ECB's operational framework review: recognizing a structural change

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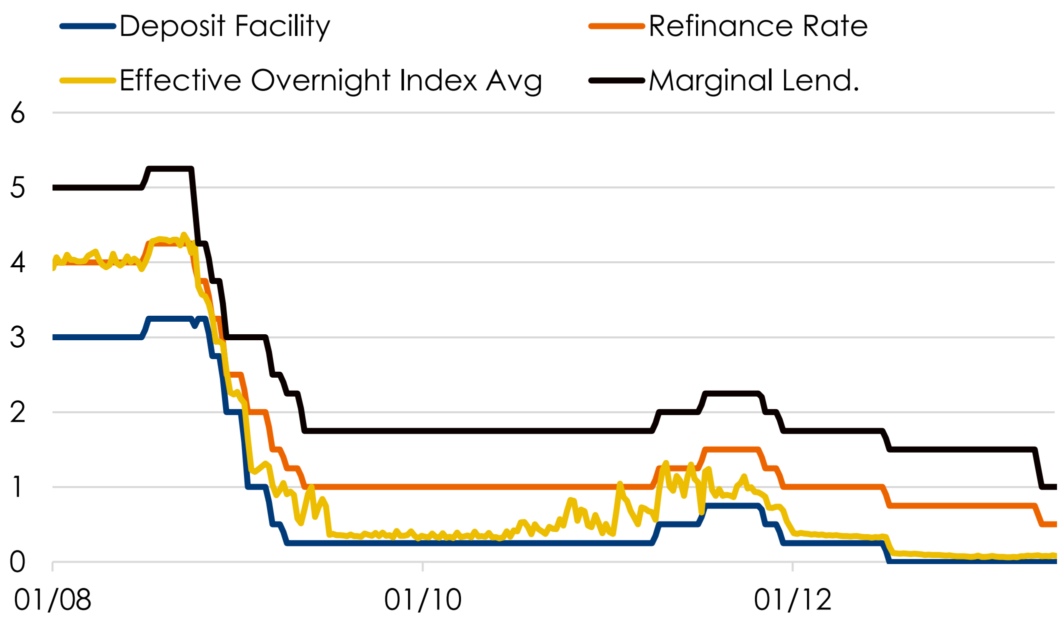
Operational framework review: recognizing a structural change

ECB - Monetary policy decisions -*15 December 2022*

"By the end of 2023, the Governing Council will also review its operational framework for steering short-term interest rates, which will provide information regarding the endpoint of the balance sheet normalization process."

The 2008 financial crisis led the ECB to adopt a floor system which will be difficult to dismiss



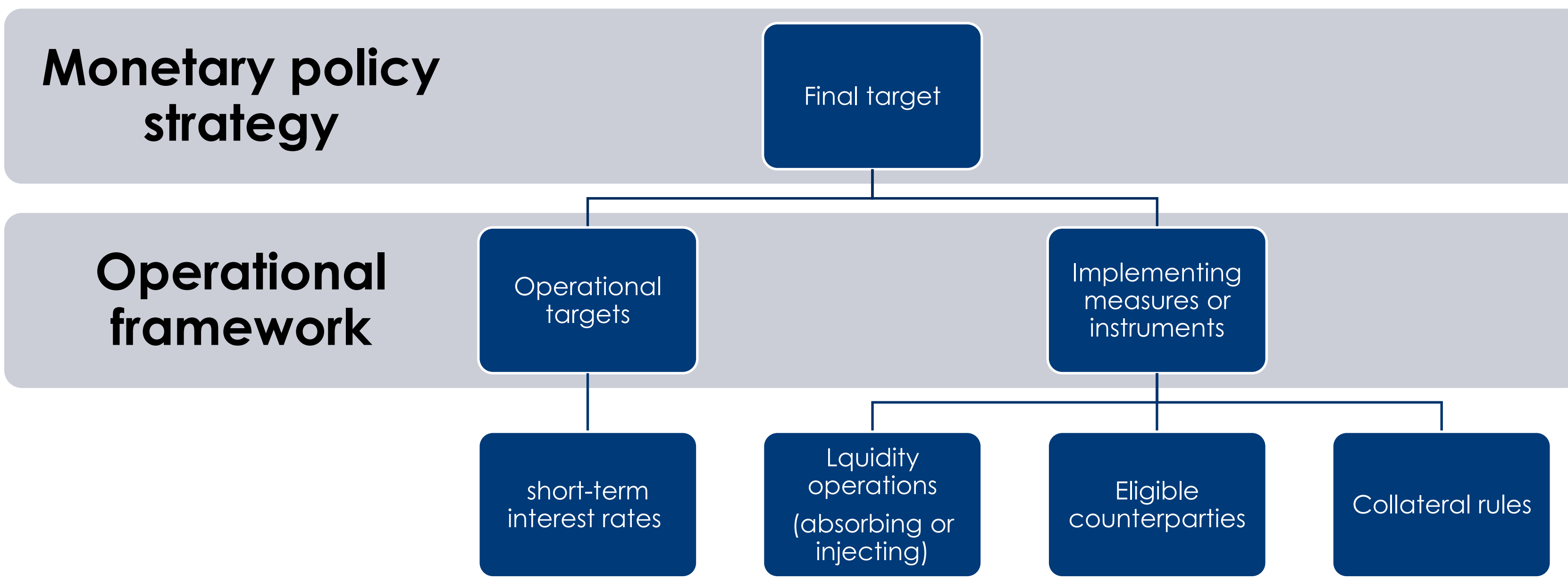
Source: Bloomberg, Intesa Sanpaolo

- The question is whether the decline in the volume of excess reserves will affect the ability of the central bank to implement monetary policy.
- In recent years, excess reserves have been instrumental in effectively steering short-term interest rates.

What does reviewing the operational framework mean?

"Monetary policy *operational frameworks* concern the intermediate targets of central banks and how they meet them. This is distinct from monetary policy *strategies*, which concern the quantitative definition of policy objectives, the horizon over which they should be delivered as well as the organization and weighting of incoming information."

Benoît Cœuré, Member of the Executive Board of the ECB, at the Federal Reserve Bank of Kansas City's 40th Economic Policy Symposium, Jackson Hole, 27 August 2016



During recent crisis, the ECB added new monetary policy instruments to keep price stable

Monetary policy instruments affect the "financing conditions" of people, businesses and governments in the euro area.

The operational framework of the ECB comprises of a set of instruments:

- **Open market operations**
  - Main refinancing operations
  - Longer-term refinancing operations
  - Fine-tuning operations
  - Structural operations (Outright purchases and issuance of debt certificates)
- **Standing facilities**
  - Marginal lending facility
  - Deposit facility
- **Minimum reserve requirements for credit institutions**
- **Forward guidance**
- **Central bank liquidity lines**

Key Interest rates:

- **MRO** The interest rate on the main refinancing operations. In these operations banks can borrow funds from the ECB against collateral on a weekly basis at a pre-determined interest rate.
- **DEPO** The rate on the deposit facility, which banks may use to make overnight deposits at a pre-set rate lower than the main refinancing operations rate.
- **MLF** The rate on the marginal lending facility, which offers overnight credit to banks at a pre-set interest rate above the main refinancing operations rate.

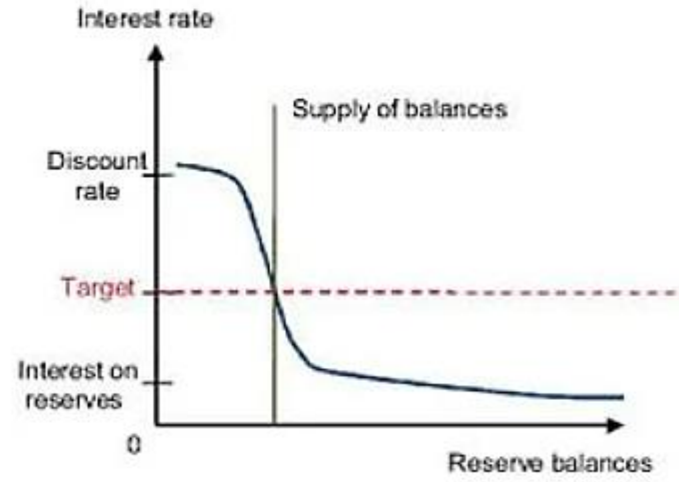
A corridor system relies on the active management of liquidity, given a structural shortage of bank reserves

A corridor system is based on:

- **Ceiling on interbank rates =** Central bank offers to lend banks as much as they want at some fixed rate and banks won't pay more to borrow from someone else
- **Floor on interbank rates =** Central bank offers to pay rate on reserves held with banks and banks won't lend for less to other banks.

- The spread between the rate for lending in the money market and the remuneration rate for central bank liquidity reflects the opportunity cost for holding reserves. Interbank money market rates therefore price a scarcity value for reserves.
- If banks face money market frictions, such as regulatory obstacles, perceived liquidity or counterparty risk or collateral shortages, this could hinder the efficient distribution of reserves and increase the volatility of money market rates

Corridor system: supply is placed where the demand curve for reserves is highly sensitive to rates level



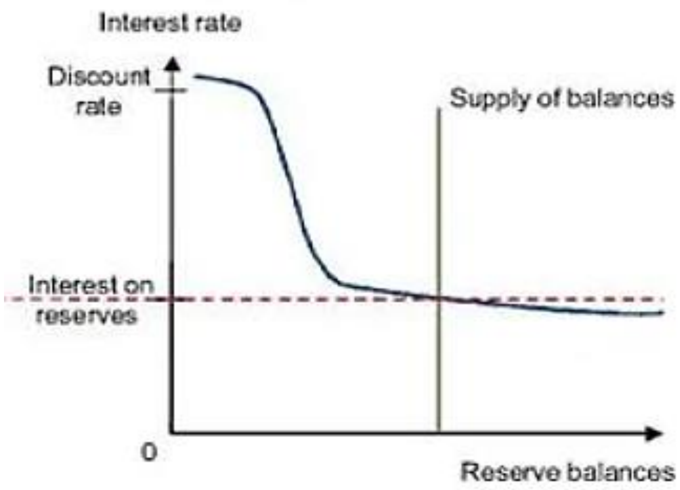
- **Requires very accurate liquidity forecasts by the central bank**
- **Requires an efficient distribution of reserves in the system**
- **Requires frequent liquidity operations**
- **A small balance sheet would reduce the impact of asset holdings on central banks' profit disbursements to the government**
- **A small balance sheet can also be expanded if a crisis arises.**

A floor system relies on a structural excess supply of reserves, making the fine tuning of the liquidity supply unnecessary

Floor system. In a floor system the central bank satiates the banking system with reserves. The central bank ensures that supply of liquidity is large enough to keep rates at levels around the policy rate. This is the remuneration rate for banks depositing reserves in contrast to the policy rate for banks borrowing reserves.

- In a floor system the interbank money market becomes less relevant as liquidity is ample and there is less need to transact between banks; at the same time, transactions between banks and non-banks become more relevant.
- Steering the operational target in a floor system is based on an arbitrage mechanism between central bank eligible counterparties (i.e. banks) that borrow from other entities (so-called non-banks) and hold the proceeds as reserves.

Floor system: supply is placed where the demand curve for reserves is inelastic



- **Fine-tuning liquidity operations are not necessary.**
- **In a floor system there will be less incentive for banks to trade than in a corridor system.**
- **It endows central banks with one more degree of freedom, since the interest rate and the balance sheet policies become two independent instruments.**

Two options for a «floor system»: supply-driven or demand-driven

- A floor system can be implemented in two ways:

- The Fed and the ECB currently use a **'supply-driven' system**, and effectively create and maintain excess reserves as a result of a substantial monetary policy bond portfolio.

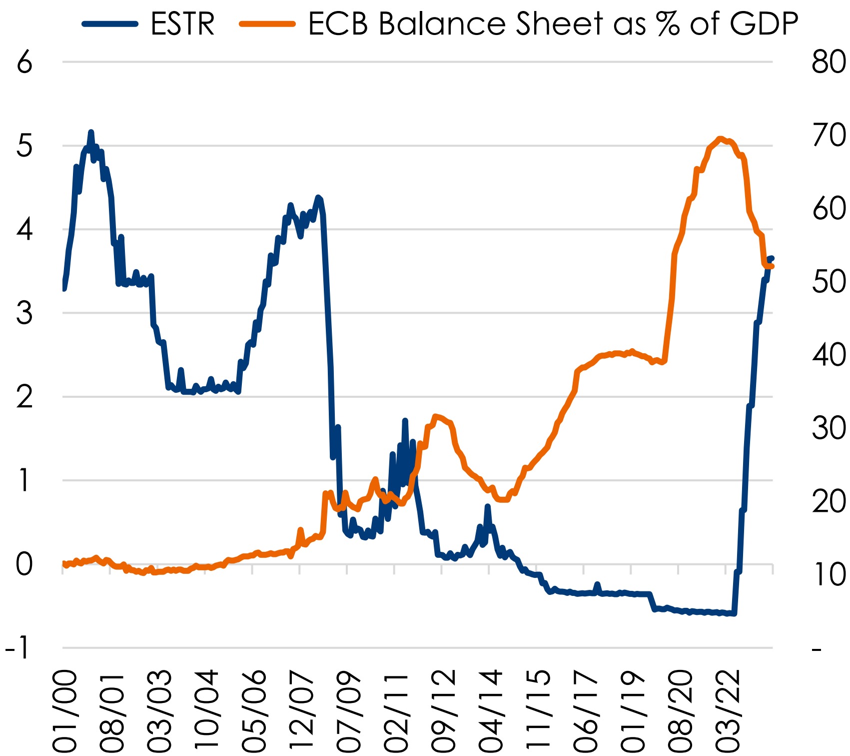
- The main advantage of this system is that is **operationally simple**.
- Under an ample level of reserves, the control over market interest rate is not perfect. In the Eurozone, o/n rate dropped below the deposit rate as an increasing amount of liquidity was held by non-banks without direct access to the ECB deposit facility, so it has led to a **leaky floor**. Interest rate control could be improved by broadening access to the deposit facility, as Fed did with the introduction of the ON RRP.
- Given the uneven distribution of reserves among EA banks, the QT may create **reserve scarcity** in parts of the financial system, putting unwarranted upward pressure on market rates.

- A **demand-driven floor system** is used by the Bank of England: the central bank holds a smaller bond portfolio than in the supply-driven system, but more frequent repo operations are conducted to supply banks with additional liquidity to fulfill its demand for reserves.

- This system is operationally simple, but the leaky floor problem persists.
- A specific disadvantage is the **potential stigma** a bank may face if it uses these central bank lending facilities frequently.

Monetary tightening is proceeding on both fronts, rates and balance sheet

ECB's balance sheet reduction was contemporary to the increase in rates



Source: ECB, Bloomberg, Intesa Sanpaolo

ECB balance sheet reached the high in 3Q22 (EUR Bn, as of 18/10/22)

Assets		Liabilities	
Gold & receivables	592	Banknotes in circulation	1,559
Claims on non EA residents	548	Current account	215
LTROs	2,119	Deposit facility	4,623
Securities held for monetary purposes	4,951	Liabilities to Gen. Govt	551
Others	564	Others	1,826
Total	**8,774**	**Total**	**8,774**

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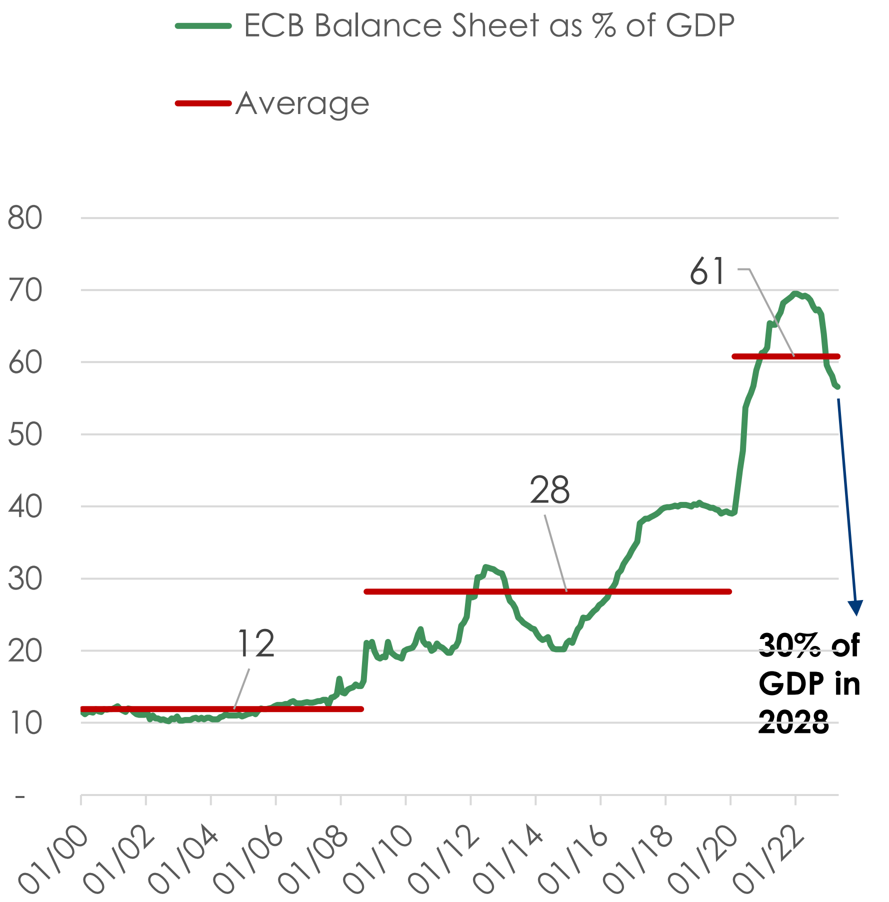
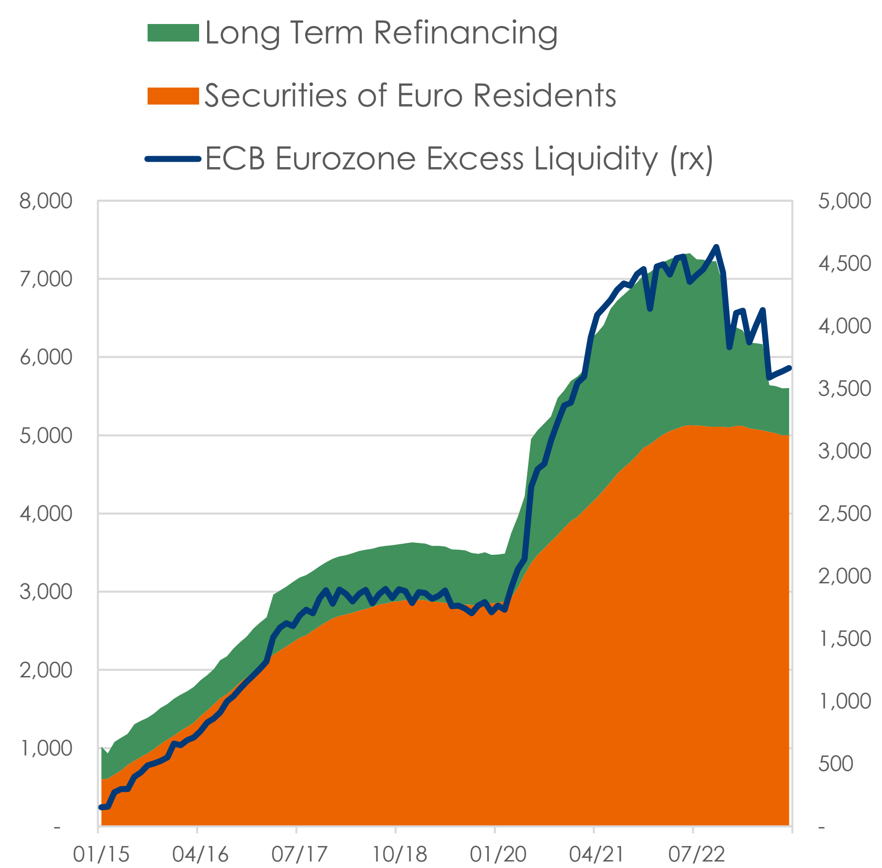
The end point of the balance sheet normalization should not be a return to the pre GFC level

Balance sheet of the Eurosystem (% GDP)



Main assets of the ECB balance sheet and excess bank reserves (EUR billion)



Source: ECB, Bloomberg, Intesa Sanpaolo

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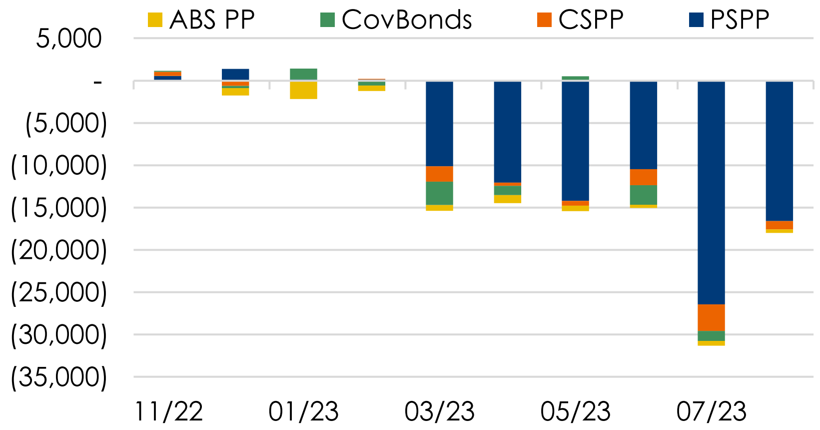
The process of unwinding QE is ongoing

Eurosystem balance sheet (EUR Bn)

	11/11/2022	08/09/2023	Change
Assets	**8,765**	**7,153**	**-1,612**
Golds and receivables	593	609	16
MRO	2	4	2
LTROs	2,116	602	-1,514
Holdings of securities	5,108	5,003	-105
- Sec for monetray pol.	4,945	4,810	-135
Others	946	935	-11
Liabilities	**8,765**	**7,153**	**-1,612**
Currency in circulation	1,560	1,561	0
MFI's reserves	4,907	3,848	-1,059
- Reserve requirement	167	165	-2
- Current Account	48	0	-48
- Deposit account	4,692	3,682	-1,010
Deposits of Centr. Govt	502	214	-288
Liab to non eu residents	368	234	-134

Eurosystem's Long-term refinancing (EUR Bn)

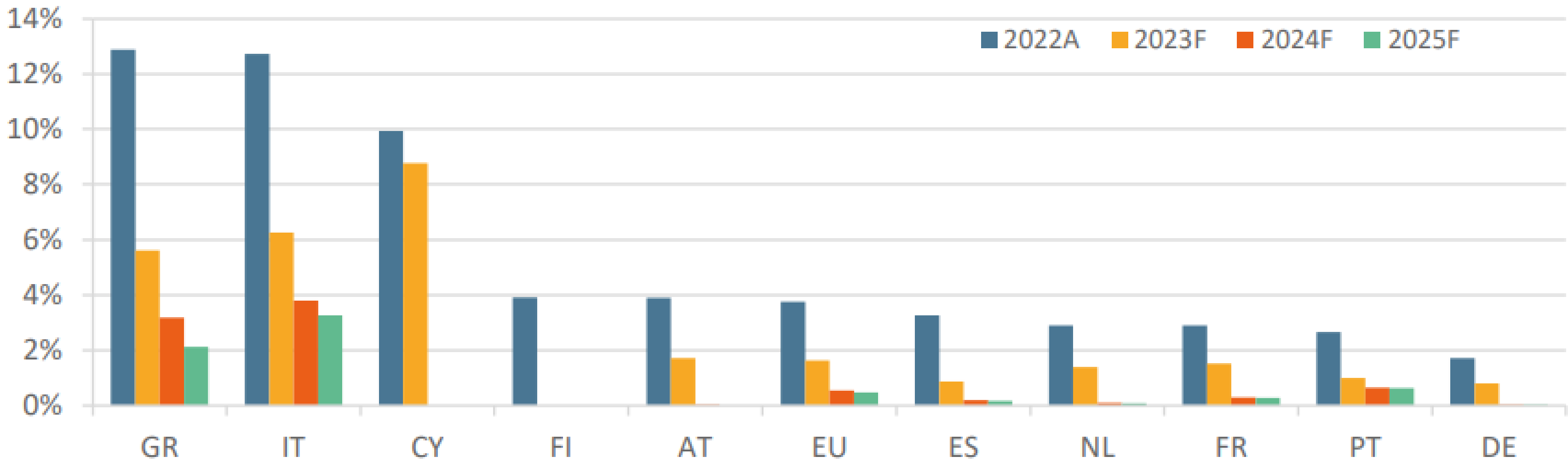
Reimbursement of securities in APP (EUR Bn)



Source: ECB, Bloomberg, Intesa Sanpaolo

Based on the recent EBA survey, European banks are expecting a reduction in public sector financing over the next two years and an increase in market-based funding

Public sector funding (repo-based funding) as a proportion of total funding by country and for the EU



Source: EBA
https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/Funding%20plans/1061264/Report%20on%20Funding%20Plans.pdf
, Intesa Sanpaolo

Central bank funding instruments like LTROs and MROs are expected to increase in 2024

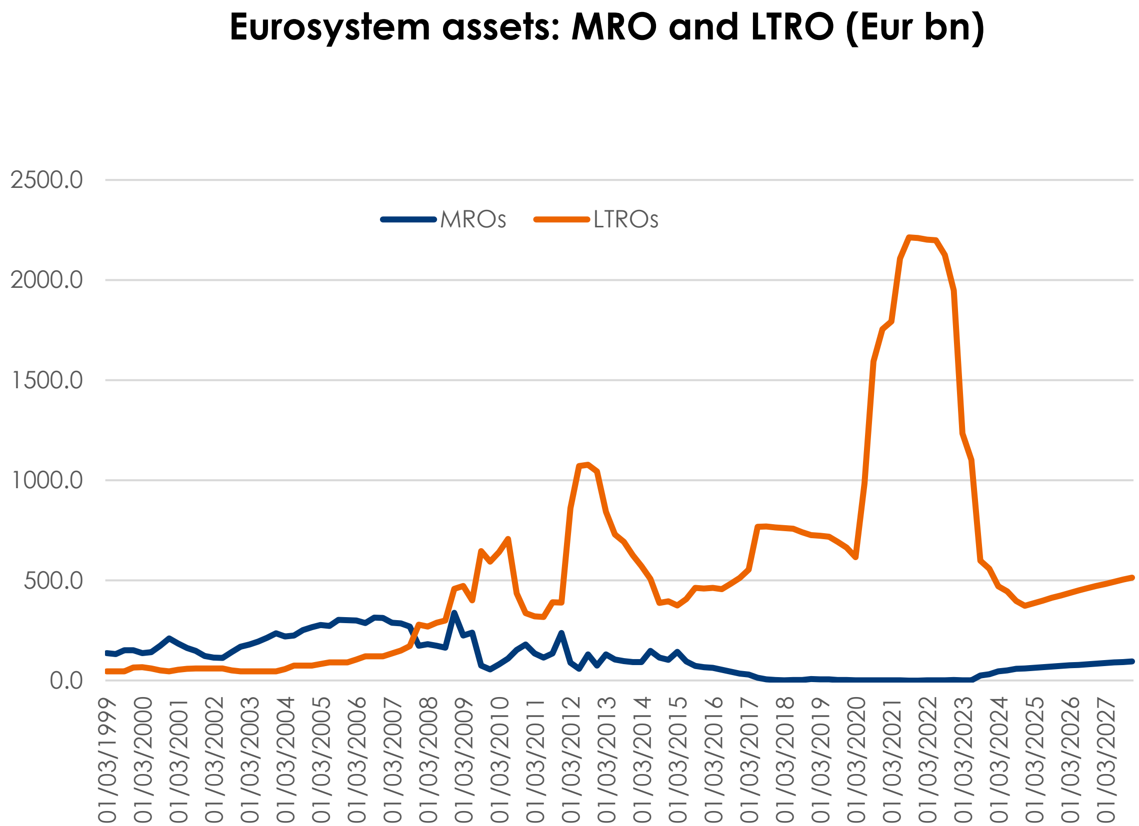
- Public sector funding is expected to decrease by 50% in 2023 and by another 50% in 2024, with almost all categories expected to register a fall, most notable the repos of more than one year.
- The only source of public sector funding that is expected to increase in 2024 are repos of less than one year, which cover central bank funding instruments like LTRO and MRO.
- Public sector funding volume is expected to decline to EUR 272 billion or 1.3% of banks' total funding by the end of 2025.

Cash and cash balances at central banks % tot assets (rx), yoy change (rx)

(*) As of December 2022, 57 banks, representing 56% of the EU banking sector in terms of assets, reported outstanding amounts of TLTRO funding (TLTRO banks).

Source: EBA https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/Funding%20plans/1061264/Report%20on%20Funding%20Plans.pdf,, Intesa Sanpaolo

Full allotment should be preserved in repo operations, perhaps with maturity longer than the current 2-weeks and 3-months

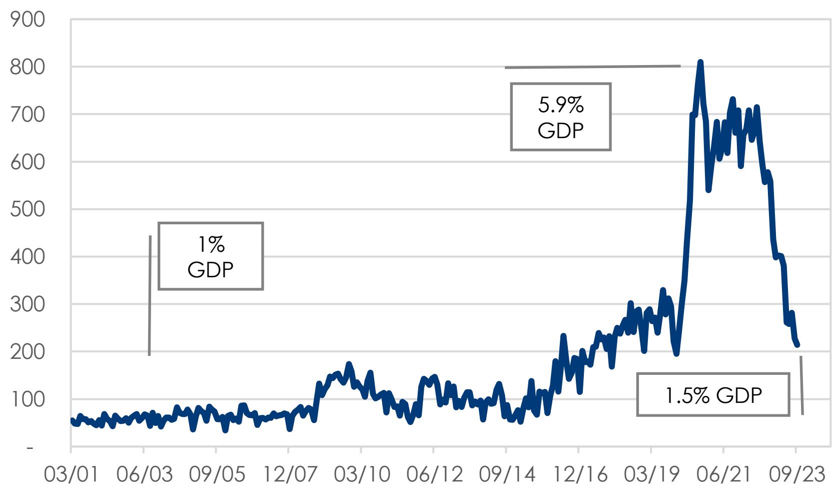


Source: ECB data, Intesa Sanpaolo projections

Over the long run, the CB's balance sheet size is driven by growth in reserves and by autonomous factors, which are beyond the control of the Eurosystem

- The dynamic of government deposits held with the Eurosystem vary across national central banks. This is influenced by the different debt management policies of national treasuries and other government account holders, as well as remuneration policies.
- Bundesbank has decided to remunerate domestic government deposits held with the Bundesbank at 0% again as from 1 October 2023 and this sparked fears that other CB or the ECB to follow, putting pressures on collateral.
- The largest part in the adjustment of government deposits has already take place.

General Government deposits at the Eurosystem (Eur bn)



Source: ECB, Bloomberg, Intesa Sanpaolo

Remuneration policy of Govt deposits

- The current legal framework provides that if the DFR is negative, government deposits GD are remunerated up to the DFR or the ESTR, whichever is lower. It also foresees a remuneration ceiling of 0% if the DFR is 0% or higher.
- On 8 September 2022 until 30 April 2023 ECB temporarily removed the 0% interest rate ceiling for remunerating GD and the effective ceiling remained at DFR or ESTR, whichever is lower,
- On 7 February 2023, the ECB established from 1 May 2023 a cap on the remuneration of government deposits at the ESTR minus 20 basis points.
- **The decision gave national central banks discretion to apply a lower rate if deemed appropriate.**

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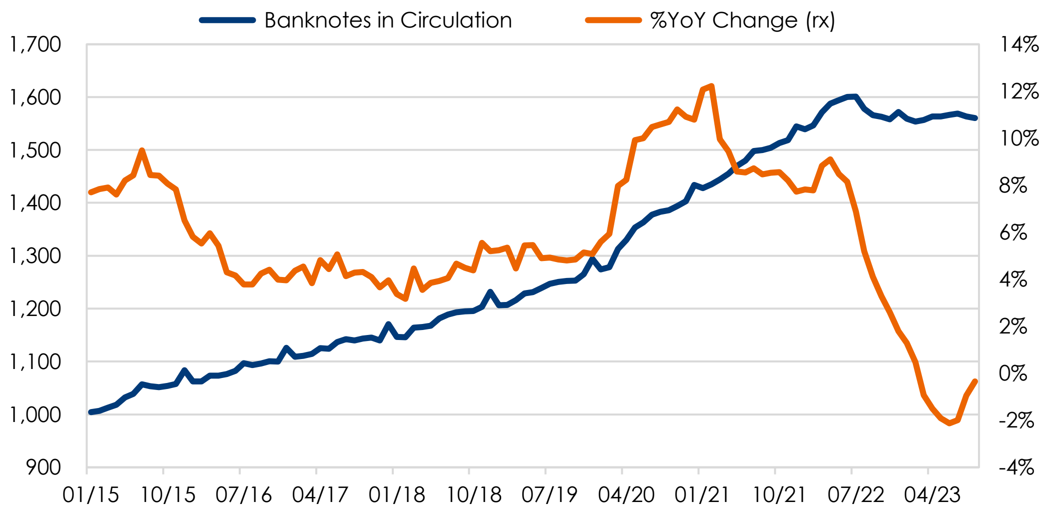
During QT, currency growth should have the effect of partially crowding excess reserves out

- Currency has increased at growth rates well above the historical average during the Pandemi crisis, reaching a maximum of 12% yoy at the beginning of 2021, while since the monetary tightening phase began, this variable has started to decline, recording a 2% yoy contraction in July 2023.
- **In the long term, it is reasonable to assume that currency will return to growth at an average annual rate of 4-5%, close to the growth rate of nominal GDP.**

Eurosystem balance sheet - Banknotes in circulation (Eur bn)



Source: ECB, Bloomberg, Intesa Sanpaolo

The introduction of a central bank digital currency (CBDC) has the potential to affect the operational framework of monetary policy

- The introduction of a central bank digital currency (CBDC) should lead to retails shifting part of their funds away from bank deposits to central banks. This could lead to an increase in banks' funding risks and a decrease in bank lending.
- The introduction of a CBDC could influence the operational framework of monetary policy as well as the volatility in interbank markets if it generates a reduction in the demand for bank deposits and consequently a large decrease in excess reserves.
- As for the perspective of financial stability, the implications of the introduction of a CBDC would differ if the CBDC is remunerated or not. If remunerated the CBDC could become a substitute for bank deposits. If not remunerated the CBDC could increase the risk of a "digital run" from bank deposits, which would be easily converted into central bank liabilities, increasing financial instability.
- ECB's analyses indicate that a total digital euro holdings in the 1-1.5 trillion range, comparable with the current holdings of banknotes in circulation, would avoid negative effects for the financial system and monetary policy.

"Recent statistical analysis shows how, if the take-up of CBDC is large enough, the current floor system will be abandoned, which has important macroeconomic implications. In case of unremunerated CBDC, if the volume of CBDC holdings is less than 9% of GDP, the Euro area could still maintain the current floor system. For take-ups larger than that, and absent additional measures, bank reserves at the central bank would be driven close to zero, with interbank rates lifting off from the deposit facility rate."

Jorge Abadz, Galo Nuñoy, Carlos Thomas, "Implications of central bank digital currency for the operational framework of monetary policy", February 2023

Excess reserve holdings are influenced by regulatory requirements

- In accordance with a survey conducted by the ECB among bank treasurers, regulatory factors are the second most important driver of excess liquidity, after the business model.
- Banks are incentivised to hold CB reserves as it is considered a Level 1 HQLA in the fulfilment of LCR (Liquidity Coverage ratio) and does note require stable funding for the fulfilment of NSFR (Net Stable Funding Ratio).
- According to the risk-based capital framework, excess reserve holding doesn't consume any capital.

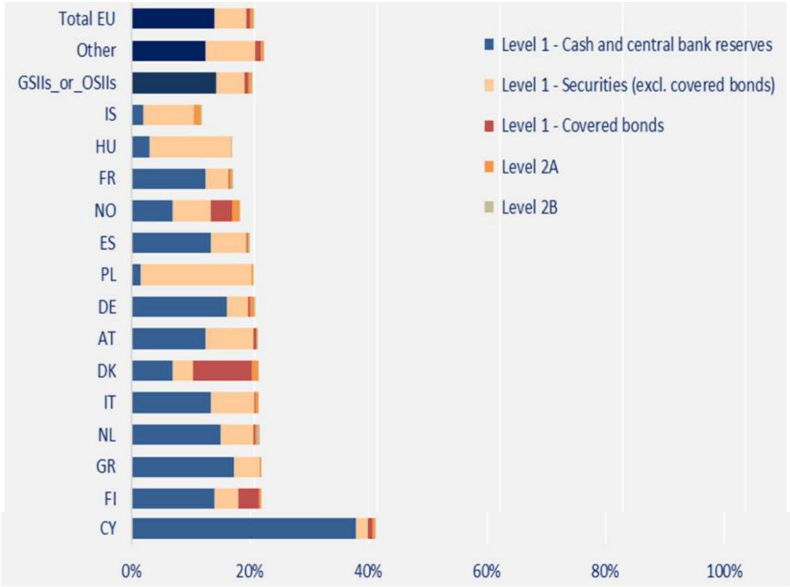
Liquidity Coverage Ratio

- Central bank reserves are considered Level 1 assets. The art.17 of the LCR DR sets the minimum requirement for the composition of the liquidity buffer and a minimum of 30% of the liquidity buffer is to be composed of Level 1 assets.
- Banks pledge non-HQLA collateral in funding with the ECB and increase CB reserves. Regulation assign a 0% run-off rate to CB funding facilities (i.e. zero net cash outflows) vs 100% run-off rate for unsecured interbank funding with less than 30-day maturity.

Net Stable Funding Ratio

- Required stable funding factor (used to calculate the numerator of the NSFR) for central bank reserves is zero.

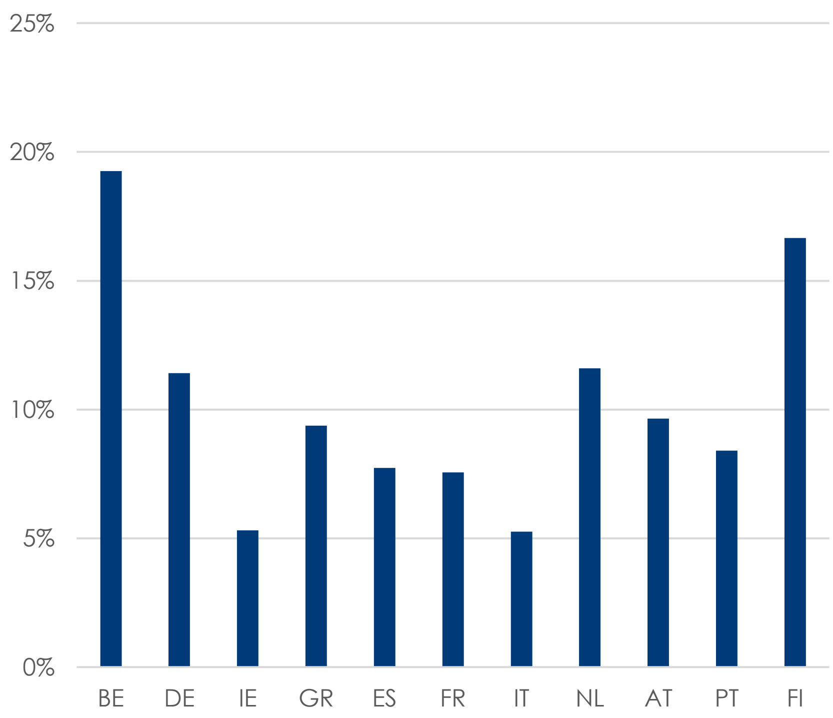
Composition of liquid assets (post-weight and before the cap) relative total assets (%) June 2022



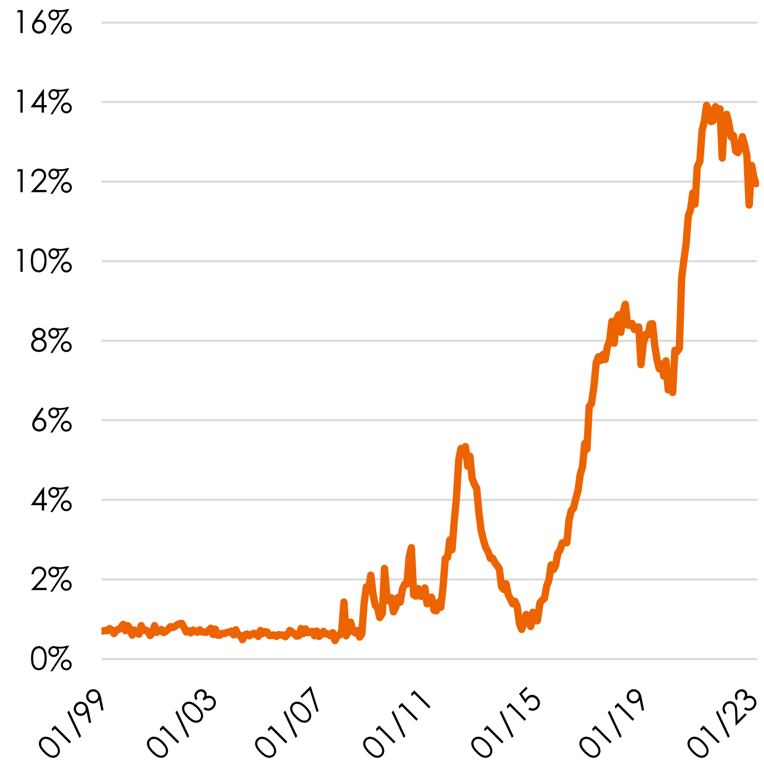
Source: EBA report on liquidity measures under article 509(1) of the CRR, January 2023, Intesa Sanpaolo

Excess reserves remained unevenly distributed, but this is not necessarily a sign of fragmentation

Eurosystem reserves by country (% bank's total assets, Aug '23)



German banks: Reserves at the ECB (% of total assets)



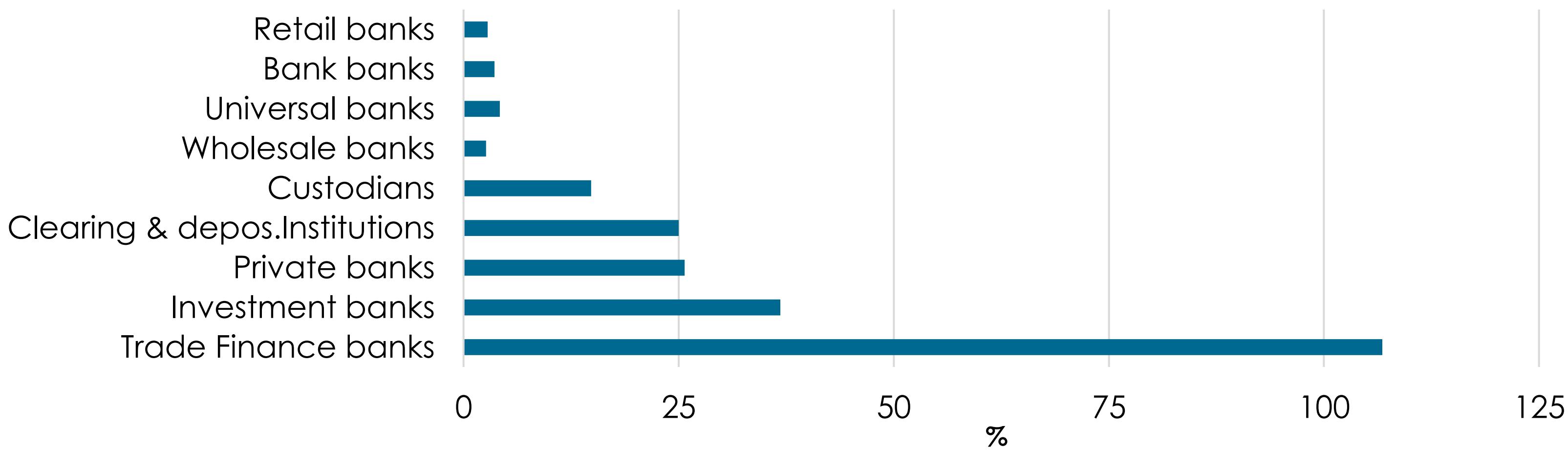
Source: ECB, Bloomberg, Intesa Sanpaolo

Bank's business models engender high excess liquidity

- Countries which retain large amount of excess reserves relative to minimum reserve requirements are those where there is an high density of banks with a specific business model, in particular investment banks, private banks, trade finance banks.

- **Low excess liquidity levels are typical of wholesale banks, retail banks and bad banks.**

Excess liquidity by business model of Eur core countries (%)

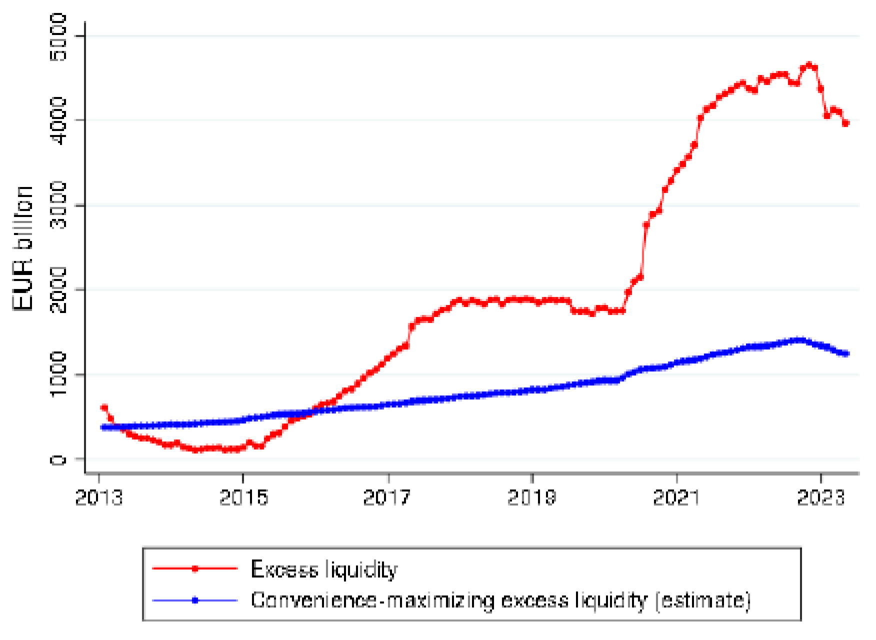


Source: ECB, Bloomberg, Intesa Sanpaolo

Understanding banks' needs is important to ensure the ECB does not drain too many reserves

- Banks demand reserves to meet internal and regulatory liquidity constraints.
- These demands change over time as the financial system expands and regulations change.

Euro area: Convenience-maximizing reserve supply if reserves are supplied via holdings of inconvenient assets

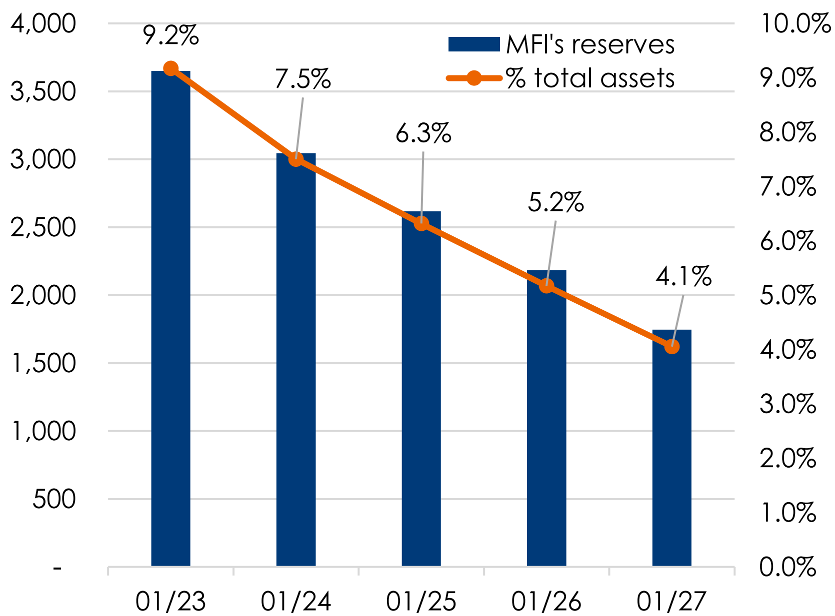


- According with a recent econometric analysis, the estimated convenience-maximizing excess liquidity has evolved during the last decade: the estimate increases from under 400 billion euros in 2013 to around 1.25 trillion in 1Q 2023.

Source: Annette Vissing-Jørgensen, «Macroeconomic stabilisation in a volatile inflation environment» «Balance sheet policy above the ELB"

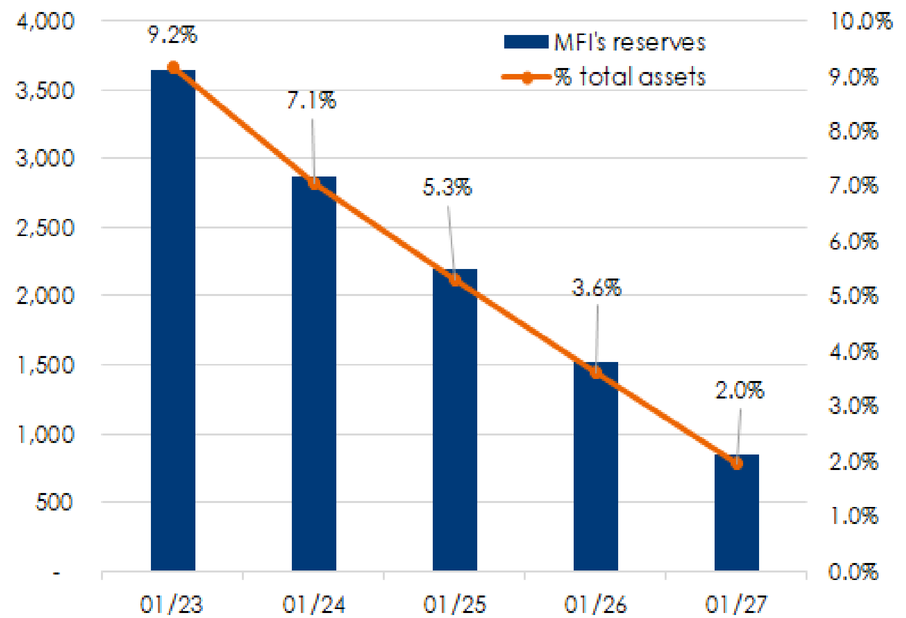
Excess reserves should decline below 1 trillion euros or 2% of GDP in 2027 assuming a full stop of reinvestments of the Pandemic portfolio beyond 2025

Scenario of EA bank's reserve reduction with full reinvestment of PEPP (*) (EUR Bn and % of total assets on the right axis)



(*) Under the assumptions of currency growth at 5% y/y and use of MROs and LTROs close to 3% of GDP.
Source: Bloomberg, Intesa Sanpaolo

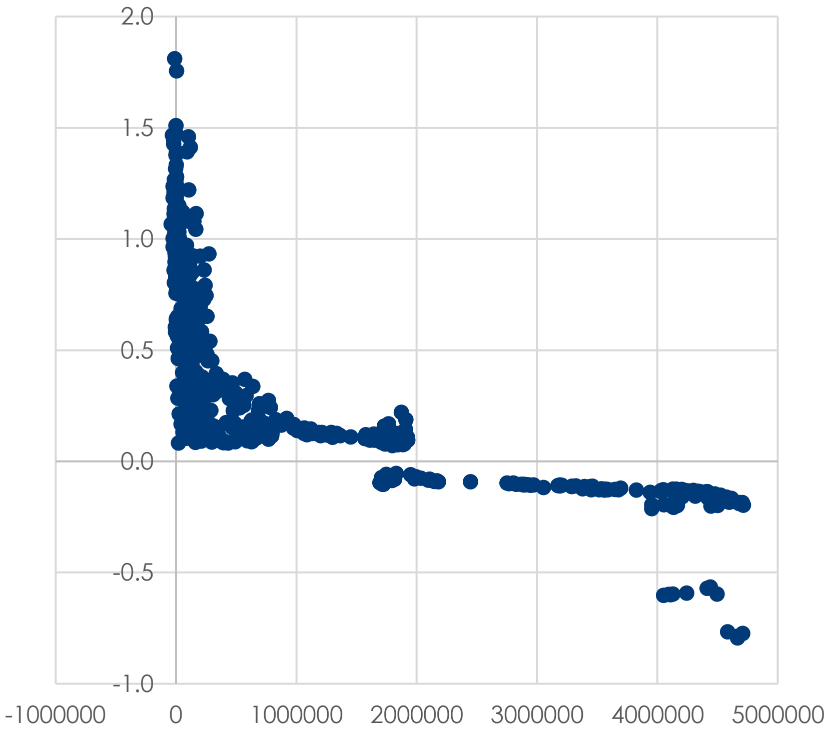
Scenario of EA bank's reserve reduction with cease of reinvestment of PEPP beyond 2024 (*) (EUR Bn and % of total assets on the right axis)



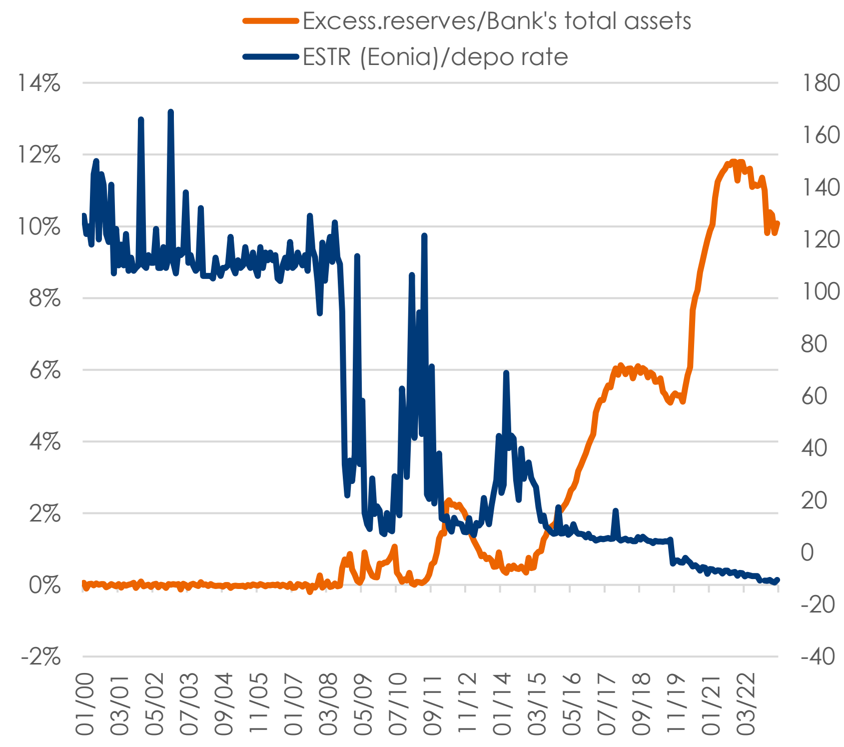
(*) Under the assumptions of currency growth at 5% y/y and use of MROs and LTROs close to 3% of GDP.
Source: Bloomberg, Intesa Sanpaolo

Volume of excess reserves will remain sufficiently large to not unhinge ESTR from depo rate, but the "kink" point is uncertain

Excess liquidity (EUR mm) versus O/N rates %



EUR o/n rate vs depo rate (rx bp) and bank reserves/total assets (lx)

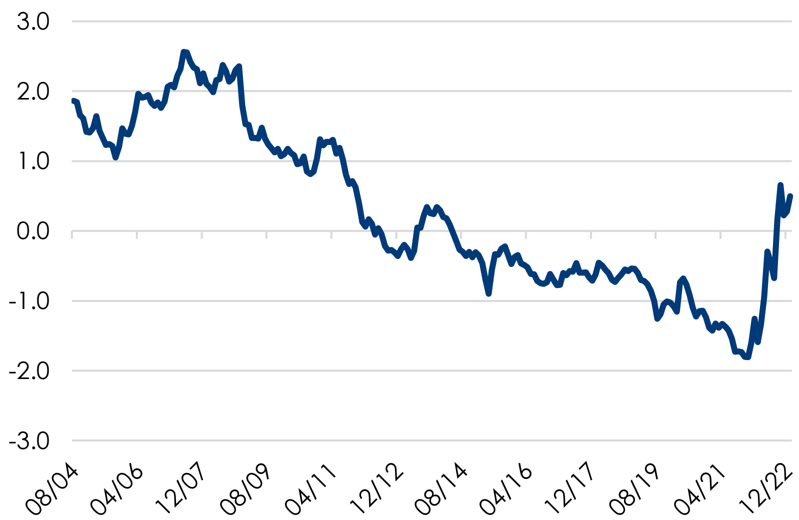


Source: Bloomberg, Intesa Sanpaolo

Impact of the decline in the ECB balance sheet on real long-term rates

- Under the assumption of a full redemption of securities in the PEPP from the second quarter of next year, the ECB's balance sheet is projected to decline from the current 52% of GDP (7.1 trillion euros) to 40% of GDP at the end of 2024 (6.1 trillion euros).
- Based on our linear model, long term real rate is now undervalued at 0.57% versus a fair value of 0.78%, which rises to 0.97% on 1-year horizon.

10Y EUR swap real rate (%)



Source: Bloomberg, Intesa Sanpaolo

- 10Y real rate in a range between 1.3%-1.5%, prevailing before the Great financial crisis, is compatible with a reduction of the ECB balance sheet to 14% of GDP (2.2 trillion euros), a level that could not be reached in the short-term unless assuming an unrealistic scenario of massive sales of the securities in the portfolio by the ECB.

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