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1 Introduction

Since the start of the global financial crisis in 2008, the European Central Bank (ECB) has increased the means through which it provides monetary stimulus. These unconventional monetary policies have de facto increased the scope of its actions and have direct implications for aggregate demand management and for financial stability. The main characteristic of monetary policy in recent years is that the main instrument, the interest rate, has been at the zero lower bound (ZLB) and has de facto become inactive, leading the ECB to follow in the footsteps of the US Fed and use other ways to implement monetary policy.

While necessary and important, applying unconventional tools might not be without risks. When these tools were introduced there was general consent that while they were a useful addition to central banks' toolkits, they ought to be of a temporary nature. There needs to be therefore a clear and transparent plan to discontinue them in order to start the process of 'normalisation.' In this paper, we discuss the parameters of this normalisation process. While when this process should take place is an important question, it is not our focus here. We discuss how the ECB should implement 'normalisation' and what the 'new normal' might look like.

We begin our discussion by describing the ECB's toolbox and operational framework since its establishment and how they have changed since the start of the financial crisis.

Section 3 describes normalisation experiences so far. We draw primarily from the experience of the Fed, which was much quicker to introduce unconventional monetary policies, in particular large-scale asset purchases, and has now already started to reverse them.

We then discuss in section 4 what the destination of this normalisation process could or indeed should be. We argue that unconventional monetary policy has led to large central bank balance sheets, which will be very difficult to reduce over a short period. At the same time, central banks might not be able to rely on the interest rate itself to manage the economy as they could before the crisis. This is because the neutral interest rate appears to have fallen closer to zero, leaving less scope to reduce rates in future recessions to boost aggregate demand. By implication, monetary policy will take place with large balance sheets and the use of balance sheet measures might need to be frequently relied on. The new normal for monetary policy is therefore more likely to be characterised by a combination of interest rate moves and balance sheet measures, negating the temporary nature of unconventional monetary policies. In that case then the ECB will have to learn how to conduct monetary policy with a large quantity of reserves in the system.

Finally, section 5 discusses the sequencing of the normalisation process in which the application of unconventional tools will be reduced. As the Fed is much more advanced in this process, its experience is again very instructive. The Fed began with tapering (ie gradually reducing its asset purchases) before moving on to interest rate increases and lastly an actual reduction in the size of its balance sheet by limiting the reinvestment of maturing assets. We discuss how this might be the safest way of managing a very unfamiliar process while providing maximum predictability. While announcing the timing in advance might be the ideal way

2 The European Central Bank's conventional and unconventional toolkits

2.1 Strategy and operational framework before the crisis

From its creation in 1999 to the beginning of the crisis in 2007, the ECB put in place a simple strategy combined with a fairly efficient operational framework. The ECB focused on price

2017, an additional series of four-year Targeted Long-Term Refinancing Operations (TLTROs) was launched to refinance European banks at very low interest rates and to encourage them to extend credit to the real economy. These operations are targeted because the amount counterparties can borrow from the ECB is linked to their loans to non-financial corporations and households. Therefore, these measures are directly aimed at facilitating lending to the real economy, rather than solely improving the liquidity condition of credit institutions.

Figure 1: ECB monetary policy since 1999

Source: ECB via Bloomberg.

Additionally, the ECB engaged in its first asset purchase programme in June 2009. The €60 billion covered bond purchase programme (CBPP1) was aimed at reviving the covered bond market, which is a primary funding source for banks.

Furthermore, the required reserve ratio was reduced from 2 percent to 1 percent and eligibility of assets used as collateral for monetary operations was further extended to lower rated ABSs and other performing credit claims. To further improve conditions in the covered bond lending market, the ECB launched in November 2011 a second CBPP with a total volume of €40 billion. The ECB nevertheless decided to interrupt the programme in October 2012, after covered bonds totalling only €16.4 billion had been purchased.

In terms of rate cuts, the ECB cut its MRO rate from 4.25 percent to 1 percent between October 2008 and May 2009 (see Figure 1, panel A). After mistakenly hiking rates twice in 2011, the ECB reversed them and lowered further its policy rates. As a result, the deposit facility rate reached zero in July 2012 and entered negative territory in June 2014. The MRO rate finally reached 0 percent in July 2016.

introduced in March 2015 and June 2016 respectively. With an initial average monthly pace



ditional on continuing good economic news. As a result, long-term US yields and the value of the dollar relative to other currencies rose quickly and significantly, as market participants had not expected the reduction of monetary stimulus to start early. This episode became known as the 'taper tantrum.' Finally, after more than one year of QE3, the Fed effectively decided to start tapering in December 2013. It ultimately stopped its asset purchases in October 2014 after reducing them by \$10 billion per month.

However, the Fed's normalisation strategy was first discussed extensively at a very early stage in the process, at the 22 June 2011 Federal Open Market Committee (FOMC) meeting. Shortly before the large-scale asset purchases were phased out, the Fed (2014) provided more details in its 'Policy Normalisation Principles and Plans,' in which it explained that in the long run it wished to conduct monetary policy similarly to before the financial crisis. Without pre-determining the timing, the road map included three main actions: a) lifting the interest rate target³; b) ending the reinvestment of asset purchases; and c) shrinking the balance sheet to a level at which the Fed would "

...". On 16 December 2015, given improved economic activity and an inflation outlook in line with the 2 percent inflation target, the Fed decided to lift its policy rate targets by 25 bp for the first time since the financial crisis. Since then the Fed has increased its policy rates three times. Its interest target range reached 1-1.25 percent in June 2017.

Since then, the FOMC has twice provided further details about its future plans, in March 2015 about its 'interest rate normalisation' (Fed, 2015), and then in June 2017 about the implementation of its future 'balance sheet normalisation' (Fed, 2017). It explained that it anticipated "

During its September 2017 meeting, the Fed finally decided to start one month later the implementation of the second phase of monetary policy normalisation: to stop progressively reinvesting the principal repayments coming from assets acquired during the three QE programmes. In order to gradually reduce its asset holdings, the Fed decided to implement a 'cap approach' which sets an upper limit on the amount of principal repayments not reinvested in a given month. Initially, this cap was set at \$10 billion (\$6 billion in treasuries and \$4 billion in ABS) and will be increased by \$10 billion every quarter until it reaches \$50 billion (ie in October 2018).

3.2 The ECB experience: early days

Given the late start of its QE programme and the late recovery of the euro area (in contrast to the US), the ECB only started reducing the pace of its asset purchases in March 2017, from €80 to €60 billion per month until December 2017. Further to that, it said on 26 October 2017 that it will scale back further its net purchases to €30 billion per month from January until at least September 2018⁴. scale back further its uMC /Span <</Lang (en-GB)/MCID 356 BDC n941trbalis.5F1 (th fr) 15



Figure 2: Monetary aggregates and money multiplier in the euro area since 1999

Source: ECB via Bloomberg. Notes: M0: currency in circulation and reserves at the ECB (current account holdings and deposit facility), M3: currency in circulation, deposits with an agreed maturity of up to two years and deposits redeemable at notice of up to three months, and repurchase agreements, money market fund shares/units and debt securities with a maturity of up to two years.

The causal relationship between the monetary base and broad monetary aggregates is often misunderstood. As explained by the ECB (2017), the increased provision of central bank reserves before the crisis was in fact demand-driven and mirrored the increase in broad money because of the rise in the supply of credit to the non-financial sector that was taking place at the time. The increase in M0 after 2007 was of a different nature. From 2007 to 2012 it was related to an increase in the banks' demand for reserves in refinancing operations, not because they were increasing credit (quite the opposite), but because they were seeking to insure themselves against liquidity shortfalls when short-term money markets were dysfunctional. After asset purchases began and expanded greatly in 2015 with the inclusion of sovereign assets, the increase in base money was entirely supply-driven and induced mechanically by the creation of reserves by the ECB to pay for its asset purchases. In that case, minimum requirements are just not binding and increasing the reserves does not steer credit automatically. In the end, trying to increase credit by increasing M0 could be seen as 'pushing on a string' because the money multiplier is a mathematical inequality – i.e. a limit on money creation – not a mathematical equality. In fact, QE does not work through the money multiplier channel but through other indirect channels (such as portfolio rebalancing, wealth effects, signalling effects or the easing of financing conditions through a flattening of the yield curve). In the case of a strong upturn, even though they have not been used to this end in recent decades⁵, reserve requirements could be used to avoid a quick expansion of credit if they become binding (rationing reserves could be seen as 'pulling on a string'). The ECB could thus increase reserve requirements to drain excess reserves and provide a disincentive for money creation⁶.

However, in practice, in modern economies credit creation by banks is mainly determined by the level of interest rates and the corresponding demand for loans from firms and households, the credit risk assessment of banks, their financial health and the prudential regulation

level. Estimates of the neutral interest rate¹⁰

For banks to bid for a rate near the MRO rate it is necessary to have a banking system with a liquidity deficit relative to the central bank. Otherwise banks can just use their own reserves to fulfil their reserve requirements and the interbank market rate will clear at a level close to the deposit facility rate.

If excess liquidity becomes a permanent or at least a frequent feature of the system, the ECB would need to continue with its current operational framework to ensure that the monetary policy stance is correctly transmitted to the economy through short-term interest rates. What really matters is that the ECB controls the short-term interbank EONIA rate (or any other short-term money market rate that is a benchmark and that ensures the transmission of the monetary policy stance to other market rates), not the way that it does it. As noted by Borio (2001), ultimately the operational framework is largely irrelevant as long as it allows the central bank to fulfil its price stability mandate.

We also believe that the ECB should follow the Fed and hold the assets it has purchased to maturity, which would be much more predictable and less disruptive than outright asset sales. In addition, holding assets to maturity is what market participants have anticipated and that might explain partly the effect of QE on yields¹³. It is crucial to ensure predictabil-

construction a trial-and-error process, it will be crucial to avoid any mistakes, such as the rate hikes of 2011. Unlike 2011, the ECB should not rush the start of its normalisation process and should avoid a potential U-turn. Before starting normalisation, the ECB should be confident that inflation is self-sustaining, i.e. that it is able to come back towards the 2 percent target without a significant monetary stimulus. This might not yet be the case, as suggested by the current level of headline inflation (1.4 percent year-on-year in October 2017), core inflation (0.9 percent), inflation expectations (1.31 percent for the 5Y5Y inflation swaps) and remaining slack in the euro-area economy.

5.2 ECB communication on the normalisation process

We also believe it is essential that the normalisation process is complemented by effective communication from the ECB. Here, again, the Fed experience has shown the importance of being predictable and concrete – both in a negative sense with the ‘taper tantrum’ of 2013, and in a positive sense when, early in the process, the Fed started to discuss elements of what the conditions of normalisation would be. Also, the Fed provided a comprehensive but flexible plan and details on the process and an end-goal of normalisation before it stopped buying in 2014¹⁵.

Communication around normalisation should not use a calendar but a state-contingent schedule (i.e. conditional on the outlook for inflation and growth in the euro area) to be predictable and transparent. The objective is to avoid introducing unnecessary volatility into sovereign debt markets, which, given the differences in debt levels in the euro area, could be damaging to some countries.

For the moment, the ECB has already managed to scale back its purchases significantly without creating major hurdles in financial markets, but the ECB should start explaining as soon as possible what its strategy is and what its operational framework will look like in the long run. It should provide this information to market participants well in advance.

6 Conclusions

The ECB has put in place many new policies to tackle the crisis. These have led to a quadrupling of the size of its balance sheet and significant changes in its operational framework and the way it conducts monetary policy. Even though the euro-area recovery appears to be gaining momentum, there is still a lot of slack in the economy (as well as significant differences between countries) and the inflation outlook is still well below the ECB’s target. While the ECB continues to be accommodative, the US experience shows that it is crucial to prepare carefully for the eventual normalisation and to ensure that the conditions for its start are well communicated to markets. We therefore recommend the following to the ECB:

- Ensure predictability by presenting a normalisation sequencing roadmap and end-goal before stopping asset purchases. This does not need to be too precise (for instance, on the size of the Fed’s balance sheet, Chair Yellen mentioned “... a range of options...”), but it needs to alleviate uncertainty among market participants and to avoid being disruptive.
- Be flexible over timing and sequencing to avoid any mistake. There is no need to rush to exit from unconventional monetary policies and to reduce the size of ECB’s balance sheet

¹⁵ To ensure markets do not mistake normalisation planning, with the announcement of an early accommodation

as there are other (conventional) tools to use if tightening is deemed necessary. These include: raising interest rates even with a large balance sheet, increasing reserve requirements, using reverse repo operations or issuing ECB securities to drain excess liquidity if



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