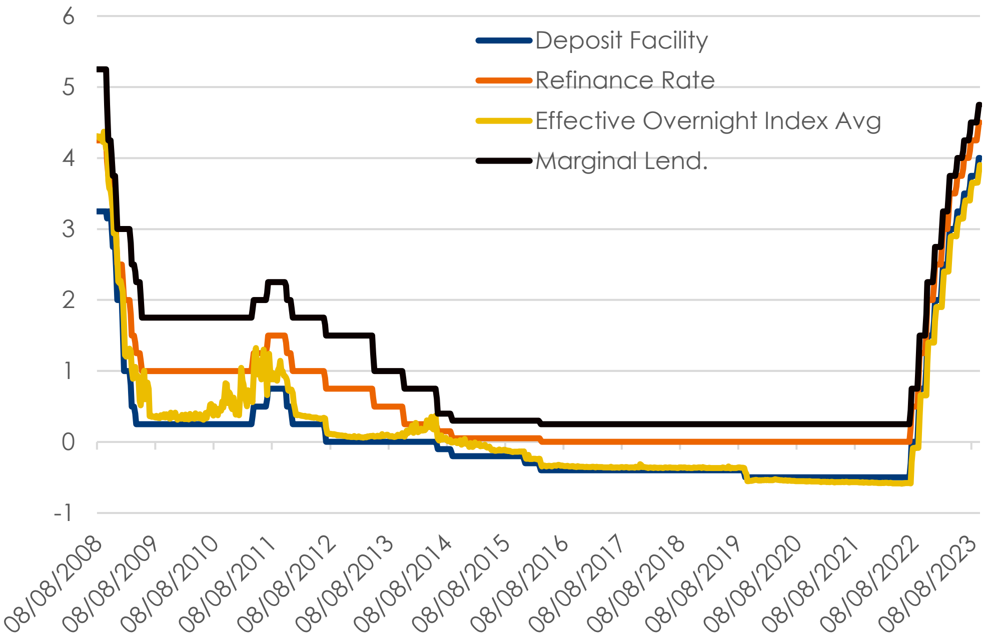
ECB Operational Framework Review

ECB Money Market Contact Group
5th December 2023

Operational framework review: recognizing a structural change

The 2008 financial crisis led the ECB to adopt a floor system



Source: Bloomberg, Intesa Sanpaolo

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."

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

The operational framework of the ECB comprises of a set of instruments and the "new mix" of the following items will be crucial :

- **Open market operations**
- **Standing facilities**
- **Minimum reserve requirements for credit institutions**
- **Forward guidance**
- **Central bank liquidity lines**

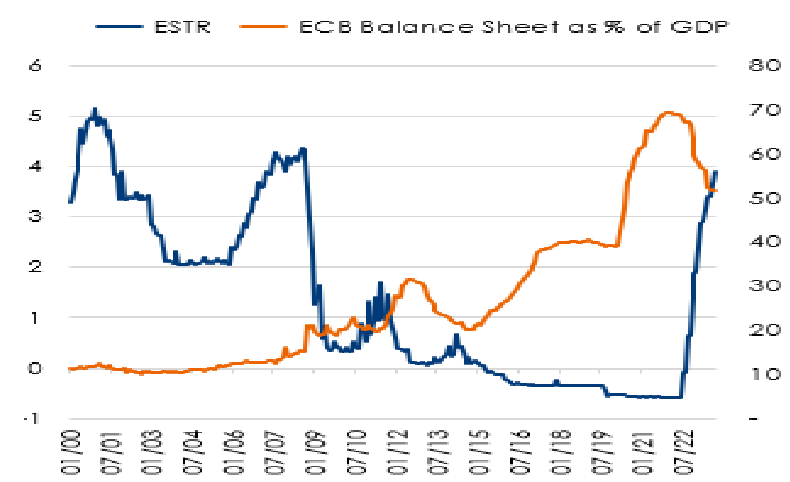
The unwinding of the QE is under way but the end point of the balance sheet normalization should not be a return to the pre-GFC level

The Eurosystem's balance sheet (EUR Bn)

	11/11/2022	27/10/2023	Change
Assets	**8,765**	**7,020**	**-1,745**
Golds and receivables	593	613	20
MRO	2	10	9
LTROs	2,116	496	-1,620
Holdings of securities	5,108	4,937	-172
- Sec for monet policy	4,945	4,735	-210
Others	946	963	18
Liabilities	**8,765**	**7,020**	**-1,745**
Currency in circulation	1,560	1,552	-8
MFI's reserves	4,907	3,698	-1,209
- Reserve requirement	167	165	-3
- Current Account	48	0	-48
- Deposit account	4,692	3,533	-1,159
Deposits of Centr. Govt	502	205	-297
Liab to non eu residents	368	222	-146

Eurosystem's Long-term refinancing (EUR Bn)

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



Source: ECB, Bloomberg, Intesa Sanpaolo

Minimum Reserves - a focus

- The amount now is equal to 1% of certain liabilities *(the % was 2% until* January 2012). As of today, Minimun Reserves amount to **164 €/bn,** whereas the excess liquidity stands at 3,7 €/trln;
- At the 27th Jul 2023 meeting, the ECB decided to **reduce the remuneration of the MR to zero**, starting from 20 September 2023

- **Regulatory factors** are one of the 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 not 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.

Impact of increase in MRR on Eurozone banks' LCRs

Sensitivity analysis

LCR (%)	Minimum reserve requirements (currently 1%)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
Austria	171	168	165	163	160	157	154	152	149	146
Belgium	166	159	153	147	140	134	128	121	115	109
Germany	154	148	142	136	130	124	118	113	107	101
Spain	173	169	165	161	157	153	149	145	141	137
Finland	174	170	166	162	158	154	149	145	141	137
France	156	153	150	147	144	141	138	135	132	129
Greece	205	200	194	188	183	177	172	166	161	155
Ireland	180	173	166	159	153	146	139	132	126	119
Italy	194	187	181	174	167	161	154	147	141	134
Netherlands	156	153	150	147	144	141	138	135	132	129
Portugal	248	239	229	219	209	199	190	180	170	160
Slovenia	289	281	274	267	259	252	245	238	230	223
Eurozone*	165	160	155	151	146	142	137	133	128	123

Source: S&P Global Rating oct 23

Impact of increase in MRR on Eurozone banks' net interest income

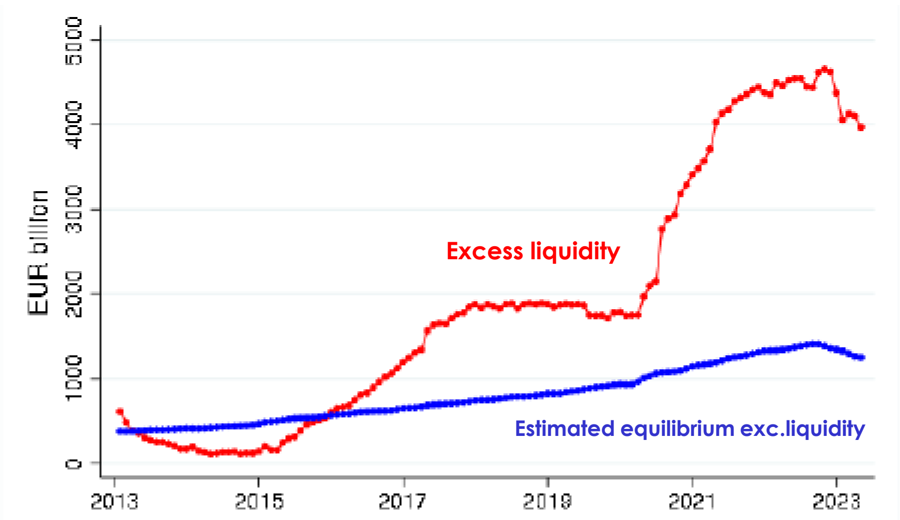
Sensitivity analysis

Decline in net interest income versus 2022 (%)	Minimum reserve requirements (currently 1%)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
Austria	0	(1)	(1)	(2)	(3)	(4)	(4)	(5)	(6)	(6)
Belgium	0	(2)	(4)	(5)	(7)	(9)	(11)	(13)	(15)	(16)
Croatia	0	(2)	(3)	(5)	(6)	(8)	(9)	(11)	(12)	(14)
Cyprus	0	(2)	(5)	(7)	(9)	(11)	(14)	(16)	(18)	(20)
Germany	0	(2)	(5)	(7)	(9)	(12)	(14)	(16)	(19)	(21)
Estonia	0	(1)	(2)	(4)	(5)	(6)	(7)	(8)	(10)	(11)
Spain	0	(1)	(2)	(2)	(3)	(4)	(5)	(6)	(7)	(7)
Finland	0	(2)	(3)	(5)	(7)	(8)	(10)	(12)	(14)	(15)
France	0	(2)	(3)	(5)	(6)	(8)	(10)	(11)	(13)	(15)
Greece	0	(1)	(3)	(4)	(6)	(7)	(8)	(10)	(11)	(13)
Ireland	0	(4)	(8)	(12)	(16)	(19)	(23)	(27)	(31)	(35)
Italy	0	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)
Lithuania	0	(3)	(6)	(9)	(13)	(16)	(19)	(22)	(25)	(28)
Latvia	0	(1)	(1)	(2)	(3)	(3)	(4)	(5)	(5)	(6)
Malta	0	(1)	(3)	(4)	(6)	(7)	(8)	(10)	(11)	(13)
Netherlands	0	(1)	(3)	(4)	(5)	(7)	(8)	(10)	(11)	(12)
Portugal	0	(2)	(3)	(5)	(6)	(8)	(10)	(11)	(13)	(15)
Slovenia	0	(1)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(12)
Slovakia	0	(1)	(3)	(4)	(6)	(7)	(9)	(10)	(12)	(13)
Eurozone	0	(2)	(3)	(5)	(7)	(8)	(10)	(12)	(14)	(15)

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: estimated equilibrium reserve supply



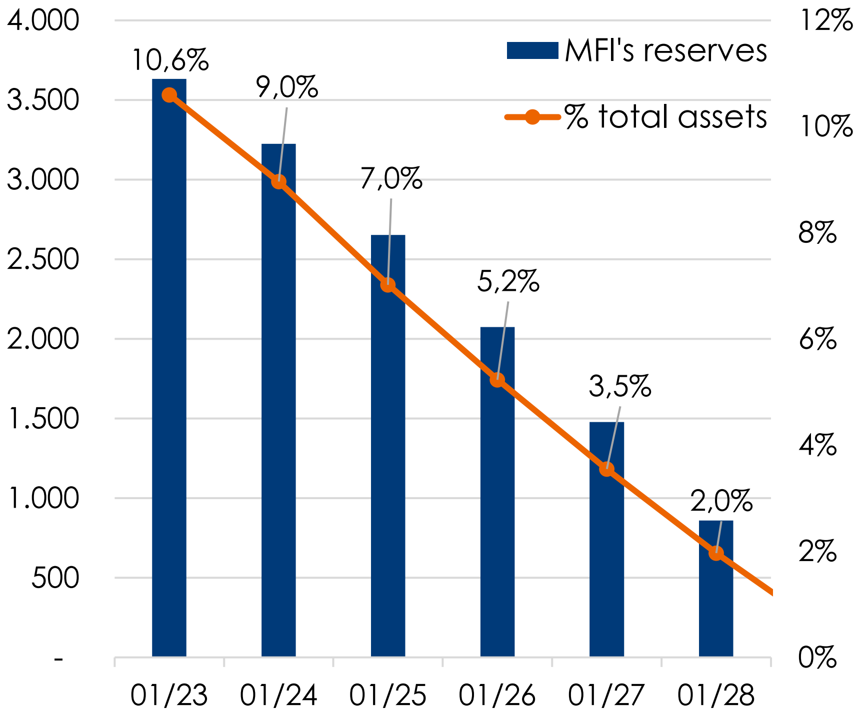
Source: A.Vissing 2023, Intesa Sanpaolo.

- According with a recent econometric analysis (*), the estimated equilibrium **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.**

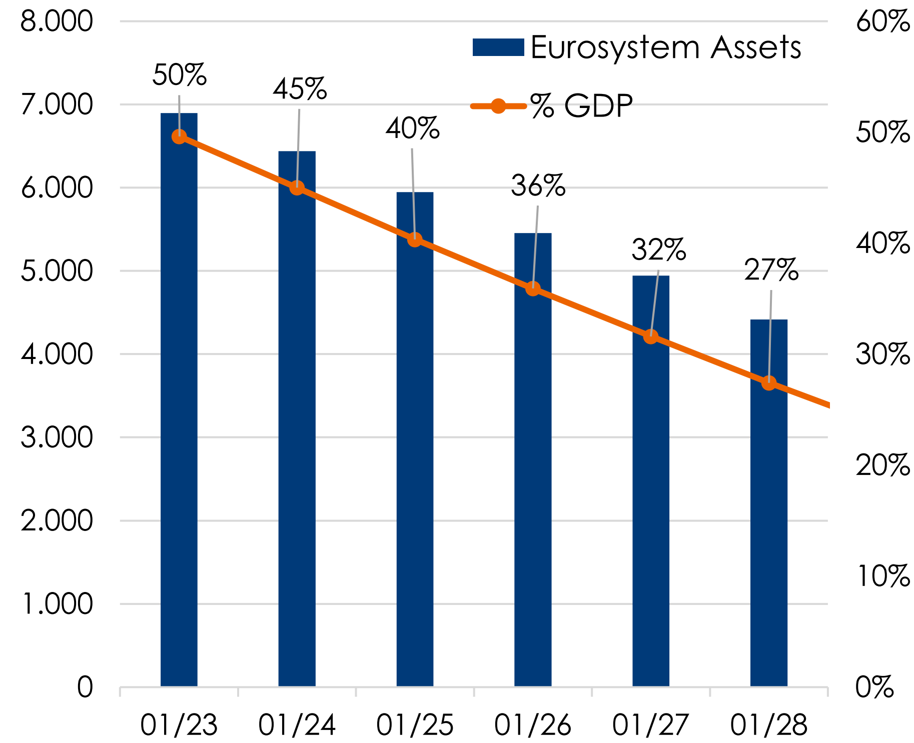
(*) Cfr. Annette Vissing-Jørgensen, «Macroeconomic stabilisation in a volatile inflation environment» «Balance sheet policy above the ELB":

Excess reserves are expected to fall below 1 billion euros in 2028 if assuming a partial roll off of reinvestments of the PEPP beyond 2H 24

Scenario of EA bank's reserve reduction with 15bn/month roll off of PEPP (*) (EUR Bn and % of total assets on rx)



Scenario of Eurosystem total assets with 15bn/month roll off of PEPP (*) (EUR Bn and % of GDP on rx)



(*) Under the assumptions of currency growth at 5% y/y and recurse to MROs and LTROs close to 3% of GDP. Partial reinvestment of PEPP portfolio implies 15Bn euros per month of redemptions starting in June 2024.
Source: Bloomberg, Intesa Sanpaolo

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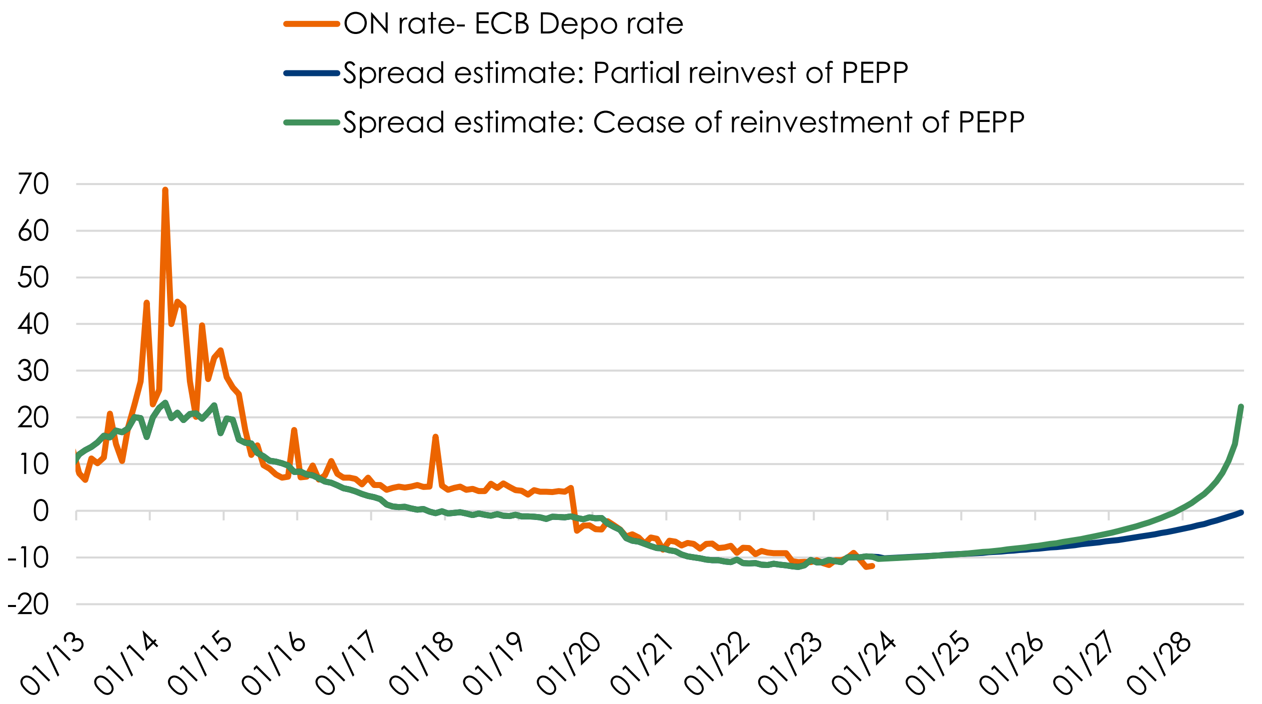
ESTR-DFR spread estimated on excess liquidity (deposit adjusted) is expected to stay negative until end 2028 under partial reinvestments of the PEPP beyond 2024

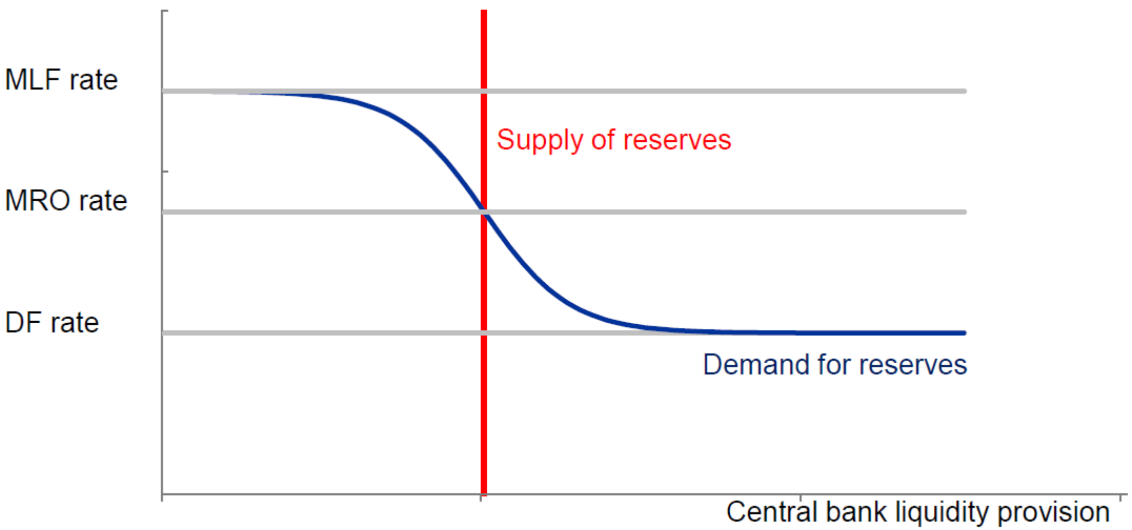
ESTR – ECB DFR spread: actual and fitted (*) under two scenario for bank's reserve under partial reinvestment of PEPP and cease of reinvestment of PEPP (**)



(*) Estimation from Vissing-Jorgensen (2023).
(**) Under the assumptions of currency growth at 5% y/y and recurse to MROs and LTROs close to 3% of GDP.
Source: Bloomberg, Intesa Sanpaolo

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

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

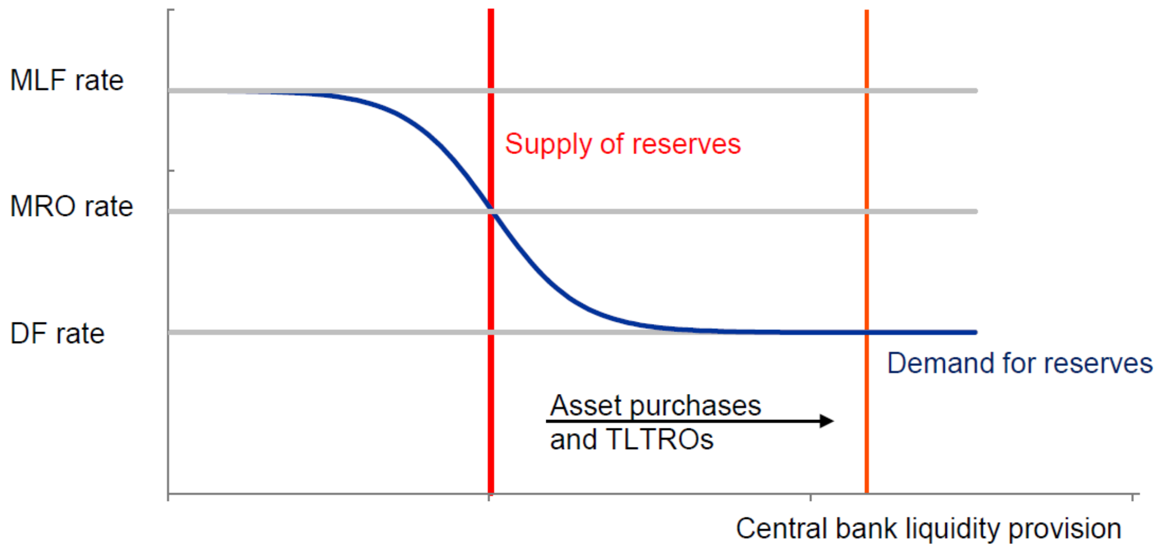


Source: ECB.
Notes: MLF refers to marginal lending facility, MRO to main refinancing operation, and DF to deposit facility.

- **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: supply is placed where the demand curve for reserves is inelastic



Source: ECB.
Notes: MLF refers to marginal lending facility, MRO to main refinancing operation, and DF to deposit facility.

- **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.**
- **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.**
- **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»: 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.**
- Given the uneven distribution of reserves among EA banks, 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**.
- A specific disadvantage is **the potential stigma** a bank may face if it uses these central bank lending facilities frequently.

Bank of England: active QT with unlimited supply of reserves at demand

- The Monetary Policy Committee (MPC) set out its strategy for the mix of monetary policy instruments to deliver tighter policy in the August 2021 Monetary Policy Report (MPR), including the key principles that would underpin its approach to QT. **QT started in February 2022, initially through maturities and was augmented in September 2022 with a programme of gilt sales**. The MPC committed to an annual review of the parameters of the QT programme, as part of which it would set the pace for the reduction in the stock of gilts held in the APF for the following twelve months.The BOE planned to reduce the Gilt Portfolio by 100 bn from October 2023 to September 2024, taking the stock to GBP 658 bn.

- **In September 2022, the BoE launched the Short-Term Repo Facility (STR), a regular market-wide sterling operation to ensure that short-term market interest rates remain close to Bank Rate as the level of sterling central bank reserves reduces** The STR allows participants to borrow central bank reserves for a one-week period in exchange for high quality, highly-liquid (Level A) assets. This facility is priced at Bank Rate and helps keep short-term market interest rates in line with Bank Rate by ensuring banks have little need to pay above Bank Rate for reserves in money markets.

- There is an **unlimited supply of central bank reserves available** in the operation to ensure that banks' demand for reserves continues to be met as QE unwind progresses.

Federal Reserve Bank: Target range and Liquidity Backstop Tools (1/2)

- The Federal Reserve's Target Range establishes Upper and Lower Limits for the Fed's desired Federal funds levels.

- To maintain the Federal Funds rate within the target range, the Fed sets two key administered rates:

    - **IORB (Interest on Reserve Balances)** is the rate paid to banks on their Federal Reserve account balances. The Federal Reserve sets a floor under the rates at which banks are willing to lend excess cash in their reserve accounts to private counterparties. Given the safety and convenience of holding reserves, banks have little incentive to lend their reserves to private-sector counterparties at rates lower than the IORB rate.

    - **ON RRP (Overnight Reverse Repo Facility)** is the rate paid on an ON RRP operation. The ON RRP facility offers, to a broader range of money market participants (non banks included) an overnight investment that enhances their bargaining power on short-term private investment transactions. In general, counterparties to the facility should be unwilling to invest funds overnight in money markets at rates below the ON RRP rate.

Source: Federal Reserve, Intesa Sanpaolo

Federal Reserve Bank: Target range and Liquidity Backstop Tools (2/2)

- **The Liquidity Backstop Tools** play an important role in supporting the effective implementation of monetary policy by limiting the potential for pressures in overnight funding markets.

- The **discount window**, operated at all 12 Reserve Banks, is a backstop source of liquidity for banks and promotes financial stability providing access to temporary funding and in turn helps support the flow of credit to households and businesses.
- The **Standing Repo Facility (SRF)**, serves as a backstop in domestic money markets to support smooth market functioning. The SRF, opened to primary dealers and eligible depository institutions, is designed to limit the potential pressures in the repo market from spilling over to the federal funds market.
- The **Foreign and International Monetary Authorities (FIMA) Repo Facility** helps to address pressures in global dollar funding markets that could otherwise affect financial market conditions in the United States. Under this backstop facility, approved FIMA account holders can enter into overnight repo transactions with the Federal Reserve against Treasury securities held in their custody accounts at the New York Fed.
- Standing **U.S. dollar and foreign currency liquidity swaps lines,** with five other major central banks help to ease strains in global funding markets and mitigate the effects of such strains on the supply of credit to households and businesses worldwide.

Swiss National Bank: reserve tiering coupled with liquidity absorbing operations

- During the negative interest-rate period, from January 2015 to September 2022, the **tiering system exempted bank's sight deposits** (ie: banks' reserves) up to a threshold applied to each bank. Non-exempt reserves were charged at the negative rates.

- The switch to a positive rate environment meant that the SNB adopted a new approach to implementing its policy in the money market. The approach features two elements: **reserve tiering and reserve absorption by way of open market operations.**

- As of December 2023, the SNB <u>**will stop**</u> **paying banks** for the money they are required to keep at the institution as a **minimum reserve**.
- Additionally, it's **lowering the threshold** factor applied in the tiered remuneration of sight deposits to 25 from previously 28. This reduces the amount of funds that are fully eligible to earn interest from the SNB.
  - For sight deposits up to this threshold, the SNB policy rate (currently 1.75%) will be applied
  - Sight deposits above the threshold will be remunerated at the SNB policy rate minus a discount of 0.5 percentage points.
- To absorb excess reserves, SNB uses open market operations:
  1. **term repos** which have a term of one week and are auctioned daily
  2. **SNB Bills** which are auctioned on a weekly basis and with different terms from week to week.

Sveriges Riksbank: a narrow corridor system

- The Riksbank can implement monetary policy partly by **steering the so-called overnight rate**, so that it lies close to the Riksbank's policy rate, and partly by **buying and selling securities**. To steer the overnight rate, the Riksbank uses standing facilities and market operations with its monetary policy counterparties.
- By using **standing facilities** for deposits and loans overnight, the Riksbank can set limits – an interest rate corridor – for the overnight rate, in which the deposit rate forms the floor and the lending rate the ceiling in the corridor.
- The Riksbank offers a deposit facility, the standing deposit facility, and two lending facilities, the standing lending facility and the supplementary liquidity facility. In the **standing lending facility**, the Riksbank offers lending against **high-quality collateral** (primary collateral volume) at a low interest rate, and in the **supplementary liquidity facility** the Riksbank offers lending against **lower-quality collateral** (secondary collateral volume) at a higher lending rate.
- To steer the overnight rate into the corridor, the Riksbank conducts regular market operations in the form of **weekly issues** of Riksbank Certificates to absorb liquidity from the bank system.

Source: Riksbank, Intesa Sanpaolo

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