SPEECH

Towards a new Eurosystem balance sheet

Speech by Isabel Schnabel, Member of the Executive Board of the ECB, at the ECB Conference on Money Markets 2025

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Key messages:

- Quantitative normalisation is proceeding smoothly, with strong liquidity positions of banks and abundant excess liquidity
- Fixed-rate full allotment in standard refinancing operations ensures that liquidity is always available when banks need it
- Operational framework suggests a sequence for how to supply reserves in the future, with a persistent take-up of standard refinancing operations to precede the launch of structural operations, starting with longer-term refinancing operations and followed by a structural securities portfolio
- Considerations about stance neutrality, policy space and financial soundness suggest tilting the new structural securities portfolio towards shorter-term securities

The Eurosystem balance sheet is a mirror of the shocks that have hit the euro area economy over the years. It tells a story of crisis and recovery, of inflation and disinflation.

After reaching a peak in 2022, the size of our balance sheet has now been declining for three years. Over this period, our holdings of monetary policy-related assets have fallen by 45%, steadily reducing our financial market footprint.

This process has been remarkably smooth. Banks' liquidity positions remain strong and the ten-year GDP-weighted sovereign bond yield for the euro area stands almost exactly where it was when we started the gradual run-down of our monetary policy bond portfolios in March 2023.[1]

Although balance sheet normalisation still has a long way to go, it is worth reflecting on what the Eurosystem balance sheet should look like in the future.

This is what I would like to do today.

I will argue that our operational framework, which we published in March 2024, implies that the size of our balance sheet will become more responsive to banks' liquidity demand, and its composition more heavily shaped by collateralised lending operations.

I will then illustrate the sequence of instruments envisaged by our framework for supplying reserves in the future, before outlining some principles and trade-offs that could guide the choice of parameters for

the new structural operations, including longer-term refinancing operations and a structural securities portfolio.

My remarks today reflect my own current thinking on the matter, which may evolve as the Governing Council reviews the key parameters of our operational framework – a process we will start in the course of 2026.

Quantitative normalisation rather than quantitative tightening

Central banks are the monopoly supplier of base money, which consists of two main parts: banknotes and central bank reserves that commercial banks use to settle interbank payments.[2]

Base money is the main liability of a central bank and determines the size of its balance sheet in normal times.[3]

The demand for base money can be met in different ways. In the euro area, prior to the global financial crisis, the Eurosystem primarily provided reserves through collateralised lending to banks, or repos.

At the end of 2006, these loans accounted for almost 40% of our assets (Slide 2, left-hand side).

This changed dramatically when the Eurosystem started to implement balance sheet policies to safeguard monetary policy transmission and stave off downside risks to price stability.

During this period, the asset side of our balance sheet became a policy instrument in its own right and, as a result, the main driver of the size of the balance sheet.

After the full repayment of the targeted longer-term refinancing operations (TLTROs) at the end of 2024, securities accounted for more than 70% of our assets, while loans to banks constituted less than 1% (Slide 2, right-hand side).

With the gradual unwinding of our monetary policy bond portfolios that began in March 2023, we entered a new phase in the evolution of our balance sheet (Slide 3, left-hand side).

This process is commonly referred to as quantitative tightening – a term that is, however, misleading.

When we raised our key policy rates, we made a distinction between monetary policy normalisation and tightening. *Normalisation* describes the process of bringing policy back to a broadly neutral setting, whereas *tightening* refers to raising interest rates above neutral territory to curb inflation.

This distinction is also relevant for balance sheet policies.

Today, ten-year sovereign bond yields in the euro area are estimated to be still some 60 basis points below the level that would have prevailed in the absence of quantitative easing (QE) (Slide 3, right-hand side).

By running down our monetary policy bond portfolios, we contribute to a normalisation of our balance sheet and thus bond term premia.

In that sense, the term quantitative normalisation (QN) better captures the mechanics and intent of the current run-off of our policy portfolios, as we are gradually removing the residual monetary stimulus from the system.[4]

QN, however, is more than balance sheet normalisation – it is a transformative moment that raises important questions. What role do central bank reserves play in the post-pandemic world? What mix of

assets and liabilities best supports the effective implementation of monetary policy? And how will these choices affect market functioning?

These are not merely technical questions; they are strategic choices that will influence how monetary policy will operate in the decade ahead.

The changing role of reserves and the new operational framework

In our operational framework review last year, we provided insights into our thinking on these questions and how we see the future destination of our balance sheet.[5]

At the heart of our framework is the recognition that central bank reserves play a different role in the financial system today than they did before the global financial crisis.[6]

Back then, banks hardly ever held more deposits with the central bank than needed to fulfil their reserve requirements. They relied heavily on government bonds and interbank markets to manage liquidity.

This was also the result of central bank choices.

Until 2008 in the euro area, for example, banks had to pay 100 basis points of interest to keep funds they had borrowed in our standard refinancing operations as overnight deposits with the ECB.[7] High opportunity costs disincentivised banks from holding excess reserves.

QE has turned that system on its head. As liquidity has become abundant and effectively cost-free, the way banks are treating reserves has changed fundamentally.

Today, reserves are an important part of banks' efforts to comply with liquidity regulations. Moreover, the introduction of instant payments and digital banking services more broadly are likely to have prompted banks to hold larger precautionary reserve buffers.

Even if, in times of QE, the aggregate level of reserves was not a matter of choice for banks – making it hard to predict the level of reserves that banks will *choose* to hold in a more normal environment – surveys suggest that banks want to hold a substantial amount of reserves as part of their liquidity, also in the future.[8]

There are also normative reasons why scarce reserves may no longer be desirable from a social welfare perspective.

To understand why, we can look at how banks' liquidity holdings have evolved recently.

Over the past three years, the repayment of TLTROs and QN have reduced the overall supply of reserves in the system by more than €2 trillion (Slide 4, left-hand side).

As excess reserves count one-to-one towards the high-quality liquid assets (HQLA) that banks hold, the decline in reserves mechanically leads to a fall in their HQLA, unless banks choose to absorb the newly issued bonds replacing the maturing central bank holdings.

In a counterfactual scenario without such bond purchases, the liquidity coverage ratio (LCR) of significant institutions would already have fallen below 130% (Slide 4, right-hand side).[9]

In reality, however, we have seen banks purchase sizeable amounts of government bonds, effectively transforming part of their reserve holdings into securities that qualify as HQLA.

As a result, the aggregate LCR of significant institutions in the euro area has fallen only marginally since 2022 and remains well above pre-pandemic levels.[10] In fact, banks' HQLA holdings have even marginally increased over this period (Slide 5, left-hand side).

In some countries, government bonds as a share of Common Equity Tier 1 capital are now at the upper end of the historical distribution (Slide 5, right-hand side).

To some extent, this shift in the mix of banks' HQLA simply reflects changes in relative returns. For the first time in years, it is more profitable to invest in government bonds than to hold excess reserves with the ECB, even if this entails duration risk (Slide 6, left-hand side).

But to the extent that current large HQLA holdings also reflect banks' liquidity preferences, their composition will ultimately also depend on central bank decisions.

In particular, excessively high opportunity costs for holding reserves incentivise banks to hold a larger part of their HQLA in government bonds. This may be undesirable as the liquidity position of banks would weaken if the value of government bonds were to fall (Slide 6, right-hand side).

Reserves, on the other hand, are risk-free. They don't fluctuate in value and can be immediately used for payments.

In other words, in today's world, where HQLA is a central tool of banks' liquidity management, it is not socially optimal for a central bank to make reserves scarce. We should hence not excessively discourage the holding of reserves.

A balanced approach, which considers central bank reserves as an integral component of banks' liquidity holdings, helps strengthen resilience, preserve market functioning and reduce systemic risk.

Elastic reserve supply decouples the pace of QN from interest rate control

This fundamental insight is embedded in our operational framework.

Through our standard refinancing operations, we provide as many reserves as banks demand at a fixed rate against a broad set of collateral (fixed rate full allotment).

Supplying reserves elastically as balance sheet normalisation proceeds will go a long way towards allowing banks across the currency union to hold what they find to be an optimal level of reserves.[11]

A key advantage of a framework in which the marginal unit of liquidity is provided on demand, rather than through asset purchases, is that liquidity is always available when banks need it, but is never intentionally supplied in excess.

Another advantage is that it frees the central bank from having to estimate the uncertain volume of reserves necessary to steer short-term money market rates towards the key policy rate, as would be the case in a supply-driven framework.

If reserves are primarily supplied through asset purchases, as in the US Federal Reserve System's operational framework, the central bank needs to calibrate the pace of QN carefully, as money market rates could rise abruptly if liquidity becomes scarce (Slide 7, left-hand side).[12]

By contrast, in a demand-driven framework, there is no direct link between the pace of QN and interest rate control. In the euro area, a rise in repo rates would therefore not lead to a slowdown in, or the end of, QN.[13]

We expect that our monetary policy bond portfolios will be run down completely, unless monetary policy considerations were to require renewed asset purchases at some point in the future.

Rather, a persistent rise in money market rates to levels closer to the rate on the main refinancing operations would lead to more banks accessing our standard refinancing operations, thereby endogenously adding new liquidity to the system.

So far, we have not seen this happening.

Even if the number of banks participating in our operations has steadily increased over time, the overall volume of demand for reserves has remained limited so far, for two main reasons (Slide 7, right-hand side).

One is that excess liquidity remains abundant. While in other countries upward pressure on short-term interest rates has been rising as liquidity conditions have tightened, repo rates in the euro area have remained close to the deposit facility rate (Slide 8, left-hand side).

The other is that reserves, which are unevenly distributed across both banks and countries, are being redistributed effectively.

This is visible in the measurable increase in term repo transactions collateralised by non-HQLA over the past years, especially across borders (Slide 8, right-hand side). These transactions are largely driven by regulatory considerations, as they directly improve the LCR of the banks that receive cash.

A significant share of these trades reflects a redistribution of reserves from banks that are still comfortably above their liquidity targets to banks that are closer to their target.

Operational readiness is key to ensuring the effectiveness of repo-led framework

In a demand-driven framework, interest rate control requires two elements.

One is to set the appropriate price for holding reserves – that is, the spread between what banks pay for borrowing reserves and what they receive when depositing them back with the ECB.

The famous Friedman rule suggests that, in a frictionless world, central banks should provide reserves at the marginal social cost, which is approximately zero.[14]

However, applying the Friedman rule in a world in which central bank balance sheet expansion is costly from a social welfare perspective implies that a marginal cost should be attached to reserve provision.

For example, providing reserves for free would risk disintermediating private markets. By contrast, a positive opportunity cost for holding reserves incentivises banks to trade reserves in the market.

Research also suggests that providing reserves for free could undermine sound liquidity management and lead to a ratcheting up of the central bank's balance sheet, with potentially negative consequences for financial stability.[15]

Against this backdrop, the Governing Council decided that a spread of 15 basis points between the main refinancing operations rate and the deposit facility rate appropriately balances this trade-off, also considering our broad collateral framework.

Such a narrow policy rate corridor effectively limits interest rate volatility and sets the right incentives for liquidity management.[16]

The second element needed for interest rate control is to ensure that banks are ready to use the operations if and when they need liquidity.

In a demand-driven framework, the central bank's operations are *not* a liquidity *backstop*. They are there to be used by banks as part of their day-to-day liquidity management, which is also acknowledged by banking supervision.[17]

Our framework also relies on large dealer banks supporting financial intermediation. The more connected these banks are to our operations, and the more frequently they use them, the less likely it is that repo rates will spike, as dealer banks often act as liquidity hubs within countries and banking networks.

Ensuring a broader use of our operations may require these banks to set up appropriate governance processes to cater for liquidity needs arising not only from treasurers but also from bond and repo desks.

To make sure that banks are ready to use our operations, it is important to conduct coordinated testing exercises for banks across the Eurosystem.

Diversifying liquidity provision: principles and sequencing

A natural outcome of our operational framework is that, over time and as excess liquidity declines, collateralised loans to banks are going to once again gradually become the main asset that the ECB holds on its balance sheet.

This does not mean, however, that we will return to the past, neither regarding the size nor the composition of our balance sheet.

In 2006 currency in circulation was in the order of €630 billion. Today, it is around €1.6 trillion, as the demand for banknotes has grown steadily over time.

Moreover, for reasons of precaution, heightened investor scrutiny and regulatory as well as technological changes, banks today may want to hold a significant buffer of excess reserves, depending on their liquidity preferences.

According to scenario analysis by ECB staff, demand for excess reserves could range from €600 billion (if banks held only 10% of total HQLA in reserves and allowed the aggregate LCR to drop from 158% today to 130%) all the way up to €2.2 trillion if reserves were to account for 30% of the HQLA and the LCR was allowed to decline only marginally from today's level (Slide 9).

Even if demand for reserves was ultimately at the lower end of this range, it would not be prudent for a central bank to rely exclusively on short-term refinancing operations.

Concentrating liquidity provision in just one instrument would give rise to operational risks and encumber a significant amount of collateral.

For these reasons, we clarified in our operational framework review that, in the future, we will also offer structural operations, including new longer-term refinancing operations and asset purchases under a new structural securities portfolio.

These operations are expected to make a substantial contribution to covering the banking sector's structural liquidity needs arising from autonomous factors and minimum reserve requirements.[18]

Importantly, they will provide liquidity for monetary policy implementation rather than steering the monetary policy stance.

While the date for launching these operations is uncertain and will depend on how fast excess liquidity declines and how banks react to this decline, our framework suggests the following sequence.

Persistent take-up of standard refinancing operations to precede structural operations

First, before we launch structural operations, we need to see a persistent and broad-based rise in the take-up of our standard refinancing operations (Slide 10, blue area). These act as our marginal instrument to provide liquidity. The time, extent and pace of the take-up will provide us with valuable insights into banks' demand for reserves.

As QN proceeds, there will come a point when the level of outstanding reserves is no longer sufficient to meet the aggregate demand from the banking sector, meaning that it will not be possible to satisfy liquidity demands via the redistribution of reserves.

At that point, overnight and term repo rates could rise more meaningfully, and take-up of our operations will increase. However, this would not be a signal of looming stress but rather a sign of a functioning system that endogenously steers banks towards our refinancing operations.

Terms of structural refinancing operations subject to trade-offs

Second, once the recourse to our standard refinancing operations reaches a level where banks constantly roll over a significant amount of short-term borrowing to meet their liquidity needs, we should consider offering structural operations.

Given the still large legacy bond holdings from earlier monetary policy operations, this naturally starts with structural longer-term refinancing operations.

One option would be to shift a fraction of the recurring demand from our standard operations into structural longer-term refinancing operations (LTROs) at regular intervals (Slide 10, green area).

Under this approach, the Eurosystem could, for instance, allot a fixed quantity of reserves in a variable rate tender, where the quantity to be allotted could be revised over time, just like we used to do before the global financial crisis.

In choosing the appropriate length of the operation, central banks face a trade-off.[19]

On the one hand, the longer the tenor, the lower the operational costs of rollover and the higher the regulatory benefits for banks. Any central bank borrowing with a residual maturity above six months

counts not only towards the LCR but also towards the net stable funding ratio.

On the other hand, the longer the tenor, the less agile central banks are in adjusting their balance sheet to unanticipated shocks and the higher the risk of crowding out market-based funding solutions, which may conflict with regulatory objectives by making banks overly dependent on the central bank to meet regulatory requirements.

In the past, the ECB has varied the maturity of the loans it provided to banks. Only in exceptional circumstances, such as in response to the sovereign debt crisis or the pandemic, did the term of these operations exceed one year.

In any case, the structural LTROs have to be designed in a way that preserves the crucial feature of our operational framework, which is that the marginal unit of liquidity is provided via our standard refinancing operations.

Structural and national securities portfolios contribute to meeting liquidity demand

Finally, sometime after the launch of the structural LTROs, we will start building up a new structural securities portfolio (Slide 10, purple area).

The size of this portfolio will depend on the decision by the Governing Council on the relative contribution that securities holdings should make to covering banks' structural liquidity needs arising from autonomous factors and minimum reserve requirements.

The timing of the launch of this portfolio is therefore closely linked to the run-off in our legacy monetary policy bond portfolios. In addition, national central banks also have non-monetary policy securities holdings, including euro-denominated asset portfolios (Slide 10, red area).

These non-monetary policy holdings fall under the agreement on net financial assets, which limits the amount of liquidity national central banks can create via non-monetary policy activities, referred to as the net financial asset position.[20]

During QE, for example, this position declined, thereby providing monetary policy space (Slide 11, left-hand side). More recently, it started to grow again, also reflecting efforts to rebuild financial buffers.

So, as was the case before the global financial crisis, these national portfolios will make a contribution to covering the euro area banking system's structural liquidity needs in the future, together with the new structural operations.

As a result, purchases under the new portfolio will only start once the liquidity injected through our legacy monetary policy bond portfolios and the net financial asset position falls short of covering the share of reserves the Governing Council decided to provide through securities holdings.

Passive balance sheet run-off implies that this point is still far away (Slide 11, right-hand side).

How to choose the maturity structure of the structural securities portfolio

The final question that I would like to address this morning is the type of assets the ECB may choose to buy as part of its new structural securities portfolio.

In taking this decision, we must weigh up a range of factors.

For example, in our operational framework review in 2024 we announced that we will aim to incorporate climate change-related considerations into the structural monetary policy operations.[21]

While these issues are relevant, I will focus today on the considerations related to the maturity structure of a new portfolio. Three principles are relevant in this context.

One is *policy stance neutrality*. The goal of the operational framework is to implement the desired monetary policy stance and not interfere with it.

Outright purchases of long-term bonds transfer interest rate risk from the private sector to the public sector. This eases financing conditions and hence affects the monetary policy stance.

For example, before the 2008 global financial crisis, the Federal Reserve's Treasury holdings were tilted towards shorter-term securities, with a weighted average maturity of three to four years.

Overweighing purchases of shorter-term securities minimises duration extraction from asset purchases and is hence more stance neutral.

A second factor relates to *maintaining policy space* for future asset purchases.[22]

ECB staff estimate that there is still a non-negligible risk of again hitting the effective lower bound in the future.[23] Also, in a more fragmented and shock-prone world, risks to monetary policy transmission may become a concern again.

As a result, also in the future, there could be episodes in which the Eurosystem may be forced to purchase significant volumes of longer-dated bonds in its pursuit of maintaining price stability and monetary policy transmission.[24]

In view of this, holding shorter-dated assets in the structural securities portfolio could preserve valuable policy space.

A third factor relates to the *central bank's financial soundness*.

While central banks are not profit-maximising institutions, preserving financial soundness helps maintain central bank credibility and independence.[25]

One important risk to financial soundness stems from interest rate risk arising from central banks being exposed to a duration mismatch, which occurs when they hold significant amounts of long-term assets with fixed interest rates.

While the exposure to such interest rate risk may at times be necessary to preserve price stability, such as during the period of QE, it should remain limited in normal times.

For parts of our balance sheet, the design of our operational framework embeds a deliberate alignment of the duration of assets and liabilities. By providing reserves on demand through refinancing operations, the Eurosystem matches its floating rate liabilities – reserves remunerated at the deposit facility rate – with floating rate assets, namely variable rate repos.

By contrast, a framework that supplies reserves largely through fixed rate bonds tends to create more interest rate risk. As a result, when policy rates rise, interest expenses can exceed central bank income. This is what we have experienced in recent years.

Taken together, these three factors speak, in my opinion, in favour of tilting the structural securities portfolio, to the extent feasible, towards shorter maturities.

Conclusion

To conclude, let me leave you with three central lessons that define the logic of our operational framework and the impact it can be expected to have on our balance sheet.

First, in a demand-driven framework, there is no direct connection between the run-down of our legacy monetary policy bond portfolios and interest rate control.

A narrow policy rate corridor and fixed rate full allotment of our standard refinancing operations can limit interest rate volatility and ensure that reserves remain sufficiently ample. We therefore encourage banks to use our operations if and when they need liquidity.

Second, there is a sequence embedded in the operational framework for how to supply reserves in the future.

Our standard refinancing operations are the marginal source of liquidity for banks. Once the Eurosystem balance sheet begins to grow durably again, we will start launching structural operations, starting with longer-term refinancing operations and followed later by the build-up of a structural securities portfolio.

The latter will be launched once the legacy monetary policy portfolios have run off sufficiently, also considering non-monetary policy securities holdings.

Finally, policy stance neutrality, the need to maintain policy space and considerations related to financial soundness are important factors that will guide the maturity of assets the ECB will buy under a new structural securities portfolio. These factors suggest tilting the structure towards shorter-dated assets.

Thank you.

Annexes

6 November 2025

Slides

1.

The gradual run-down of our balance sheet began in March 2023 when we started to only partially reinvest assets from our asset purchase programme. Full run-down did not start until January 2025. Balance sheet normalisation had started earlier with the early repayment and maturing of targeted longer-term refinancing operations in 2022.

2.

The introduction of the digital euro will create a third category of base money.

3.

This is broadly true for reserve currency central banks or economies with floating exchange rates.

4.

This is consistent with the set of ECB policy rates being our primary monetary policy instrument. See ECB (2025), *The ECB's monetary policy strategy statement (2025)*.

5.

ECB (2024), "Changes to the operational framework for implementing monetary policy", statement by the Governing Council,13 March; Schnabel, I. (2024), "The Eurosystem's operational framework", speech at the Money Market Contact Group meeting, Frankfurt am Main, 14 March.

6.

Schnabel, I. (2023), "Back to normal? Balance sheet size and interest rate control", speech at an event organised by Columbia University and SGH Macro Advisors, New York, 27 March; Logan, L. (2025), "Ample liquidity for a safe and efficient banking system", remarks at the 'The Evolving Landscape of Bank Funding' conference at the Federal Reserve Bank of Dallas, October 31.

7.

The standard refinancing operations are the weekly main refinancing operation and the three-month longer-term refinancing operations, allotted once a month.

8.

Hartung, B. et al. (2025), "The first year of the Eurosystem's new operational framework", *The ECB Blog*, ECB, 25 April; Bank of England (2023), "What do we know about the demand for Bank of England reserves?", 22 February.

9.

The counterfactual LCR simulation assumes that banks' government bond holdings remain fixed at their Q3 2022 level, while all other LCR components follow their actually reported values.

10.

A broadly stable LCR also reflected the fact that the LCR denominator – the expected net liquidity outflows in a stress scenario – has remained broadly stable over the past three years.

11.

Liquidity provided through asset purchases often tends to be concentrated among a few larger financial institutions located in a few countries. Between November 2011 and May 2023, about 40% of banks, in terms of total assets, held the entire excess liquidity from asset purchases.

12.

See also, Williams, J. (2025), "On the Optimal Supply of Reserves", remarks at the New York Fed – Columbia SIPA Monetary Policy Implementation Workshop, Federal Reserve Bank of New York, New

York City, May 22.

13.

Nor would concerns about market functioning be a reason to change the pace of run-down. For these contingencies, we have a range of instruments at our disposal.

14.

Friedman, M. (1996), "The Optimum Quantity of Money", *The Optimum Quantity of Money and Other Essays*, Macmillan, London.

15.

An environment in which market participants become conditioned to operate with ample access to cheap funding fosters a liquidity dependence by banks that may diminish the system's capacity to absorb shocks. See Acharya, V.V. et al. (2023), "Liquidity Dependence and the Waxing and Waning of Central Bank Balance Sheets", *NBER Working Paper*, No 31050; Borio, C. (2023), "Getting up from the floor", *BIS Working Papers*, No 1100.

16.

Schnabel, I. (2024), op.cit.

17.

Buch, C. and Schnabel, I. (2025), "Managing liquidity in a changing environment", *The ECB Blog*, 18 March.

18.

ECB (2024), op.cit.

19.

The Bank of England, for example, offers liquidity for a six-month term, with the price depending on both the collateral pledged and overall demand.

20.

ECB (2024), "What is ANFA?", 13 September.

21.

ECB (2024), op.cit.

22.

See also Edge, R. M. and Li, D. (2025), "Central bank preparedness for market-functioning asset purchases as a consideration for long-run balance sheet composition", *Finance and Economics Discussion Series (FEDS),* Federal Reserve Board, Washington DC.

23.

Kamps, C. et al. (2025), "Report on monetary policy tools, strategy and communication", *Occasional Paper Series*, No 372, ECB, 30 June.

24.

Today, for example, the weighted average maturity of assets bought under the pandemic emergency purchase programme is still slightly above seven years.

25.

Recently, an asset-liability management (ALM) approach has been proposed as a blueprint for central bank balance sheets. See Waller, C. (2025), "Demystifying the Federal Reserve's Balance Sheet", speech at the Federal Reserve Bank of Dallas, Dallas, Texas, 10 July; Hammack, B.M. (2025), "The Federal Reserve's Balance Sheet: Some Major League Questions", speech at the Money Marketeers of New York University, Inc., New York, 23 April; De Vere, H., Ramaswamy, S. and Schulhofer-Wohl, S. (20 the Federal Reserve Balance Sheet", *Research De* ve Bank of Dallas.