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Central Bank of Ireland
Eurosystem

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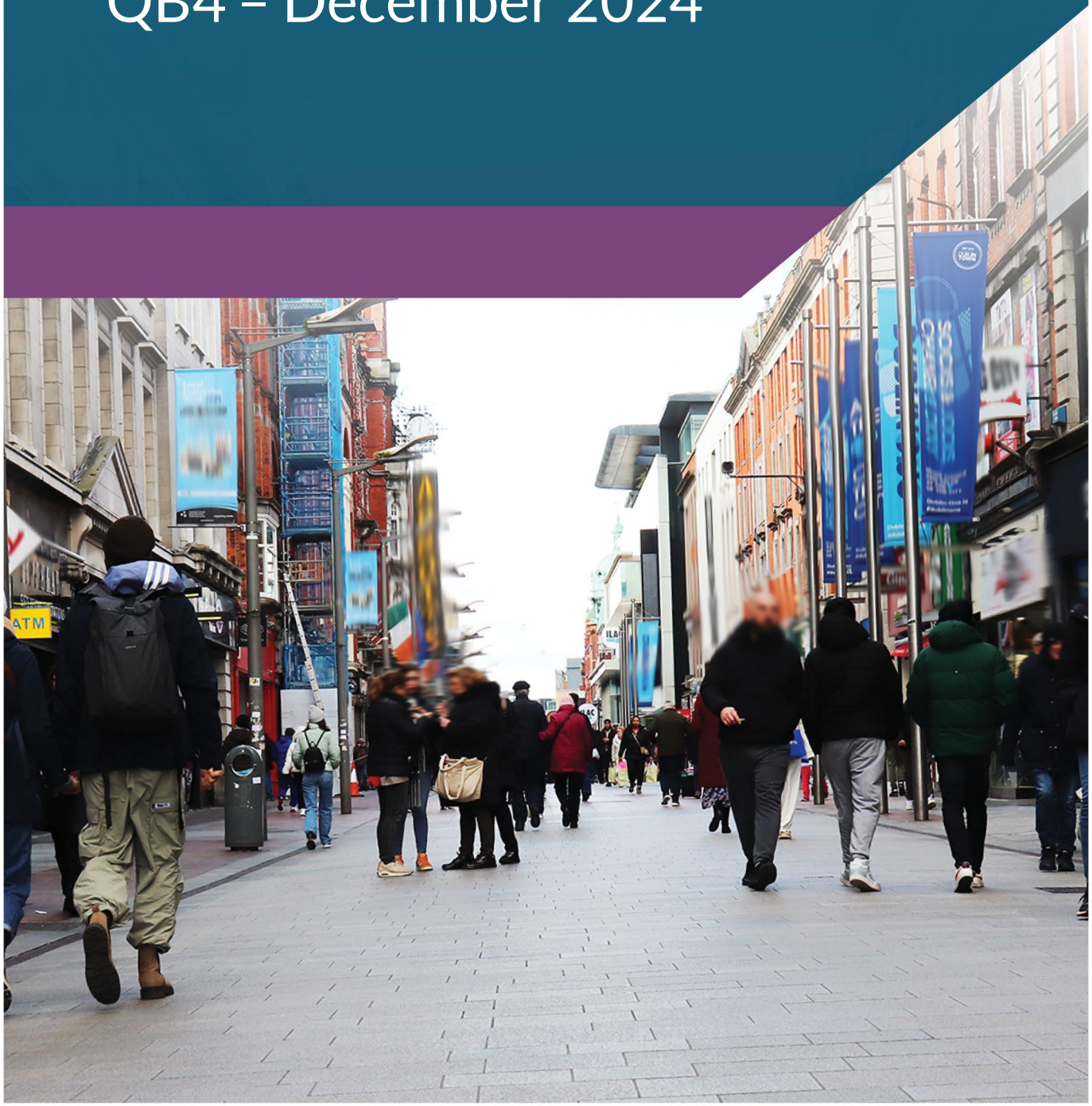

Contents

The evolution of the Eurosystem operational framework and how recent changes may impact banks in Ireland

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Abstract

In March 2024, the ECB Governing Council announced important changes to its operational framework for implementing monetary policy. This *Article* serves to explain what an operational framework is and why it is important for the smooth transmission of monetary policy. It describes the evolution of the Eurosystem operational framework, from inception as a 'classic' corridor system with scarce reserves to a *de-facto* floor system with abundant reserves, as increasingly the ECB Governing Council used its balance sheet as a policy tool to address various crises it has faced since 2008. The new framework - a demand-driven 'soft' floor system - takes into account various structural changes that have emerged since the Global Financial Crisis (GFC), most notably an increased but uncertain demand for central bank reserves. The ECB is monitoring banks' liquidity management behaviour closely and how money markets are reacting to declining excess liquidity in the system. Irish banks will need to adapt also. In this regard, we highlight certain features of the new framework and their implications for banks based in Ireland. Going forward, it is expected that recourse to Eurosystem standard refinancing operations will be used to meet banks' liquidity needs. However, it is likely that, on aggregate, recourse to Eurosystem standard refinancing operations by banks based in Ireland, as part of their regular liquidity management toolkit, may come later than in some other jurisdictions in the euro area because high levels of excess liquidity may decline in Ireland at a slower pace than elsewhere.

[1] Financial Operations Directorate. We would like to thank Marcos Cachulo in particular for research assistance and Vasileios Madouras, Martin O'Brien, David Cronin, Patrick Haran and Ross Murphy for comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the Central Bank of Ireland or the Eurosystem.

1. Introduction

The ECB's monetary policy stance is implemented through its operational framework. Importantly, while the operational framework implements the desired monetary policy stance, it must not interfere with it. The operational framework encompasses the set of tools, procedures and market operations designed to effectively steer short-term money market interest rates in line with the key policy interest rates set by the Governing Council. While decisions on the setting of key policy interest rates are made by the ECB Governing Council, monetary policy is implemented on a de-centralised basis by each national central bank (NCB) of the euro area. In March 2024, the ECB announced some changes to its operational framework, joining peer central banks such as the Bank of England and the Federal Reserve Bank who made similar announcements in the preceding years.

The design of the operational framework is important so as to facilitate the smooth implementation of monetary policy. Short-term money market interest rates are effectively the connecting point between the rates set by the ECB and those set by the banking system and financial markets that influence broader financing conditions in the wider economy for households and businesses. Therefore, effectively controlling these short-term interest rates is important as it facilitates the smooth transmission of monetary policy to the real economy and thereby serves the primary objective of the ECB of maintaining price stability across the euro area over the medium term in line with its statutory mandate.

The purpose of this *Article* is to give an overview of what an operational framework is and explain the evolution of the Eurosystem operational framework. This evolution largely reflects the deployment of the ECB balance sheet to react to various crises since 2008, with the operational framework proving flexible over this time. As the balance sheet is expected to reduce in size considerably over the next few years, it was deemed appropriate by the ECB Governing Council to review the operational framework to ensure an efficient and effective implementation of monetary policy in the future. Furthermore, as excess liquidity in the banking system declines, it will eventually reach a point where money market interest rates are subject to upward pressure.[2] Providing clarity to the market in advance of this happening was considered important by the ECB. In addition, the euro area economy and

[2] Excess liquidity is defined here as the sum of balances on the current account and the deposit facility minus the sum of the total minimum reserve requirements and the balance on the marginal lending facility.

how the central bank interacts with the financial system has undergone a number of structural changes since the GFC. Therefore, it was viewed as essential to review the operational framework to take account of these significant changes. With the new changes announced in March of this year, the ECB has intensified its monitoring as it assesses banks' funding behaviour and money market reactions as excess liquidity declines within the system. Meanwhile, the Central Bank of Ireland (the Central Bank) closely monitors monetary policy counterparties in Ireland and this *Article* also serves to highlight how the Irish banking system may interact with the newly designed operational framework.

This *Article* has the following structure. Section 2 introduces what an operational framework is and describes its main design features. Section 3 describes the evolution of the Eurosystem operational framework, how it was a classic corridor system at its inception and how it evolved to a de facto supply - driven floor system. Section 4 looks at some of the considerations policy makers would have assessed in reviewing the framework. Section 5 then introduces the new demand-driven soft floor framework, how it is intended to work and touches on its guiding principles. Section 6 looks at the operational framework from the perspective of the Irish banking system and highlights some notable features of it. Section 7 looks at the immediate focus of the Eurosystem in the aftermath of the announced changes from a market functioning and monetary policy transmission perspective. Section 8 concludes.

2. The Main Design Features Of An Operational Framework

The main design features of a monetary policy operational framework include i) the operational target, ii) the policy interest rates and iii) the liquidity regime.[3] The operational target of the Eurosystem is very short-term money market interest rates. Implicitly, since the outset of the monetary union, market participants focused on the euro overnight index average (EONIA), which was derived from interest rates on overnight unsecured lending transactions between banks. In late-2019, there was a transition to a new benchmark, the euro short-term rate (€STR). This accounts for a larger volume of transactions (compared to EONIA), predominantly between banks and non-

[3] See (Bindseil, 2004) and (Bindseil, 2014) for a comprehensive overview of monetary policy implementation theory and operational frameworks.

banks. As such the €STR represents the overnight wholesale unsecured borrowing costs of banks in the euro area.[4]

The Eurosystem has three key policy rates set by the Governing Council in line with its monetary policy stance, the deposit facility rate (DFR), the rate on the main refinancing operation (MROR) and the rate on the marginal lending facility (MLFR). These are the interest rates the Governing Council sees as appropriate to achieve its inflation target over the medium-term. They represent the price the ECB sets in the supply or remuneration of reserves across the banking sector. The ECB provides liquidity to monetary policy eligible counterparties on a weekly basis through the main refinancing operation (MRO).[5] The MROR is how much it costs for a bank to borrow from the ECB for a period of one week. The deposit facility (DF) is available for banks to place overnight deposits at the relevant NCB. The DFR is the interest rate banks receive when they deposit money with the central bank overnight and is set below the MROR. The marginal lending facility (MLF) is also available to banks who require overnight liquidity. The MLFR is set above the MROR. These three rates act as a corridor of interest rates. The so called 'standing facilities' (MLF and DF) are intended to create an upper and lower bound which, in theory, money market interest rates should not deviate outside of. That is because a bank is unlikely to borrow above the MLF in the market if it can borrow from the ECB at that rate and it is unlikely to lend below the DFR if it can deposit money at the ECB at that rate.

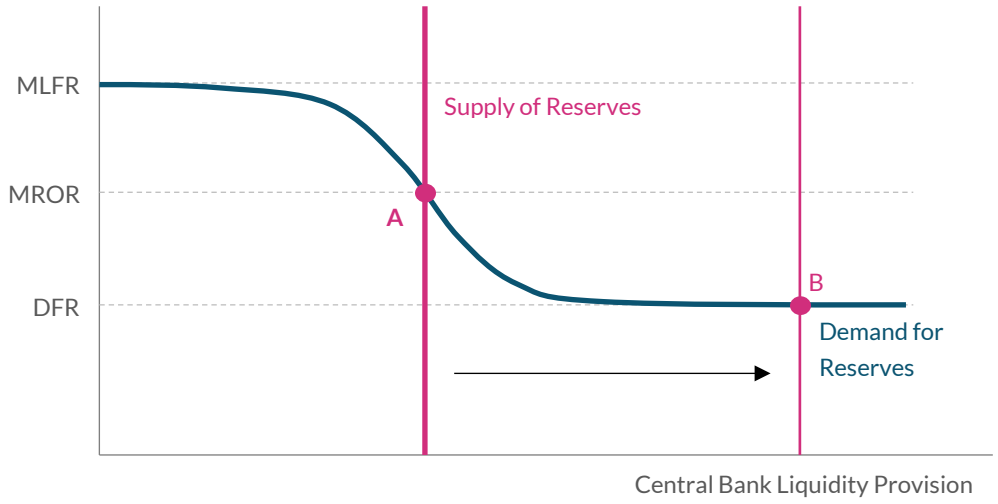
[4] Details of €STR found here.

[5] The counterparty framework provides criteria on the basis of which credit institutions, mainly banks, are granted access to Eurosystem monetary policy operations (MPOs). The framework is designed to ensure that a broad range of counterparties are able to participate in MPOs, while protecting the Eurosystem from the risk of a counterparty defaulting. To qualify as a monetary policy eligible counterparty, an institution needs to: (1) be subject to the Eurosystem's minimum reserve requirements (MRRs); (2) be supervised by competent authorities; (3) be financially sound; (4) fulfil the operational requirements of the local NCB to participate in MPOs. All credit operations must be collateralised using eligible collateral.

Supply of and Demand for Reserves and the Key Policy Interest Rates

Figure 1

Policy Rates



Source: ECB, Central Bank of Ireland

The level of reserves in the system depends on the choice of liquidity regime. [6] With a structural liquidity deficit and a system of scarce reserves, the central bank acts within a corridor system. This means that short-term money market interest rates will trade around the MROR, as banks need to come to the central bank on a frequent basis to obtain reserves. This is illustrated in Figure 1, where the supply of reserves meets the demand for reserves at point A. The demand curve is steep at this point A, meaning a high degree of accuracy is required in estimating the reserve demand, with small forecast errors resulting in volatility in money market interest rates. As reserves become more abundant, money market interest rates are pushed towards the DFR, and this acts as a floor for very short-term money market rates. Demand-supply dynamics are at play here, with the supply of reserves outstripping the demand for reserves, resulting in banks seeking to offload the excess reserves in the money market. This would put downward pressure on money market interest rates resulting in them drifting to the floor. As illustrated in Figure 1, the

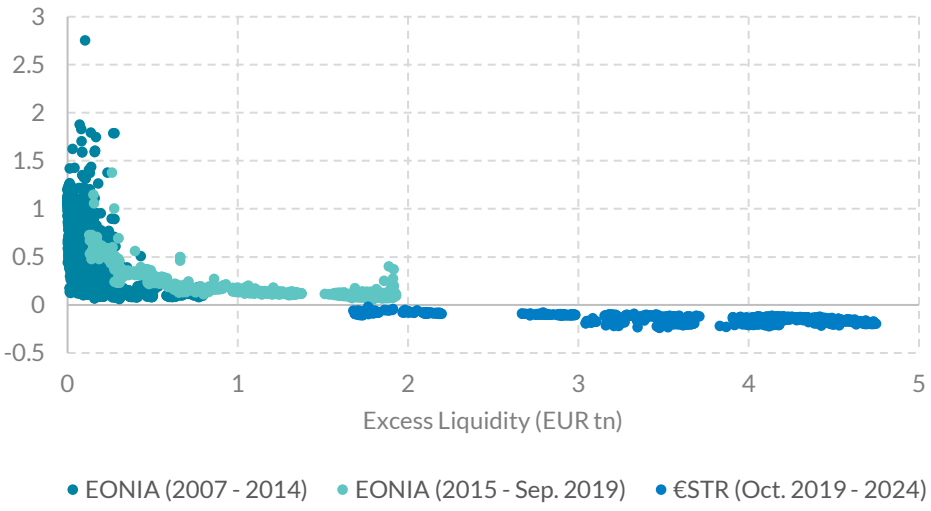
[6] Central bank reserves are the safest and most liquid asset in an economy. Reserves are overnight balances held by commercial banks with the domestic central bank. Central bank reserves include minimum reserve requirements (MRRs) and balances held in excess of MRRs, either in the current account of banks used for compliance with MRRs or via the deposit facility. Together with currency reserves they form the monetary base and are the ultimate settlement asset in the economy. Banks need reserves – even in the absence of MRRs – to meet payment obligations and as part of their liquidity buffers.

demand curve becomes flat at a certain threshold of reserves in the system (point B). As banks will have surplus liquidity, the only option is to deposit the excess reserves with the relevant NCB. This is evident in the data based on the experience in the Eurosystem. Figure 2 illustrates the relationship between EONIA/€STR and excess liquidity in the Eurosystem since 2007. It is clear that as excess liquidity increased, money market rates declined to the floor.[7]

EONIA/€STR as a Function of Excess Liquidity

Figure 2

Normalised EONIA/€STR



Source: ECB, EMMI, Central Bank of Ireland

Notes: Normalised daily rates computed as (€STR/EONIA – DFR)/(MRO – DFR).

Last observation: 17 September 2024

3. From a Corridor System to a *de facto* Floor

From its inception, the ECB employed a classic 'corridor' type system, with scarce reserves, as described in Section 2. The banking system had a structural liquidity deficit, created in part by the imposition of a minimum reserve requirement, whereby every credit institution is required to hold a certain cash balance on reserve at the relevant NCB.[8] This liquidity deficit ensured that

[7] Since the introduction of €STR there has been a 'leaky floor' whereby €STR has been trading below the DFR. €STR includes a substantial volume of transactions with non-banks whereas EONIA represented transactions only between banks. The DF is only available to monetary policy eligible counterparties and they charge non-banks a fee for liquidity services which is reflected in €STR.

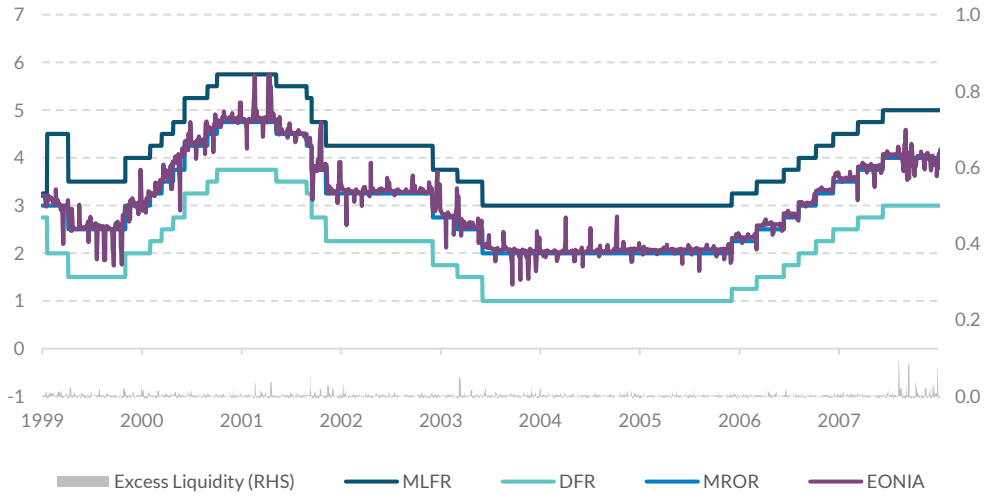
[8] Minimum Reserve Requirements are calculated as 1% of specific liabilities on their balance sheets – mainly customer deposits and debt securities with maturities of up to two years.

banks on aggregate needed to come to the ECB for liquidity. On a daily basis, the ECB would predict the liquidity needs of the banking system by forecasting liquidity draining autonomous factors (the most prominent being banknotes in circulation and government deposits).[9] On the back of these forecasts, the ECB would supply a fixed amount of liquidity in a weekly variable rate auction-based system to eligible banks. By controlling the quantity of reserves, the ECB could control the price at which they were traded in the market. On this basis, the ECB sought to steer short-term money market interest rates in the centre of the corridor, around the MROR. For banks that did not get the liquidity allocation they needed through the weekly MRO, or for those that discovered that they had an unexpected shortage or surplus of reserves, they could avail of the standing facilities. However, in order to encourage banks to trade with each other, the ECB applied penalty rates to the standing facilities. Before the GFC, the DF paid one percentage point below the MROR, while the MLF cost one percentage point more than the MROR. From 1999 through to 2008, EONIA traded in the middle of the corridor, albeit with some volatility, as illustrated in Figure 3.

ECB Key Interest Rates and Evolution of Excess Liquidity (1999-2008)

Figure 3

Interest Rates (percentage); Excess Liquidity (EUR trillions)



Source: ECB, EMMI, Central Bank of Ireland

Notes: Daily data covering the period ranging from 1999 to end-2007.

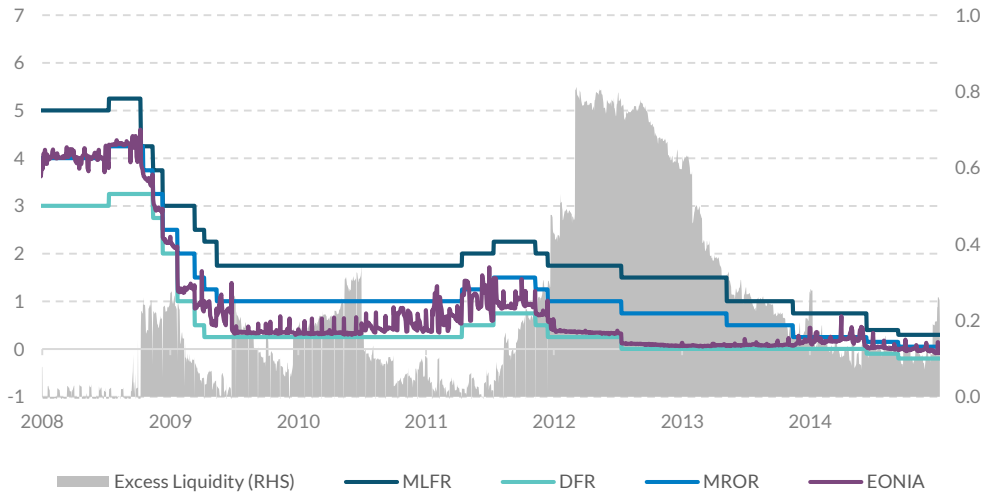
[9] Autonomous factors can be classified as net government deposits held with the Eurosystem NCBs, banknotes in circulation, net foreign assets, net assets denominated in euro, and other autonomous factors. See description here.

Following the collapse of Lehman brothers and after the 2008 GFC, the interbank market changed radically. The effect of the Lehman Brothers collapse was that banks became wary of lending to each other, resulting in a freezing of inter-bank activity (Allen & Moessner, 2012). In response, in October 2008 the ECB moved to a liquidity-providing system of fixed rate tenders with full allotment (referred to as 'fixed rate full allotment' (FRFA)) via the weekly MRO lending operations. This meant that the liquidity in the system was no longer determined by the ECB but by demand for reserves from the banks, which they received at a fixed rate, subject to having sufficient eligible collateral. As a result, it was difficult to control short-term interest rates in the centre of the corridor due to precautionary borrowing by banks. In the period 2008 to 2014, EONIA moved to the floor at times when excess liquidity increased and drifted upwards back to the centre of the corridor at times, as excess liquidity drained from the system. During this period, to give more confidence to the banking system, the ECB provided longer-term refinancing operations (LTROs) of 6 and 12 month duration, with 3-year very long-term refinancing operations (VLTRO) offered in December 2011 and February 2012. EONIA moved firmly to the floor following the large take-up by banks in these 3-year VLTROs, which increased the level of excess reserves in the system. As VLTRO borrowing was gradually re-paid, excess liquidity declined and EONIA drifted towards the centre of the corridor in 2014 (Figure 4).

ECB Key Interest Rates and Evolution of Excess Liquidity (2008-2015)

Figure 4

Interest Rates (percentage); Excess Liquidity (EUR trillions)



Source: ECB, EMMI, Central Bank of Ireland

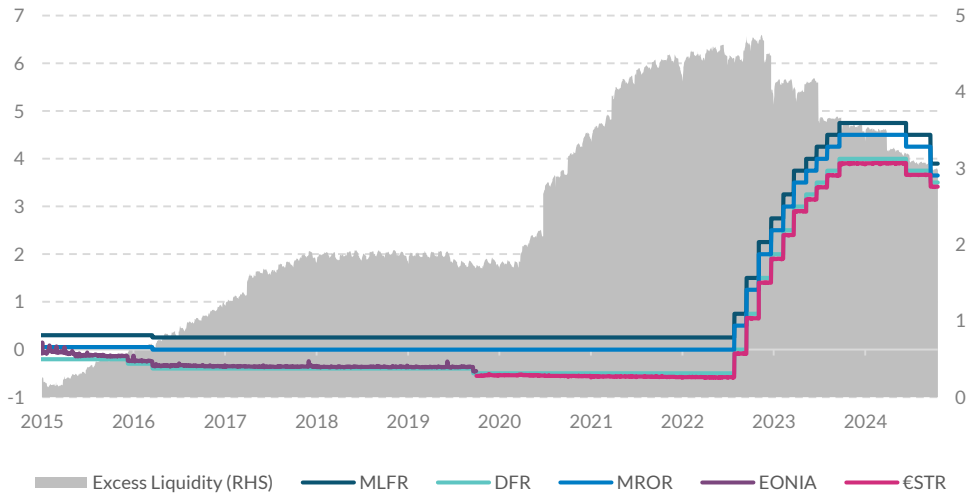
Notes: Daily data covering the period ranging from 2008 to end-2014.

In 2014, with inflation persistently below the ECB's target of below but close to 2% and amid a risk of a prolonged period of deflation, the ECB Governing Council reduced the MROR to zero.[10] With the perceived effective lower bound (ELB) on interest rates reached, it deployed further non-standard monetary policy measures and launched the asset purchase programme (APP)[11]. This resulted in large quantities of liquidity being injected into the banking system, which led to EONIA, which was later replaced by €STR, becoming anchored to the DFR, implying that the Eurosystem was effectively operating in a de facto floor system (Figure 5). The volume of excess liquidity in the system increased substantially after the COVID 19 pandemic with the introduction of the pandemic emergency purchase programme (PEPP) and the third series of targeted longer-term refinancing operations (TLTRO III).

ECB Key Interest Rates and Evolution of Excess Liquidity (2015 – 2024)

Figure 5

Interest Rates (percentage); Excess Liquidity (EUR trillions)



Source: ECB, EMMI, Central Bank of Ireland

Notes: Daily data covering the period ranging from 2015 to present.

Last observation: 16 October 2024

[10] The ECB cut the MROR to 0.05% in 2014 and subsequently to 0% in 2016.

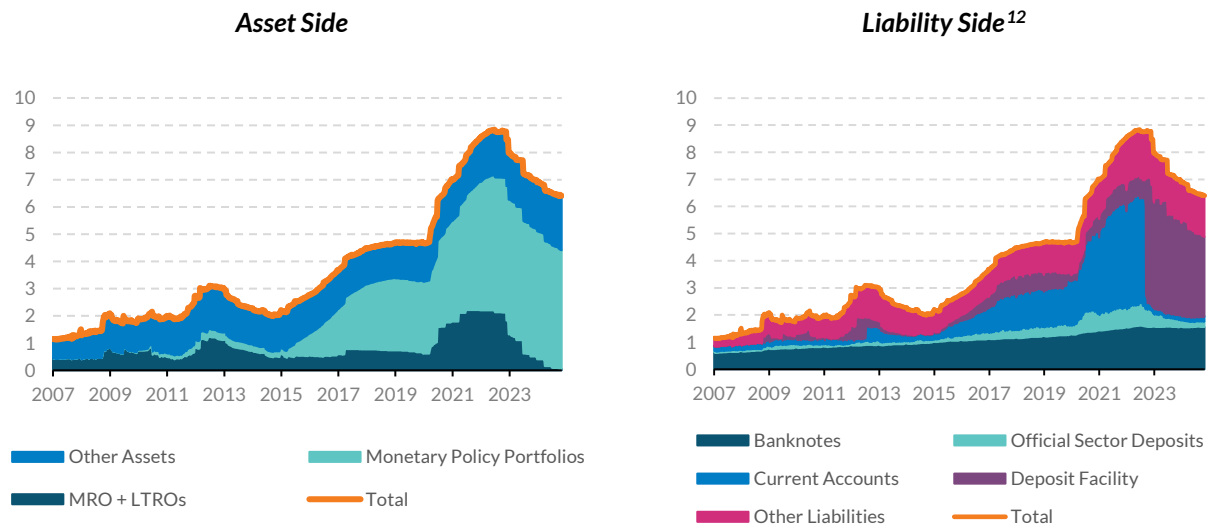
[11] The APP comprised of the public sector purchase programme (PSPP) launched in 2015, the asset backed securities purchase programme (ABSPP) launched in 2014, the third covered bond purchase programme (CBPP3) launched in 2014 and the corporate sector purchase programme (CSPP) launched in 2016. (Larkin, et al., 2019) examine the impact of the APP on the Irish government bond market.

In the years since 2008, the size and composition of the Eurosystem balance sheet changed considerably as the balance sheet was increasingly used as a policy tool with the deployment of non-standard monetary policy measures such as the asset purchase programmes to mitigate disinflationary pressures. Figure 6 shows the evolution of key items on the asset and liability sides of the Eurosystem balance sheet. The size of the balance sheet peaked in 2022, at close to €9trn, many multiples the size of the pre-crisis balance sheet. From 2015, securities held for monetary policy purposes dominated the asset side of the balance sheet with the excess liquidity generated from the purchase of these securities dominating the liability side. Since 2022, the balance sheet has begun to decline. The initial decline was primarily driven by the repayment of TLTRO III borrowings, while the ending of full reinvestments of APP as of July 2023 and partial reinvestments of PEPP as of July 2024 up to the end of 2024 (with full run-off of PEPP reinvestments thereafter) are also contributing to the gradual decline. Over the next number of years, the balance sheet is expected to decline further, with an expected run-off of the monetary policy portfolios of around €40bn per month as of January 2025 (Schnabel, 2024c). Together with the run-down of the bonds held in the monetary policy portfolios, autonomous factor growth will contribute to a reduction of excess liquidity in the system. In the absence of measures to support liquidity provision, excess liquidity would eventually fall to a level that would put upward pressure on money market interest rates.

Eurosystem Balance Sheet

Figure 6

(EUR trillion)



Source: ECB, Central Bank of Ireland calculations.

Last observation: 3 November 2024.

Note: Weekly data.

4. Considerations in Reviewing the Operational Framework

There were a number of changes to the environment that central banks operate in that were relevant when reviewing the operational framework. In the pre-crisis framework, the Eurosystem was successful at predicting the liquidity needs of the banking system on a daily basis. However, that would not necessarily be the case if it were to return to a corridor-type system with a structural liquidity deficit. This is because the demand for reserves from the banking system has changed materially over the intervening years (Åberg, et al., 2021) . Structural changes have had an impact on the demand for central bank reserves, the most important being the introduction of regulatory requirements since the GFC, in particular the Liquidity Coverage ratio (LCR). The LCR has led to an increase in the demand for safe assets. It requires banks

[12] The sharp drop in current account holdings in 2022 reflected a migration of banks' reserve balances into the DF to avail of positive remuneration since excess reserves (above the MRR) on the current account are remunerated at 0% when the DFR is positive.

to hold liquidity buffers, with central bank reserves being the highest form of high quality liquid assets (HQLA). Banks can perform 'liquidity transformation', in that they can use non-HQLA collateral to borrow from the Eurosystem and transform that into HQLA that can be used to meet LCR requirements. This may lead to additional demand for central bank reserves as banks seek to fulfil their LCR requirements. Banks can also meet their LCR requirements by holding other forms of HQLA, such as highly rated, liquid fixed income securities. There are some factors which could influence banks' desire to hold reserves instead of other forms of HQLA such as risk tolerance and the shape of the yield curve. Therefore, it is difficult to predict how banks will choose to fill their LCR requirements in the future and to what degree central bank reserves will play a role in this.

Other factors may have led to an increased demand for central bank reserves. The increased level of certain autonomous factors, most notably banknotes in circulation, has naturally increased the demand for reserves. The volatility of autonomous factors has also increased over the years, making them more challenging to forecast. However, it is the extent of demand for reserves beyond the autonomous factors that has introduced the greatest degree of uncertainty. For instance, the level of precautionary demand for liquidity buffers from banks is unknown and would likely change, should a crisis emerge. Innovations in payment systems and the potential creation of the digital euro also create uncertainties in relation to the demand for reserves. All of this increases the difficulty of accurately predicting the liquidity needs of the banking system, if the Eurosystem were to return to steering money market rates in a classic corridor type system with a structural liquidity deficit. In such a framework the likelihood of increased volatility in short term interest rates would be higher, relative to the case before 2008, and this could impede the smooth transmission of monetary policy.

Another important consideration is the financial market footprint of the Eurosystem. There is a trade-off between interest rate controllability and the central bank footprint in financial markets. From 2015 to 2023, the Eurosystem balance sheet expanded considerably as it reflected purchases of large volumes of sovereign bonds, supranational bonds, covered bonds, corporate bonds and asset-backed securities and targeted longer-term refinancing operations (TLTROs).[13] This level of footprint would be undesirable

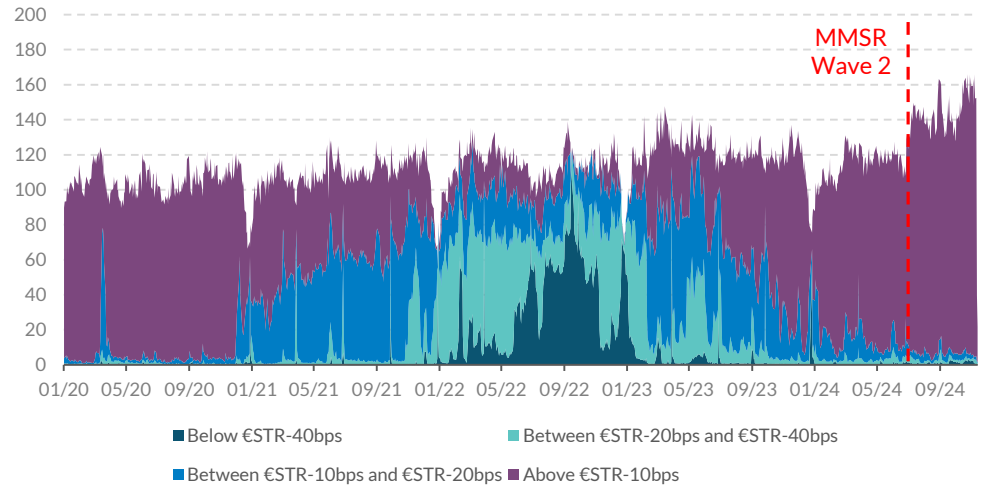
[13] These policies were motivated by their direct impact on bond markets and credit dynamics. In line with the ECB's 2021 monetary strategy statement, from a stance perspective, the activation of such non-standard policies is only relevant in the neighbourhood of the ELB on policy interest rates. Away from the ELB, by contrast, the short-term policy interest rate is the

in normal times as the purchase of long-dated securities exerts downward pressure on term and credit risk premia, thereby flattening the yield curve. Furthermore, a large bond portfolio can lead to scarcity in certain bonds, which puts downward pressure on repo rates, thereby impacting monetary policy transmission and market functioning (Schnabel, 2024b). This was particularly notable between 2021 and 2023 for repos against German government bonds, given their widespread demand, as illustrated in Figure 7. A large bond portfolio in normal times would also reduce the capacity of the central bank to undertake monetary policy easing in times of stress and should the ELB on interest rates be reached. Finally, ECB activities in the market are required to comply with the Treaty principle of 'an open market economy with free competition, favouring an efficient allocation of resources'. The Open Market Economy principle implies avoiding unnecessary presence in markets so that prices and quantities are determined by competitive forces in an open market. This suggests that, in ensuring a sufficient control of very short-term money market interest rates, the Eurosystem should not demonstrate an over-proportional market footprint beyond what is needed to steer rates.

Repo Activity against German Government Bonds

Figure 7

(EUR billions)



Source: MMSR, ECB, Central Bank of Ireland

Notes: Specialness of repo market is displayed as volumes per rate bucket. Red dashed line marks the start of the reporting from the banks included in the second wave of reporting agents. Daily data reported by the reporting agents to the MMSR dataset.

Last observation: 8 November 2024

primary instrument to steer the monetary policy stance. The ECB's Monetary Policy Strategy Statement was published in July 2021 as the culmination of the Monetary Policy Strategy Review.

How liquidity would be provided in the new framework was another important consideration, in particular the weight that might be assigned to asset purchases and refinancing operations. This is a significant aspect for the euro area given that the economy is bank-based with the consequent heavy reliance on banks to transmit monetary policy. In this context, the excess liquidity generated from asset purchases tends to be concentrated in certain euro area jurisdictions and in certain banks. More specifically, about 40% of banks, in terms of total assets, are holding all the excess liquidity generated from asset purchases, with the highest share being held in Germany (Schnabel, 2024a). This raises the risk of fragmentation of money market rates at a country level, impairing the transmission of monetary policy. If excess liquidity is concentrated in certain jurisdictions then banks in the countries with less excess liquidity could on average pay substantially higher borrowing rates than banks where the excess liquidity is concentrated. Furthermore, banks in certain jurisdictions would be reliant on liquidity generated through asset purchases being redistributed through various channels.[14] Baldo et al (2017) illustrate that this redistribution was not effective in the initial phase of the APP. In contrast, by supplying reserves primarily by means of refinancing operations, liquidity could be distributed more evenly around the euro area banking system in a demand-driven system, which would mitigate those fragmentation risks that can arise when liquidity is provided via asset purchases.

5. A New Operational Framework

The new operational framework to steer short-term interest rates was announced by the ECB on 13 March 2024 marking the conclusion of a comprehensive review process that started in December 2022. The new operational framework has been tailored to the distinctive features of the euro area economy and will help financial markets and banks adapt to the ongoing changes in the liquidity environment as the Eurosystem balance sheet normalises and excess liquidity in the euro area banking system declines gradually. It is built on the experience gained from implementing monetary policy since the inception of the euro and is founded on six core principles. These principles will guide monetary policy implementation going forward and are outlined in Table 1.

[14] Notable redistribution channels include the repo markets and via senior unsecured bank bond and covered bond issuance, as discussed in (Hudepohl, et al., 2024)

Table 1: Principles Guiding Monetary Policy Implementation

Principle	Description
Effectiveness	The main objective of the operational framework is to ensure the effective implementation of the monetary policy stance in line with the provisions of the EU Treaty.
Robustness	The operational framework needs to be robust to different monetary policy configurations as well as different financial and liquidity environments, and consistent with the use of the monetary policy instruments set out in the ECB's monetary policy strategy.
Flexibility	The euro area banking sector is large and diverse in terms of banks' size, business models and geographical locations. An elastic supply of central bank reserves based on banks' needs is therefore best suited to effectively channel liquidity across the entire banking system throughout the euro area and to contribute to flexibly absorbing liquidity shocks.
Efficiency	An efficient operational framework implements the desired monetary policy stance and does not interfere with it, respecting the proportionality principle and taking into account net side effects, including financial stability risks.
Open market economy	The design of the operational framework should be consistent with the smooth and orderly functioning of markets – including money markets, which are more closely linked to the implementation of monetary policy.
Secondary objective	The operational framework shall facilitate the ECB's pursuit of its secondary objective of supporting the general economic policies in the European Union – in particular the transition to a green economy – without prejudice to the ECB's primary objective of price stability.

Source: European Central Bank, Governing Council statement of 13 March 2024.

In accordance with the aforementioned core principles, as set out in the Governing Council statement, the new operational framework is built around the following set of key parameters and features:

- The Governing Council will continue to steer the monetary policy stance through the DFR. Short-term money market interest rates are expected to move in the vicinity of the DFR with tolerance for some volatility as long as it does not blur the signal about the intended monetary policy stance.
- The Eurosystem will provide liquidity through a broad mix of instruments, including short-term credit operations (i.e. MROs) and three-month longer-term refinancing operations (LTROs) as well as – at a later stage – structural longer-term credit operations and a structural portfolio of securities.

- MROs and three-month LTROs will continue to be conducted through fixed-rate tender procedures with full allotment. They are intended to play a central role in meeting banks' liquidity needs and their use by counterparties is an integral part of a smooth implementation of monetary policy.
- With effect from 18 September 2024 the MROR has been adjusted such that the spread between the MROR and the DFR has been reduced to 15 basis points (from the previous spread of 50 basis points). This narrower spread will incentivise bidding in the weekly operations, so that short-term money market rates are likely to move in the vicinity of the DFR, while the potential scope for volatility in short-term money market rates will be limited. Accordingly, it will leave room for money market activity and provide incentives for banks to seek market-based funding solutions. The MLFR was also adjusted with effect from 18 September 2024 such that the spread between the MLFR and the MROR remains unchanged at 25 basis points.
- New structural longer-term refinancing operations and a structural portfolio of securities will be introduced at a later stage, once the Eurosystem balance sheet begins to grow durably again, taking into account legacy bond holdings. These operations will make a substantial contribution to covering the banking sector's structural liquidity needs arising from autonomous factors and MRRs. The structural refinancing operations and the structural portfolio of securities will be calibrated in accordance with the core principles and to avoid interference with the monetary policy stance. In line with its monetary policy decisions, the ECB expects the portfolios acquired under the APP and the PEPP to continue to run off the balance sheet.
- The reserve ratio for determining banks' MRRs remains unchanged at 1%. The remuneration of minimum reserves remains unchanged at 0%.
- A broad collateral framework will be maintained for refinancing operations.

The new operational framework can be described as a demand-driven "soft" floor system and is a hybrid system designed to meet the liquidity requirements of the euro area. The new operational framework takes into account the significant changes in the financial system and monetary policy in recent years, including the tendency of banks to maintain precautionary liquidity buffers to meet regulatory liquidity requirements, as discussed in Section 4.

The transition to the new demand-driven operational framework will be gradual. The changes to the operational framework will not become apparent until the current ample excess liquidity has declined sufficiently in line with the normalisation of the Eurosystem balance sheet. The DFR remains the anchor for very short-term money market interest rates.

The euro area banking sector is large and heterogeneous along key aspects, such as its size, business models and geographic distribution. Therefore, an elastic supply of central bank reserves according to banks' needs is important to ensure that liquidity is channelled in an effective manner to the different parts of the banking system in all the euro area countries. This is why the MROs will continue to be run on a FRFA procedure, thereby elastically providing as much liquidity as demanded by the banks at the MROR. This FRFA procedure, together with the acceptance of a broad collateral framework, will allow banks to absorb liquidity shocks. It also facilitates monetary policy implementation in the euro area at a time when the demand for central bank reserves is less stable and predictable, while providing insurance against the risk of frictions in the circulation of liquidity across and within jurisdictions.

The Eurosystem provides credit only against adequate collateral.[15] Therefore, the availability of eligible collateral is also an effective constraint on banks' recourse to central bank credit. The maintenance of a broad collateral framework is therefore a key design feature of the demand-driven soft floor system for the euro area banking system and can be seen as complementary to the FRFA procedures in the aim of providing liquidity elastically to meet the demands of banks. The Eurosystem collateral framework is relatively unique among the central banks' collateral frameworks not only because it is broad in terms of scope (eligible assets), but also because it is uniform in terms of its undifferentiated use across all credit operations. The composition of mobilised collateral can vary according to bank business models, and can be heterogeneous across jurisdictions. In a hypothetical scenario whereby the eligible collateral would be restricted to only HQLA assets, this could impose material constraints on a large share of banks. The broad collateral framework allows banks to engage in liquidity transformation whereby they can borrow central bank reserves (the most liquid form of HQLA) against non-HQLA collateral. The spread of 15 basis points between the DFR and the MROR is intended to deter the risk of excessive liquidity transformation by banks while preserving incentives for money market activity.

[15] See (Bindseil, et al., 2017) for background information on the collateral framework.

A structural portfolio is different from a monetary policy portfolio and serves a different purpose. The monetary policy portfolios under the APP and the PEPP served the purpose of easing the monetary policy stance at a time when interest rates were constrained by the ELB. The PEPP served a dual purpose, also supporting monetary policy transmission. The purpose of a structural portfolio is to provide liquidity on a durable basis to satisfy the structural demand for reserves from banks. The structural operations are, therefore, intended to implement, and not to steer, the monetary policy stance. Thus, the composition of the structural portfolio may also be different from that of monetary policy portfolios. Without prejudice to the ECB's primary mandate of price stability, the design of the operational framework will aim to incorporate climate change-related considerations into the structural monetary policy operations.

6. The new Operational Framework and Irish Banks

The Irish banking system will adapt to the new operational framework, in line with other banks in the euro area. In Ireland, there are 43 licenced banks, of which a subset are monetary policy eligible counterparties and thus can avail of refinancing operations. There are features of the Irish banking system that are notable in the context of the new operational framework and some features of the new framework that are notable for the Irish banking system. It is likely that, on aggregate, the new operational framework will materially impact Irish banks later than banks in some other euro area jurisdictions. Furthermore, how liquidity will be provided is an important dimension of the new framework. In particular, the central role envisaged for refinancing operations in the new operational framework, where reserves are directly channelled to the borrower as opposed to liquidity provision via asset purchases, means that the framework is less susceptible to redistribution effects, which is an important consideration for Irish banks.

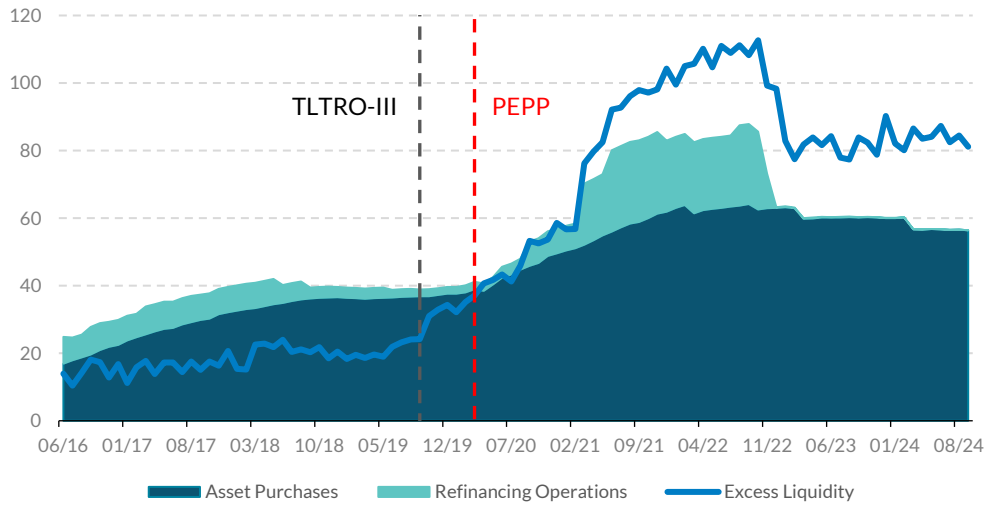
Excess liquidity in Ireland is currently elevated and has been for some time, increasing sharply from 2019 until 2022 (Figure 8). In this period TLTRO-III participation by banks in Ireland had a positive but temporary impact on excess liquidity. In late 2022, the outstanding borrowings under TLTRO-III by banks domiciled in Ireland peaked at around €24bn, contributing to excess reserves reaching a high of around €100bn (Figure 8). By early 2023, TLTRO borrowings were largely repaid. Excess liquidity has remained relatively steady since then

at around €80bn.[16] The Irish banking system also experienced a period of consolidation over the past number of years. Two established retail banks in Ireland ceased operating in the jurisdiction, which resulted in a further flow of bank deposits to the remaining retail banks. While excess liquidity in the Irish banking system increased over the past 5 years, this consolidation has contributed to a concentration of the excess liquidity in those remaining retail banks.

Non-Standard Measures and Excess Liquidity in Ireland

Figure 8

(EUR billions)



Source: ECB, Central Bank of Ireland

Notes: Asset purchases includes the Asset Purchase Programme (APP) and the pandemic emergency programme (PEPP); refinancing operations relate to bank participation in the MRO, LTROs, PELTRO TLTROs; monthly data

Last observation: September 2024

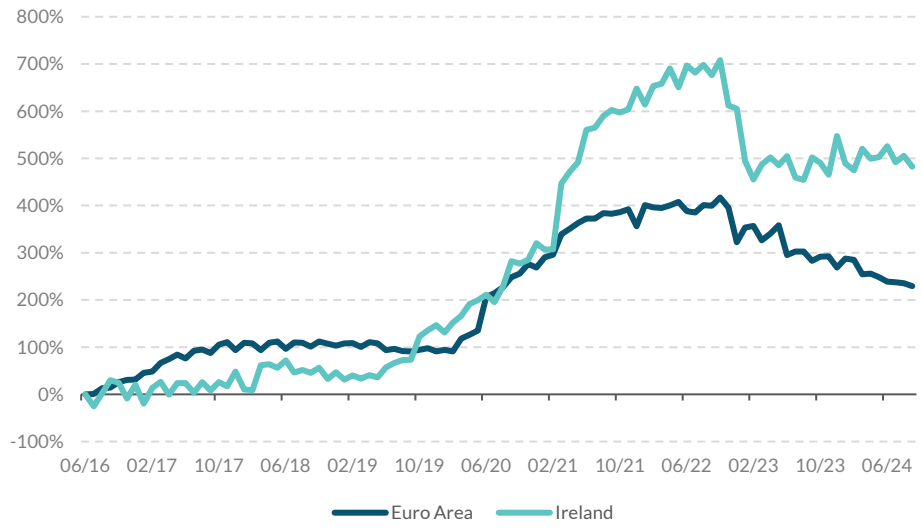
Looking ahead, it is likely that, on aggregate, recourse to Eurosystem refinancing operations by banks based in Ireland, as part of their regular liquidity management, may come later than in some other jurisdictions in the euro area. The reason for this is that excess liquidity may decline in Ireland at a slower pace than elsewhere. The build-up in excess liquidity in the Irish retail banks was not as directly linked to asset purchases due to their business

[16] Banks participating in TLTRO III could avail of a positive spread arbitrage by placing these borrowed funds on the deposit facility (as long as the eligible lending targets were met). As such, the motive behind Irish bank participation in these operations differed from previous crisis periods. This was evident in the decision by Irish banks to repay early their TLTRO-III borrowings once the terms became less favourable, resulting in a subsequent sharp drop in excess reserves

models as was the case elsewhere in the euro area. For instance, during the APP phase up to 2018, there was some excess liquidity in Ireland, although it remained relatively steady below €20bn (Figure 8). It is likely that asset purchases have had some impact on excess reserves in Ireland; however, it appears this direct impact was somewhat limited, based on evidence from that period. As illustrated in Figure 8, there was a steady increase in assets purchased under APP in that period up to 2018, but excess liquidity remained relatively steady. Therefore, it can be expected that as the assets mature off the Eurosystem balance sheet, excess liquidity in Ireland will not decline at the same pace, ceteris paribus. This dynamic has been evident in the data to date (Figure 9). Since the repayment of TLTRO in 2022, excess liquidity in Ireland has remained relatively steady, despite excess liquidity in the euro area steadily declining as the assets purchased under the purchase programmes mature and TLTRO borrowing was repaid.

Excess Liquidity in Ireland and in the Euro Area

Figure 9
Excess Liquidity (cumulative growth)



Source: ECB (ILM, BSI), Central Bank of Ireland

Note: monthly data, rebased as of June 2016

Last observation: September 2024

The decision for refinancing operations to be at the centre of liquidity provision is relevant for Irish banks in the new framework's steady state. The impact of asset purchases on excess liquidity in Ireland is less direct than refinancing operations. As discussed in Section 4, reserves created under the asset purchase programmes tend to largely end up on the balance sheets of institutions primarily based in core jurisdictions. However, there has been

some indirect transfer of reserves to the Irish banks. The business models of Irish retail banks, whereby they predominantly rely on households and corporates for deposit funding, as opposed to market funding (liability side), and for making loans (asset side) means that they largely remain out of reach of the direct liquidity redistribution induced by asset purchases. Therefore, the direct impact of asset purchases on the reserve level of the domestic banks is seen to be less strong, especially when compared to refinancing operations which have a direct impact on reserves, as explained previously. Refinancing operations could be seen as a more impactful form of monetary policy instrument to satisfy the aggregate liquidity needs of the Irish banking system in the steady state as opposed to asset purchases, as long as banks have sufficient quantities of eligible collateral. In this context, the confirmation that a broad collateral framework will be maintained for refinancing operations, coupled with FRFA procedures for standard refinancing operations (MRO, 3-month LTRO), are also important features of the operational framework for Irish banks. It will be crucial that Irish monetary policy counterparties view access to Eurosystem standard refinancing operations as an option in their regular diversified funding toolkit should a liquidity need arise, taking account, inter alia, of considerations such as pricing relative to other funding sources and ease of access.

7. Looking Ahead

The changes to the operational framework announced in March 2024 can be seen as the first step in a process. The Eurosystem is now entering a phase of learning as it undergoes a period of balance sheet contraction to a degree that it has never experienced. The amount of liquidity in the system will gradually reduce over time and banks and market participants will need to adjust their behaviour. Excess liquidity remains elevated in the Eurosystem. As such, money market rates are expected to trade close to the DFR for some time but it will be important to monitor possible volatility and directional trends as excess liquidity declines and to better understand the transmission of monetary policy.

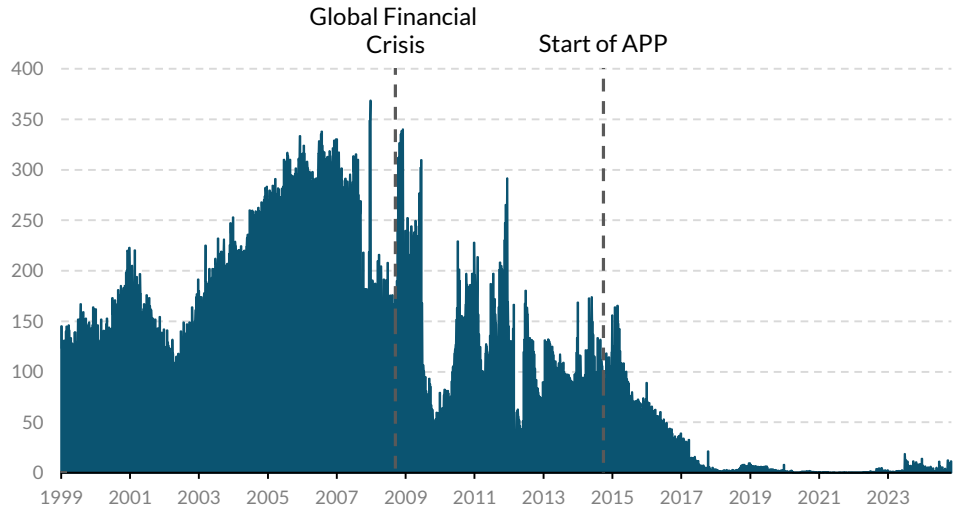
The next two years will be important for the Eurosystem as it monitors money market developments and the extent of participation of banks in standard refinancing operations, including how this varies across jurisdictions and banks' business models. Recourse to the MRO has remained limited up to now, despite the narrowing of the MROR/DFR spread in September 2024 because of the still elevated excess liquidity and the relative attractiveness of market-

based funding options (Figure 10). It is expected that as excess liquidity declines in the system, gradually more banks will borrow from the Eurosystem in the MRO in line with the concept of a demand-driven soft floor system. This should be supported by the fact that a large share of Eurosystem banks, representing roughly 25% of MRRs, are not active in repo markets, which limits their funding options (Schnabel, 2024c). The reduced MROR/DFR spread to 15bps incentivises this participation to a greater degree than when the spread was 50bps, while it also seeks to limit rate volatility. With regard to participation in the MRO, the types of collateral pledged by participating banks will also be monitored to give a sense of the degree of liquidity transformation. Furthermore, a picture will gradually emerge as to the degree of demand for reserves and how that differs across jurisdictions and business models of banks.

Participation by banks in the Eurosystem's Main Refinancing Operation

Figure 10

(EUR billions)



Source: ECB, Central Bank of Ireland

Note: weekly data.

Last observation: 3 November 2024

It will be important to monitor any evidence of emerging fragmentation as the normalisation of the Eurosystem balance sheet progresses, particularly as the distribution of the volume of excess liquidity varies across jurisdictions in the euro area. If pockets of liquidity shortages were to emerge among euro area banks it may result in volatility in money market rates, impacting the smooth transmission of monetary policy. Daskalova et al (2024) highlight the role that repo markets can play in the redistribution of liquidity, noting a pick-up of

liquidity motivated repo transactions since early 2023. There is also evidence that as excess liquidity has declined there has been a redistribution of excess liquidity across jurisdictions. Hudepohl et al (2024) highlight that as banks repaid TLTRO borrowings, many replaced such funding with covered and senior unsecured bond issuance. Other banks in the euro area purchased these bonds, which resulted in sizable cross-border flows, which is shown in changes to TARGET balances across euro area jurisdictions. In addition, the share of central bank reserves in banks' HQLA has reduced, falling from 78% in 2022 to 56% in October 2024, while at the same time aggregate LCR levels remained stable at 160% (Schnabel, 2024). These developments will be monitored closely as the ECB and NCBs better understand the demand for reserves in the steady state.

Regarding money market developments, recently repo rates in the euro area have begun to drift higher and towards and above the DFR. This largely reflects higher collateral availability amid the repayment of TLTRO III borrowings, elevated net issuance of government securities and declining Eurosystem monetary policy portfolio holdings. At the same time, the spread between the DFR and €STR has remained relatively sticky given the underlying characteristics of the overnight unsecured rate, whereby the majority of transactions reflect deposits from non-banks without access to the central bank balance sheet. The spread between repo rates and €STR will need to be monitored closely as excess liquidity declines in order to ensure a smooth transmission of the monetary policy stance.

The new design features of the operational framework aim to increase the attractiveness of the MRO and thereby increase its use in banks' normal liquidity management, while retaining a diversified funding mix. However, should there be any perceived stigma attached to MRO usage, then that could impair the effectiveness of the new operational framework, by leading to a lower level of reserves in the system, putting upward pressure on money market rates or increasing their volatility. Key to avoiding stigma would be widespread use of refinancing operations by banks in the euro area as the Eurosystem balance sheet normalises.

8. Conclusion

The Eurosystem monetary policy operational framework to steer short-term interest rates has gone through a number of successive phases since the start of monetary union in 1999. It started with a classic corridor system based on scarce reserves which evolved subsequently into a corridor with FRFA

procedures. It then transitioned to a de facto supply-driven floor system with the provision of abundant excess reserves to the banking system. The next phase is the transition to the demand-driven soft floor framework announced earlier this year which is designed as a hybrid system that provides reserves elastically to meet the demands of the banking system and through a mix of instruments, including both short-term refinancing operations and structural operations. The new operational framework allows for an effective control of short-term interest rates, while leaving room to learn and adapt in an environment where the demand for reserves is uncertain and the starting point is still an environment of ample excess liquidity, albeit that excess liquidity is reducing. The broad collateral framework and the fact that refinancing operations are at the centre of liquidity provision as opposed to asset purchases are features that are particularly notable for Irish banks.

Increased market-based funding activity and signs that reserves are being redistributed across borders and banks suggest that banks have begun to adapt to an environment with less excess liquidity (Schnabel, 2024c). As excess liquidity declines, it is expected that banks will source liquidity through Eurosystem standard refinancing operations, as these are an integral part of the smooth implementation of monetary policy in the demand-driven soft floor system. The impact of the decline in excess liquidity on financial markets and the banking system, including the impact on Irish banks, will continue to be monitored closely. However, excess liquidity in Ireland is elevated and it is expected that it will decline at a slower pace than some other euro area jurisdictions, ceteris paribus. As such, recourse to standard refinancing operations on aggregate may occur later than elsewhere. Based on the experience that is gained, the Governing Council will review the key parameters of the operational framework in 2026 and stands ready to adjust the design and parameters of the framework at an earlier stage, if necessary, to ensure that the implementation of monetary policy remains in line with the established core principles.

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