing Council and its level depended on the trend in the excess liquidity level. For the measures discussed here (and forming the first tier of the interest scheme described here), the interest rate was 0 per cent. Other funds held at the central bank (and thus constituting the second tier of the interest rate regime) were subject to the prevailing interest rate at a level of the deposit rate. The ECB was most likely seeking to avoid suspicion that the lending it stimulated was partly financed by the banks themselves. The table below shows how the solution introduced by the ECB contributed (provided that certain conditions described in the table are met) to a more attractive interest rate on central bank funds (including and derived from TLTROs).

Despite the quantitative superiority of the APP over the TLTRO scheme, the latter nevertheless offered and continues to offer a kind of safety net in the event of escalating market tensions (funding stress), as the supply of this type of operation was almost tailored to the needs of market participants. The huge excess liquidity, reaching around 40% of euro area GDP at its peak, reduced the need to carry out the operations frequently, as in the case of weekly MROs. On the other hand, the response to the unexpected escalation of tensions (which occurred in the spring of 2020) was to draw up bridge financing in the form of ALTRO and PELTRO.²⁸

However, the TLTRO had the advantage of being neutral (unlike the PSPP, in particular) from the point of view of the monetary policy transmission mechanism and, at least until mid-2022, it did not generate costs for the central bank. Moreover, unlike asset purchases, in the case of TLTROs the central bank, in fact, controls the supply of and the demand for the operations described (through its ability to set both the deposit rate and the margin between this rate and the actual cost of entering into the transaction and the criterion that the bank in question must meet in order to participate).

TLTROs have been and continue to be targeted primarily at businesses and households (with the exception of mortgage loans). With regard to the monetary transmission mechanism itself, the impact of TLTROs on this mechanism took place and continues to take place primarily through increasing competition among lenders. The ECB emphasises that, unlike standard loans, TLTRO loans were more attractive. This state of affairs encouraged the lenders in question to roll out lending even under the circumstances of severe funding stress, which was particularly evident in the absence of the TLTRO.

²⁷ For more precision, this figure must be adjusted by the so-called two-tier system for remunerating excess reserve holdings and to be described later in this text.

²⁸ TLTRO III and bank lending conditions (europa.eu).

Table 6
Description of the two-tier deposit rate system in the euro area

	Reserve requirements	6 * reserve requirements	Total excess reserves	Total excess reserves minus exempt reserves	% exempt reserves over total excess reserves	Cost of total excess reserves without tiering (depo rate at minus 0.5%)	Cost of total excess reserves under the tiering (depo at minus 0.5%)	Weighted average of total excess reserves under the tiered system
	EUR bn							%
	1	2	2	4	5	6	7	8
Formula	I	I * 6	III-I	III-II	II/III	III * (-1,005) + III	IV * (-1,005) + IV	VII/III
Germany	37	222	587	365	38	-2,935	-1,825	-0,311
France	25	150	507	357	30	-2,535	-1,785	-0,352
Netherlands	18	107	150	43	71	-0,75	-0,215	-0,143
Italy	16	98	61	-37	161	-0,305	0,185	0,000
Spain	11	65	87	22	75	-0,435	-0,11	-0,126
Luxembourg	5	28	119	91	24	-0,595	-0,455	-0,382
Belgium	6	37	61	24	61	-0,305	-0,12	-0,197
Austria	3	20	35	15	57	-0,175	-0,075	-0,214
Finland	2	13	90	77	14	-0,45	-0,385	-0,428
Estonia	1	5	4	-1	118	-0,02	0,005	0,000
Ireland	1	7	25	18	28	-0,125	-0,09	-0,360
Greece	1	5	1	-4	413	-0,005	0,02	0,000
Cyprus	1	4	12	8	36	-0,06	-0,04	-0,333
Latvia	1	5	4	-1	123	-0,02	0,005	0,000
Lithuania	1	5	4	-1	107	-0,02	0,005	0,000
Malta	1	5	4	-1	127	-0,02	0,005	0,000
Portugal	1	7	11	4	64	-0,055	-0,02	-0,182
Slovenia	1	5	2	-3	200	-0,01	0,015	0,000
Slovakia	1	5	0	-5	1 127	0	0,025	0,000

Note: in column 6 and 7, had it not been for the negative interest rate, the formula would have been III * (1.005) - III and IV * (1.005) - IV respectively.

Source: Barclays, Maraffino (2019), own calculations.

Banks who have not benefited from the TLTROs (because of lack of their direct participation in this programme) are also beneficiaries of the TLTRO.²⁹ The ECB refers to them as indirect beneficiaries. The point is as follows. The indirect beneficiaries, thanks to the TLTRO's participants, who – as a result

²⁹ TLTRO III and bank lending conditions (europa.eu).

of TLTROs generosity – did not have to issue their bonds, experienced a decline in the overall supply of this kind of bonds. As a result, the reduced supply of bonds contributed to a decline of the so-called external funding costs (an increase in the prices of these bonds – stemming from lower supply – and a concomitant decrease in the yields of the bonds in question), for those banks which did not participate directly in the TLTROs programmes.

Summing up, the introduction of the TLTROs has contributed to far-reaching modifications in the ECB operational policy. Their evaluation should not be seen from the perspective of lending development only. Their role from the point of view of improving the transmission mechanism could not be overestimated either. An assessment of the operations described would not be complete, however, without referring to issues in the changes to banking regulations, the implementation of which coincided with the implementation of the TLTRO. The remaining part of this article will address this issue.

4. A look at the role of TLTROs from the perspective of commercial bank liquidity and funding structure

When examining TLTROs from the perspective of commercial banks, it is first necessary to address the nature of these operations and the mechanism of their impact on the operations of commercial banks. The mechanism adopted by the European Central Bank was intended to have a positive impact on lending and provide commercial banks with funding on attractive terms. TLTROs injected funds into the liabilities of commercial banks to encourage banks to lend on attractive terms. The assumption was to transfer the benefits of low-cost financing to the banks' lending terms.

TLTROs had a multi-directional impact on banks. Indeed, in addition to using TLTRO funds for loan growth, banks could deposit funds with the central bank, use liquidity from TLTROs to increase profitability by investing it in higher yielding securities, i.e. carry trade, or could substitute other market sources of funding (Barmeier et al. 2023, p. 5; Carmen Castillo Lozoya, Garcia-Escudero, Perez Ortiz 2022, p. 4–7). Looking at the TLTRO from the perspective of the economics theory of a banking enterprise, it can be assumed that this instrument affects the cost of raising liabilities, profitability and liquidity of commercial banks. In this article we have focused on the latter aspect. The problem of liquidity in the light of banking theory is fundamental because banks operate using maturity transformation, which on the one hand allows them to make profits and create shareholder value, but on the other hand exposes the bank to a loss of liquidity, which can ultimately lead to bankruptcy. In addition, a significant part of banks' assets is illiquid. "Illiquidity of assets provides the rationale both for the existence of banks and for their vulnerability to runs." (Diamond, Dybvig 1983, p. 403).

The impact on the regulatory aspect of liquidity (liquidity ratios) is particularly interesting. Banks must comply with two regulatory liquidity standards. The first is the Liquidity Coverage Ratio (LCR) and the other one is the Net Stable Funding Ratio (NSFR). The introduction of these standards was a consequence of the global financial crisis, which revealed the need for banks to strengthen their high-quality liquid assets to protect the bank from liquidity loss in stress situations and for greater alignment in the maturity of funding sources with the bank's asset holdings.

"The crisis drove home the importance of liquidity to the proper functioning of financial markets and the banking sector. Prior to the crisis, asset markets were buoyant and funding was readily

available at low cost. The rapid reversal in market conditions illustrated how quickly liquidity can evaporate, and that illiquidity can last for an extended period of time. The banking system came under severe stress, which necessitated central bank action to support both the functioning of money markets and, in some cases, individual institutions.” (BIS 2013).

The LCR measure was proposed by the Basel Committee on Banking Supervision to increase banks’ resilience to liquidity shocks. In mathematical terms, the LCR is the quotient of High Quality Liquidity Assets (HQLA) and net liquidity outflows over a 30-day period in stress scenario (Canfrac 2019).

“The LCR builds on traditional liquidity “coverage” methodologies used internally by banks to assess exposure to stress events.” (Bech, Keister 2012, p. 50). The idea behind this indicator is that a bank should have the capacity to meet its liquidity needs in a stress scenario. Such a scenario takes into account the simultaneous occurrence of a significant downgrade of the bank’s rating, rapid movements on the part of depositors involving the withdrawal of deposits and a significant increase in market volatility.

From a shock-resistance perspective, the LCR indicator is a stimulant. Indeed, higher values of this indicator imply an increase in the bank’s resilience to future external shocks. However, the bank must have this ratio at a level of at least 100%. It is therefore easy to notice that a bank is resilient to a liquidity shock if it has a stock of high-quality liquid assets at least equal to the amount of funds to flow out of the bank over a 30-day period. In practice, banks strive to keep this ratio above 100%. There are many indications that TLTROs (as well as other elements of excess liquidity in the system) have made it very easy for banks to meet this ratio. The ease with which banks achieve the desired level of this indicator casts doubt on the reliability of an indicator constructed in this way.

TLTROs had a major impact on the level of the LCR as the regulatory liquidity measure, contributing to its rise. Research shows that “there is a close interaction between LCRs and central bank credit.” (Gocheva, Mudde, Tapking 2022, p. 4). “Monetary policy operations can have direct implications for banks’ liquid asset holdings.” (EBA 2023, p. 21).

To explain these interactions, in a first step, it would be necessary to briefly describe what is behind the LCR indicator counter. The counter is formed by high-quality liquid assets. It is not a homogeneous asset class. One aspect is indisputable, however. An asset is considered (HQLA) if it can be easily and immediately obtained by converting it into cash with little or no loss of value.

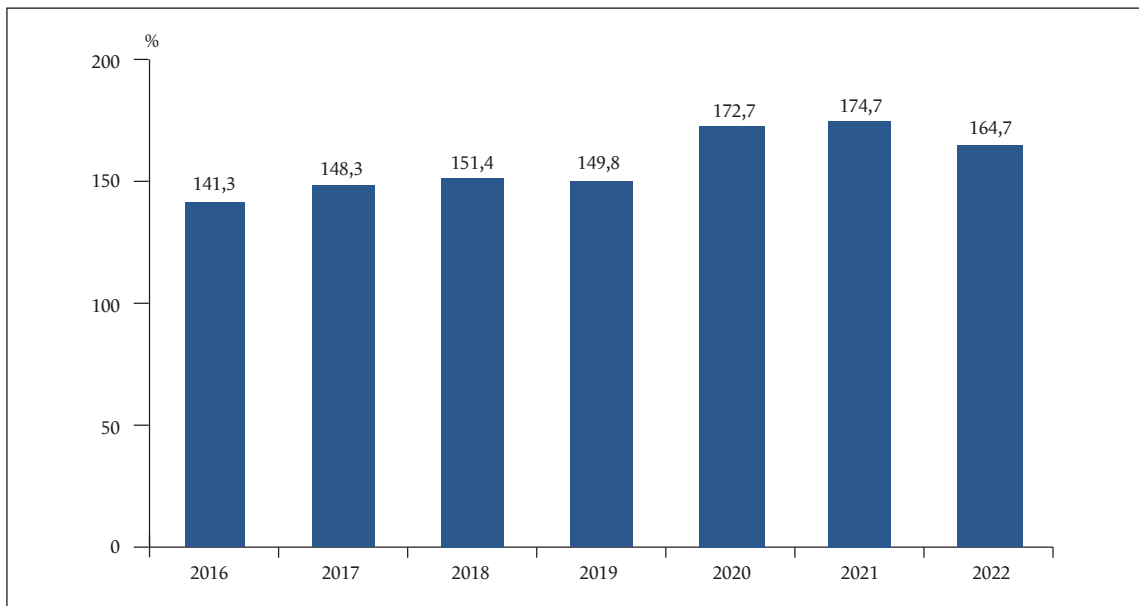
HQLA are divided into level 1 assets and level 2 assets. In order to show how TLTRO operations affect the LCR, it is necessary to briefly indicate what kind of assets are included in Level 1. Level 1 assets include cash, funds on deposit with the central bank and securities issued or guaranteed by state governments or central banks, which are entities assigned zero risk weighting (in accordance with the standard method described in Basel II). “When a bank borrows TLTRO funds, the central bank reserves obtained count as level-1 HQLA for the fulfilment of the ratio. At the same time, the collateral mobilized becomes encumbered and can no longer be considered for the purpose of the LCR. The overall effect on the LCR depends on the type of collateral pledged. As long as that collateral is non-HQLA (or level-2 HQLA with smaller haircuts at the central bank), the bank improves its overall HQLA holdings and thus the numerator of the ratio.” (Sugo, Vergote 2020, p. 17).

There is very limited research on the impact of TLTROs on LCR levels. The consensus is that TLTROs were one of the most important factors contributing to the significant increase in the LCR. “Many institutions soaked up liquidity but kept it at the central bank, thus boosting their liquidity reserves.” (Schildbach 2021, p. 1). Data presented by the European Banking Supervision shows that

the LCR has demonstrated an upward trend from 2016 to 2021. It peaked in the pandemic years (2020–2021). On the other hand, from 2022 onwards, the value of this ratio started to decrease and the LCR level in the European banking sector was 164.7% at the end of 2022.

Figure 3

LCR in the European banking sector in period 2016–2022



Source: own study based on data of the Risk Dashboard data. Data as of Q4 2022, p. 30.

In the structure of HQLA (i.e. the numerator of the LCR) in euro area banks, exposures to the central bank are very important. The increase in these exposures had an impact on increasing the LCR.

In light of the foregoing considerations, TLTROs can be accepted as further evidence of the important role of central banks and monetary policy in maintaining regulatory liquidity measures at appropriate levels (as required under supervisory standards) by commercial banks. Maintaining exposure by commercial banks to central banks is a way for banks to improve their LCR. “The LCR channel illustrates that central banks are able to ease banks’ regulatory liquidity constraints and banks are willing to consume the provided boost.” (Gocheva, Mudde, Tapking 2022, p. 39).

Thus, the significant increase in the LCR under the influence of the TLTRO suggests that the translation of these operations into lending growth may nevertheless have been moderate. This raises the question as to whether the programmes that were supposed to support the supply of lending actually sometimes supported bank liquidity to a greater extent. The proof that this was the case was provided by Spanish research. It shows that the vast majority of funding obtained through TLTROs remained in banks’ assets in the form of liquidity deposited with the central bank (Alberni, Berges, Rodriguez 2022, p. 56). This would mean that the TLTRO programmes have, at most, fulfilled the objective outlined before their implementation to a limited extent. They were more supportive of liquidity in a regulatory sense, whereas the increased liquidity did not translate into growth in the loan portfolio.

The NSFR indicator was designed to reduce the role of cheap, short-term wholesale funding and increase the importance of stable sources of funding. The design of the indicator is relatively simple. Indeed, it is the quotient of available (numerator) and required (denominator) stable funding. TLTRO loans are included in the numerator of the indicator. However, the residual maturity of the loan is important, because as the loan maturity shortens, the weight for the item included in the NSFR numerator decreases. For example, if the residual maturity of TLTRO financing exceeds 12 months, it has a positive impact on the level of the TLTRO ratio. Indeed, the weighting is 100%. However, if the maturity falls below one year, then the weighting is 50%, which reduces the attractiveness of the TLTRO from an NSFR perspective and creates an incentive to repay the TLTRO. Looking at TLTROs from the NSFR perspective, the term of these loans is crucial. This is especially true for the period below six months before the TLTRO expires, when the value of the indicator falls to 0.

Originally, the NSFR should have been introduced at the beginning of 2018. However, its implementation took place more than three years later, i.e. on 28 June 2021. One of the reasons for this delay were the concerns about the impact of TLTRO II repayments on the banks' ability to meet the requirements of the TLTRO II indicator described here, repaid in 2020, but it was clear that already in 2019 the banks could face increasing problems in meeting the NSFR (Alvarez 2020). Postponing the implementation of the NSFR proved to be the right decision. According to the Basel Committee announcement of 12 July 2022, the majority of EU banks did not encounter difficulties in meeting this criterion. However, it should be emphasised that excess liquidity in 2022 was (partly as a result of the measures taken by the ECB in the face of the pandemic) more than double compared to the end of the second decade of the 21st century.

TLTROs can also be viewed from the perspective of the funding structure. Deposits form an important component in the banks' funding structure. Retail and long-term deposits are particularly important as they stabilise the structure of banks' liabilities. The events that took place in the USA (SVB bankruptcy) have once again confirmed the extremely important role of insured deposits in shaping the stability of banks and their resilience to the crisis. Long-term deposits stabilise the structure of liabilities and increase the bank's financial security as they reduce the term mismatch between liabilities and assets. Holding long-term deposits is particularly important for banks granting housing loans and financing long-term projects for corporate clients.

In theory, banks with longer-term customer deposits should be less interested in funding under TLTRO. Based on a large sample of European banks, Fudulache and Goetz (2023) confirmed the lower propensity of banks holding more long-term deposits to use TLTROs. The study they carried out addressed the TLTRO-II programme.

This would indicate that commercial banks perceive TLTROs in terms of measures to stabilise their liability structure. There is therefore a close relationship between unconventional monetary policy and macroprudential policy.

Looking at TLTRO operations from a liquidity perspective, there is another aspect worth noting. Namely, these measures may reduce banks' propensity to raise deposits, which could be a threat to financial stability. Such programmes should therefore be monitored from a target perspective, but also from the perspective of the impact on the standing of banks and the banking sectors.

5. Gradual phasing out of TLTRO operations and the implications for the regulatory liquidity measures, LCR and NSFSR

The first attempt to depart from unconventional monetary policy took place in the USA. The US Fed first discontinued its ongoing asset purchases in October 2014, although it continued the process of reinvesting previously purchased securities initiated in 2010. It subsequently raised interest rates in December 2015 and launched the complex process of rolling over the balance sheet in October 2017.³⁰ At the end of 2018, the ECB acting with a long delay (compared to the Fed), discontinued the asset purchases it had started in October 2014. However, the reinvestment process ongoing since the beginning of 2019 allowed to maintain a relatively stable Eurosystem balance sheet total.

In the case of the US Fed, the process of unwinding the balance sheet total was preceded by a lengthy discussion about the new optimal level of the balance sheet total after the completion of the so-called monetary policy normalisation process. Even before such a discussion began, it was common knowledge that a return to the status quo prior to October 2008 was completely out of the question. The consensus indicated a new level (Potter 2017; Ihrig, Mize, Weinbach 2017; Ennis, Kirk 2022; Quarles 2018) in an era of already achieved normalisation somewhere in the middle between the level recorded immediately after the end of the asset purchase and the status before it was launched.

However, both central banks had to abandon the process of normalising monetary policy. In September 2019, there were severe tensions in the US money market which made the Fed return to asset purchases. Almost at the same time, the ECB took the decision to relaunch its programmes extinguished less than nine months earlier. On the other hand, the outbreak of the biggest pandemic crisis in a century has forced central banks to take further unprecedented action in financial markets. The balance sheet totals of both the Fed and the Eurosystem have doubled. More importantly, unlike in the GFC, this time the recourse to unconventional monetary policy was no longer limited to the most highly industrialised countries. One manifestation of the application of this policy was the use of conditional loans by countries such as Saudi Arabia³¹ and Mexico.³²

Overcoming the pandemic crisis had its price. With the aim of saving jobs, the strongest inflationary pressure in more than 40 years was created. While price increases were still not a threat in many countries until the beginning of 2021, inflationary pressures became more pronounced in the successive months of 2021. One of the reasons for this was that, unlike the GFC, part of the support provided by the monetary authorities went to the real sphere. In addition, the pandemic itself has contributed to changes in the way many households spend their money. The period of prolonged lockdown contributed to an unexpected accumulation of surplus funds (Bernanke 2022). As soon as it ended, these same households began to spend previously accumulated surpluses on unplanned investments. At the same time, the prolonged pandemic in the PRC started to exert a negative impact on the supply side, thus generating an increasingly accelerating price increase. The outbreak of the Russian-Ukrainian war fostered the phenomenon described even more.

Therefore, abandoning previously launched unconventional monetary policy programmes became a necessity. The emergence of strong inflationary pressures in the second half of 2021 forced many

³⁰ Federal Reserve Board – Timeline: Balance Sheet Policies.

³¹ Initiatives and services introduced by Saudi Arabian government authorities to support businesses during the emerging COVID-19 pandemic, Ministry of Investment (misa.gov.sa).

³² Additional measures to foster an orderly functioning of financial markets, strengthen the credit channels and provide liquidity for the sound development of the financial crisis (Banco de Mexico 2020).

central banks not only to abandon further balance sheet expansion, but even to tighten their monetary policies. The macroeconomic environment in 2022 was not conducive for central banks to perform this task. The point is that the aforementioned pandemic crisis (and the earlier GFC) resulted in a significant deterioration in the fiscal situation of many countries. Immediately after the end of the GFC, public debt only managed to stabilise at a very high level. Only Germany managed to achieve a significant fiscal consolidation in the period described. Therefore, the redemption of government bonds previously bought back by central banks by their issuers is becoming increasingly problematic, and their reinvestment³³ by central banks is even making more and more economic sense. The experience of the US Fed in 2017–2019 has already proven how difficult the process of rolling over balance sheet totals can be. On the other hand, persistent excess liquidity may hinder the effectiveness of anti-inflationary measures introduced by central banks. This is particularly true for European countries which are most exposed to the effects of the continuing military conflict in their neighbourhood.

Therefore, with the current tightening of monetary policy, its first step has been and continues to be the extinguishing of contingent lending (funding for lending). At the time of completing this text, the banks have repaid approximately 75% of the outstanding loans taken out and so far no disturbing signals have been noticed. Therefore, it is possible to remain cautiously optimistic and conclude that a scenario like the one that occurred in 2019 will not take place and, as a result, monetary policy normalisation measures will not be abandoned again.

However, contrary to the arrangement four years ago, banks currently repaying their loans are already fully bound by liquidity ratios. Therefore, ongoing TLTRO repayments naturally have a downward effect on the LCR liquidity ratio. In the context of TLTRO repayments, it is worth formulating the question of how European banks will cope with TLTRO repayments and whether they pose a risk to their liquidity?

Given the sizable excess reserves in European banks, the ratio after repayments will still be above the regulatory minimum determined at a level of 100%. The decline in TLTRO “inflated” LCR ratios in European banks should be a sign of normalisation rather than a signal of deteriorating bank liquidity.

Looking at bank liquidity only through regulatory measures of liquidity may be misleading. Bankruptcies of US banks in the first half of 2023 have re-emphasised the importance of a diversified and DGS-insured deposit base as an element mitigating liquidity risk.

Aware of the tensions that may accompany the repayment of preferential loans, the ECB has staggered the repayment of TLTRO III. While the first voluntary repayments started in September 2021, the maturity of the last tender is scheduled for 18 December 2024. The repayment rate increased at the turn of 2022 and 2023 and at the end of June 2023, when the largest LTRO III transaction (numbered 20200131 and amounting to EUR 1308.433 billion) matured. Thus, by mid-2023, about 75% of all outstanding TLTRO transactions have been repaid.

Some commercial banks relied excessively on this source of liquidity, becoming dependent on it and neglecting others. In countries where banks were heavily reliant on TLTROs³⁴ pressure on the retail deposit market may arise, resulting in an increase in the cost of funding. The impact of abandoning the TLTROs on liquidity will be distributed unevenly. Potentially, smaller banks may be

³³ Although the ECB has already been using the phrase “partial reinvestment” since February 2023 (ECB decides on detailed modalities for reducing asset purchase programme holdings, European Central Bank, press release, 2023).

³⁴ Scope Ratings analysts indicated that the TLTRO indicator as a percentage of deposits in the European Central Bank is high in countries such as Italy, Greece, Slovakia, Spain (TLTRO changes signal significant ECB regime change, Scope Ratings 2022).

more exposed to liquidity problems under the TLTRO repayment conditions. This is particularly true in those countries where strong fragmentation of the distribution of deposited central bank reserves occurs. The best example of such fragmentation can be found in Italy, where the ten largest banks hold 80% of all reserves (Cœuré 2019).

Thus, the European Central Bank's departure exerts and will continue to exert pressure to raise new sources of liquidity. These do not always have to be market sources. Although at the beginning of July 2023 it is far too early to assess the impact of the expiry of operation 20200131, its repayment has already contributed to higher demand for MROs. The MRO of the last week of June 2023 indicated a significant increase in its volume (it amounted to more than EUR 18.56 billion, thus reaching its highest level in almost six years (October 2017). However, one must not attach too much importance to this growth for the following reasons:

Firstly, the operation coincided with the end of the quarter, a period when banks, by definition, report higher liquidity needs than usual.

Secondly, an MRO of EUR 18.56 billion is not a major transaction. In historic terms (i.e. since the beginning of the euro area), the average MRO volume was almost EUR 124 billion.

Thirdly, the range of operations feeding the ECB is not limited to MRO. Another tool could be, for example, a three-month LTRO. In addition, the ECB still has a fallback solution in the form of Emergency Liquidity Assistance (ELA) under the so-called residual claims on euro area credit institutions in euro (item A6 in the Eurosystem balance sheet total).

It is too early to assess the impact of the 28 June 2023 repayment on the LCR. However, the impact of repayments to date on the decline in the LCR appears to be limited. Analysts of Deutsche Bank estimate it in the order of 5% over last year's level (158%) (Schildbach 2023). The same is true for CET1 and the leverage ratio. Another important positive spillover effect of TLTRO repayments is the ECB return to the banks of the collateral that was required for TLTRO borrowing. Due to this return, banks can draw other loans.

An important factor affecting the standing of banks (and consequently their ability to meet the indicators described) is the environment of rising interest rates. On the one hand, it provides an opportunity to generate higher profits, while on the other hand, rising interest rates have a negative impact on the level of private sector lending. While the growth rate of this share was still at an average of 4.9% in the second half of 2022, it decreased to 2.2% in May 2023. Further monetary tightening by the ECB could lead to an even greater deterioration in lending, which could ultimately translate into worse yields.

6. Summary

Targeted longer-term refinancing operations (TLTROs) have been and continue to be one of the most important elements included in the unconventional monetary policy. Due to their implementation, the ECB wanted to stimulate credit action in the real economy. The objective thus defined has certainly been achieved, as the ECB used to emphasise frequently both in its publications and, above all, in statements made by members of the Executive Board.³⁵

³⁵ This topic was heard at almost every press conference by Draghi in the second half of the previous decade (see, for example, press conference, europa.eu). See for example: ECB press conference form 20 July 2023 (europa.eu).

The historical analysis has shown the ECB's efforts to make TLTRO operations more attractive by offering increasingly attractive interest rates. In some cases, these interest rates could reach as low as minus 1%, which is clearly below the interest rate corridor set by the ECB. More importantly, offering such interest rates did not have a destabilising effect on the ECB monetary policy transmission mechanism.

However, the introduction of targeted longer-term refinancing operations coincided with the work on new indicators related to the assessment of a credit institution's liquidity position. Originally, it was not believed that the implementation of these indicators would lead to their interaction with TLTRO. The point is that initially the first TLTROs were due to expire in September 2018. However, the extending threat of too low inflation (or even deflation between 2014 and 2016) and the outbreak of the pandemic in March 2020 extended the duration of these operations until December 2024 (if no early repayment occurs). There is no doubt that the TLTRO loans facilitated the participating banks in meeting both the requirements imposed by the LCR and the NSFR. Especially as with almost every successive edition of TLTRO, the operations were subject to decreasing restrictions. The problem was so serious that the implementation of the NSFR was delayed for more than three years.

Therefore, with the passage of time, more and more voices began to emerge questioning the ability of these new indicators to actually assess a bank's liquidity position. The gradual phasing out of these programmes as part of the move away from unconventional monetary policy initiated in the second half of 2022 began to raise questions about the banks' ability to meet the criteria described here in the new macroeconomic environment (marked by increasingly restrictive monetary policy).

The departure from the TLTRO has started to generate a slight deterioration in the liquidity indicators described here. However, the extent of this deterioration – as the analysis in this article shows – is minor, which may be due to at least two reasons. Firstly, the continuing very good standing of the banking sector in the euro area. Secondly, thanks to the still very high excess liquidity in the euro area banking system. The repayment of approximately 75% of the outstanding TLTROs resulted in the contraction in excess liquidity of around 20%. It stands, despite its recent decline due to the expiry of the TLTRO operation (20200131), at a level of EUR 3.6 trillion (i.e. still more than 25% of the GDP of the euro area as a whole) and which, historically, is still a very high level that should guarantee banks a relatively easy refinancing.

Obviously, a suspension of reinvestment of APP-purchased assets will lead to a further contraction of excess liquidity in the euro area. On the other hand, the ECB has no timetable for disposing of all the assets it has previously bought. This state of affairs should not be a surprise, especially if one takes into account the fiscal situation of many euro area countries (e.g. Italy, not to mention Greece). Therefore, the enormous excess liquidity, despite its further rather limited reduction in the coming years, should remain for a long time to come at levels that guarantee banks not only free refinancing, but also easy compliance with the liquidity ratios described in this paper. This raises the question of whether the liquidity indicators developed in the previous decade should not be modified. However, the answer to this question goes beyond the scope of the subject of this article.

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Ukierunkowane długoterminowe operacje refinansujące EBC – historia i ewolucja z punktu widzenia zdolności banków komercyjnych do spełniania norm ostrożnościowych

Streszczenie

Operacje TLTRO (Targeted Longer-Term Refinancing Operations) zostały zaprojektowane w dobie nasilającego się ryzyka deflacyjnego w połowie drugiej dekady XXI w. Stały się podstawowym narzędziem stymulowania akcji kredytowej (podaży kredytów) w strefie euro. Europejski Bank Centralny (EBC) stosował tego rodzaju niekonwencjonalną politykę pieniężną z uwagi na niską aktywność banków komercyjnych na rynku kredytowym, która negatywnie wpływała na gospodarkę realną. Od 2014 r. operacje TLTRO i skup aktywów APP (Asset Purchase Programme) były głównymi filarami tzw. luzowania ilościowego.

Bank Rozrachunków Międzynarodowych (BIS) wskazał, że program TLTRO jest przykładem programu określanego mianem *funding for lending* (FFL). Główną cechą takich rozwiązań jest ich warunkowość, sprowadzająca się do tego, że bank centralny oferuje tanie oprocentowanie (w porównaniu z rynkowym) w zamian za to, że beneficjent programu będzie podejmował działania zmierzające do udzielania nowych pożyczek, najczęściej małym i średnim przedsiębiorstwom. Zgodnie z raportem rocznym EBC za 2014 r. podstawową cechą pierwszej edycji TLTRO było to, że kwota, jaką bank mógł pożyczyć, zależała od wysokości udzielonych przez niego kredytów.

Początki FFL sięgają 2012 r., kiedy Bank Anglii oraz rząd Wielkiej Brytanii zdecydowały się zachęcić banki i towarzystwa budowlane do zwiększenia akcji kredytowej dla gospodarstw domowych i przedsiębiorstw (przede wszystkim małych i średnich). Program pozwalał im uzyskać z Banku Anglii fundusze na preferencyjnych warunkach przez okres do czterech lat. Dostępność tych funduszy zależała jednak od wielkości akcji kredytowej. Banki, które zwiększały swoje pożyczki, miały płacić najniższą opłatę, podczas gdy te, które odnotowały zmniejszenie kredytów, miały płacić wyższą opłatę. Programy funduszy pożyczkowych zaczęto stosować w innych krajach. Węgierski bank centralny wprowadził nieco podobny program (znany jako Funding for Growth Scheme) już w 2013 r.

EBC uruchomił programy TLTRO w pierw w środowisku determinowanym przez czynniki ekonomiczne (przede wszystkim za sprawą wspomnianej już deflacji). Następnie o ich kontynuacji zadecydowały czynniki pozaekonomiczne – szok pandemiczny z lat 2020–2021, który doprowadził do zaburzeń podaży-popytowych w gospodarce strefy euro. Szczególnie interesujący wydaje się program TLTRO III, w ramach którego banki mogły pożyczać środki o niższym oprocentowaniu niż rezerwy banków. Pełne wygaśnięcie tych programów zostało zaplanowane na grudzień 2024 r. Jeśli tak się stanie, to zastosowanie TLTRO będzie trwało ponad dekadę i najprawdopodobniej uczyni z tych operacji jedno z najważniejszych narzędzi EBC w jego ponad 25-letniej historii.

Wprowadzenie ukierunkowanych dłuższych operacji refinansujących zbiegło się w czasie z opracowywaniem nowych wskaźników dotyczących oceny płynnościowej instytucji kredytowej. Programy

TLTRO wywarły wpływ na płynność banków komercyjnych i siłą rzeczy na politykę makroostrożnościową, która stanowi drugi (obok polityki operacyjnej) ważny obszar oddziaływania banku centralnego na system bankowy.

Szczególnie ważne są tu uzgodnione na szczeblu międzynarodowym regulacyjne miary płynności LCR i NSFR, stanowiące element polityki makroostrożnościowej. Służą one ograniczaniu ryzyka związanego z transformacją terminów. Szczegółowe cele tych wskaźników są odmienne. W przypadku pierwszej miary chodzi o ograniczenie ryzyka płynności przez zapewnienie odpowiedniej wielkości aktywów o bardzo wysokiej płynności. Druga miara kładzie natomiast nacisk na stabilność źródeł finansowania i zmniejszenie uzależnienia banków od krótkoterminowych środków pieniężnych.

Pierwotnie nie sądzono, że wprowadzenie tych wskaźników doprowadzi do ich interakcji z TLTRO. Rzecz w tym, że pierwsze operacje TLTRO miały wygasnąć we wrześniu 2018 r. Przedłużające się niebezpieczeństwo zbyt niskiej inflacji (czy wręcz deflacji w latach 2014–2016) oraz wybuch pandemii w marcu 2020 r. przedłużyły jednak stosowanie tych operacji aż do grudnia 2024 r. (jeśli nie dojdzie do ich wcześniejszych spłat). Nie ulega wątpliwości, że kredyty udzielone w ramach TLTRO ułatwiały bankom uczestniczącym w tych operacjach spełnienie wymogów podyktowanych przez LCR i NSFR. Ponadto niemal z każdą kolejną edycją TLTRO wymogi uczestnictwa w tych operacjach były coraz mniej restrykcyjne. Problem był na tyle poważny, że wdrożenie NSFR przesunięto o ponad trzy lata.

Nadpłynność w Eurosystemie generowana zarówno przez APP, jak i TLTRO sprzyjała spadkowi stóp procentowych. Z kolei wprowadzane sukcesywnie normy ostrożnościowe w ramach Bazylei III gwarantowały unikanie zbyt niebezpiecznych zachowań ze strony banków w dobie nadzwyczaj taniego pieniądza. Powstała nadpłynność stawała się swego rodzaju amortyzatorem ułatwiającym bankom dostosowanie się do nowych norm regulacyjnych.

Z upływem czasu coraz częściej kwestionowano zdolność tych nowych wskaźników do faktycznej oceny sytuacji płynnościowej banków. Stopniowe wygaszanie tych programów w ramach zainicjowanego w drugiej połowie 2022 r. odchodzenia od niekonwencjonalnej polityki pieniężnej zaczęło rodzić pytanie o zdolność banków do spełniania opisywanych tu kryteriów w nowym środowisku makroekonomicznym – coraz bardziej restrykcyjnej polityki monetarnej.

Odchodzenie od TLTRO wywołało lekkie pogorszenie się opisywanych tu wskaźników płynnościowych. Jak wynika z analizy przeprowadzonej w artykule, jest ono jednak minimalne, z co najmniej dwóch powodów. Po pierwsze, nadal bardzo dobra jest kondycja sektora bankowego w strefie euro. Po drugie, wciąż bardzo wysoka jest nadpłynność w systemie bankowym strefy euro. Dokonana do połowy 2023 r. spłata około 75% TLTRO spowodowała spadek nadpłynności o około 20% i w efekcie w połowie 2023 r. kształtowała się na poziomie 3,6 bln euro (czyli nadal ponad 25% PKB całej strefy euro). Jest to wciąż bardzo wysoki poziom, który powinien gwarantować bankom stosunkowo proste refinansowanie.

Oczywiście zainicjowana odsprzedaż aktywów skupionych w ramach APP będzie prowadzić do dalszego kurczenia się nadpłynności w strefie euro. Z drugiej strony EBC nie dysponuje żadnym harmonogramem pozbywania się skupionych wcześniej aktywów. Taki stan rzeczy nie powinien być zaskoczeniem, zwłaszcza jeśli uwzględnimy sytuację fiskalną wielu krajów strefy euro (np. Włoch, nie wspominając o Grecji). Dlatego w nadchodzących latach ogromna nadpłynność – mimo jej dalszej, raczej ograniczonej redukcji – powinna jeszcze długo utrzymywać się na poziomie gwarantującym ban-

kom nie tylko swobodne refinansowanie, lecz także łatwe osiągnięcie opisanych tu wskaźników płynnościowych. Rodzi się więc pytanie, czy opracowane w poprzedniej dekadzie wskaźniki płynnościowe nie powinny zostać zmodyfikowane. Odpowiedź na to pytanie wychodzi jednak poza ramy tematyczne niniejszego artykułu.

Słowa kluczowe: zarządzanie płynnością, stopy procentowe, operacje refinansujące, polityka monetarna, normy ostrożnościowe