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Now is the time for quantitative tightening

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Now is the time for quantitative tightening

Abstract

Even if quantitative tightening (QT) is as inefficient as quantitative easing (QE) at affecting inflation, now is the time to cut the size of central banks' balance sheets. The stabilising effects of large balance sheets are eroded as the financial markets adapt to excess reserves. If QT proves to be financially destabilising, it can be temporarily interrupted, possibly even reversed.

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CONTENTS

LIST OF ABBREVIATIONS

ECB	European Central Bank
Fed	Federal Reserve
QE	Quantitative easing
QT	Quantitative tightening
TLTRO	Targeted longer-term refinancing operations
TPI	Transmission protection instrument
USA	United States of America
USD	US dollar

LIST OF FIGURES

LIST OF TABLES

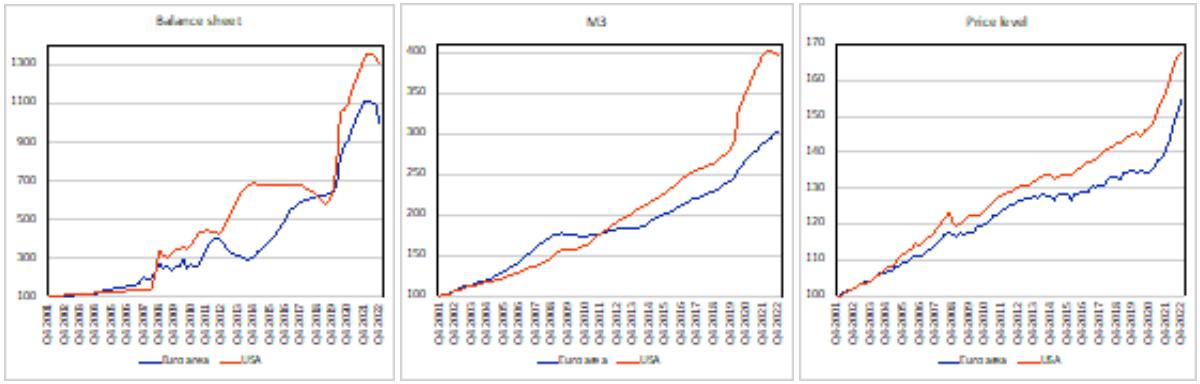
EXECUTIVE SUMMARY

- With QE, we have moved from an old normal where interest rates and the size of bank reserves are just two sides of a single central bank instrument to a new normal where they are **two distinct instruments**. The interest rate is used for achieving stable prices and the size of bank reserves is used to preserve financial stability.
- At this juncture, **interest rates must be raised to deal with the inflation surge**, which may threaten financial stability. This could suggest that quantitative tightening (QT) should not be undertaken until inflation has been brought to the target. In fact, **now is the time to do QT**, for several reasons.
- First, **QT is a powerful message from central banks** that they are firmly dedicated to bring inflation back to target, even if QT is likely to be as inefficient as quantitative easing (QE) at affecting inflation.
- Second, **the current size of balance sheets is unnecessarily large**. The reserves of commercial banks are less abundant than they seem, which explains the recent financial market turmoil. Indeed, financial markets have adapted to abundant liquidity in ways that undermine the stabilising properties of large balance sheets. The longer the balance sheets remain too large, the less useful they are.
- Third, **QT does not have to be a linear process**. When and if market instability emerges, the central banks can suspend QT temporarily, even reverse course and inject more liquidity, and then resume QT once markets stabilise. In the euro area, where instability can occur at a national level, the Transmission Protection Instrument (TPI) is adequate to conduct local QE.
- **Once some major central banks, like the Fed, undertake QT, other central banks may have no choice but to follow suite**. If they do not keep up, capital flows may surge and provoke exchange rate movements that stand to disturb trade and undermine monetary policy.
- **In the past, central banks have failed to significantly reduce the size of their balance sheets** during periods of market tranquillity. Delaying QT until inflation is stabilised stands to result again in inaction.

1. INTRODUCTION

During the period of near-zero inflation, many central banks from developed countries adopted the quantitative easing (QE) strategy of increasing the size of their balance sheets by purchasing assets through money creation. They were frustrated to be unable to bring inflation to their declared targets – usually 2% - once they had brought their usual policy instrument, the interest rate, down to its lower bound of zero, or slightly below zero. They hoped that ultra-abundant money would encourage banks to lend more to firms and households and thus boost aggregate demand, which would raise inflation. It did not quite work as intended, as seen in Figure 1, which looks at the cases of the euro area and the United States of America (USA). The leftmost chart displays the balance sheets of the Eurosystem and of the Federal Reserve (Fed), the middle chart shows the evolution of the wide monetary aggregate M3[1], and the price level appears in the right-hand chart. It is essential to note the different scales of the charts: the balance sheets rose three times more than M3, which increased more than twice as much as the price level. There simply exists no long-term quantitative relationship between the size of central bank balance sheets and M3, nor between M3 and the price level. Furthermore, except in the post-COVID period, there is no short-term or medium-term relationship between the evolutions of these three variables either, in contrast to what used to be the case before the advent of QE. As explained in Wyplosz (2021), central bank research argues that QE has been effective, but this conclusion is not backed by academic research.

Figure 1: Money and prices



Sources: International Financial Statistics, IMF, and Main Economic Indicators, OECD.

Notes: All variables are normalised to be 100 in 2001:4.

This is not to say that QE did not have any effect. The abundance of liquidity since 2008 has provided the financial markets with a deep cushion to absorb the many disturbances that occurred during that period. QE can be credited with having provided financial stability. Logically, therefore, undoing QE, which is the purpose of quantitative tightening (QT), should not affect much the evolution of the price level but could generate financial instability. This would argue against QT, especially as interest rate increases disturb economic growth, which stands to lead to financial instability. While this is a valid concern, the present paper argues that it is wise to conduct QT now.

The next section examines the profound transformation of financial markets as a result of QE and examines what can be defined as the "new normal". It asks whether a return to this new normality is

[1] M3 is a measure of money that includes currency, deposits with an agreed maturity of up to two years, deposits redeemable at notice of up to three months and repurchase agreements, money market fund shares/units and debt securities up to two years.

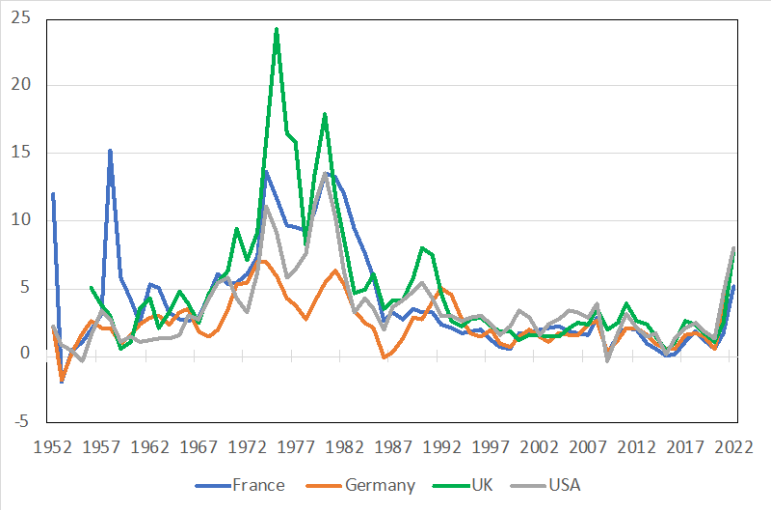
possible and desirable and what it could look like. Section 3 describes the objectives and risks of QT. The last section concludes.

2. OLD AND NEW NORMAL

2.1. Interest rates and liquidity

As can be seen in Figure 1, for a quarter of a century since the mid-1980s, central banks have been successful at keeping inflation stable and low, usually around 2% or less. In my view, this was the result of two institutional changes: making central banks independent and adopting the inflation-targeting strategy, which relied on setting interest rates at levels that delivered price stability as defined by each central bank. To that effect, central banks kept liquidity at a level of scarcity that delivered the chosen interest rates. This came to be seen as the successful normality. After the global financial crisis, inflation started to drift below the inflation target. Central banks reacted by lowering their interest rates until they hit the zero lower bound, without succeeding in hitting their inflation targets. They started to do QE. This was the end of the prevailing normality.

Figure 2: Inflation rates since 1952



Source: International Financial Statistics, IMF.

To conduct QE, central banks purchase assets on the financial markets. They pay for their purchases by creating new money, which generally ends up as commercial bank reserves, i.e. deposits that banks hold at their central banks. Over time, the central banks have adopted various QE schemes, depending on what type of assets they purchase, from whom, for how long and under which conditions.

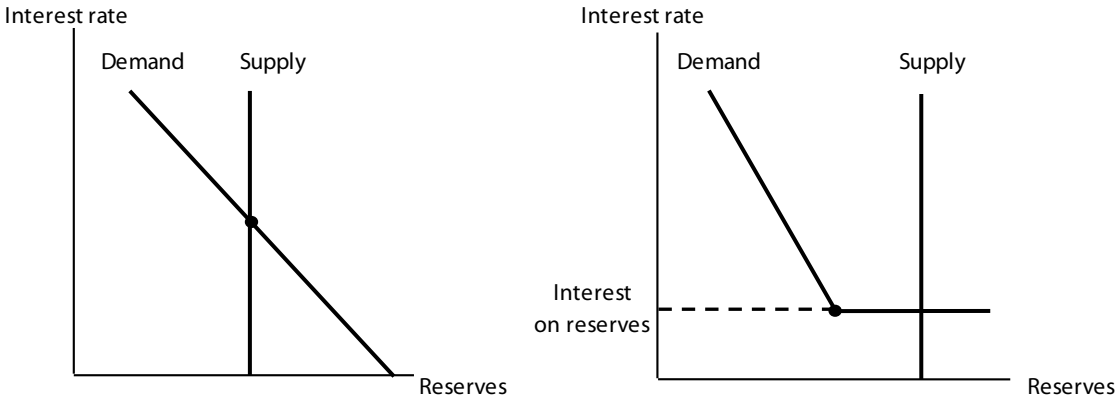
An important aspect of the departure from the old normality is that the overall amount of money has changed from organised scarcity to engineered abundance, with the relevant interest rate driven by the remuneration of commercial bank deposits, not by the amount of money that the central bank provides to the economy. Central banks hold sufficient reserves as a standard precautionary procedure and, in some countries, banks are subject to a minimum reserve requirement. The Basel III agreement has increased the need for reserves as commercial banks are now required to hold sufficient liquid resources to face unexpected losses (it imposes a liquidity coverage ratio, which can be met with deposits at the central bank).

As a result, commercial banks now hold more reserves than in the old normal. In addition, commercial banks just held a small amount of excess reserves when they were not remunerated. In the new normal, they tend to be interested in holding more.

This is explained in Figure 3. The demand for reserves by commercial banks declines as the interest rate increases, hence the downward-sloping schedule. The supply of reserves is set by the central bank irrespective of the interest rate, hence the vertical line. In the old normal, shown by the left-hand chart, the reserves are not remunerated, and the central bank sets the supply to achieve whatever interest rate it wants to achieve. The central bank cannot control the interest rate and the supply of reserves separately.

The new normal is displayed in the right-hand sight chart, which shows the interest rate that remunerates reserves. The demand now has a kink because once the interest rate has been brought down to the level served on reserves, the demand schedule becomes horizontal since the commercial banks are now satiated with reserves. On the left of the kink, the situation is the same as in the old normal. Once it exceeds the level corresponding to the kink, the supply of reserves can be expanded without having any impact on the interest rate, which is effectively determined by the rate paid on reserves by the central bank. Under the new normal, central banks now have two distinct instruments: the interest rate that they enforce by serving interest on deposits by commercial banks and the deposits that leave the banks with large amounts of excess reserves.

Figure 3: Old and new normal



Source: Author's own elaboration.

2.2. Logic of the new normal

What can central banks expect from the new normal that they created through repeated QE? Large excess reserves mean that commercial banks are well-equipped to face financial turbulence. They have immediate access to vast sums of money, which they can use to cover their own losses or that they can lend to other banks that suffer losses. The banking system is, therefore, more resilient. In addition, they can promptly make large loans to customers or private investors who suffer losses. Large excess reserves are a powerful way to enhance financial stability.

A second purpose of QE is to encourage commercial banks to increase their lending activity and enhance spending, which in turn is expected to increase inflation when it is deemed too low. As Figure 3 shows, excess reserves yield the interest rate set by the central bank. Commercial banks can achieve higher returns by granting loans. This incentive is what central banks relied on when they indicated

that QE would act as a substitute for reducing interest rates once they had reached the lower bound. As Figure 1 shows, banks have not used these excess reserves to extend more loans. One reason is that commercial banks were fragile in the aftermath of the 2008 global financial crisis. They preferred to hold poorly remunerated excess reserves than loans, which are always inherently risky. Over time, banks became sturdier, but economic growth remained subdued, which discouraged firms and households from applying for more bank credit, even though it was abundant and cheap. As the saying goes, you cannot force a camel to drink. And, obviously, the pandemic crisis brought huge uncertainty apt at discouraging both banks and their customers from additional credit again.

2.3. Size of balance sheets in the new normal

In the new normal, the supply of reserves must be at least as large as indicated by the kink in Figure 3. Beyond that point, the central bank can choose any amount of reserves that it wishes. In particular, it can promptly inject liquidity in response to financial instability, without any upside limit.

The minimum level of reserves corresponding to the kink in Figure 3 is not precisely known but can be discovered by the central bank through trial and error. As soon as the supply moves to the left of the kink, the interest rate will rise above the rate served on bank deposits at the central bank. Figure 1 strongly suggests that QE has moved the supply far to the right of the kink as the balance sheets of central banks. Commercial bank reserves, which represent the vast majority of the central bank liabilities, have already increased twofold by 2008 compared to the starting point of 2001, and more than tenfold during the COVID-19 pandemic

While virtually any amount of liquidity injection is possible during emergencies, keeping the balance sheet very large involves a number of drawbacks, some of which become increasingly problematic as time passes by. The existence of these drawbacks is the reason why QT is necessary.

The first drawback is that the abundance of liquidity can become inflationary since commercial banks can vastly expand their lending if they consider it profitable. This had not happen until 2021, even though the interest rate on bank reserves was negative in some countries such as Denmark, Switzerland and those in the euro area. Some reasons why this has been the case are presented above. Another reason is developed in Section 3.2. However, the situation has changed since 2021, when the worst of the pandemic had passed. Figure 1 shows that the M3 growth rate has risen markedly and, with a delay, inflation has come back. The process has also been accelerated as governments have stepped in. They have raised public spending and provided a wide range of subsidies to households and firms. Sharply increased budget deficits have been financed by easy borrowing, given the amount of liquidity available in the banks. Excess reserves that had succeeded in preventing any financial turmoil have started to support a rapid resumption of economic growth. To be sure, easy money has not been the only cause of inflation, but it has been and still remains a contributing factor. Central banks are cooling the situation by raising interest rates but the vast amount of excess reserves still feeds bank borrowing to both the private and public sectors. Therefore, it is unlikely that inflation rates will return to their target without QT.

A second reason why QT is needed is that, over the last decade, the financial sector has adapted to low-interest rates and abundant liquidities. Professional investors – both private enterprises and financial institutions – have sought to achieve higher returns than those provided by the interest rates, which had declined at all maturities. The only way to do so was to take higher risks. Paradoxically perhaps, they felt that the risks were limited thanks to the soothing effects of QE on financial stability. With access to abundant liquidity, high net worth and professional investors could expand their activities. In doing so, they accumulated risk, without always being aware of the extent to which they were exposing themselves to changing conditions. They were reassured by the continuing promises by central banks

that the interest rates would remain "low for long". They were further reassured by the fact that previous QE injections of liquidity had not been reversed, or only to a small extent, as seen in Figure 1.

The inflation surge has changed the situation. Investments that once looked safe are being revealed as risky, as they always were. Public debt that grew fast and was easily financed, once again became fragile. This is already the case for a number of developing countries, some of which have already defaulted. Section 3.2 argues that it may soon be the case for highly indebted developed countries. Newly-invented financial investments may turn out to be much riskier than initially anticipated. Barring any change that would justify cutting interest rates and once again injecting more liquidity, the current status quo is unsustainable. As always, following excessive risk-taking, some cleaning up is unavoidable. This is one reason why financial markets are currently arguing in favour of a monetary "pivot" in monetary policies, meaning an end to interest rate increases and an end to QT. Their arguments seem driven by false expectations about the evolution of inflation, which seem to rely on wishful thinking rather than rational analyses.

2.4. Costs of reserves for central banks

For the sake of completeness, an additional consequence of the new normal can be briefly mentioned. In the old normal, the reserves were not remunerated. Central banks were making a profit since the counterpart of reserves were interest-yielding assets, often treasury bonds. These seigniorage profits, often described as a tax on banks, provided the bulk of central bank incomes, much of which were paid to their governments. In the new normal, the seigniorage tax is greatly reduced.

There are fears that the central banks could become unprofitable and possibly technically bankrupt (they cannot be effectively bankrupt since they can always print money). As carefully explained by Hall and Reis (2015), it is highly unlikely that central banks can be technically bankrupt, at least in developed countries. The key reason is that they make profits as they earn interest on their holdings of treasury bonds and other assets that they acquire as part of QE. These returns normally exceed the interest paid to commercial banks on their reserves. However, in 2022, like most investors, the Eurosystem suffered large losses on its portfolio, far larger than its diminished seigniorage income. The ECB and national central banks thus ended up the year with zero profits and could suffer more losses in the future. There is now a serious risk that several of them become technically bankrupt. While a central bank can operate with negative capital (several do) and cannot be formally bankrupt, this is creating a delicate political situation, especially if they are recapitalised by their national governments, as noted by Schnabel (2023). This is not fortuitous. It is a consequence of the end of "low-for-long" interest rates. It stands to challenge monetary policy, both the planned increases in interest rates and QT.

Beyond this transitory disturbance, it remains that seigniorage income will always be reduced in the new normal because commercial bank reserves are remunerated. This income is usually small but not insignificant, some 0.5% of GDP. A reduction is unlikely to disrupt public finances seriously. Large losses are more troublesome because they may trigger debates about central bank independence. Ultimately, the standard view remains valid that central banks are not profit-making institutions and should therefore exclusively focus on their missions, price and financial stability. At any rate, QT reduces the amount spent on reserve remuneration but also the income from the assets acquired during QE, so the net effect is likely to be negligible.

3. OBJECTIVES AND RISKS OF QT

3.1. Objectives

Much like low interest rates were intended to last for a long time – and they did – but not forever, QE was not intended to increase the size of balance sheets permanently. Both were justified by the shocks that occurred in short succession since 2008. The inflation surge that started in 2021, after years of unsuccessful central bank efforts to achieve their targets, should not be seen as an exceptional event destined to fade away. The secular stagnation hypothesis suggested that the stubbornly low inflation of the 2010s was a long-lasting phenomenon. Even its main promoter, Larry Summers, has now acknowledged that secular stagnation has probably come to an end[2] – assuming it ever existed. This is why central banks are reversing their policies, as they raise interest rates and proceed with QT.

There were some debates concerning the order of these reversals: should interest rates be raised first, or should QT precede, or should both be enacted simultaneously? Central banks have chosen the first strategy and have proceeded with QT soon afterwards. Inasmuch as QT has little or no effect on macroeconomic conditions (including inflation), this was the right call. QT could have been delayed further on the ground that rising interest rates can trigger financial instability, in which case abundant reserves could prove helpful. One interpretation of why the central banks are now carrying out both actions in parallel is foreshadowed in Bernanke's discussion of Goodfriend (2002):

> *"Marvin was perhaps concerned that QE would not be slowed or reversed after the economy no longer required support. It is true, at least, that unwinding a QE program without disrupting markets too much can take some time, during which the central bank's securities holdings continue to provide stimulus."*
> Bernanke (2022: 101)

In other words, there always was a fear that QE would not be reversed, leaving in place the risks outlined in Section 3.2 below.

Having failed to reverse QE previously, central banks probably intend to proceed with the complete normalisation of both instruments. But normalisation does not mean going back to the old normal. In the new normal, they have two instruments, which allow them to aim at two objectives, price stability and financial stability, and they want to keep both. This observation carries a few implications.

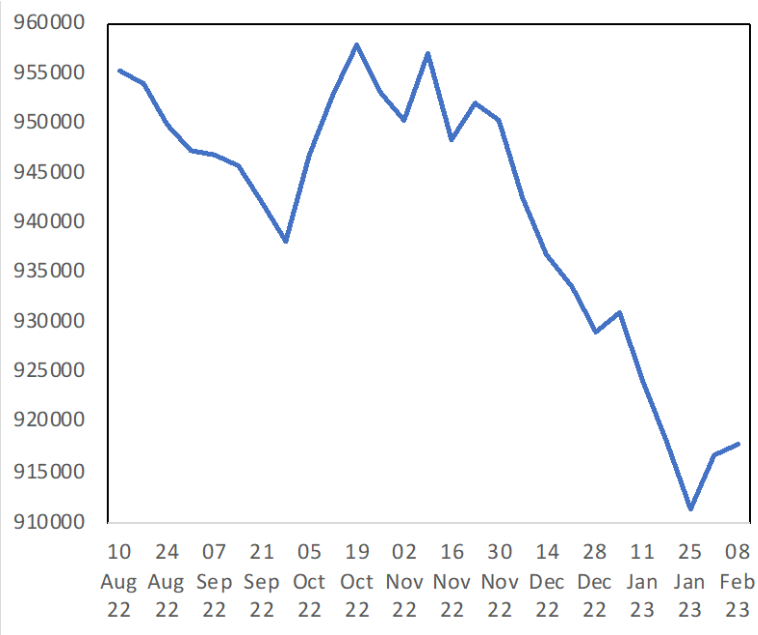
First, the size of central banks' balance sheets, and therefore the amount of bank reserves, will not revert to what it was before QE was launched. In order to keep the two instruments distinct, the reserves will remain remunerated at the interest chosen by the central banks for monetary policy proper, independently from the size of the reserves. If not – if the supply is on the left of the kink in Figure 3 – the two instruments will be merged into one as in the old normal. This means that the balance sheets will be larger than before QE. They need not be much larger, but they are likely to remain significantly larger as abundant liquidity provides some protection against financial instability. This aspect of the new normal will take time to be established as central banks are likely to explore their margins of manoeuvre.

Second, since raising the interest rate may trigger a level of financial instability, central banks will stand ready to suspend QT or even revert to QE, but temporarily so. An example of a temporary reversal of QT already occurred in the UK at the end of September 2022 when the Bank of England acted to calm markets alarmed by the mini-budget announced by then-Prime Minister Truss. Figure 4 shows that the reduction of reserves already modestly underway (although not yet officially declared) was promptly

[2] In a speech on 7 January 2023 at the annual meetings of the American Economic Association. See webstream: https://www.aeaweb.org/webcasts/2023/shocks-crises-consequences

reversed, and then QT was soon restarted in early November, when it was formally announced. In the euro area, if financial instability only concerns some countries but not others, the ECB could use the Transmission Protection Instrument (TPI), which was announced at the outset of the normalisation process. In that case, the ECB could pursue QT while simultaneously implementing the TPI by buying assets from commercial banks in the affected countries. While the reserves of commercial banks from the non-affected countries would continue to shrink, those from the affected countries would temporarily rise until financial stability is restored and QT takes over TPI, as the British example illustrates.

Figure 4: Reserves held at Bank of England (GBP millions)



Source: Bank of England.

Third, because of possible effects on financial stability, QT could proceed at a slower path than QE. Table 1 reports the average monthly QE injections and QT withdrawals of the Fed and the ECB, as they are currently announced. The QT amounts are indeed smaller than the QE amounts, especially in the early stages of QE. They are also announced as significantly smaller at the ECB than at the Fed. While the two central banks intended to make a quick mark when they started and restarted QE, they seem to proceed more cautiously as they embark on QT, as if they want to test the market reactions. They could increase the rhythm if the financial markets seem to absorb the withdrawal of liquidity without difficulty.

The numbers displayed in Table 1 do not include the various long-term refinancing operations programmes offered to banks, although they have contributed to liquidity increases like the other asset purchase programmes. Most have now elapsed. Those that remain correspond to the third wave of the targeted longer-term refinancing operations (TLTRO), which initially included highly favourable (mostly negative) interest rates as an incentive for commercial banks to expand their lending activities. As it proceeds with QT, the ECB has every reason to press for early repayments of these loans. To that effect, even before launching QT, it has raised the interest rate on the loans and eliminated various administrative impediments to early repayments. Current indications suggest that the commercial banks are responding to the new incentives, which modestly increase the volumes of QT.

Table 1: Average monthly QE and QT interventions (billions of local currency)

Federal Reserve			ECB		
November 2008 to March 2010	QE	100	March 2015 to March 2016	QE	60
December 2010 to June 2011	QE	75	April 2015 to March 2017	QE	80
September 2012 to December 2013	QE	100	April to December 2017	QE	60
March 2020 to February 2022	QE	190	January to September 2018	QE	30
			October to December 2018	QE	15
			November 2019 to June 2022	QE	74
June 2022 -	QT	48 rising to 95	March to June 2023	QT	15

Sources: Federal Reserve Bank of New York for QE1 to QE3, and Levin et al. for pandemic QE in the US; ECB for the euro area.

3.2. Risks

Like QE in 2008, QT is a new experiment, as the new normal will be once inflation is tamed. Now that QT is underway in many countries, we stand to discover a wide variety of unexpected developments. In particular, it remains to be seen how the financial markets respond to a situation that is different from the one that has prevailed over the last fifteen years.

It is useful, therefore, to examine how financial institutions have adapted to the previous environment of very low interest rates and abundant liquidity. Rajan and Acharya (2022) reveal highly disquieting features. In brief, they argue that liquidity is not abundant, and worse, that mundane disturbances can generate serious pockets of acute illiquidity that threaten to expand to the rest of the markets. They refer to three recent illiquidity episodes that came as a paradoxical surprise to most observers since they occurred at times when liquidity was believed to be abundant:

- September 2019, the US repo market tanked as the Fed was engaged in a brief episode of QT.
- March 2020, an episode of bank illiquidity at the outset of the Covid-19 epidemic.
- October 2022, the British market turmoil previously mentioned.

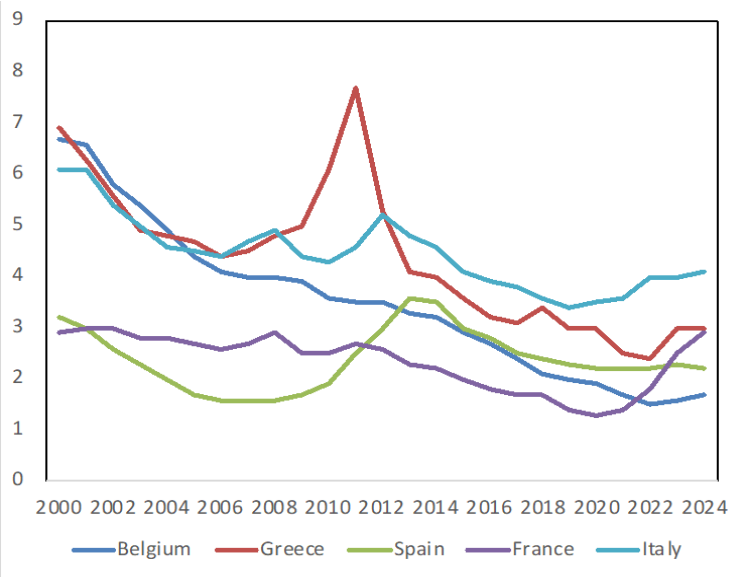
To explain why this paradox arises, Rajan and Acharya (2022) document how commercial banks reacted to QE. They acquired reserves by selling public debt instruments to the Fed. In addition, as private investors sold assets to the Fed, they deposited the proceeds in commercial banks. Naturally, the banks sought to use these reserves to receive better returns than the paltry, often negative, interest now served by central banks. Some banks undoubtedly sold newly acquired reserves to buy better-remunerated assets but, in the aggregate taking all banks together, the total amounts of reserves could not be reduced since sales of reserves by one bank inevitably appeared as purchases by other banks. What they could do was to use their reserves as a backup for well-remunerated commitments (a process called encumbering of assets). They were careful to match these short-term liquid assets with implicit short-term liquid liabilities. To that effect, they provided credit lines to customers, offered guarantees on leveraged borrowings (including large pension and hedge funds), and raised credit card limits.

However, when disturbances (which resulted in margin calls or drawing down credit lines) occurred, many of these implicit liabilities could not be recovered immediately without potentially resulting in losses for the banks. It turned out that the commitments in question were neither liquid nor safe. Some banks that were heavily exposed sought to borrow from more careful banks, which demurred as they

did not want to be tainted by the budding crisis. In this way, many reserves were not available or, put differently, effective liquidity was significantly smaller than what Figure 1 suggests. The financial system had become accustomed to abundant liquidity, in effect absorbing much of the apparent liquidity. The implication is that the longer QE lasts, the more difficult it becomes to reverse.

An important aggravating factor is that many governments have become highly indebted during the era of low-interest rates. Even so, debt service gradually declined as maturing older higher-interest debt was being replaced by newly issued low-interest rate debt. In fact, the lower debt service may have encouraged some governments to borrow more. Now that the interest rates are increasing and may not fully revert to their previous low levels, debt service will rise. Figure 5 shows the evolution and current projections on debt service from the European Commission for some of the highly indebted countries in the euro area. These projections may well rely on optimistic assumptions about the future path of interest rates. In addition, the inflation surge of 2022 is mechanically reducing the debt burden. Even so, the increases may appear reassuringly modest. However, the financial markets may take a long-run view. If interest rates remain permanently higher than they have been, cheap debt will be gradually replaced by more expensive debt over time. As debt service increases, the markets can become alarmed, which would push interest rates upward, as happened at the outset of the euro debt crisis. Even modest turbulence in a country's public debt market may trigger the kind of pressure on liquidity previously described.

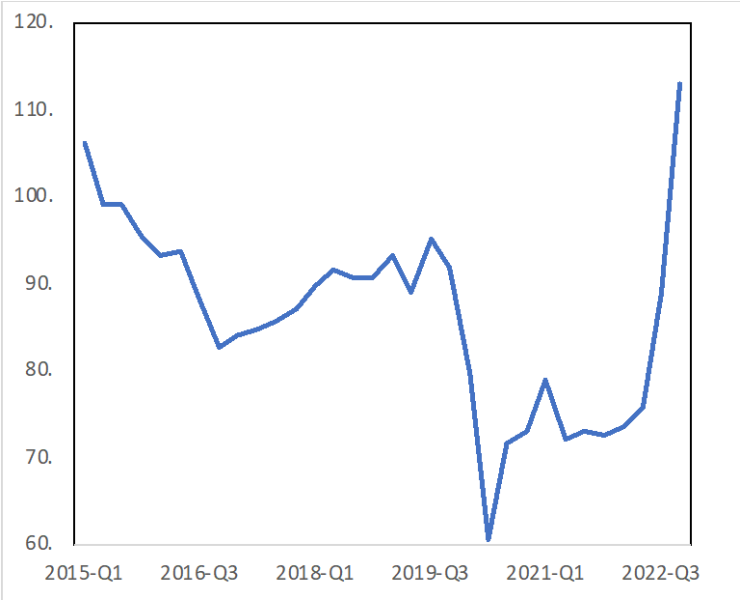
Figure 5: Public debt service (% of GDP)



Source: AMECO, European Commission.

Much the same can be said about private sector indebtedness. Lenders will suffer losses if households and firms cannot service their debts. As long as this remains within the private sector, it does not constitute a systemic problem. However, given the dominant financial role of commercial banks, large losses can translate into bank fragility and thus become a systemic problem. Figure 6 shows that the number of private bankruptcies increased in 2022. This is not surprising. The number of private bankruptcies considerably decreased during the pandemic years as a result of extensive government subsidies that artificially kept "zombie" firms alive. The 2022 numbers largely represent a catch-up adjustment. Yet, the rapid increase in bankruptcies can put lenders, especially commercial banks, in a difficult position, with potential systemic effects.

Figure 6: Registered bankruptcies in the European Union (Index 2015 = 100)



Source: Eurostat.

4. CONCLUSION

In one way, it is paradoxical to conduct QT at the same time as interest rates are being raised. The interest rate is the instrument that affects the macro-economy, so it needs to be used to bring inflation back to target. There is no doubt that central banks can succeed if they are determined and patient enough, which they seem to be. The balance sheet has uncertain effects on the macro-economy, which means that QT is not needed at this stage. On the other hand, the size of the balance sheet affects financial stability. Since raising the interest rate may be a source of financial instability, doubling down with QT may seem inadvisable. Yet, QT remains desirable at this stage for several reasons.

First, while the effectiveness of the balance sheet instrument on the macro-economy is not confirmed, QT is a powerful message from central banks that they are firmly dedicated to bringing inflation back to target.

Second, the stabilising properties of a large balance sheet are undermined by the adjustment of financial institutions to apparently abundant liquidity. The longer the balance sheet remains as high as it is, the more its stabilising effects are eroded. Recent events indicate that a large balance sheet does not provide a solid guarantee of financial stability.

Third, commercial banks and other financial institutions have adapted their strategies to the environment of low-for-long interest rates and abundant liquidity. These strategies will have to be abandoned as interest rates rise and remain higher than over the last fifteen years. Keeping liquidity abundant will lead to new strategies that will prove to be ill-adapted when the balance sheets are eventually reduced in size. Such strategic changes are inherently complex and potentially destabilising. Conducting QT while interest rates rise provides financial institutions with the clarity they need to design their new strategies.

Fourth, QT does not have to be a linear process. When and if market instability emerges, the central banks can suspend QT temporarily, even reverse course and inject more liquidity, and then resume QT. In the euro area, where instability can occur at a national level, the TPI instrument is adequate to conduct local QE.

Fifth, if some central banks adopt QT and not others, the tightening of liquidity in the former countries could attract still-abundant liquidity in the latter countries. This could result in significant exchange rate movements apt at disturbing international trade. In addition, efforts to reduce inflation would be undermined in the latter countries as their exchange rates depreciate. Once some major central banks, like the Fed, undertake QT, other central banks may have no choice but to follow suit.

Finally, most central banks have failed to significantly reduce the size of their balance sheets during the period of market tranquillity. Delaying QT until inflation is stabilised stands to result again in inaction. The current travails in Japan well illustrate the credibility risks of delaying action.[3]

Now that QT is underway, the public (financial institutions, observers) will want to know how far the balance sheets will be reduced. Obviously, the central banks do not have an answer because it has never been done before. They had made it clear that the new normal will require larger balance sheets than in the old normal when reserves were not remunerated. They will have to proceed by trial and error to find the proper size of their balance sheets. At some point in the future, they will have to explain how they intend to proceed, fully acknowledging that they could make errors.

[3] Markets expect that the Bank of Japan will soon adopt QT as it has started to raise its interest rate. The central bank has taken some preliminary steps toward shrinking its elaborate QE, but it denies that it is about to proceed further any time soon. The result is widespread confusion and market febricity.

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Even if quantitative tightening (QT) is as inefficient as quantitative easing (QE) at affecting inflation, now is the time to cut the size of central banks' balance sheets. The stabilising effects of large balance sheets are eroded as the financial markets adapt to excess reserves. If QT proves to be financially destabilising, it can be temporarily interrupted, possibly even reversed.

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