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Exit strategies and the impact on the euro area

Monetary Dialogue December 2013

COMPILATION OF NOTES

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POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

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Monetary Dialogue 16 December 2013

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Abstract

The papers of this compilation comment on the pros and cons of central banks exiting from unconventional monetary policy strategies (UMPs), i.e. close to zero interest rates and massively increased balance sheets. The issue of policy coordination between major central banks and the risk assessment of a premature vis-a-vis a delayed exit play a central role across the various contributions. The contributing experts share the view that UMPs have been successful in preserving the financial system, but it is less clear to what extent they have supported the real economy. Most experts thus support the return to monetary policy at its 'conventional' form as the task of monetary policy is to ensure price stability, not financial stability or the ECB taking up a quasi-fiscal role.

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AUTHORS

Anne SIBERT, Birkbeck, University of London and CEPR
Charles WYPLOSZ, Graduate Institute of International and Development Studies, Geneva
Stefan COLLIGNON, Scuola Superiore Sant'Anna, Pisa and Centro Europa Ricerche (CER), Rome, with research assistance performed by Piero ESPOSITO
Ansgar BELKE, University of Duisburg-Essen and IZA Bonn
Guillermo de la DEHESA, Centre for Economic Policy Research CEPR, London

RESPONSIBLE ADMINISTRATOR

Dario PATERNOSTER
Policy Department A: Economic and Scientific Policy
European Parliament
B-1047 Brussels
E-mail: poldep-economy-science@ep.europa.eu

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ABOUT THE EDITOR

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poldep-economy-science@ep.europa.eu

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INTRODUCTION

Monetary policy continues to be extraordinarily accommodative in key developed economies: central banks have kept policy rates low, adopted various forms of (expansionary) unconventional monetary policies and lengthened markedly the maturity of their assets. These measures have played an important role by first averting a collapse in financial markets and then supporting the recovery of the real economy. The four major central banks continue pursuing their accommodative monetary policy, albeit with different balance sheet programmes[1].

Exit from policies to support economic activity, eventually leading to rate hikes, may not yet be warranted given current economic conditions in the euro area. But with early signs of a turnaround in the business cycle materialising, the ECB will need to design an exit strategy from the extraordinarily accommodative policy stance, as some of the major central banks have already hinted to. The return to a more conventional monetary policy is supported by other arguments: the ECB can influence short-term interest rates, much less so government bond yields as the latter can only be assessed within the context of the consolidated government sector balance sheet; the expansion of ECB balance sheet blurs the distinction between monetary and fiscal policy and puts the central bank's financial strength at risk; and, more generally, spill-over effects via capital flows and exchange rates adjustments resulting from a prolonged period of central banks' UMPs may be substantial and difficult to manage. By contrast, a strong argument against the return to pre-crisis 'conventional' monetary policy is that pre-crisis monetary policy frameworks did not ensure lasting financial and economic stability.

The papers of this compilation comment on the pros and cons of central banks exiting from unconventional monetary policy strategies, i.e. close to zero interest rates and massively increased balance sheets. Experts analyse some of the challenges associated with restoring central banks' balance sheets to normal and with conducting monetary policy after the crises. The issue of policy coordination between major central banks and the risk assessment of a premature vis-a-vis a delayed exit play a central role across the various contributions. Some experts argued that exiting from UMPs may prove more difficult for the ECB than the FED largely because in the euro area there is less (political) appetite for fiscal policy as a stabilisation tool. The contributing experts share the view that UMPs have been successful in preserving the financial system, but it is less clear to what extent they have supported the real economy. Most experts thus support the return to monetary policy at its 'conventional' form as the task of monetary policy is to ensure price stability, not financial stability. Should central banks (including the ECB) persist in their quasi-fiscal role - as it happened during the financial crisis - they must be redesigned to make them more accountable.

The price stability objective requires interest rates to return to normal levels and balance sheets eventually shrink to avoid runaway credit creation. However, detecting the right time to move is likely to be very difficult as, historically, adjusting from balance sheet recessions is more painful and takes more time than absorbing standard business cycle fluctuations. This normalisation may be further delayed, should a prolonged 'low growth' period envisaged by some economists actually materialise going forward.

[1] http://www.federalreserve.gov/newsevents/press/monetary/20130918a.htm
http://www.ecb.europa.eu/press/key/date/2013/html/sp131011.en.html
http://www.bankofengland.co.uk/publications/Pages/news/2013/010.aspx
http://www.boj.or.jp/en/announcements/release_2013/k131004a.pdf

Looking at the price dimension, experts generally downplay inflation risks stemming from massively increased central banks' balance sheets triggered by unconventional monetary policies as central banks have the tools to insure that the reserves remain at the central bank for as long as is necessary.

NOTES

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Central Bank Exit Strategies

Anne SIBERT

NOTE

Abstract

During the financial crises central banks undertook unconventional policies that expanded their balance sheets and changed their composition. This note explains what the Fed and the ECB did and how it affected their balance sheets. It describes some of the challenges associated with restoring their balance sheets to normal and with conducting monetary policy after the crises.

CONTENTS

EXECUTIVE SUMMARY

- As a result of aggressive quantitative easing, a maturity structure twist, intervening in dysfunctional markets and acting as lender of last resort, the size of the Federal Reserve System's balance sheet has quadrupled since August 2007. Its assets have become longer term and substantially riskier. Depository institutions' reserves at the central bank have ballooned to USD 2.5 trillion.
- The ECB has pursued quantitative easing less aggressively than the Fed but it has intervened in dysfunctional markets and acted as lender of last resort. While the size of its balance sheet has fallen significantly since its peak, it is about twice as large as it was in August 2007. Its assets have longer maturities and since it has accepted riskier collateral and purchased risky securities outright its assets have become riskier. Counterparties' reserves at the central bank have fallen since their peak but are substantially larger than when the crises arose.
- There is no danger that the mountain of excess reserves at either the Federal Reserve or the ECB will fuel inflation unless these central banks choose to let this happen; they have the tools to insure that the reserves remain at the central bank for as long as is necessary. However, reducing the size of their balance sheets while ensuring inflation stays low and a recovering is not dampened is going to be a challenging task.
- Monetary policy, narrowly defined as the choice of a policy rate and perhaps the choice of the size of the central bank balance sheet, should return to its "conventional" form: the role of monetary policy is to ensure price stability, not financial stability. Central banks, who are now widely regarded as having a financial stability role, should be redesigned. In particular, in taking on a fiscal role they must have more accountability than does their monetary policy committee.

1. INTRODUCTION

On 22 May 2012, while testifying before the U.S. Congress, Federal Reserve chairman Ben Bernanke suggested the possibility that the Fed might slow its current program of asset purchases as the economic outlook improves.[1] On 19 June he suggested that this moderation might occur later this year.[2] Since then worries about the timing and impact of this tapering have resulted in considerable unrest in financial markets, both in the United States, the euro area and the rest of the world.

In this note I describe why the current liquidity, credit and sovereign financial crises caused the Federal Reserve and the ECB to undertake their unconventional monetary and fiscal policies and the effect that these polices have had on the balance sheets of the Federal Reserve System and the Eurosystem. I consider the dangers and challenges associated with Fed's and ECB's exit strategies, that is, the discontinuing of their unconventional accommodative policies and the shrinking of their balance sheets. I comment on the return to pre-crises conventional monetary policy.

[1] See "Bernanke's Q & A Testimony to Congressional Panel," Reuters, 22 May 2012, http://www.reuters.com/article/2013/05/22/us-usa-fed-bernanke-highlights-idUSBRE94L0O720130522.

[2] Bernanke, Ben, "Transcript of Chairman Bernanke's Press Conference," 19 Jun 2013, www.federalreserve.gov/mediacenter/files/FOMCpressconf20130619.pdf.

2. MONETARY POLICY AND BALANCE SHEETS BEFORE THE CRISES

In this section I explain how the Fed and the ECB conducted monetary policy before the crises that originated in August 2007. I describe what the balance sheets of the Federal Reserve System and the Eurosystem looked like.

2.1. Central bank balance sheets and monetary policy in normal times

Prior to the current financial crises many modern central banks with floating exchange rates had balance sheets with the simple form shown in Table 1, below. They expanded and contracted their domestic money supply through open market operations, buying and selling their government's securities or by entering into borrowing and lending arrangements with domestic banks. Thus, on their asset side they held government securities, loans and related operations associated with monetary policy and other assets, which included such things as foreign exchange reserves and their premises. On the liability side there was currency in circulation (which is not actually a liability as it is not redeemable for anything), depository institutions deposits at the central bank and the central bank's capital or net worth. Depository institutions primarily held deposits at central banks because of reserve requirements that forced them to do so.

Figure 1: Central Bank Balance Sheet

Assets	Liabilities
Securities associated with monetary policy	Currency in circulation
Loans and related operations associated with monetary policy	Depository institutions' reserves
Other assets	Other liabilities
	Capital

2.2. The Fed's monetary policy and balance sheet normal times

In normal times the Federal Reserve makes monetary policy by choosing a target value for the federal funds rate, the interbank interest rate on immediately available, uncollateralised overnight loans. It achieves its target rate by influencing the supply in this market through its open-market operations.[3] The Fed normally conducts two types of open-market operations: outright transactions and repurchase (repo) or reverse repo operations. In normal times an outright transaction entails the Fed buying previously issued government securities from or selling them to dealers at depository institutions and paying for them or being paid by them by crediting or debiting the depository institutions' reserve accounts at a Federal Reserve Bank. In a repurchase transaction, the trading desk agrees to buy securities from a dealer and the dealer agrees to buy them back at a specified time and at an agreed upon price: this is equivalent to a collateralised loan. In a reverse repo the trading desk sells a security to dealer and agrees to buy it back.

[3] It can also influence the supply through its discount window lending. However, since 2003 it has kept the discount rate above the federal funds rate to discourage borrowing at the discount window. It can also influence demand in the federal funds market either by changing the reserve requirement or (since Oct 2008) by varying the interest rate paid on excess reserves.

In normal times if the Fed wants to permanently increase (decrease) reserves it buys (sells) a security outright. Both securities and reserves go up (down) and the Fed's balance sheet expands (contracts). The Fed uses repos and reverse repos to offset transitory factors that would cause the federal funds rate to deviate from target. If it wants to temporarily increase reserves it conducts a repo operation. Repos (an asset included under loans and related operations in Table 1) go up and so do reserves: the Fed's balance sheet expands. If it wants to temporarily decrease its reserves it conducts a reverse repo operation. Reverse repos (a liability included under other assets in Table 1) go up and reserves fall: the size of the balance sheet is unaffected.

Prior to the crises (in August 2007), the Federal Reserve's assets were uncomplicated, in line with the simple textbook example in Figure 1. Most, about 93 %, took the form of either securities or of loans and related operations associated with monetary policy. Almost all of these assets, about 97 %, took the form of U. S. Treasuries, with over half of them maturing in less than a year.

2.3. The ECB's monetary policy and the Eurosystem's balance sheet in normal times

Article 123.1 of the Consolidated Version of the Treaty prohibits the Eurosystem from purchasing government securities in the primary issuer market and, at least prior to the crises, it appears to have been widely believed that purchasing previously issued government securities in the second market was a violation of the spirit of the Treaty. Thus, a significant difference between the Fed and the Eurosystem was that, prior to the crises; the Eurosystem's open market operations took the form of repos and reverse repos. What the Fed – viewing things from the counterparty's point of view – calls a repo, the Eurosystem calls a reverse repo and vice versa. Thus, the Eurosystem provided liquidity with what it calls reverse repos that expanded its balance sheet. Most of the liquidity that was provided to the euro area banking system was provided through the main refinancing operations, which are reverse repos with a maturity and frequency of a week. The ECB's main policy rate, the refinancing or refi rate, is not a target as is the Fed's, but rather the interest rate on its main refinancing operations.[4] In addition to its short-term main refinancing operations, the ECB also carried out longer-term operations with a monthly frequency and a three-month maturity.

Since the Eurosystem did not purchase securities outright for monetary policy purposes the first asset item in Figure 1 was not relevant. Loans and related operations associated with monetary policy, all relatively short-term, made up about 40 % of its balance sheet. The other component in Figure 1 included foreign exchange reserves (27 % of total assets) and a complicated mix of other assets, including legacy assets held by the national central banks from prior to the formation of the Eurosystem.

[4] Or, it is the minimum rate in a variable-rate tender. While not precisely a target, the ECB seeks to influence EONIA, an interest rate for uncollateralised overnight euro-denominated loans in the interbank market.

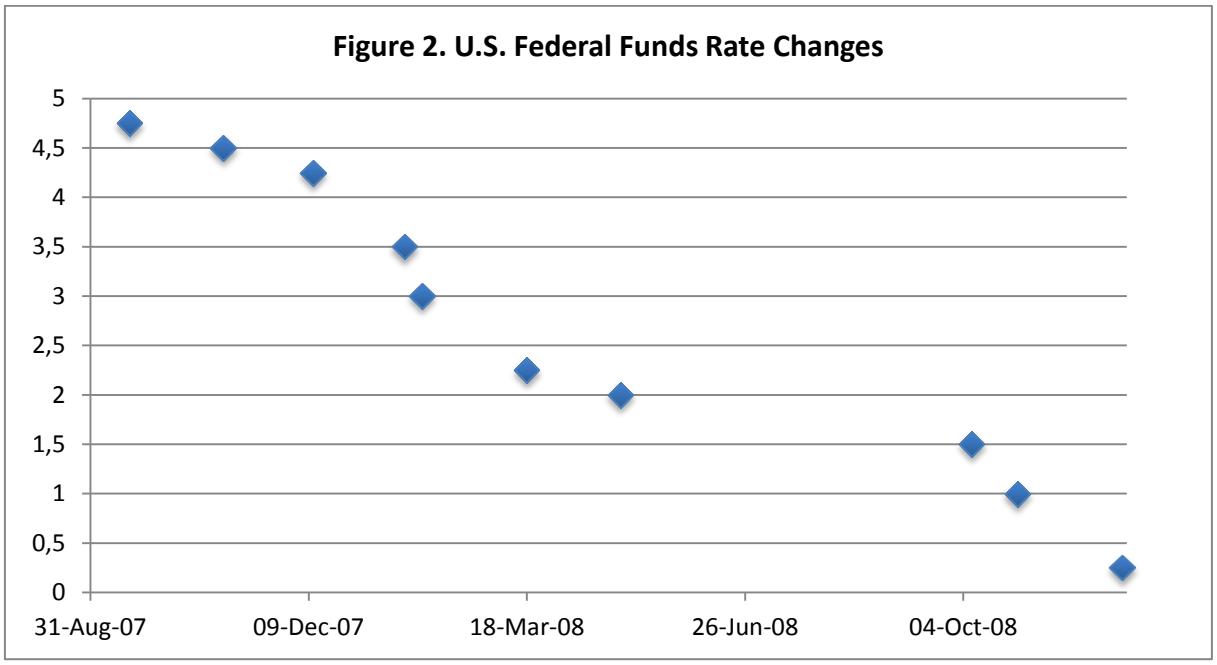
3. MONETARY POLICY DURING THE CRISES: THE ENTRANCE

In this section I detail the unconventional monetary policy measures of the Fed and ECB during the financial crises. I describe the impact that these measures have had on their balance sheets.

3.1. Quantitative easing: enlarging the central bank balance sheet

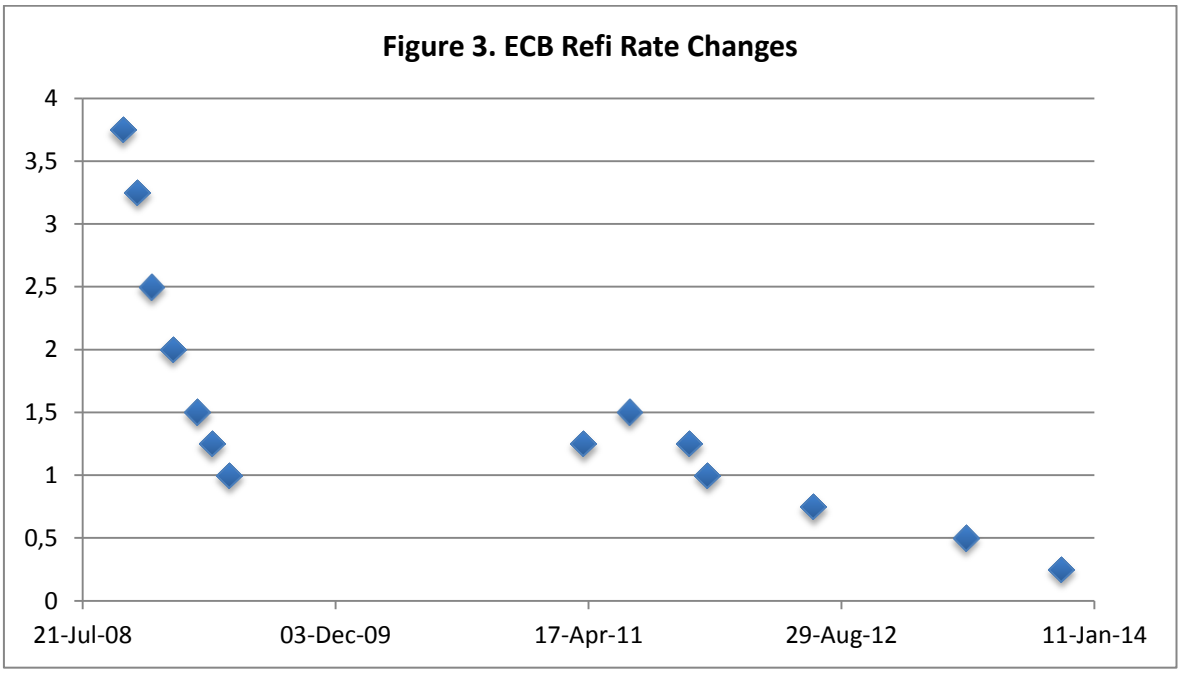
As seen in Figures 2 and 3, below the Fed and the ECB responded to the financial crises by cutting their policy interest rates. The Fed began aggressively cutting its policy rate following the onset of the credit crisis in the summer of 2007. As part of a coordinated action with the Federal Reserve and other central banks, the ECB cut its main policy interest rate by 50 basis points to 3.75 % on 8 Oct 2008. By 16 December 2008 the Federal Funds rate had been reduced to 0.00 - 0.25 and by 7 May 2009, the ECB's refinancing rate had been cut to one per cent. On 7 November 2013 it was lowered to 0.25 %.

Figure 2: U.S. Federal Funds Rate Changes



Source: Federal Reserve.

Figure 3: ECB Refi Rate Changes



Source: ECB.

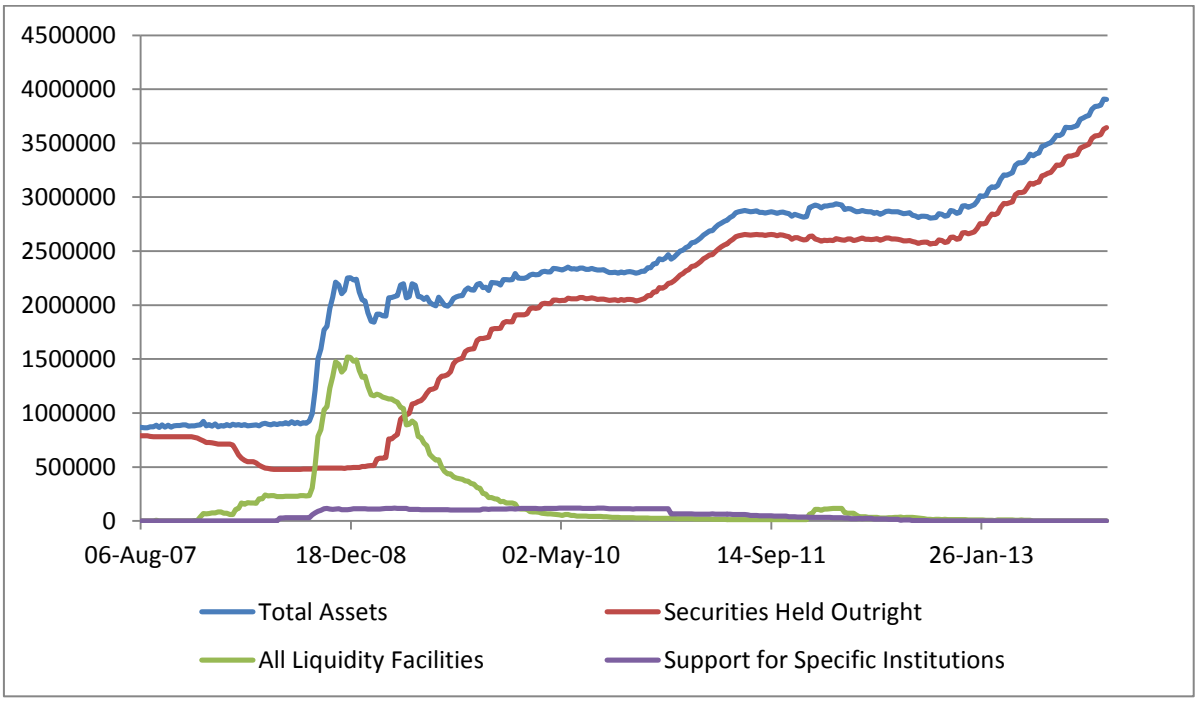
It might appear that, as market participants can always hold currency, which pays an interest rate of zero, that the central banks had little further room to manoeuvre once their policy rates were at or near zero. While negative interest rates are possible -- the government could require that currency be stamped for a fee to remain legal tender or it could abolish it altogether -- this is probably prohibitively costly to administrate or politically infeasible. Thus, fairly early on in the crises the Fed and the ECB had driven their policy rates as low or close to as low as they could get and this did not have the desired effect of producing the necessary stimulus.

When conventional monetary policy failed, monetary policy makers were left to explore other options. One option was *quantitative easing*: they could increase the size of their balance sheets *without* lowering their policy rates. The idea was they would conduct expansionary open market operations that increased depository institutions' excess reserves and the depository institutions would then lend their additional liquidity to businesses and households, thus stimulating the economy.

Unfortunately, it does not necessarily work this way, as the depository institutions are not required to lend this money; they always have the option of just keeping in their deposits at the central bank. If the interest rate is sufficiently low and the economic environment is highly uncertain and lending is perceived as especially risky, then there is little cost to choosing liquidity over possible foregone interest earnings. Quantitative easing was tried with a famous lack of success by Japan in 2001 and there was little to suggest that a mere expansion of the central bank balance sheet without a change in its composition would have any simulative effect on the U.S. or euro area economies.

The ballooning of the Federal Reserve's assets as a consequence of its quantitative easing is shown by the blue curve in Figure 4, below. The Fed began its first round of quantitative easing, QE1, in November 2008 and this lasted until March 2010. The second round, QE2, began in November 2010 and lasted until June 2011. The third and current round, QE3, began in 13 September 2012. Under QE3 the Fed purchases USD 40 billion of mortgage-backed securities and USD 45 billion of U. S. Treasuries each month. It is the proposed tapering of these purchases that is creating the current anxiety in global financial markets.

Figure 4: The Federal Reserve's Assets (in millions of USD)



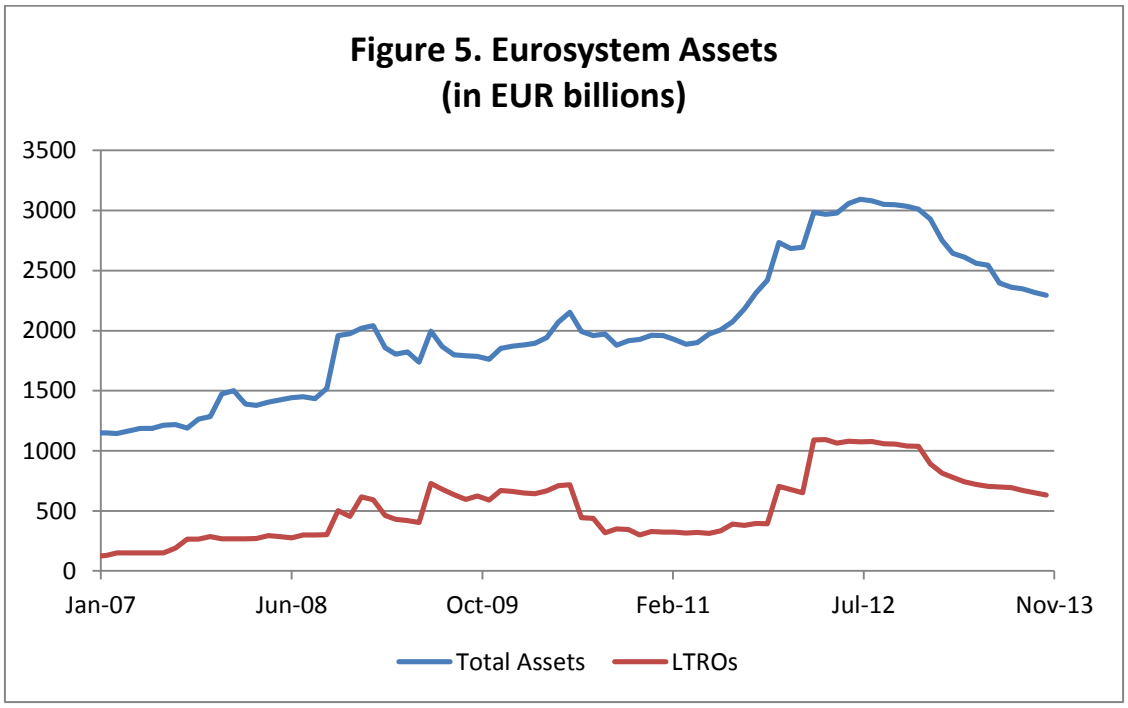
Source: Federal Reserve.

The cumulative effect of the Fed's quantitative easing has been to more than quadruple its balance sheet. On 8 August 2007, just before the emergence of the credit crisis, total assets of the Federal Reserve System amounted to about USD 869 billion; on 20 November 2013 they were about USD 3.9 trillion.

During the crises the ECB focused more on restoring order to dysfunctional markets than on quantitative easing.[5] As a result, the Eurosystem's balance sheet has not mushroomed to the same extent as that of the Federal Reserve System's. However, the ECB moved to providing unlimited amounts of liquidity at its refi rate, it massively expanded the set of securities that it accepted in its open market operations and it introduced LTROs at attractive rates, including two three-year LTROs with full allotment announced on 8 December 2011. The blue curve in Figure 5, below, depicts the evolution of the Eurosystem's total assets during the crises. Between 3 August 2007 and the summer of 2012, total assets nearly tripled from about EUR 1.2 trillion to about EUR 3.1 trillion. The ECB has since allowed its balance sheet to contract and as of 22 November 2013 total assets amounted to EUR 2.3 trillion, almost twice the pre-crises size.

[5] See Pattipeilohy et al (2013).

Figure 5: Eurosystem Assets (in EUR billions)

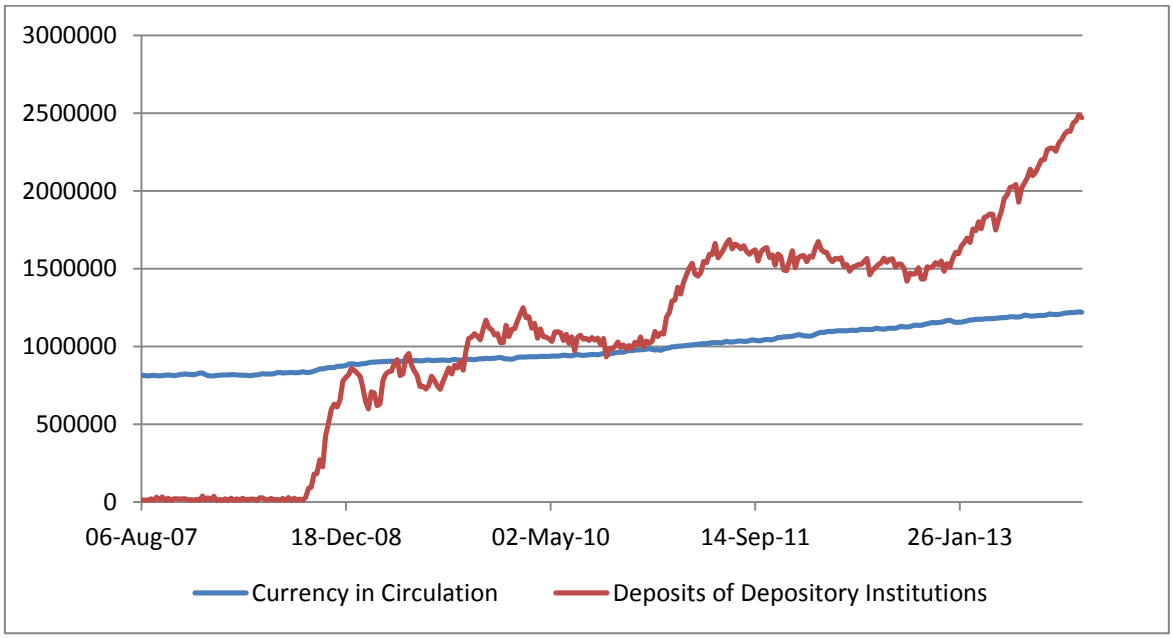


Source: ECB.

Unfortunately, acting in accordance with theory, banks in the United States and the euro area responded to the massive increase in liquidity provided by their central banks by parking their additional funds at the central bank. As depicted by the red curve in Figure 6, below, deposits of depository institutions at the Fed began to grow sharply as soon as quantitative easing began and have grown steadily since. On 8 August 2007 deposits of depository institutions at the Fed amounted to about USD 13 billion; on 20 November 2013 they amounted to about USD 2.5 trillion.

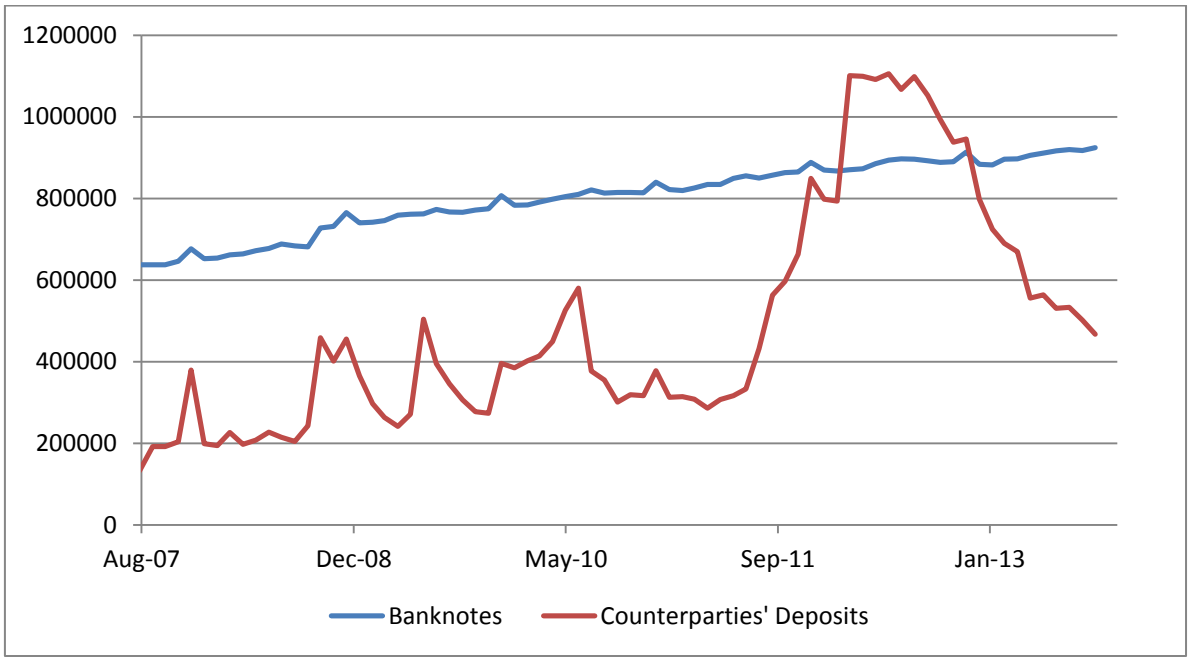
Counterparties' deposits at the Eurosytem, shown in red in Figure 7, below, have increased and then decreased as the Eurosystem's balance sheet has expanded and then contracted. On 3 August 2007 counterparties' deposits at the Eurosystem amounted to about EUR 190 billion. In the summer of 2012 they peaked at about EUR 1.1 trillion and have since declined to about EUR 446 billion.

Figure 6: Selected Liabilities of the Federal Reserve System (in USD millions)



Source: Federal Reserve.

Figure 7: Selected Liabilities of the Eurosystem(in EUR millions)



Source: ECB.

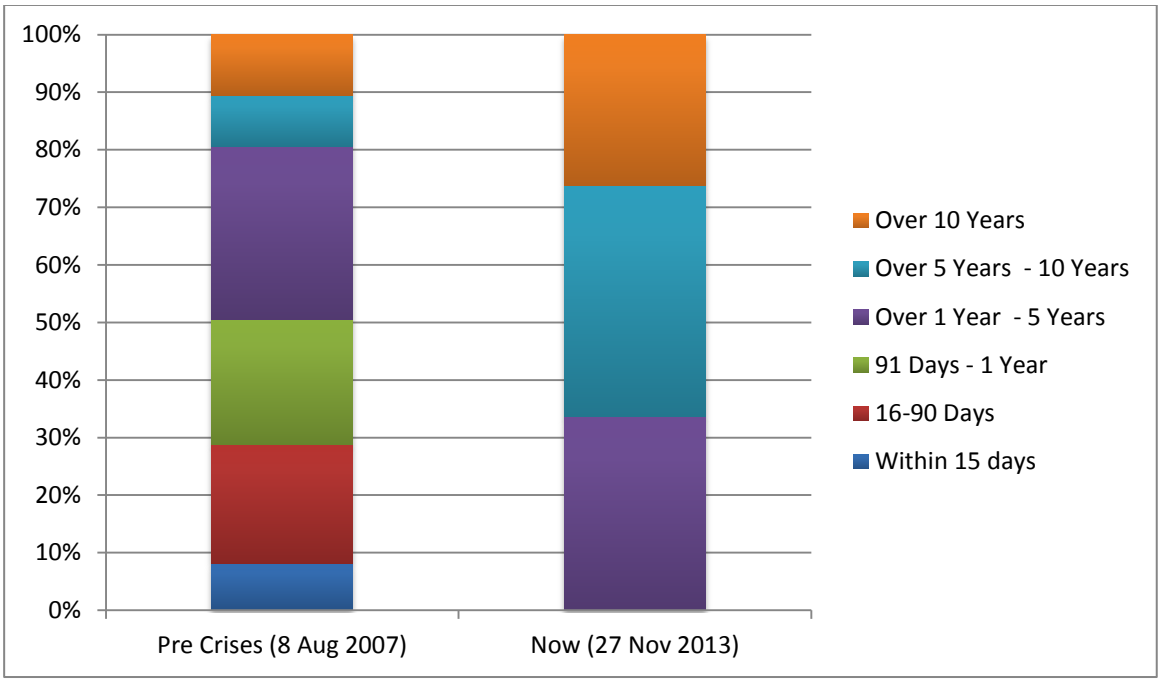
3.2. Qualitative easing: changing the composition of the central bank's assets

Along with changing the size of their balance sheets, the Fed and the ECB changed composition of their balance sheets by changing both the maturity structure and the riskiness of their assets. A change in the composition of central bank assets with no change in asset size is referred to as qualitative easing.

The Federal Reserve's second round of quantitative easing involved not just purchasing additional securities, but purchasing longer-term ones. The idea was that, if there was little room to bring down short-term rates, perhaps it was possible to bring down long-term rates. A policy dubbed Operation Twist, after a similar action in the 1960s, was announced in September 2011 and involved purchasing longer-term debt and selling short-term term debt. The third round of quantitative easing also features the purchase of longer-term assets: both Treasuries and mortgage-backed securities.

As a result of its crises operations the maturity distribution of the securities held by the Fed has changed dramatically. In addition to now holding mortgage-backed securities, as seen in Figure 8, below, almost all of the Fed's current Treasury securities have a maturity date that is over a year away. Prior to the crises, over half of the Fed's portfolio was made up of securities maturing within one year.

Figure 8: Maturity Distribution of the Fed's Holdings of Treasuries



Source: Federal Reserve.

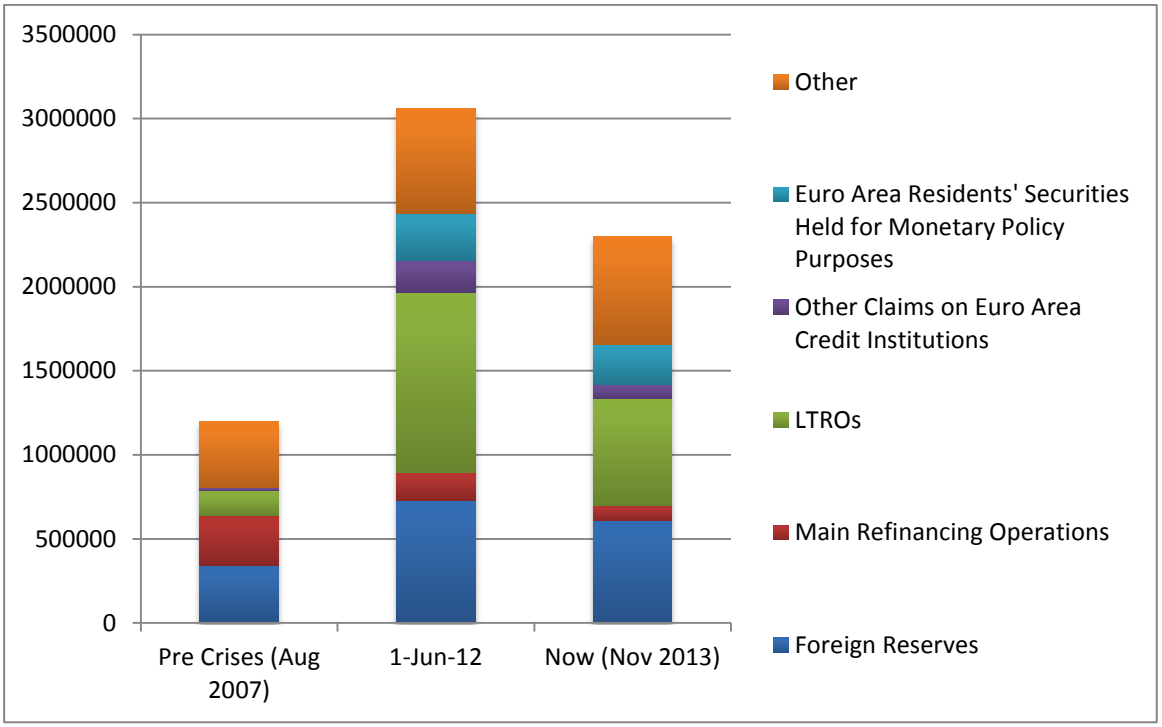
During the financial crises both the Fed and the ECB went beyond their usual role of lender of last resort to banks and other financial institutions. In an attempt to prevent markets from becoming dysfunctional or to restore their functionality the Fed has also provided liquidity directly to participants in key markets.[6] In an attempt to restore dysfunctional markets and to promote recovery by lowering interest rate risk premia, it took the unusual step of purchasing agency-guaranteed mortgage-backed securities. As the only institution

[6] The facilities included the Commercial Paper Funding Facility (CPFF), the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), the Money Market Investor Funding Facility (MMIFF) and the Term Asset-Backed Securities Loan Facility (TALF), which was done jointly with the Treasury.

able to provide sufficient liquidity in a timely enough fashion it undertook – with the approval and possibly at the behest of the U. S. Treasury – the blatantly fiscal action of providing loans to the systemically important firms Bear Stearns and American International Group (AIG).

The evolution of the amount of liquidity provided through the Fed's various facilities, its securities held outright and its support for specific institutions are depicted in green, red and purple, respectively, in Figure 4 above. The Fed's special liquidity facilities were designed to be unattractive in normal times and have now been closed. Its support for specific institutions has ended. As a result the Federal Reserve System's assets now take the form almost entirely of securities. However, as a result of the Fed's crises actions the riskiness of these security holdings is markedly different than before the crises. Prior to the crisis the Fed's securities were almost entirely US Treasury securities. On 30 October 2013 only 59 % were US Treasury securities and 39 % were mortgage-backed securities guaranteed by Fannie Mae, Freddie Mac and Ginnie Mae.

Figure 9: Assets of the Eurosystem (in EUR millions)



Source: ECB.

On 6 July 2009 the ECB initiated the Covered Bond Purchase program, allowing the Eurosystem to purchase securities outright for the first time. The program was discontinued after one year and a second program was initiated in November 2011. On 9 May 2010, it announced its Securities Market Program (SMP) under which it would purchase euro area government bonds outright in secondary markets as part of the financial support scheme for heavily indebted euro area countries. On 2 August 2012 it announced its outright monetary transactions (OMTs) program of sterilised purchases of short-term sovereign bonds of countries that have requested assistance from the EFSF/ESM.

Compared with the Federal Reserve, the Eurosystem's outright purchases are still a very small part of its assets. As of 29 November 2013 the Eurosystem had about EUR 184 billion of this debt outstanding on its books and about EUR 57 billion of debt from the Covered Bond program. The evolution of the Eurosystem's assets is seen in Figure 9, above.

4. EXIT STRATEGIES

In this section I discuss the exit strategies of the Federal Reserve and the ECB and the return of monetary policy to normal times.

4.1. Reducing the size of the balance sheets

Looking at the Federal Reserve System's balance sheet, its exit problem is clear: on its asset side it has about USD 1.4 trillion in relatively illiquid mortgage-backed securities that it would probably like to hold on until their maturity or at least for the foreseeable future; on its liability side it has a mountain – about USD 2.5 trillion – of depository institution's reserves. The problem of the Eurosystem is similar, if smaller in magnitude.

Despite the size of the reserves on both central banks' balance sheets, the spectre of the excess reserves suddenly vanishing and fuelling rampant inflation can be banished. As long as the interest paid on reserves is high enough, the banks will be willing to hold their funds at the central bank. Alternatively, either central bank can always increase its reserve requirement. There will be no excess inflation in either area unless the central bank chooses to allow it.

Currently, the interest paid on reserves is sufficiently high that depository institutions are willing to hold them. If the Federal Reserve (or the ECB) wants to reduce reserves it could do so by lowering the interest rate on deposits, but if it does so too quickly it risks stoking inflation. Moreover, as reserves fall, so must the Federal Reserve's assets at some point, including its holdings of mortgage-backed securities.[7] On the other hand, if it makes it too attractive for depository institutions to hold reserves at the central bank then the banks will do this instead of lending out these funds; the Fed risks choking off or hampering a recovery.

For comparison, in Japan excess reserve rose from about JPY 5 trillion to almost JPY 33 trillion over two and a half years, but they fell back to about JPY 8 trillion – a decline equivalent to roughly USD 220 billion – in just a few months in 2006. Clearly the pace of reserve withdrawal was not too slow: no inflation emerged. Whether it was too fast is not clear.[8]

Orchestrating the fall in reserves at just the right pace is a technically challenging task. Bernanke (2010) and Blinder (2010) explain that the Fed might make monetary policy during the exit phase by establishing a corridor of, say, 100 basis points around the federal funds rate with the interest rate on deposits providing the floor and the discount rate (with no restrictions on or stigma attached to discount window borrowing) providing the ceiling. If the federal funds rate is allowed to float in the corridor it will provide information to policy makers. If it drifts toward the floor it suggests that the supply of reserves is not falling quickly enough and the Fed might withdraw some; if it moves toward the ceiling it suggests that reserves are too scarce and the Fed is withdrawing them too quickly. The ECB might implement something similar.

Despite the furore after the announcement of QE2, canonical representative agent models suggest that the maturity composition of the central bank asset holdings should have no effect. The supply of money matters because the central bank has a monopoly on its issuance; equilibrium requires that the market participants' demand for money equal the central bank's supply. The government does not have a similar monopoly on the issuance of debt and in equilibrium the net demand for debt of any maturity is zero. The supply of

[7] Alternatively, they might have to be used as collateral in reverse repos.

[8] See Blinder (2010).

government debt would only matter if there were some friction. Suppose, for example, the pension funds and insurance funds were required to hold a certain fraction of their assets in a type of debt that only the U. S. government could issue. Judging the impact of a change in the maturity structure of debt is difficult because it is difficult to know what the counterfactual is and because interest rates should change in response to the anticipation of a policy change, rather than the actual change. However, the previous attempt by the U. S. government to influence the term structure of dollar interest rates – Operation Twist of the 1960s – was not judged a success. It is therefore unlikely that undoing the maturity transformation of the Fed's and the ECB's balance sheets is going to have much of an effect.

When the Fed chose to buy mortgage backed securities and the ECB chose to take purchase securities outright, they took on risk. When both central banks run down their portfolios there will be inevitable losses: the taxpayers will be worse off than if there were no losses. However, the risk the central banks took on behalf of the taxpayers was undoubtedly less than the risk of not undertaking their purchases.

4.2. Returning to monetary policy in normal times

It has been claimed by some that a strong argument against the return to "conventional" monetary policy is that pre-crises monetary policy frameworks did not ensure lasting financial and economic stability. However, the primary task of a narrowly defined monetary policy maker – the entity that chooses the policy rate and perhaps the size (but not the composition) of the central bank's balance sheet – is to ensure low and stable inflation. Inflation is costly and the burden of it is borne disproportionately by the poor and unsophisticated; there is near consensus among research economists that monetary policy cannot systematically affect real variables; "fine-tuning" is difficult and only possible if the monetary policy maker has superior information; there are better ways to prick asset price bubbles if they can be identified.

There is however, an argument for changing the way central banks, of which the monetary policy making body is only a part, are designed and function. The crises have reminded us that central banks should be responsible for ensuring that the socially desirable outcome is realised in financial markets scenarios where multiple outcomes are possible. That is, they stand ready to be the lender of last resort for both financial institutions and the sovereign to ensure that runs based solely on self-fulfilling expectations do not happen. They must play the role of market maker of last to ensure that adverse selection or other problems associated with information asymmetry do not shut down markets. This requires that they have a different sort of expertise than is needed for choosing a policy rate and it means that they require a different level of accountability than does a monetary policy committee.

The U. S. Congress has foisted additional accountability upon the Fed. A key part of the ECB's exit strategy, something that it is not necessary to restore its balance sheet but is key to restoring its legitimacy in a democratic society, should be to become more accountable. It might start by publishing the details of its crises financial transactions. As Fed Vice Chairman Donald Kohn commented on 13 May 2010, "The public appropriately expects that when a central bank takes innovative actions – especially actions that might appear to involve more risk than normal operations – then it will receive enough information to judge whether the central bank has carried out the policy safely and fairly."

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DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Exit Strategies

Charles WYPLOSZ

NOTE

Abstract

The end and eventual reversal of non-standard monetary policies promises to be another experiment previously untested. It will consist of lifting interest rates from the zero floor and in reducing the balance sheets of central banks from their currently massive sizes.

One question is whether the balance sheets will return to their initial levels and compositions. This is unlikely. The commercial banks will be constrained by Basel 3 rules and are likely to play a reduced role in providing credit. The impact on the size of the money base is ambiguous. Banks will need more liquidity, provided by the central banks, but the banking system will be smaller. It is also likely that central banks will retain some of the long-term assets that they have acquired during the crisis because they have found it useful to intervene along the yield curve and will want to retain this possibility in the future.

The ECB will face a particularly challenging task. Exit should start when there is a risk of rising inflation, which is quite far off at the present stage. But exiting will raise borrowing costs, which will hurt highly indebted governments and banks that remain fragile. Ideally, monetary policy will not have to be engaged into exit until after the sovereign debt crisis is over and all weak banks have been restructured. If not, the ECB will have to proceed carefully, especially regarding the relinquishing of public bonds.

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EXECUTIVE SUMMARY

The major central banks have innovated in very many ways during the Great Financial Crisis and, as regards the ECB, during the Eurozone sovereign debt crisis, which is not yet over. When the situation normalises, monetary policies will also normalise. But will the "new normal" be the same as the "old normal"?

Exit will have to combine two normalisations: raising the interest rate and reducing the size of the balance sheet. The issues at stake include the scheduling of the two processes and the speed of action.

The ECB's and Fed's balance sheets increased in similar proportions but at different speeds and for different reasons. As a consequence, while the Fed will want to reduce the size of the balance sheet when it considers that monetary policy does not need to be expansionary, the ECB will move when the sovereign debt crisis is over and when the interbank market is not fragmented anymore.

The increase in interest rates rise will impose valuation losses in central banks, which is likely to lead to considerable caution. The exit strategy will also be constrained by its impact on public debt sustainability: if the interest rate rises faster than the growth rate, the debt GDP ratio will become unstable.

Is one objective of exit to bring the size of the balance sheet back to its pre-crisis level? The liability side is the money base, so the question is whether after the crisis the base will play the same role as it did before. There is no reason to presume that this is the case, although it is much more difficult to detect in which direction the change could go.

The other big question concerns the withdrawal of central bank support to governments and segments of the private sector. The ECB will not want to increase government borrowing rates by quickly disposing of the debt instruments that it holds if these governments have not recovered market access.

The ECB may wish to restore a unified interbank market, without which the Eurozone cannot operate as a real monetary union. It has already taken a step in that direction by announcing the Outright Monetary Transactions (OMT) programme, but large differences remain. Any determined action in this respect will require the ECB to hold significant amounts of public debts issued by the (former) crisis countries.

Central banks may well decide to keep longer-term assets. Because forward guidance will remain more art than science, the central banks are likely to continue the practice of intervening at longer maturities to affect the corresponding long-term interest rates.

Central banks no longer claim that their sole objective is price stability. They now accept that they bear some responsibility for financial stability. This does not imply that flexible inflation targeting is a strategy of the past, however. But it means that there will be periods when the flexible inflation targeting strategy must be suspended, or at least qualified, which will not be easy to implement.

A key weakness of the flexible inflation targeting strategy is the risk of hitting the zero lower bound. The uneasy implication is that "normal" inflation should be somewhat higher than the pre-crisis norm of 2 %.

1. INTRODUCTION

The major central banks have innovated in very many ways during the Great Financial Crisis and, as regards the ECB, during the Eurozone sovereign debt crisis, which is not yet over. When the situation normalises, monetary policies will also normalise. But will the "new normal" be the same as the "old normal"? This question covers many aspects: the size and composition of their balance sheet as well the monetary policy strategy including the objectives to be pursued. In addition, the road to normalisation involves decisions about the speed of actions and the relative timing of asset sales and interest rate hikes. There are no ready-made answers to these questions because the exit strategy will be as innovative as the policies pursued during the crisis. Travelling one way was a step into the unknown, travelling back will also imply moving into uncharted waters. In spite of the reassurance that they know how to proceed, central banks have no firm answers either, they well know that they face a totally new set of issues.

In brief, this note argues that the new normal will be different from the old normal, that the mandate of central banks has changed radically, and that the exit will be an ongoing experiment. The note starts by briefly defining exit. Section 3 asks whether central bank balance sheets will be returned to their pre-crisis sizes and compositions, comparing the US and Eurozone situations. Section 4 describes the changes that will characterise monetary policies after the crisis and what it means for interest rates and balance sheets. These changes affect the central bank mandate, an issue discussed in Section 5. Section 6 offers a brief conclusion.

2. EXIT AND ITS CHALLENGES

Exit will have to combine two normalisations: raising the interest rate and reducing the size of the balance sheet. The issues at stake include the scheduling of the two processes and the speed of action. It is essential to note that these two actions are complementary in the sense that they are both contractionary. The reason is that they both contribute to raising the long-term interest rates, to an exchange rate appreciation and, most likely, to reducing asset prices. Increasing the policy interest rate impacts the long-time rates through the well-tested channel of expectations. This is in turn *ceteris paribus* reduces asset prices and raises the exchange rate. Asset sales by the central bank directly lower their prices; by draining liquidity, they raise interest rates.

On the other hand, the two instruments have different effects at a more detailed level. Given that central banks hold a variety of assets – partly as collateral in the case of the ECB – they need to decide which ones are relinquished first, and then next, etc. Since assets were acquired to support particular sectors, e.g. covered bonds or government bonds, the scheduling choice will have to take into account the health of these sectors. In particular, if the sovereign debt crisis is not fully resolved, selling of specific country government bonds – the bulk of the Eurosystem' asset increase – will be either impossible (if the country has not recovered market access) or dangerous. This means that the exit strategy will have to follow a clear end of the sovereign crisis.

In fact, the ECB will have to act very prudently. The risk is the following. Consider the situation of public debts, which may seem stabilised as all governments have recovered market access and interest rate spreads are low. The ECB then sells the corresponding public debts. The markets absorb these instruments but re-impose some moderate premia. This could trigger a new wave of panic, forcing the ECB to reverse direction. Having to abort exit would be disastrous.

The next question is what happens if a recovery picks up speed and justifies starting to exit, but some governments have not yet recovered market access. The logical answer is not to delay exit and not to relinquish the corresponding debt instruments. An alternative is to start the interest normalisation before the balance sheet normalisation.

3. BALANCE SHEETS

3.1. Size: Eurozone vs. the US

The ECB's and Fed's balance sheets increased in similar proportions but at different speeds and for different reasons, as described in my previous *Briefing Note*[1]. The ECB moved first, providing ample liquidity to the interbank market when it seized up in August 2007. But these actions involved swaps and were sterilised under the "separation principle", which claims that liquidity provision is strictly different from monetary policy. The Fed, moved forcefully later when it became clear that many financial establishments were collapsing because they were holding "toxic assets", essentially products guaranteed by mortgages, including subprimes. The Fed bought, without sterilising, large amounts of toxic assets. Then the Fed engaged into quantitative easing (QE), acquiring vast amounts of Treasury debt and of privately issued instruments; the intention was to expand the money supply when monetary policy could not be more expansionary because the interest rate was at its zero lower bound. The ECB acquired, either as collateral or through outright purchases public debts of crisis countries, not to expand the money supply but to deal with the sovereign debt crisis. It also sought to compensate for the breakdown of the euro interbank market by providing liquidity to banks, also using the emergency liquidity assistance (ELA) facility. The payment settlement system, TARGET 2, was another channel that circumvented the interbank market, in effect using the system to borrow from surplus liquidity banks and lend to banks with a shortage of liquidity.

This means that the Fed will want to reduce the size of the balance sheet when it considers that monetary policy does not need to be expansionary, or just less expansionary, i.e. that QE is not needed anymore. The ECB, on the other hand, will reduce its own balance sheet when the sovereign debt crisis is over and when the interbank market is not fragmented anymore. For the ECB, this is the logic of the separation principle, at least. Yet, the ECB must be clearly aware that exiting its support to governments and banks will have a contractionary monetary policy effect. An implication is that the ECB exit strategy will not be identical to the Fed's.

3.2. Composition

The non-standard central bank interventions also modified their balance sheet composition.[2] The two main changes are a lengthening of the maturity of bonds and the presence of assets of lower quality. Both characteristics matter. Before the crisis, central banks mostly held high-quality, short-term bonds. Part of the reason is that the monetary policy instrument was the very short-term interest rate (Fed Funds in the US, the marginal refinancing rate in the Eurozone), which guaranteed the ability of central banks to precisely control the instrument. Another reason is that these assets were subject neither to maturity risk nor to valuation risk.

This will matter for exit. When long-term interest rates rise, the value of long-term bonds will decline, imposing book losses to the central banks. In addition, some of the lower quality assets may become impaired, another possibility of losses. In the case of the ECB, these less-than-safe assets are mostly held as collateral and haircuts were imposed, so losses are less likely, but the haircuts may turn out to have been not deep enough. Importantly, public bonds are treated as safe assets and are not subject to (significant) haircuts. If, as is plausible, some public debts need to be restructured, the ECB stands to

[1] C. Wyplosz, Non-Standard Monetary Policy Measures – An Update (September 2013), Briefing note prepared for the European Parliament's Committee on Economic and Monetary Affairs.

[2] For details, see my September 2013 Briefing Note.

suffer significant losses since its holdings of bonds issued by the crisis country governments exceeds EUR 200 bn.

The exit strategy will also be constrained by its impact on public debt sustainability. The prevailing very low interest rates on core country public borrowing imply that the debt to GDP ratio spontaneously declines at moderate growth rates. When the growth rate picks up, the ECB will want to start applying the brakes. If it raises the interest rate faster than the growth rate, then the debt GDP ratio will become unstable as it will spontaneously increase or, equivalently, require a larger primary surplus to stabilise.

3.3. Exit 1: Reducing the size of the balance sheet

Balance sheets of both the ECB and the Fed have about tripled since the onslaught of the crisis. On the liability side, this has partly been the result of lending to banks, partly to governments and, in the US, partly to indebted households and corporations. The central banks must decide how they wind these loans down.

The key question is whether the objective is to bring the size of the balance sheet back to its pre-crisis level. The liability side is the money base, so the question is whether after the crisis the base will play the same role as it did before. There is no reason to presume that this is the case, although it is much more difficult to detect in which direction the change could go.

The money base supports bank credit creation. It may well be that banks will be less eager to exploit all the space available for credit creation. Stricter regulation, fear of liquidity losses, uncompleted deleveraging and higher non-performing loans all point toward a lower credit to base ratio (the money multiplier). This suggests that the base could remain larger than before the crisis. On the other hand, it is likely that financial markets will play a more important role in providing loans relative to banks, especially in the Eurozone where banks have traditionally been dominant. In that case, a particular volume of total credit would be available with a lower base now than before. It is not known whether this transformation of credit distribution will occur on a significant scale and, if so, how large it would be. Central banks will have to monitor the situation and manage the money base accordingly.

All of this suggests that the new normal size of the balance sheet of the ECB will not be achieved quickly. Not only will the ECB have to gradually discover what size is appropriate, but also it will have to be mindful of the slow improvement in economic and financial conditions. In particular, it is likely that the upcoming asset quality review (AQR) and the stress tests will lead to some bank restructuring. The ECB will also have to be alert to the possibility that the crisis will not be definitely over for quite some time and that some periods of intense stress may occur again. Normalisation, in other words, is likely to be spread over years, not months.

3.4. Exit 2: Changing the composition of the balance sheet

The other big question concerns the withdrawal of central bank support to governments and segments of the private sector. Even in the optimistic case where the sovereign debt crisis does not lead to restructuring, many governments will continue to face expensive risk premia for quite some time after they recover market access. The ECB will not want to increase these country's interest rates by quickly disposing of the debt instruments that it holds.

Will the dysfunctioning of the interbank market be completely eliminated? Under the de facto rule that private interest rates are above the sovereign borrowing rate, Spanish banks, say, will borrow at higher rates than German banks. The ECB may wish to restore a unified interbank market, without which the Eurozone cannot operate as a real monetary

union. It has already taken a step in that direction by announcing the OMT programme, but large differences remain. Any determined action in this respect will require the ECB to hold significant amounts of public debts issued by the (former) crisis countries.

Another important question concerns the maturity of assets held by the central banks. The Fed has learned how to shape the yield curve. The need has arisen from the fact that, at the zero lower bound, the central bank loses its ability to further lower longer-term interest rates. Once the policy rate is lifted above the zero lower bound, the central banks may be satisfied with a return to the pre-crisis practice of using announcements about future levels of the policy rate to impact the whole yield curve. However, forward guidance is more art than science, at least for the time being. It will be improved over time as central banks and markets learn, yet the experience with the use of longer-term assets may encourage central banks to keep significant amounts of these assets. This may be done for potential use in the future if the zero lower bound is hit again. It may also be that central banks will want to routinely combine forward guidance with trading of longer-dated assets. The most plausible conclusion is that, as far as asset maturity holdings are concerned, the new normal will differ from the old normal, at least for an extensive period of time.

4. MONETARY POLICY IN THE NEW NORMAL

One thing is sure: monetary policy has changed. Central banks no longer claim that their sole objective is price stability. They now accept that they bear some responsibility for financial stability. This has been formalised in the Eurozone by the creation of a single bank supervisor within the ECB. The ECB has also been vested with macro-prudential supervision; the European Systemic Risk Board is not part of the ECB, but it is chaired by its President. More broadly, whether they like it or not, central banks are now explicitly understood to be lender of last resorts to banks and possibly to financial institutions.

The implications for monetary policy are vast and remain to be fully understood. Does it imply that flexible inflation targeting is a strategy of the past? Before the crisis, an increasing number of central banks have adopted this strategy, often explicitly, sometimes implicitly as in the case of the Fed and of the ECB. It has been argued that inflation targeting is responsible of the Great Financial Crisis, but this case is weak.[3] True, it has led to low interest rates over an extended period of time, which has encouraged the formation of bubbles as a consequence of excessive credit distribution. But the proper way of dealing with a bubble is not to raise the interest rate. The required increase is likely to be such that it would create a recession, inflicting losses to the whole economy because one sector is imbalanced. The concept of macro-prudential supervision is rooted in the observation that bubbles are best dealt with through regulatory action directed at the unbalanced sector. Reducing low to value ratios, imposing variable capital buffers and reducing leverage ratios are apt at curbing unsustainable credit growth and its consequence, the emergence of bubbles. Proper macro-prudential supervision allows the flexible inflation targeting strategy to remain the order of the day. This conclusion comes with provisos, however.

The fact that financial stability is now part of the mission of central banks means that there will be periods when the flexible inflation targeting strategy must be suspended, or at least qualified. This has been the case indeed in the aftermath of the Great Financial Crisis. The rapid reduction of policy rates was not fully justified by the flexible inflation targeting strategy, at least not ex ante when the depth of the 2009 contraction was not yet foreseen. Indeed, the unfortunate increase of its policy rate by the ECB in June 2008 was in line with the strategy. Criticism of this action was based on the severity of the on-going financial crisis, not on a misreading of inflation forecasts at a time when commodity prices were rising.

Suspending the flexible inflation targeting strategy will not be easy to implement. The main advantage of this strategy is its clarity, predictability and the transparency that it requires.[4] It was based on the adoption of the Taylor rule, which links the policy rate to expected inflation and growth. But a rule that can be suspended is not a rule. The challenge now will be to specify conditions under which the rule will be suspended.

The crisis has exposed a key weakness of the flexible inflation targeting strategy. When the interest rate reaches the zero lower bound, the Taylor rule becomes inoperative. The Bank of Japan tried to implement the flexible inflation targeting strategy with a zero interest rate and failed. These observations imply that there is an incompatibility between the otherwise successful flexible inflation targeting strategy and the zero lower bound. The solution is not to dismiss the otherwise successful flexible inflation targeting strategy but to make the zero lower bound a very low probability event. The uneasy implication is that "normal" inflation should be somewhat higher than the pre-crisis norm of 2 %. Indeed, the interest rate is the

[3] See the debate in Blinder and Kohn, "Exit Strategy", *Geneva Reports on the World Economy* 15, ICMB and CEPR, 2013.

[4] The ECB's refusal of accepting the flexible inflation strategy can be seen as motivated by a rejection of the associated transparency.

sum of expected inflation and the real interest rate, the one that matters for borrowing and lending decisions. The "normal" real interest rate is understood to be in the 2-3 % range. This means that the normal policy rate should be in the 4-5 % range. This reduces the room for a deep cut in case of need. With inflation expectations anchored as 2 % - as has been the case for many years - the real interest rate is at -2 % when the policy rate is at zero, which may still be too high. Setting the inflation target at, say, 3 or 4 % would allow for a "normal" policy rate of 6 or 7 %. This would both reduce the occurrence of the zero lower bound and allow for a deeper reduction of the real interest rate when needed. Of course, the benefit of more room for manoeuvre will come with the cost of a higher average inflation rate. These benefits and costs deserve a debate, at the very least.

5. THE MANDATE: A THREAT TO INDEPENDENCE

There used to be a time when central banks had convinced themselves and the broader public that they were only responsible for inflation, sometimes with some concern for growth or employment. The Financial Crisis has shown that there can be circumstances where central banks also have to be concerned with financial stability to avoid crises and, when crises arise, they are lender of last resort to banks, governments and even the private sector when the banking system is not functioning properly. This evolution should be welcome as the "minimum service" to which central banks had committed themselves was never realistic. However, it raises formidable issues, which is why central banks resisted the broader mandate.

First, one reason why central banks are taking on bank supervision responsibilities is that governments have failed. It is hoped that central banks will use their independence to escape capture by private interests and, more broadly, politicisation. Yet, once they are in charge, central banks would be subject to pressure. The fact that their officials are not facing elections will help resist pressure, but politicisation will be unavoidable. This is a threat to independence.

Second, some new responsibilities lie in the grey area between monetary and fiscal policy. The key characteristic of fiscal policy is that it is redistributive, which requires voters' consent and therefore regular elections of those in charge. Traditional monetary policy also redistributes income between borrowers and lenders as it changes the interest rate, but these are cyclical actions; on average, over the cycle, there is no permanent redistribution. Bank supervision and eventual resolution, macro-supervision, lending in last resorts can result in very sizeable income and wealth transfers.

Third, some of the old and new functions of the ECB compensate for government inaction. For instance, monetary policy is expansionary because fiscal policies are inappropriately focused on austerity. Acting as lender of last resort to Ireland and Spain was required because these countries could not borrow safely to shore up their banks. More examples exist. In all cases, the ECB and Eurozone member governments are engaged into a game of non-cooperation. This is the case in any country, but the fact that in EMU there are 18 governments and 1 central bank makes it easier for every individual government to free ride on the central bank and the other governments.

At the end of the day, the power of a central bank is its ability to produce instantaneously any amount of money. The temptation of over-use this facility is hard to resist. This is why central banks have been made independent and their mission was narrowly circumscribed to price stability. Now that the mandate has been broadened, upholding independence will be challenging.

6. CONCLUSION

Exiting from the non-standard monetary policies – zero interest rates and massively increased balance sheets – is going to be another original experiment. There are many open questions and few firm answers, which leaves room for errors. Yet, there is no choice. If we want to maintain price stability, interest rates will have to return to normal levels and balance sheets eventually must shrink to avoid runaway credit creation. The composition of the balance sheet, on the other hand, is likely to be different from what it used to be before the crisis.

Exit will have to be enacted when it becomes highly likely that the period of slow growth has ended and credit growth is about to start accelerating. Detecting the right time to move is going to be very difficult, unusually so because the current cycle is atypical, leaving few solid clues to interpret its evolution.

The ECB will face an especially challenging task. It is likely that some growth will return eventually, but the recovery could remain weak and unsecured for a while, for two reasons. Many European banks remain too fragile to develop credit and some governments are saddled with very large debts. Exiting stands to hurts fragile banks and debt markets. The silver lining is that the US Fed will embark on the exit path long before the ECB, which will therefore benefit from the new experience.

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Exit Strategies and the Impact on the Euro Area

Stefan COLLIGNON

NOTE

Abstract

Unconventional monetary policies (UMPs) have been successful in preserving the financial system, but it is less clear to what extend they have supported the real economy. UMPs have managed interest rates well, but at the price of increased volatility in aggregates. The premature attempt to exit in 2010 was a blunder and must be avoided next time. Presently, policy rate cuts are of little consequence and the monetary pillar in the ECB's monetary strategy will be less able to provide guidance during the exit phase. The exit from UMPs is still a faraway goal and many surprises will be encountered on the way.

CONTENTS

EXECUTIVE SUMMARY

- It is generally recognised that unconventional monetary policies measures have been especially successful in preserving functioning markets and averting a collapse of the financial system. It is less clear whether they have also supported the recovery of the real economy.
- According to standard economic theory, what matters for aggregate demand is the real interest rate. I show that the proper concept to calculate real interest rates is the core inflation rate and this rate was far too high in 2010. Hence, an early "exit" from stimulative policies killed the post-crisis recovery. The *early exit was a policy blunder, which had a hefty price in terms of output growth and employment*. A repetition must be avoided.
- Contrary to the Fed, the ECB does not conduct Quantitative Easing, but has focussed on keeping the transmission mechanism functioning correctly. For this purpose, in October 2008, it has switched to the *fixed-rate full allotment policy* in all refinancing operations for the different maturities. This has been the most significant unconventional measure in Europe.
- Under the new fixed-rate full allotment policy, the ECB has been able to stabilise financial markets and steer interest rates, but at the price of higher volatility in base money aggregates which changes the focus of monetary policy conduct.
- An unintended consequence of this policy shift has been that the main refinancing operations rates have lost their primacy as policy rates, while *the deposit rate has become the dominant interest rate.* Due to repeated interest rate cuts, the deposit rate is now zero. This means that cuts of the main refinancing rate like on 7 November are unlikely to have a significant effect for the real economy.
- Negative deposit rates are unlikely to play an important role in Europe's monetary policy.
- The monetary pillar in the ECB's monetary strategy will be less able to provide guidance during the exit phase.
- The exit from the Euro crisis is still a faraway goal and many surprises will be encountered on the way.

INTRODUCTION

Since the Global Financial Crisis erupted in 2008, monetary policy has been extraordinarily accommodative in most developed economies: central banks have cut policy rates close to zero, and they have experimented with a variety of unconventional monetary policies (UMP) in order to restore financial stability and to provide support to economic activity. UMPs have followed different objectives and instruments in Japan and in the euro area, and in the USA and the UK. Fawley and Neely (2013) have undertaken a thorough comparison between the four major central banks and find that "the ECB and BOJ generously lent money to banks to inject reserves into their bank-centric economies, but the Fed and BOE injected reserves into the U.S. and U.K. economies by purchasing bonds". Nevertheless, they all resemble each other insofar as they have pushed liquidity into the system with the purpose of stabilising financial markets and kick-starting the necessary credit expansion.

It is generally recognised that UMP measures have been especially successful in preserving functioning markets and averting a collapse of the financial system. Equity and bond markets have rallied, especially in response to US Quantitative Easing (QE). However, the "global monetary tsunami" has not generated the dreaded increase in inflation. Although UMPs are focused on national objectives, they are linked to each other through global financial markets. Data or evidence for coordination between major central banks on UMP are scant, although Papadia (2013a) argues that the swaps among central banks were an unprecedented case of central bank collaboration. When in November 2010, the Fed announced a second round of quantitative easing (QE2), buying $600 billion of Treasury securities, there was widespread criticism from emerging markets, notably from China.[1] In Germany, critique was also voiced. However, the negative inflation effects did not manifest, although Fratzscher et alt. (2013) did find that QE has caused portfolio shifts from emerging economies to the United States. Foreign exchange or capital account policies did not help these countries to shield themselves from US policy spillovers, but rather responses to Fed policies were related to country risk.

It is less clear to what extend UMPs have also supported the recovery of the real economy. Economic growth remains modest at best and is reducing unemployment only insufficiently. The IMF (2013) has therefore recently concluded: "Exit from policies to support activity, eventually leading to rate hikes, is not yet warranted given current economic conditions."

However, given that financial markets have regained some degree of stability, the question arises how long the present unconventional policy should be sustained. The accommodative stance could become counterproductive, because low interest rates and ample liquidity harm savers and may threaten price stability over the medium to long-term, so that an indefinite prolongation of UMPs could generate new risks and problems. Central banks are facing a difficult dilemma: if they wait too long before they tighten, inflation may start and financial distortions may become more serious; but if they tighten too early, they will destroy the recovery of the real economy. The problem is real for all industrial economies with near zero interest rates, but in the euro area, it is compounded by the fact that "rotating booms and slumps" affect Member States unequally.[2] So far, only the Federal Reserve System (2011) has formulated clear Exit Strategy Principles, but even those are

[1] http://www.dailyfinance.com/2010/11/08/g20-criticize-fed-600-billion-qe2-stimulus/

[2] The expression „rotating slumps" goes back to Blanchard (2006). It describes a situation whereby in a monetary union a demand boom driven by internal demand in Member States turns to bust, when losses of competitiveness are only slowly corrected through high unemployment and lower wage demands. However, the logical counterpart to a rotating slump is a "rotating boom" in countries, which are improving their competitiveness during the slump and then benefit from capital inflows coming from crisis countries, while the currency union's aggregate performance remains stable.

simply an exercise in "prudent planning", not in policy setting. The implementation of this strategy has proven more difficult than originally expected.

In this paper, I will first look at the macroeconomic context, in which a debate on exit options takes place. I will then review the logic of UMPs and finally discuss the dangers of early and rapid exit policies.

1. THE MACROECONOMIC ENVIRONMENT

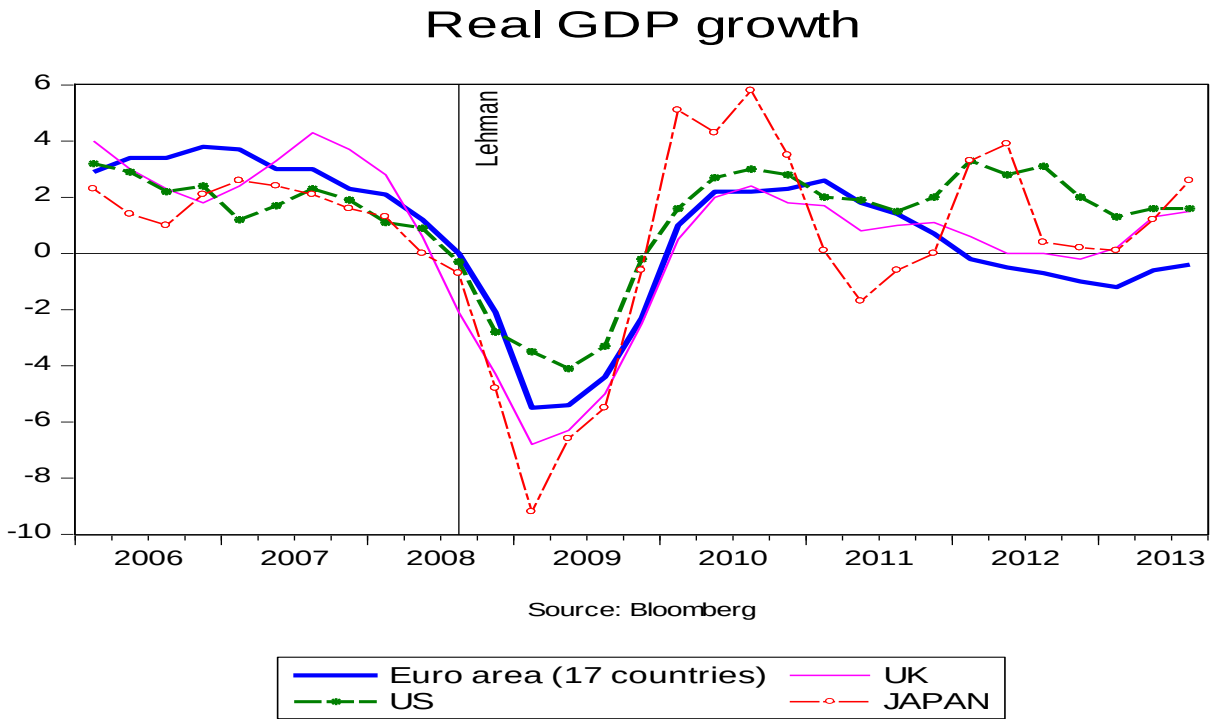
Under normal conditions, the central bank can steer the economy by manipulating the interest rate so that aggregate demand is in line with potential output and the price level is stable. The dramatic drop in output after 2008 has undermined central banks' capacity to do so, because interest rates have hit the lower zero bound. In order to understand the reasons of UMP, it is necessary to place them in the context of macroeconomic developments.

1.1. Economic growth

As Figure 1 shows, all major economies returned to (modest) growth after the deep recession in 2009, but the gains were short lived. While Japan saw its GDP shrink after the nuclear disaster in Fukushima in March 2011, it has since grown at an annual rate of 2 %. Economic growth in the USA also oscillates around 2 per cent. By contrast, in Europe growth was not sustained. While the immediate response to the recession in 2009 was implementing generous stimulus packages, which have clearly succeeded in pulling Europe out of the recession, European policy makers "exited" the stimulating fiscal policies already in 2010 by reactivating the excessive deficit procedure and pushing for budget consolidation (European Commission, 2010). Monetary policy also tightened up (see below). No doubt the shocks from the global financial and Euro debt crises have been major factors in the disappointing performance of the euro area, but mistaken austerity policies have sharpened the crisis. In the United States, expansionary monetary policies have been complemented by loose fiscal policies, and the moderate return of growth has helped to narrow the output gap (the difference between the structurally determined potential output and the actual demand for goods and services produced), which with 1.2 per cent is less than half of the 3 per cent of the euro area. In Europe, interest rates were raised in 2010 and fiscal consolidation was the answer to what was thought to be a debt crisis.[3] As a consequence, economic output shrank again in 2012 and 2013. The United Kingdom was negatively affected by the spillover effects from the euro area, but its austerity policy was initially less severe and the annual growth rate did not fall below zero after 2009. Thus, Europe's premature exit from stimulus policies, a combination of higher interest rates and rapid fiscal consolidation, has prevented the euro area from closing the output gap and returning to a more conventional macroeconomic environment. No doubt, fiscal austerity was needed in some Member States of the euro area's south in spring of 2010, before debt sustainability problems became totally disruptive. What was, with hindsight, wrong was the intensity and the speed of adjustment, based on the hope that, because of confidence effects, private demand would take the place of decreased government demand.

[3] For an alternative interpretation of the Euro crisis and its remedies, see Collignon, 2013.

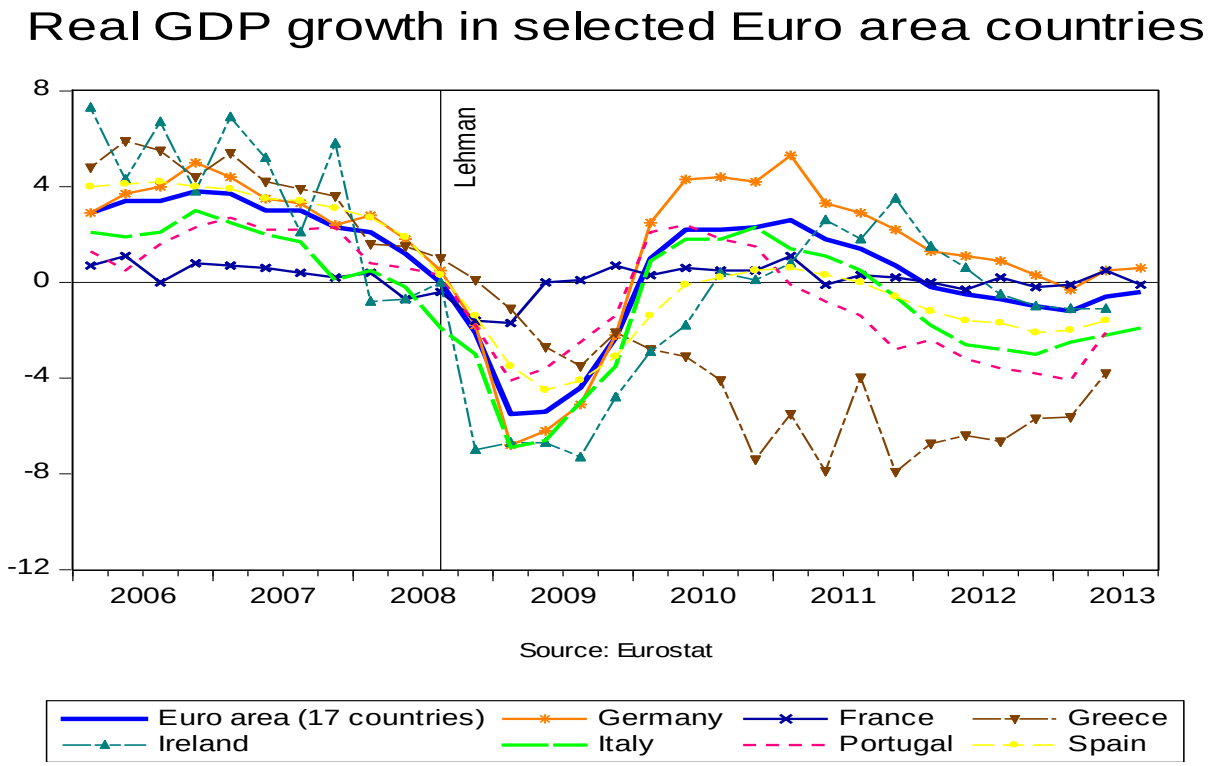
Figure 1: Real GDP growth



The inner heterogeneity and rotating booms and busts within the euro area are an additional handicap, as is apparent from regional growth differences in Figure 2. The southern crisis states saw their growth rates fall well below the currency area's average, while Germany, France and soon also Ireland benefitted from above average growth rates. This heterogeneity renders the conduct of monetary policy more difficult, because a given policy measure does not have the same effect in all Member States. This fact does not invalidate the benefits of a monetary union, but it would require additional policy tools, which the euro area does not have. An additional problem is, of course, that monetary policy ends up being more restrictive in the periphery than in the core because of the pulling effect of government yields on bank costs.[4]

[4] See Collignon, 2013 for an analysis.

Figure 2: Real GDP growth in selected Euro Area countries



1.2. Price stability

Maintaining price stability is the primary objective of the European Central Bank. Since European monetary union started in 1999, it has on average performed well in this respect. Euro area consumer price inflation achieved its medium term objective of 2 per cent; it was higher than in Japan, but below in the United States and the UK. Between 2008 and today, average inflation fell everywhere, except in the UK. Figure 3 shows that this reduction was largely due to the deflationary impact of the crisis. However, the euro core inflation is significantly below the headline rate, which is largely driven by food and energy prices. The gap between core and overhead inflation became quite important in 2010-11. Given that the ECB's inflation target is price stability in the overall HICP, this gap has led the ECB to prematurely restricting its policy stance, which contributed to the renewed recession in 2012 and 2013.

Table 1: Consumer Price Inflation

	Mean	Maximum	Minimum	Std. Dev.
1999- 2013				
Euro	2.1	4.0	-0.6	0.7
UK	2.2	5.1	0.5	1.1
USA	2.5	6.5	-3.1	1.6
Japan	-0.3	2.3	-2.5	0.7
2008- 2013				
Euro	2.0	4.0	-0.6	1.1
UK	3.2	5.1	1.1	0.9
USA	2.2	6.5	-3.1	2.1
Japan	-0.2	2.3	-2.5	1.0

Figure 3a: Inflation Rates

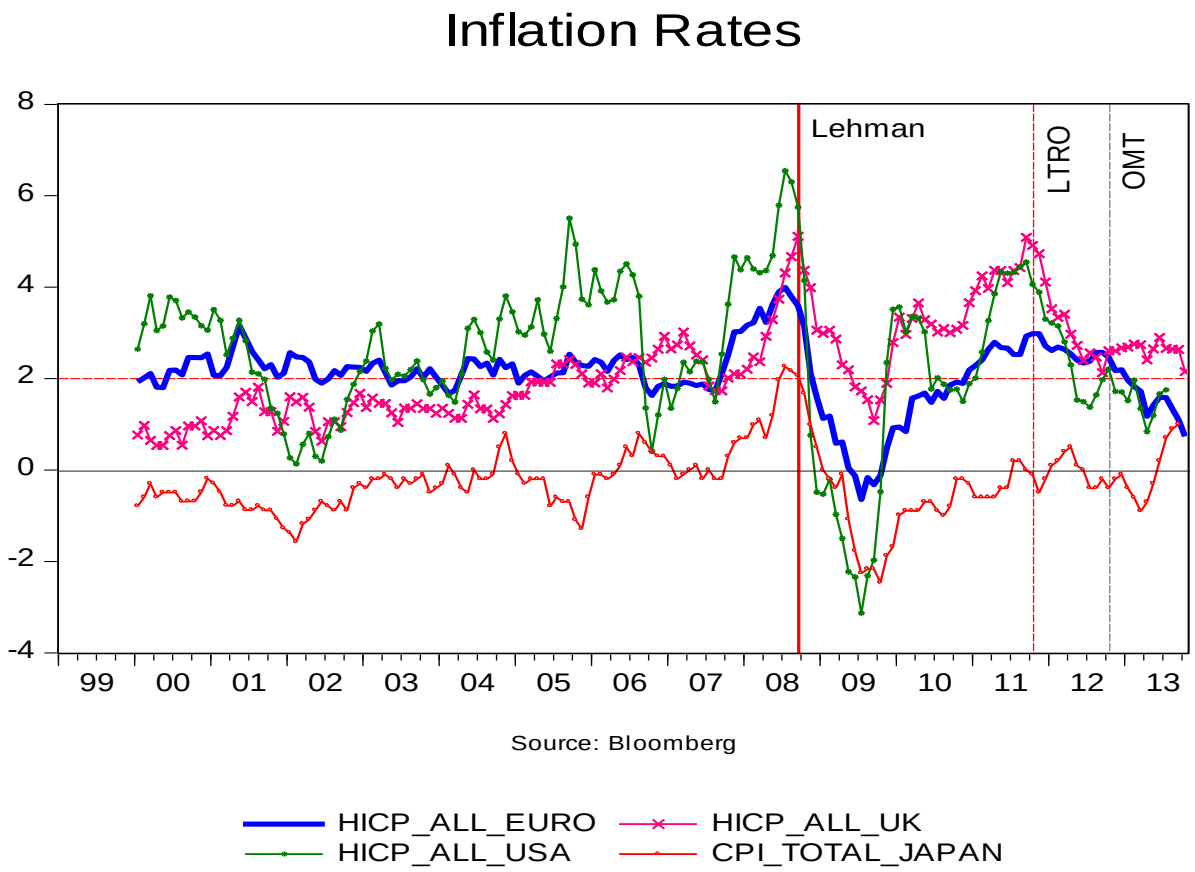
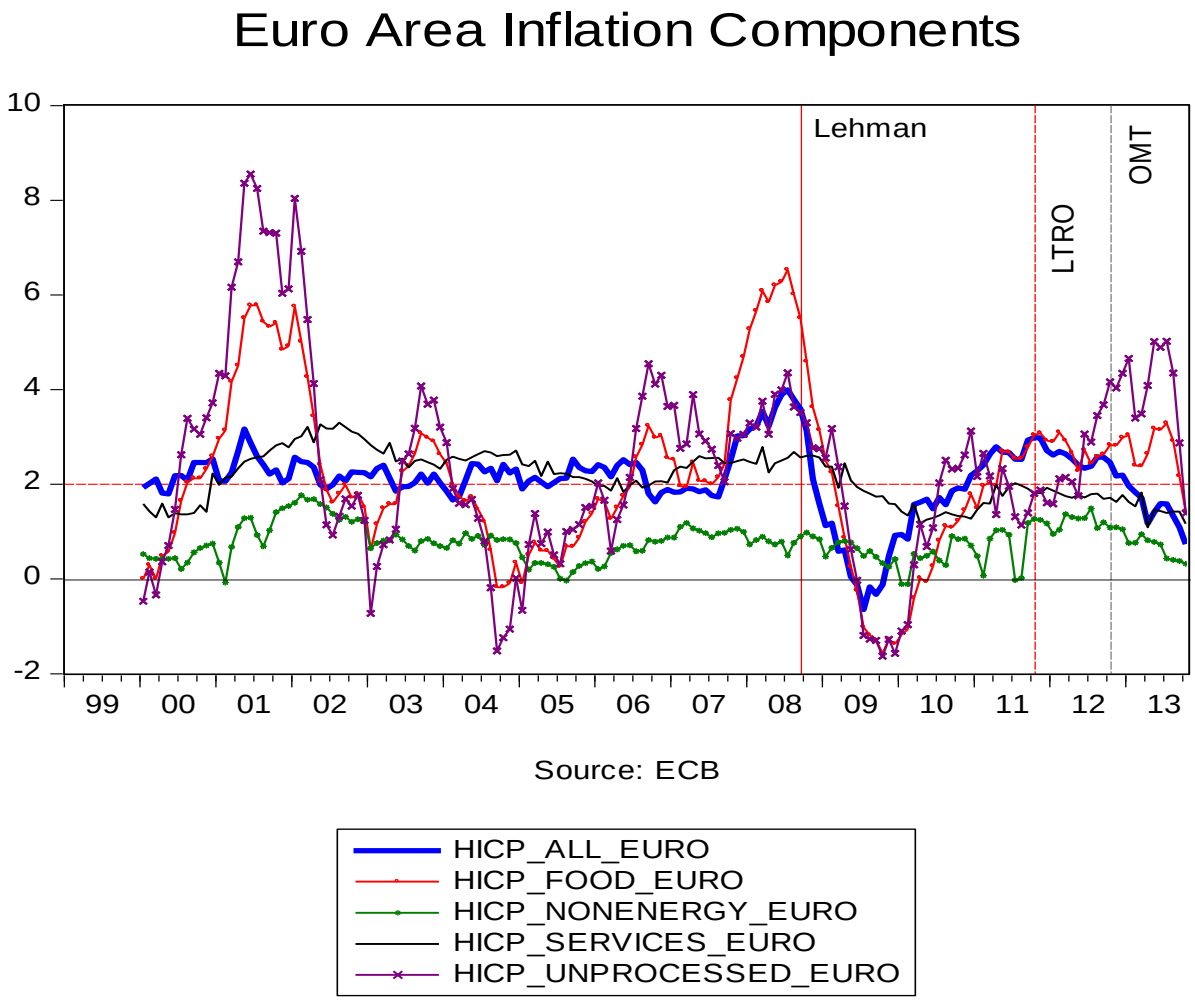


Figure 3b: Euro Area Inflation Components



In response to the deteriorating economic climate and severe tensions in financial markets, the ECB introduced long-term refinancing operations (LTRO) at the end of 2011.[5] This provided a cushion of liquidity for banks holding illiquid assets and prevented a credit squeeze. LTROs were important measures of UMP and critics feared they might lead to an inflationary push.[6] Figure 3 reveals that these worries were unfounded: both the core inflation and overhead rate started to come down, while liquidity increased. In October 2013, consumer price inflation, measured by the HICP, had fallen to 0.7 per cent, which meant it was outside the 95 per cent confidence interval of achieving the ECB's inflation target of 2 per cent.

On 7 November, the ECB responded by cutting interest rates for the main refinancing operations (MRO) and the marginal lending facility by 25 base points, keeping, however, the deposit rate at zero. This has generated an unconventional asymmetry in the corridor of monetary policy rates, which some observers suggest should be corrected by making the deposit facility rate negative. Nevertheless, the rate cut was welcomed by many as confirming the ECB's commitment to prevent deflation in the euro area, although it came under heavy attacks from some economists in Germany, who accused our central bank of

[5] To be precise, LTROs have been there from the start. What has changed with the crisis is that their maturity has been increased from 3 months initially to one year and then to 3 years.

[6] See: http://seekingalpha.com/article/315381-the-ecbs-ltro-a-giant-inflationary-push

providing cheap credit to southern crisis countries at the expense of Germany.[7] These critics are misguided, because the ECB conducts monetary policy for the euro area as a whole and not for Member States. ECB-President Mario Draghi hit back by saying: "Let me react towards what is a nationalistic undertone in some of our countries whereby we [are said to] act against the interests of some countries and in defence of our own countries"[8] and emphasised: "We act for the euro area as a whole in line with our mandate, not for individual countries"[9]. Nevertheless, the question remains, whether conventional measures such as cutting the MRO rate are sufficient to turn the Euro economy around. Japan is an example for showing that low interest rates alone may not prevent deflation, although together with fiscal policy it has prevented a severe economic depression. The United States have generally performed better than the euro area, presumably because unconventional monetary policies are working. We will now discuss their logic.

[7] See: http://www.bild.de/geld/wirtschaft/ezb-leitzins/ifo-praesident-sinn-attackiert-ezb-chef-draghi-33321754.bild.html

[8] http://www.ft.com/intl/cms/s/0/1891c476-52b6-11e3-8586-00144feabdc0.html#axzz2lZ8Yp8o7

[9] http://www.ecb.europa.eu/press/key/date/2013/html/sp131121.en.html

2. THE LOGIC OF NON-CONVENTIONAL MONETARY POLICIES

In order to understand how and when to exit UMP, it is useful to first recall why they were necessary and how they are conducted. We can then discuss how they were operated and I will finally highlight some implications for the ECB's interest rate corridor.

2.1. The case for unconventional monetary policy

The conventional monetary policy instrument is the unsecured overnight interest rate, the Euro Overnight Index Average (EONIA) in the euro area, the Sterling Overnight Index Average (SONIA) in the UK, or the Fed Fund rate in the USA. These are the rates, at which banks lend to each other and the central bank can influence their level by intervening in the money market providing liquidity.

Before the crisis the ECB provided the liquidity that closely satisfied reserve requirements and autonomous factors and thus assured that, at the end of the maintenance period, there would be neither an excess nor a deficit of liquidity. This liquidity was provided at auction with fixed quantity and variable price. After that the ECB switched to a fixed rate full allotment situation. Hence, in the short-term base money (bank reserves) is endogenously determined by the banking system.[10] If there is an excess supply of liquidity, overnight rates will fall below the policy rate; if there is a shortage, the spread between the two rates is positive. As a rule the market rate (in the euro area the EONIA) should oscillate around the policy rate (the ECB's MRO rate). In the long run, however, money supply can be controlled by the effect that interest rates have on the supply and demand of credit in the real economy.

How does the short-term interest rate stimulate or restrain credit to and activity in the economy? There are several channels through which policy rates operate, such as interbank rates, exchange rates, bond yields etc., all of which influence the cost of credit and ultimately prices. Short rates spread into longer maturities in accordance with liquidity credit risk considerations. Because interest rates are the price for money, they determine the demand for money and credit. Because money is normally the safest and most liquid asset, it carries a liquidity premium, which is higher the higher the degree of economic uncertainty. Thus, the risk and liquidity premia set the supply price for credit, while the demand for credit falls as uncertainty increases. Monetary policy rates set the cost at which the banking system obtains liquidity, so that the spread between policy and market rates reflects risk and liquidity considerations. However, this spread also generates profits for banks, which is particularly important when banks have to recapitalise after a financial crisis. Most theories of the transmission mechanism are based on the idea that banks have a given preference or need for liquidity and when that is met, they will lend the excess in credit markets.

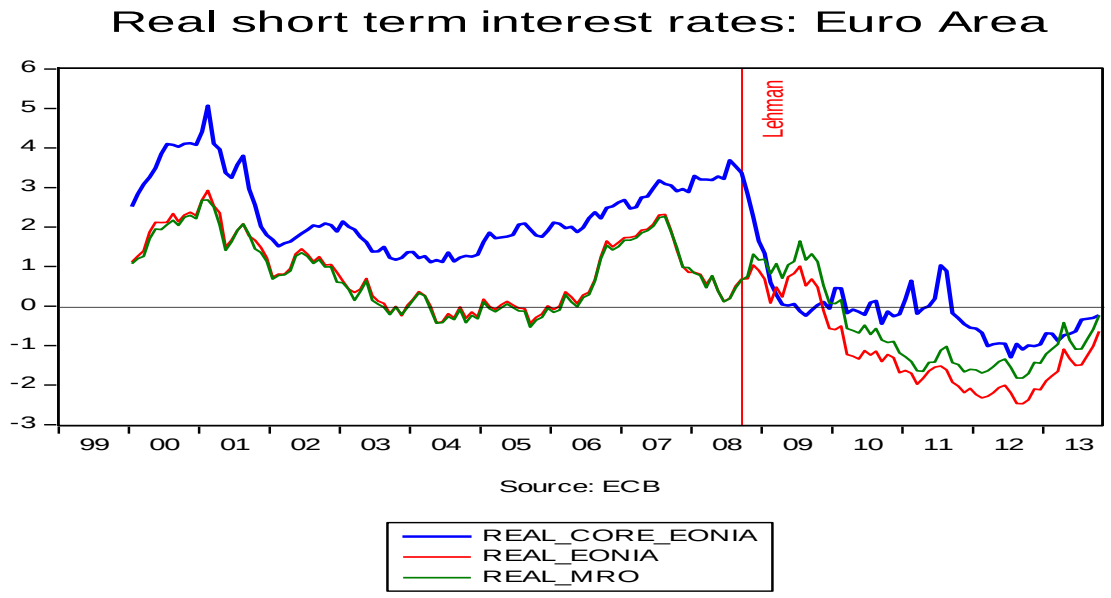
Standard economic theory assumes that money is neutral, which implies that in the long run an increase in money supply increases prices, but not output. However, in the short run, borrowed money is spent and invested and this can stimulate growth and employment at least until the gap between actual and potential output is closed. What matters for aggregate demand is the real interest rate, namely the difference between nominal interest and inflation rates, plus a risk premium. Higher real interest rates imply lower investment, lower demand and employment, and lower economic growth. But when a sudden shock pushes *the risk premium* up, the central bank should lower nominal interest rates, in order

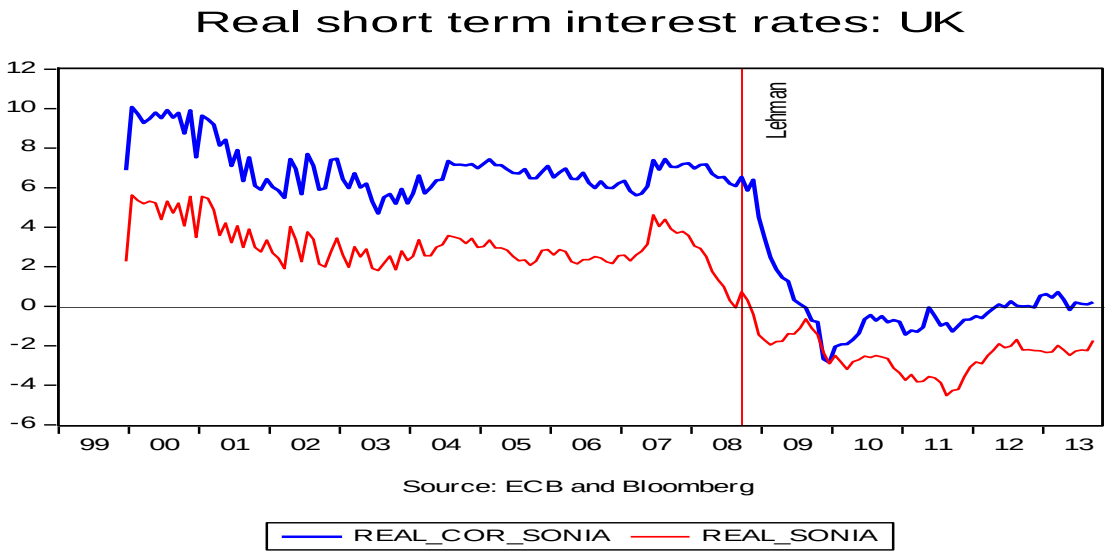
[10] Analytically, one should, however, distinguish between reserves and currency, which follow differnet economic logics.

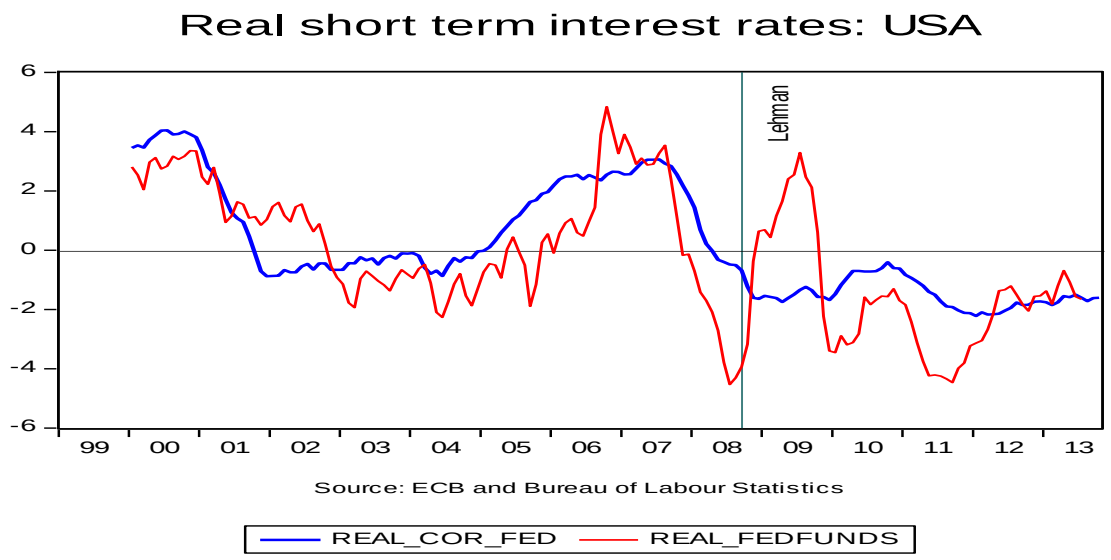
to compensate for the deteriorating investment climate. However, it can only do so until it reaches the lower zero bound for its policy interest rates, although recently there have been some cases (Sweden and Denmark) where the deposit rate on central bank reserves was made negative. Furthermore, if prices are falling, the real interest rate may rise substantially, thereby amplifying the deflationary shock. At this point, UMP becomes an alternative policy option that aims at reducing the risk premium (as in Europe) or raise inflation expectations (as in Japan).

Figure 4 shows real short-term interest rates for the euro area, the UK and the United States. Note the differences in scales. We have taken the actual HICP inflation as well as the core inflation to calculate the real rate. Not surprisingly, the more volatile headline inflation rate generates also more volatile real interest rates and should, therefore, be less relevant for policy purposes. In the euro area case, we also distinguish between the inflation-adjusted short-term market rate EONIA and the policy, MRO, rate. Before the crisis, the core real rate was positive in Europe, but not in the USA. Those early years of the 2000s were precisely the period when the US property bubble developed. In the euro area, the EONIA and MRO rates were fairly similar before the crisis, but when the ECB changed to a full allotment policy in October 2008, real EONIA rates fell further, as we will discuss below. Nevertheless, from these data it is clear that European monetary policy became more restrictive than in the UK and the USA in 2010-11.

Figure 4: Real short-term interest rates: Euro Area







Conventional monetary policy works through the demand for base money: commercial banks need liquidity in order to make payments and grant credit; the central bank can restrain them, but in a situation where the nominal rate hits its zero lower bound, and which Krugman (1998) has called the *liquidity trap*[11], banks may hold liquidity out of risk considerations so that a base money expansion does not translate into larger supply of outside money and higher prices. Instead, the money expansion is powerless to prevent deflation. Any excess money will simply be hoarded, rather than added to spending. Blinder (2010) therefore argues that "in deep recessions, monetary policymakers may need to push real rates ($r = i - \pi$, where π is the rate of expected inflation) into negative territory. But once the (nominal) policy interest rate i hits zero, the central bank cannot force it down any farther, which leaves r 'stuck' at $-\pi$, which is small or possibly even positive. In any case, once $i = 0$, conventional monetary policy is 'out of bullets'."

The central bank then needs to use unconventional instruments. For example, the central bank can seek to flatten the yield curve because long rates have more powerful effects on spending than short rates. This idea lies behind *Quantitative Easing* in the USA, where the Fed has acquired longer-term government securities instead of the short-term bills that central banks normally buy. Provided arbitrage along the yield curve is imperfect, such operations can push long rates down by shrinking term premia.

Another approach consists in targeting the risk or liquidity spreads. In the USA, private debt instrument usually pay some spread over Treasuries. Since, according to the portfolio balance effect, private borrowing, lending, and spending decisions depend on (risky) non-Treasury rates, reducing spreads over (riskless) Treasuries reduces the interest rates that matter for actual transactions, even if riskless rates are unchanged. By buying risky and/or less-liquid assets, and paying either by (i) selling some Treasuries from its portfolio, which would change the *composition* of its balance sheet, or (ii) creating new base money, which would increase the *size* of its balance sheet, the Fed conducts monetary easing (Blinder, 2010).

2.2. Unconventional monetary policy in the Euro Area

Contrary to the Fed, the ECB does not conduct Quantitative Easing. Its UMP is focussed on keeping the transmission mechanism functioning correctly. This is reflected in the evolution and structure of the two balance sheets. Figure 5 shows how the total balance sheets of the Fed and the ECB have increased in size and in composition. Immediately after the Lehman shock, total assets increased everywhere, although more in the USA than in Europe. In the year between summer 2010 and 2011, the Fed's balance sheet increased by 20 per cent, the ECB's shrank by 10 per cent. Similarly, since mid-2012 the Fed's total assets increased by 17 per cent from summer 2012 to 2013 and the ECB's fell by 13 per cent. In the USA, the increase was mainly due to the fact that the Fed bought Treasury securities, in the euro area the variations are largely due to LTRO operations. On the liability side, current accounts are most important in the USA. In euro area the size of current accounts was affected by the fact that the rate on deposit facility was brought at a certain point to zero, as at that time it did not matter whether a bank held surplus liquidity on the deposit facility or the current account as both were yielding zero. However, even the sum of current accounts and deposits as a percentage of the total assets is far less in Europe (about a quarter) than in the USA Thus, the increase in the overall balance sheets is accompanied by important shifts in their composition.

[11] Krugman's terminology differs somewhat from Keynes's original meaning, because the Keynesian liquidity trap arises at the point where the demand function for money becomes infinitely elastic, which could happen at a nonzero interest rate. See Blinder, 2010.

Figure 5: Balance Sheet items for FED and ECB

5a: Federal Reserve balance sheet: Assets (lhs); Liabilities (rhs)

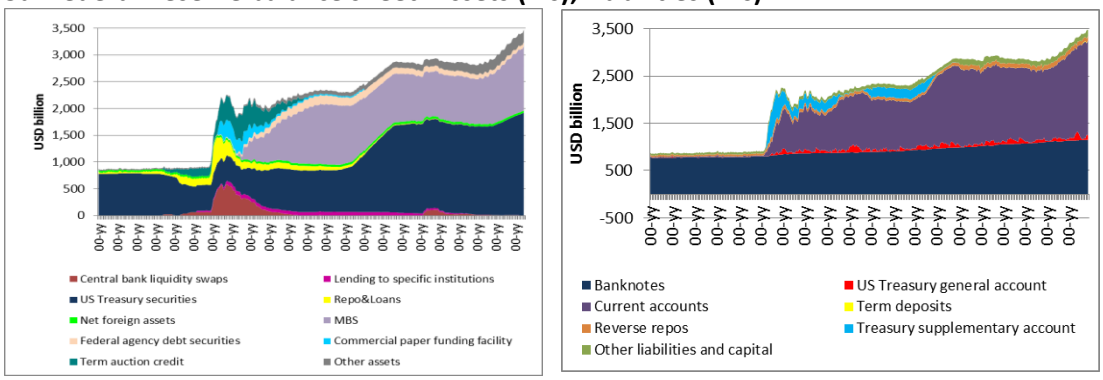
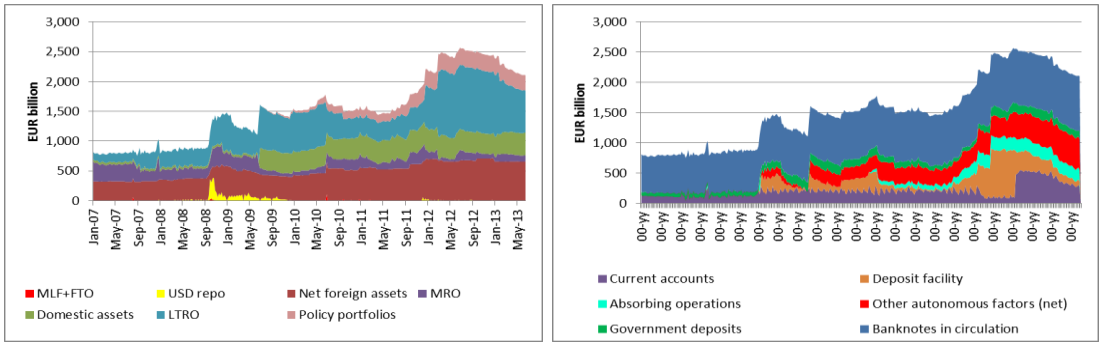


Figure 5b: Eurosystem simplified balance sheet: Assets (lhs); Liabilities (rhs)



Source: ECB and Federal Reserve System.

In the euro area, an equivalent to riskless non-Treasury paper does not exist,[12] which makes the transmission mechanism more complicated (Collignon, 2012). Nevertheless, in order to prevent excessive risk premia and yield spreads, the ECB has also bought risky securities during the crisis, especially sovereign debt from southern crisis states. However, the main difference between the Fed and the ECB's UMPs lies in the fact that the Fed can rely on an efficient transmission mechanism for its policies, while in the euro area this mechanism is handicapped by financial fragmentation (see also Fahr et alt. 2013). The ECB has, therefore, used other unconventional methods such as widening the eligibility of collateral and the extension of the maturity of LTROs. But the most significant measure is probably the *fixed-rate full allotment policy* in all refinancing operations for the different maturities, which was introduced on 15 October 2008.

Under fixed rate full allotment banks have their bids for liquidity fully satisfied, against adequate collateral, and on the condition of financial soundness. According to ECB board members, the fixed rate full allotment policy has proven a very efficient way of offsetting liquidity risk in the market by ensuring banks' continued access to liquidity. It is also a very flexible tool, as counterparties can themselves control the amount of liquidity they demand.[13] If demand is high, liquidity provision is high and, within the bound of the standing facilities corridor money market rates will fall, thereby reducing tensions. By contrast, if demand for liquidity declines, money market rates rise again towards the ECB's

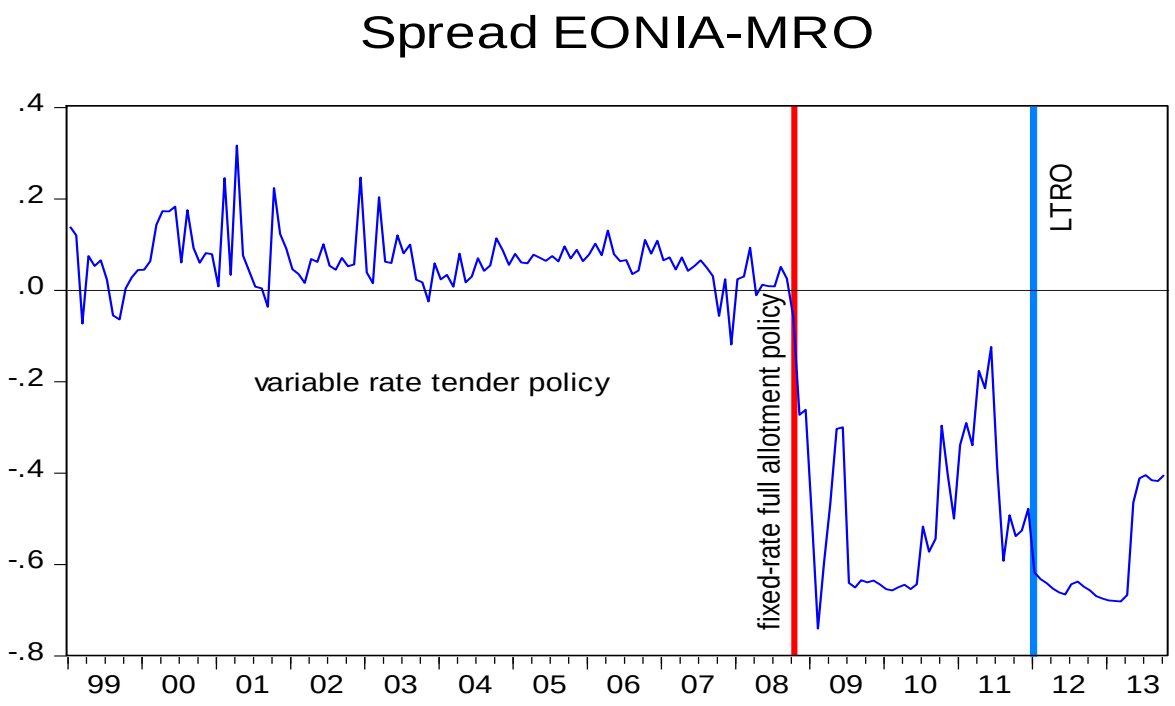
[12] German government bonds are not the equivalent of American Treasury paper, because they represent only a small fraction of the European bond market and are not backed by a European tax authority. As a consequence, flight to safety has pushed German yields below the equilibrium level.

[13] http://ftalphaville.ft.com/2011/12/08/785211/on-the-ecbs-most-significant-non-standard-measure/

MRO rate and become less accommodative. This logic may explain why the LTRO component in the ECB's balance sheet has shrunk in 2012-13, while real interest rates rose. In other words, when liquidity demand is high, the EONIA would fall below the MRO rate because it is fully accommodated. When liquidity demand is low, market rates would rise towards the MRO rate.

Figure 6 shows that during the variable rate tender policy before 2008, liquidity was nearly perfectly balanced to keep EONIA very close to the MRO rate, without either deficits or excess of liquidity. After the Lehman crash, the full allotment policy was introduced and the ample supply of liquidity pushed the EONIA below the main policy rate. The implementation of LTRO at the end of 2011 and early 2012 further accentuated the liquidity provision to banks and lowered short-term market rates.

Figure 6: Spread EONIA-MRO



Source: ECB

In the early phase of monetary union, the relation between the ECB's MRO rates and the money market used to be the key for the monetary transmission process in the euro area. After the outbreak of the financial crisis, the conventional MRO auction outcomes have exacerbated the disconnection of money market rates from the policy-intended interest rate level, so that switching to the fixed rate full allotment policy has helped to restore some stability in banks' refinancing conditions (Abbassi and Nautz 2010). However, an unintended consequence of this policy shift has been that the MRO rates have lost their primacy, while *the deposit rate has become the dominant interest rate* (see also Goodhart and Baker, 2013). The EONIA will continue to be the lead indicator for monetary policy, although the deposit rate will become more important in policy terms.

To explain this logic, it may be useful to recall the determination of interest rates in a corridor system as it is practiced by the ECB.

2.3. The corridor system of interest rates

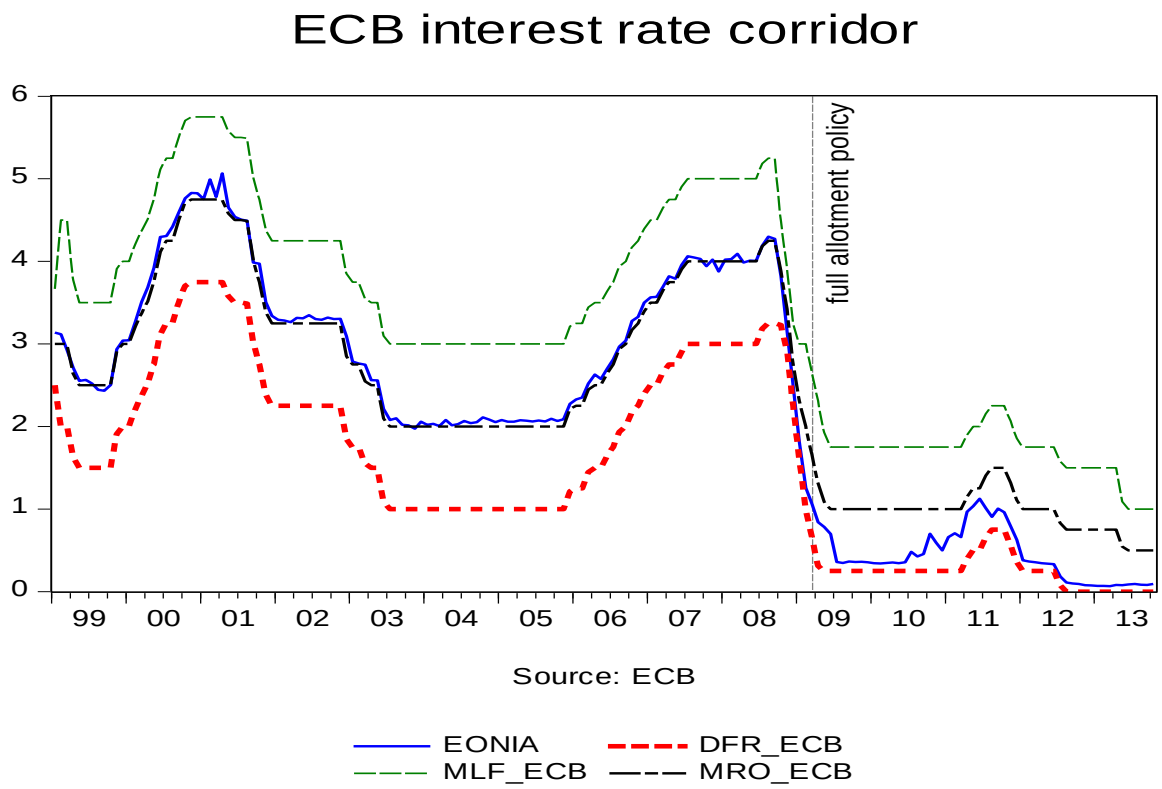
The ECB operates three key interest rates for the euro area:

- The rate on the marginal lending facility, which offers overnight credit to banks from the Eurosystem. This is called the ceiling of the system.
- The interest rate on the main refinancing operations, which provide the bulk of liquidity to the banking system. This is the policy rate.
- The rate on the deposit facility, which banks may use to make overnight deposits with the Eurosystem. It is called the floor of the corridor.

Market rates, called EONIA, at which commercial banks borrow and lend in the money market, are moving within the corridor, because if they rose above the ceiling, banks could borrow cheaper from the central bank and if they fell below the ceiling, it would be more advantageous to deposit money with the ECB. Figure 7 shows the interest rate corridor for the ECB.

In normal times, the main refinancing rate is half way between the marginal lending facility (the "ceiling") and the deposit facility (the "floor") and the EONIA close to the main refinancing rate. The reason is formally shown in Annex 1.[14]

Figure 7: ECB interest rate corridor



While policy rates were dramatically cut during the crisis, the lower bound of the corridor reached zero in 2012. This has created a new world for monetary policy. If the corridor were to remain symmetric around the main refinancing rate, it could prevent further rate cuts. The ECB has therefore preferred in its decision of 7 November 2013 to bring the MRO rate closer to the floor, thereby accepting an asymmetry in the corridor. However, it should

[14] I follow here Papadia, 2013. See also his: http://moneymatters-monetarypolicy.blogspot.co.uk/

be noticed that the unsecured interbank rate has been close to the deposit rate for a long time and this has not changed with the rate cut. In fact, the asymmetry in the corridor has been a prevailing feature since the full allotment policy was adopted in 2008. As long as the EONIA remains close to the floor, the impact of the policy cut has an asymmetric impact on the transmission of monetary policy. Its main function is to signal a policy preoccupation by the central bank. However, the ECB lends hundreds of billion (at some point about a trillion) of liquidity at the MRO rate to banks in the periphery and for them it is very important where the MRO rate is. A lower MRO also attenuates distortions in financial markets as it lowers rates in the periphery while leaving them unchanged in the core.

Yet, *overall lower policy rate will have only a moderate impact for stimulating investment, growth and jobs*. In the present context the real economy would benefit more from fiscal stimulus of higher private consumption in the euro area.

Some central banks, notably in Sweden and Denmark, have gone further and are charging negative nominal interest rates for liquidity deposits. This is effectively a penalty for commercial banks holding excess liquidity. The rational is that banks would lend their excess funds and earn interest rather than paying a penalty. However, the margins are small. Standard theory says that nominal interest rates cannot fall below zero, because banks could then keep currency in their vaults, which costs them nothing and is safe. However, cash management has a positive transaction cost, and this creates a (small) margin for negative deposit rates. Yet, more important is the fact that if banks are highly risk averse and have high liquidity preference, the nominal interest rate would have to fall far further below zero than transaction costs allow in order to generate a risk spread sufficient to compensate for uncertainty. *Negative interest rates are, therefore, not likely to play an important role in monetary policy*.

3. THE DANGERS OF EARLY EXIT POLICIES

The dangers on the path back to conventional monetary policies are two-fold: a second premature *early exit* could make the crisis worse as the euro area already found out in 2011. A *rapid exit* could generate instabilities in the financial markets. Both together would create political conflicts, which may quickly become unmanageable, although there are also costs in maintaining UMP for too long.

3.1. Premature exit from UMP

As we have seen, after the Lehman shock all rates were cut drastically and a few months later the full allotment policy was implemented in the euro area. The market rate then fell close to the floor until it gradually recuperated in the early months of 2011. However, as we saw in Figure 3, in December 2010 headline inflation rose above the ECB target of 2 % and even reached nearly 3 per cent during the last quarter of 2011, although the core rate of non-energy prices remained well below 2 per cent and even hit zero in the middle of the year. The ECB reacted by raising the main refinancing rate while maintaining the conventional width of the corridor. Money became tight: the market rate EONIA was rising and by June it was only 12 bp below the main refinancing rate, closer than ever since the crisis erupted. Together with fiscal tightening, this early "exit" from stimulative monetary and fiscal policies killed the economic post-crisis recovery. Hence, *early exit was a policy blunder, which had a hefty price in terms of output growth and employment*.

By contrast, in the USA the accommodating monetary policy was sustained and fiscal policy remained stimulative, too. As a consequence, economic growth continued to close the output gap. It is reasonable to believe that the better US performance is due to having a central government, while the euro area is handicapped by collective action problems arising from the decentralised economic governance. However, the important message is that Europe cannot afford another premature exit from unconventional monetary policies.

3.2. Excessive speed in exiting from UMPs

By the end of 2011, the ECB started to lower rates again, but given the negative impact of a double dip recession and the aggravating developments in southern Europe, the task of stimulating the economy became harder than before. Interest rates had to be cut more and, as we saw, the deposit facility rate was brought to zero in August 2012. Monetary aggregates became more volatile and the variations of monetary base became more amplified. Figure 8 shows that the major monetary aggregates - base money, M1 and M3 - all grew at smoother rates before the Lehman collapse than after. Similarly, the money multipliers from base money to M1 or to M3 and from M1 to M3 all lost their stability (see Figure 9). These developments indicate that in the climate of general uncertainty and heightened risk, monetary policy has managed to steer interest rates, but at the price of higher instability in monetary aggregates. This means that *the monetary pillar in the ECB's monetary strategy will be less able to provide guidance during the exit phase*.

The high uncertainty is to a certain degree an inevitable consequence of UMP itself. The VAR model in Annex 2 estimates the volatility in excess reserves, i.e. in the risk-related reserves banks hold with the Eurosystem. The estimates indicate that volatility in the ECB balance sheet increases when the main refinance rate (MRO_ECB) rises and falls when the corridor for official interest rates widens. Given the relative size of the two coefficients, it is clear that the "corridor effect" is about four times as strong as the MRO-effect. Hence, the MRO rate cut by 0.25 per cent in November 2013, which simultaneously has reduced the width of the corridor by the same amount, is likely to make excess reserves in the euro

area more volatile. *This will render monetary policy in the future more difficult for the ECB*. A return to variable rate tenders is unlikely to happen soon, given that the present system has worked well for interest rate setting.

4. CONCLUSION

As was mentioned above, the Fed (2011) has formulated some principles for the exit strategy from accommodating monetary policies. In essence it seeks a "gradual and steady" normalisation process in which "adjustments to the interest rate on excess reserves and to the level of reserves in the banking system will be used to bring the funds rate toward its target". Our analysis has indicated that such a gradual process is unlikely. Goodhart and Baker (2013) seem more realistic when they write:

> "In discussing the process of exit from the present expansionary monetary policy regime, commentators frequently talk about a future decision to raise the 'policy' rate toward some normal level and on the speed at which to withdraw QE (quantitative easing). As stated, such statements are usually technically wrong. If the authorities were going to restore the policy rate to its central role as a fulcrum for short market rates, they would be forced to withdraw enough reserves from commercial banks to make the latter willing to set market rates at this level. Bank reserves have to become endogenous again. But the authorities have no idea of the necessary extent of such a withdrawal, and would be far too scared to try any such gamble."

In other words, the exit from the Euro crisis is still a faraway goal and many surprises will be encountered on the way.

Figure 8: Growth rates of monetary aggregates

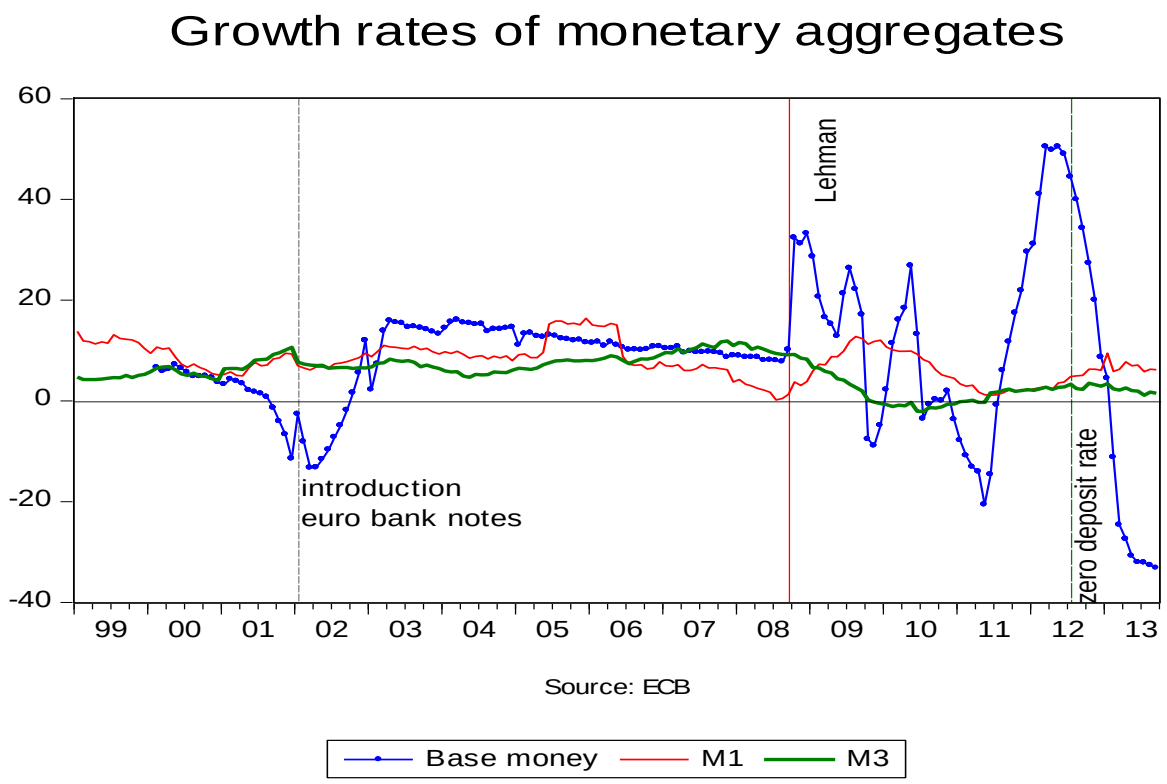
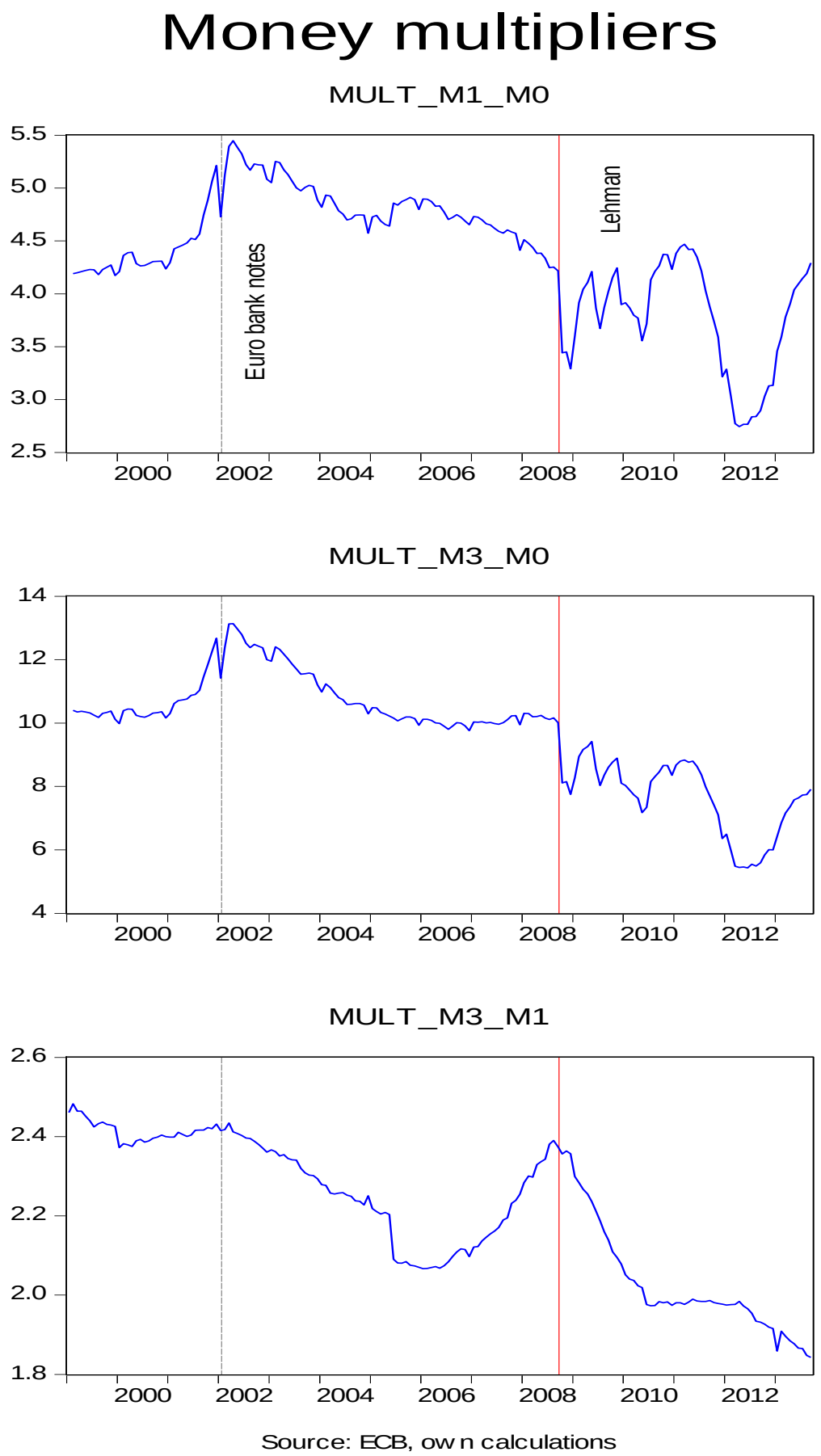


Figure 9: Money multipliers



Source: ECB, own calculations

ANNEX 1

To show that in normal times, the main refinancing rate is half way between the marginal lending facility (the "ceiling") and the deposit facility (the "floor") and the EONIA is close to the main refinancing rate, let us start with the following equation:

$$r^t = E_t(r^T) = P_l R^l + P_s R^s$$

Where : r^t is the market rate today, $E_t(r^T)$ is the market rate expected for the last day in the maintenance period, P_l (P-long) is the probability of there being a surplus of reserves at the end of the period and R^l is the rate on the deposit facility with the central bank, while P_s = (1- P_l)= (P-short) is the probability of there being a deficit of reserves at the end of the maintenance period and R^s is the rate on lending from the central bank.

If $P_l = P_s$, because the central bank credibly assures that, at the end of the period, there will be equal probability of a deficit or a surplus (indeed neither excess nor deficit) of reserves and with R^l and R^s symmetric around the policy rate, the market rate will be at the policy rate all along the maintenance period.[15] This is what happened in the euro area until the beginning of the crisis, as the ECB provided liquidity according to the "benchmark" approach, whereby enough liquidity was supplied to cover the liquidity deficts of banks and required reserves.

During the crisis things changed. The large excess liquidity generated by the fixed rate full allotment modality now determines P_l=1 and therefore

$$r^t = E_t(r^T) = R^l$$

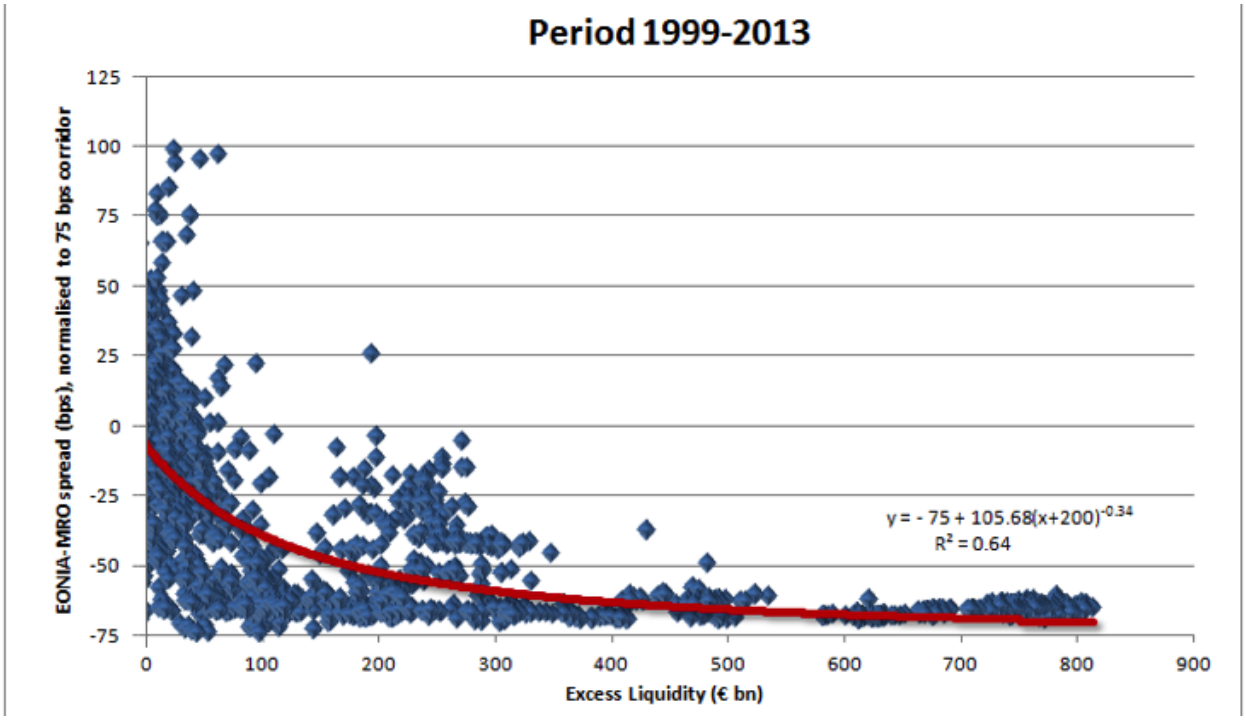
Hence, the market rate has fallen well below the policy rate. See also Figure 5 above.

This is also shown in the scatter diagram of Figure A1, where the elasticity of demand for reserves to different spreads of the market interest rate to the policy rate appears clearly. Indeed, as one moves from right to left the elasticity decreases and the demand becomes very rigid (and noisy) for low levels of excess liquidity. This is to be interpreted in the sense that, while for excess liquidity of some 100 billion, market participants are certain that the period will end with a surplus, this is not the case for lower amounts of excess liquidity. Of course, in this scatter diagram the situation before the crisis would see all the points very heavily concentrated around zero excess liquidity and a rate spread around 8 basis points.[16]

[15] Assuming there are no shocks which the central bank may not be able to offset with its liquidity supply and absent market imperfections.

[16] This is based on Papadia, 2013, and also see: http://moneymatters-monetarypolicy.blogspot.co.uk/

Figure A1: EONIA – MRO spreads and liquidity



Source: Papadia, 2013.

ANNEX 2

Dependent Variable: DLOG(EXCESS_LIQ)

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 11/26/13 Time: 14:26

Sample (adjusted): 1999M03 2013M10

Included observations: 175 after adjustments

Convergence achieved after 80 iterations

Presample variance: backcast (parameter = 0.7)

GARCH = C(1) + C(2)*RESID(-1)^2 + C(3)*GARCH(-1) + C(4)*CORR + C(5) *MRO_ECB

Variable	Coefficient	Std. Error	z-Statistic	Prob.
	Variance Equation			
C	0.216239	0.041807	5.172321	0.0000
RESID(-1)^2	0.849732	0.162936	5.215140	0.0000
GARCH(-1)	-0.030684	0.041444	-0.740379	0.4591
CORRIDOR	-0.369621	0.057956	-6.377586	0.0000
MRO_ECB	0.091589	0.009409	9.733918	0.0000

R-squared	-0.004209	Mean dependent var	0.028136
Adjusted R-squared	0.001529	S.D. dependent var	0.434911
S.E. of regression	0.434579	Akaike info criterion	0.814083
Sum squared resid	33.05026	Schwarz criterion	0.904506
Log likelihood	-66.23229	Hannan-Quinn criter.	0.850761
Durbin-Watson stat	1.669854		

Please see footnote.[17]

[17] I thank Piero Esposito for research assistance.

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NOTES

EUROPEAN PARLIAMENT

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Exit Strategies and their impact on the Euro Area – A model based view

Ansgar BELKE

NOTE

Abstract

This Briefing paper comments on the pros and cons of exit strategies. The focus is on the impact on the euro area economy of the exit from unconventional monetary policies (UMP) by the Fed, which, appears to be the first central bank to lay out an existing path. In this context, it discusses the issue of policy coordination between central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments of unconventional monetary policies. The risks of a premature versus a delayed exit are assessed. In particular, the paper looks at the risk associated to spillover effects from UMP exit and the different shapes of exit paths. It also analyse exit strategies in a wider context and the associated financial stability risks, with a specific focus on the role of uncertainty. The paper presents estimates of the impact of the Fed's exit from UMP in 2014 on the euro area economy using new and innovative global IMF models. Finally, specific policy options to minimise exit risks are discussed and compared.

CONTENTS

EXECUTIVE SUMMARY

This Briefing paper comments on the pros and cons of exit strategies with a specific focus on the impacts of the exit from unconventional monetary policies (UMP) by the Fed, which, if at all, appears to be the first central bank to move on the euro area economy.

In this context, it first discusses the issue of policy coordination between central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments of exit from unconventional monetary policies. From a market economy perspective, it is clearly desirable to have international policy coordination in place, which ensures that *non-pecuniary* cross-border policy spillovers are appropriately *internalised*. However, induced *exchange rate changes* are part of the *necessary portfolio adjustment* to the new global equilibrium, accompanying the unilateral exit. Accordingly, they should be classified as pecuniary effects and cannot serve as a justification of coordination.

In the following, we assess the risks of a premature or delayed exit. To be more specific, we try to gauge the risks posed by the exit from unconventional monetary policies and a turning of the interest rate cycle both for the exiting countries and for other regions in the world due financial spillover effects. This is done precisely because any impact on the latter (the non-UMP countries) has an impact on the former (the UMP economies), via repercussion effects. Whereas many domestic risks stemming from a withdrawal of UMP in the exiting economies such as the euro area have been discussed extensively in my previous Briefing papers, the focus of this paper is on the risks of a premature or delayed exit for non-UMP economies, and the feedback effects on other countries. Whenever we talk about exit strategies and their impact on the euro area economy, we have to analyse spillover effects. Hence, we start by examining the risk associated to spillover effects and then look at different potential shapes of exit paths. We also analyse exit strategies in a wider context. We first classify types of UMP and exit strategies. We then investigate the financial stability risks associated with the exit, with a specific focus on the role played by uncertainty in the process. Empirical evidence is consistent with *increased volatility in long-term rates* triggered by exit. There is a lot of uncertainty around exit decisions and their impact both on policy instruments (e.g. interest rate volatility) and targets (e.g. debt sustainability), which must be taken into account by policymakers when designing an exit strategy.

Based on new and innovative global IMF models, this paper reports estimates of the impact of the Fed's exit from UMP in 2014 on the euro area economy. To this purpose, three different possible modes of exit are distinguished: (a) a "smooth growth-driven exit", (b) a "growth-driven exit with complications" and (c) an "exit without growth". The exit is assumed to start via endogenous or exogenous tightening in the third quarter of 2014. However, the different scenarios allow for *different ways of phasing out* from the UMPs. More specifically, the impact of the U.S. exit on the euro area is estimated to be a 0.0 to 0.5 percent deviation of output from baseline in 2015 under scenario (a), -1.25 to -0.5 percent deviation of output from baseline in 2015 according to scenario (b) and -1.00 to -0.75 percent deviation of output from its baseline prevailing in 2015 according to scenario (c). However, the IMF closely follows conceptual considerations but does not attach any probabilities to the different scenarios.

Adequate communication seems to be an important tool to contain instability during the exiting process. However, it is likely that this normalisation will take longer than originally envisaged, at least if one subscribes to Lawrence Summers' thesis of "secular stagnation" which he recently presented at the 2013 Annual IMF Research Conference. So, there is the danger that UMP will become the „new normality" – in spite of all theoretical considerations presented in this Briefing paper.

1. INTRODUCTION

This Briefing paper comments on the pros and cons of exit strategies with a specific focus on the impacts of the Fed's exit on the euro area economy.[1] In this context, I first discuss the issue of policy coordination between central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments as a consequence of unconventional monetary policies (Section 2). The risks of a premature versus a delayed exit are also assessed (Section 3). Here we look at the risk contained in spillovers from exit and at different potential shapes of exit paths. We also analyse the wider context of exit strategies and investigate the financial stability risks emanating from the exit, with a specific focus on the role of uncertainty. Based on new and innovative global IMF models, Section 4 presents some estimates of the impact of the Fed's exit from UMP in 2014 on the euro area economy. Finally, policy options beyond international policy coordination to minimise exit risks are discussed (Section 5).

What I present is essentially a mixture of model-based evidence on exit spillovers effects as along the lines of recent IMF analysis as well as research outlined in my previous Briefing papers on exit strategies and unconventional monetary policies (e.g. Belke 2009, 2013). I show that the potential impacts of exit strategies are not the symmetric counterpart of implemented unconventional monetary policies.

[1] I gratefully acknowledge the hospitality of the Open Economy Macro Research Group at the International Monetary Fund, Washington/DC, where I have written this Briefing paper. Special thanks for valuable comments go to Florian Verheyen, Steve Phillips and Rafael Espinoza.

2. POLICY COORDINATION OF EXIT BETWEEN CENTRAL BANKS IN THE LIGHT OF SUBSTANTIAL POTENTIAL SPILL-OVER EFFECTS

International policy *coordination* on exit strategies from unconventional monetary policies is generally regarded as *welfare improving* under certain conditions.[2] The case becomes even stronger in view of the risks of premature or delayed exit. Given the currently high degree of integration among economies and financial markets, spillover effects are unavoidable and the case of policy coordination becomes even stronger in view of the risks of premature and delayed exit (see section 3). There are *positive* and *negative* spillovers associated to the establishment of UMPs as well as to any exit from unconventional monetary policies (UMPs). Let us first turn to the *negative* ones resulting from existing UMPs.

UMPs and maybe also the exit from these policies generate negative externalities in countries adopting conventional monetary policies; the latter are likely to adopt policy measures to counter these externalities and, thus, generating losses in both sets of countries and a suboptimal outcome (for details see Belke, 2013). This is exactly the constellation in which international policy coordination on existing UMPs and the exit from them has the potential to raise Pareto improvements in economic outcomes on a global level.

So-called *pecuniary* external effects, such as trivial cross-border spillovers for example exchange rate changes or changes of other (relative) prices, are *neither necessary nor sufficient* to make the case for international policy coordination. This is the case for exchange rate changes as a reaction to a unilateral exit from UMPs in, let's say, the U.S. which by definition have an impact also on the partner countries such as the euro area. Admittedly, this may stifle the old debate about exchange rate co-ordination or even "currency wars" again (Cooper, 1984), and incentives for an early exit from UMP in order to prevent bubbles dwindle because of the accompanying appreciation of the home currency (see section 4 of this Briefing paper). However, these induced *exchange rate changes* have to be understood as part of the *necessary portfolio adjustment* to the new global equilibrium accompanying the unilateral exit. They cannot serve, thus as a justification for coordination. Instead, there must be a clear indication of the true externalities that have an impact on economic welfare (Belke et al., 2002, and Laffont, 2008) in order to justify coordination.[3] Establishing the case for international policy coordination requires empirical evidence which supports the existence of an appropriate pattern of externalities. Moreover, policymakers must be able to identify and measure them. Finally, problems due to incomplete or asymmetric information across countries must be solved (IMF, 2013, Ostry and Ghosh, 2013, and Ostry, Ghosh and Korinek, 2012).

From a market economy perspective, it is clearly desirable to have international policy coordination in place, which ensures that *non-pecuniary* cross-border policy spillovers are appropriately *internalised*. This view applies to spillovers of existing UMPs and to the exit from them. Let us now turn to *positive* spillover effects.

Academic analyses in this field often find that unconventional monetary policies targeted at smoothening market functioning and financial intermediation tend to imply short-run *positive* externalities across the borders. This is especially so if these policies are a reaction

[2] We do not deal explicitly with the difference between coordination and cooperation in this paper.

[3] A pecuniary externality denotes an externality that takes effects through prices rather than by means of real resource impacts.

to immediate and acute shocks (Belke and Klose, 2013, Belke, Beckmann and Czudaj, 2013). According to the IMF (2013), countries which have not deployed non-unconventional monetary policies themselves unambiguously benefited from the UMPs because they made the markets function again and stabilised the financial system. In the context of this Briefing paper, it matters whether these positive externalities are abolished by exit (i.e. whether exit comes too early). Of course, they are not, as soon as the UMPs have reached their goal.[4] Hence, the exit from such policies, as soon as their purpose has been fulfilled, does not necessarily imply negative externalities (IMF, 2013).

Unconventional monetary policies targeted at enhancing aggregate demand at the zero lower bound have been helpful in stimulating global growth (Belke and Klose, 2013). However, the other side of the coin is that they may have induced *negative* externalities as well. There are indications that show they have caused financial distortions and contributed to the emergence of macroeconomic and financial stability risks. The main transmission channel has been excessive capital flows to countries employing non-unconventional monetary policies (see in detail Belke, 2013). Again, it is exactly these kind of cases in which policy coordination on conducting UMPs as well on the exit from them is highly indicated (IMF, 2013).

But nevertheless, it seems fair to admit from an academic view that things have not settled yet on these important questions. Instead, there are widely diverging perceptions among academics, policymakers as well as across countries. The *size and the sign of the externalities* of exiting, from various unconventional monetary policies and the international repercussions via capital controls etc. are still rather *ambiguous*. Ostry, Ghosh, and Korinek (2012) show that the multilateral effects of capital controls tend to be constrained, except in case of "pervasive" controls (see also IMF, 2011). Above all, there is huge uncertainty about the "break even" point, at which the beneficial impact of UMPs on worldwide growth is offset by financial stability risks triggered by the same UMPs (Belke, 2013, and IMF, 2013).

It is at this stage not clear *what different policy mix* would make short-run support through UMPs sustainable in the medium to long run. Finally and possibly most importantly, the *political will* to change this policy mix *will be lacking*. As discussed in my former Briefing papers with reference to the ECB's announced OMTs, the relative accomplishment of unconventional monetary policies in fostering growth in the short run has diminished the policymakers' incentives to use the input of monetary policy, delaying or even interrupting the implementation of structural reforms (IMF, 2013). Policy coordination within a two-handed approach among national or (in case of a smaller country) international monetary policy and national reform effort does not appear to work even on a national level. It does *not* seem easy to think of a global institutional arrangement which lets policymakers *realise* these *bilateral gains* (for the mechanics of this type of policy coordination dilemma see Belke, 2002).

If coordination appears to be warranted and, hence, is implemented, it may come in *different forms*. Economies running unconventional monetary policies would be pressured into a change of their internal policy mix (see Section 4). Whereas this kind of action is most likely not taking much pressure off the central banks to provide accommodative monetary policies, the implementation of the urgently needed structural, fiscal and banking

[4] But there is always the issue of what the counterfactual has been and still is: how would the world have looked like if the UMPs would have been absent? Answers to this question are highly speculative, extremely difficult to quantify in empirical terms and thus inherently controversial. Nevertheless, in spite of this important open flank, the majority of policymakers try to convey the impression that the implementation of UMPs has saved the world from depression. The latter is then implemented as *the* main ingredient of cost-benefit analyses of coordination.

sector reforms would certainly give policymakers ample room to unwind their unconventional monetary policies earlier rather than later. Coordination would imply the implementation of reforms also in those countries, which do not employ unconventional monetary policies in order to support rebalancing and to improve on necessary conditions for sustaining medium-run growth. Overall, the reforms conducted in both types of countries would turn out to be beneficial for global growth (IMF, 2013a).

But one should also not forget that coordination would also cover a larger degree of collaboration in issues related to the adoption of regulatory and macro-prudential policies "designed not to solve a problem at home but help others to deal with a problem they cause" (IMF, 2013). What is more, the IMF (IMF, 2013) argues that collaboration would be highly indicated when "preparing the terrain for exit". For instance, foreign exchange swap lines could be set up and other central banks may provide with sufficient early warning on exit probabilities (Belke et al., 2002, IMF, 2013). But, again, coordination in the area of structural reforms unfortunately does not rank high on the agenda of international policy coordination.

Due to the coordination dilemma derived above, bringing about coordination on UMPs and the exit from them requires *adequate incentives*. Because governments are accountable to their electorate, they will need to be able to envisage clear medium-term net gains emerging from coordination. Hence, unconventional monetary policies should be conditioned on the implementation of other urgent reforms. However, I do not see both types of incentives sufficiently implemented in the current setting. As the IMF (2013) puts it: "There is notably little prospect that central banks might seek to impose conditions for their liquidity assistance on governments, except for possibly OMT". But even with respect to the OMTs there are doubts: simply stating that the announcement of OMTs gives enough leeway for reforms is not enough because it is not at all clear that this leeway will be used de facto. This is at least the result of a bulk of literature on the political economy of reforms (Belke, Herz and Vogel, 2006). However, central banks are able to impose conditions on commercial banks to advance at least reforms in the financial sector, i.e. bank balance sheet repair and reform (IMF, 2013). This is exactly the area where we generally see the largest impact of monetary policies on reform effort across OECD countries (Belke, Herz and Vogel, 2006).

One potential *institutional framework* which is clearly able *to strengthen international coordination* and also includes the emerging markets with their close trade and financial linkages to many euro area member countries is offered by the International Monetary Fund. The Fund may second the implementation of entry into and exit from unconventional monetary policies by contributing to a global perspective on exit policies through *surveillance* and *policy buffers* to get rid of possible negative side effects and a *model-based* and, hence, hopefully more "neutral" *analysis*. The IMF's new surveillance framework gives ample room for an increasingly integrated analysis of global spillovers of complex policies such as the exit from UMP. Finally, the innovative IMF reports on spillovers and on External Sector Assessments deliver an additional assessment of the effects of unconventional monetary policies and try to reconcile the bilateral with the multilateral perspective (IMF, 2013).

Furthermore, *IMF lending facilities* such as the Flexible Credit Line and technical assistance supporting domestic policy initiatives in the area of macro-prudential policies, may serve as a means to *moderate* or even to *prevent* some of the *risks* from unconventional monetary policies as well (IMF, 2013). Finally, the Fund analysis may "help oil the wheels of economic cooperation and coordination" (IMF, 2013) by contributing a global perspective to other forums for international policy coordination such as the G-20 Mutual Assessment Process.

3. RISKS OF PREMATURE VERSUS DELAYED EXIT

In the following chapter, we assess what the risks of a premature exit or delayed exit may be. To be more specific, we try to gauge the risks posed by the exit from unconventional monetary policies and a turning of the interest rate cycle for the exiting countries and financially integrated regions. This is done precisely because any impact on the latter has an impact on the former and the euro area can be on either side, depending on whether one considers the Fed or the ECB exiting first.

3.1. Risk contained in spillovers

Both academic literature and empirical evidence support the view that sustained capital inflows and cheap foreign financing represents a threat for financial stability in the recipient countries (see Belke, 2013, IMF, 2013, and Rajan, 2013). This pattern is broadly confirmed by both unconventional and conventional monetary policies. In the context of this Briefing paper, it is important to recognise that the spillovers of entry into and exit from UMPs of the most important industrialised countries to emerging economies, may have important repercussions on the euro area itself. For instance, US-Fed tapering may redirect global financial liquidity flows from emerging markets to the U.S. and might make the exit more costly or even impossible (Belke, Bordon and Volz, 2012, Belke, Beckmann and Czudaj, 2013). Feedback effects from emerging markets hit by industrialised countries' exit may also occur through the trade and investment channel.

Lower rates in advanced economies tend to induce capital flows to economies offering higher returns, independently of whether the cut in rates came about through unconventional monetary policies. Under the UMP regime, interest rates have been credibly low for a particularly long period, a fact that has most probably amplified the impact of interest rate differentials on capital flows. What is more, the conduct of bond purchases as an additional policy measure may have increased capital outflows beyond that level purely justified by lower interest rates. In this context, *portfolio rebalancing effects* are the driving force which let investors substitute their own sovereign bond holdings by corresponding assets in economies not engaged in unconventional monetary policies[5] (Belke, 2010, IMF, 2013).

If one wants to conduct a deeper analysis of the *spillovers* induced by exit in non-UMP economies, one has to take into account that the excessive capital flows created by ultra-lax monetary policies, combined with an increase in global risk appetite, stimulated some valuable rebalancing of global demand but have also created new policy challenges in recipient countries (IMF, 2013a, 2013c and 2013f). The problem with exit is that it may hit the non-UMP economies at a certain point when they are still facing these challenges.

So what exactly are the challenges those policymakers should bear in mind when they are assessing their exit plans? In case of thin markets, inflows of capital may lead to massive and rapid appreciation of the recipient countries currency which – once the exchange rate pain threshold is passed – may prove to be harmful for the countries' export sectors (Belke, Goecke and Guenther, 2013). Unconventional monetary policies may, through global liquidity spillovers, also lead to rapid credit expansion, asset price bubbles, and an overall higher leverage (above all in foreign currency) and thus may raise financial instability. In both cases, exit in UMP countries might contribute to a reversal of these negative developments in non-UMP economies. This is different if the capital inflows are replaced at

[5] See IMF (2013f) and the sources cited therein for empirical evidence on the latter channel.

a later stage by sudden flow reversals ("runs") induced by exit in UMP economies (IMF, 2013).

As already emphasised above, policymakers should, as a principle, *allow exchange rates to respond to changes in fundamentals,* such as the exit from UMP. However, they may need to make provision against risks of disorderly adjustment. This is because exchange rate volatility not caused by fundamentals may be harmful for growth and employment (Belke, Goecke and Guenther, 2013, IMF, 2013). Let us now turn to the questions of what is the shape and what are the consequences of exit from UMPs.

3.2. What is the wider context of exit strategies?

Policymakers do not stop to argue that monetary normalisation is at the current stage only a relevant consideration for the US, as the narrowing of the output gap is not yet foreseen for the euro area, Japan, the United Kingdom and China. With an eye on the persistently weak growth and short-run negative impulses from fiscal consolidation and still segmented credit markets, for instance, the IMF (2013d) recommends for the euro area that the ECB should conduct even more unconventional monetary policy (Angeloni, Faia and Winkler, 2011). However, in its December meeting the ECB Governing Council did not announce further expansionary measures like another interest rate cut or quantitative easing. The exit pattern derived further below should characterise the potential Quantitative Easing (QE) normalisation in the "Systemic five" (S5)—China, euro area, Japan, United Kingdom, United States. However, one has to keep in mind that research in this area is still very preliminary (Gerlach, 2013, IMF 2013a).

3.3. What would an exit from UMP probably look like?

In order to avoid ambiguities and to put the debate on the impacts of exit on a sound basis, a sound *classification scheme* of potential UMP and exit types is of the highest priority (Thornton, 2013).

Exit risks will differ with respect to the specific *varieties* of unconventional monetary policies (UMPs) employed. There are *two types* of unconventional monetary policies. The first one embraces those UMPs that have been implemented to restore the functioning of markets and bank intermediation. UMPs which have served to support activity at the zero lower bound represent the second variant (Belke and Klose, 2013).

In case of the first type, policymakers can withdraw their unconventional monetary policy instruments as soon as stabilisation of the financial sector is achieved. In the second case, exit is triggered by broader economic conditions, above all by inflation and financial stability. Independent on the specific scenario, central banks are principally endowed with a *toolbox to smoothen the impact of exit*, although even the IMF admits that one cannot fully anticipate, or even control, market reactions of the markets (IMF, 2013).

There are *two ways* in which an *exit* from unconventional monetary policies to restore market functioning and intermediation can be initiated: either exit will be *driven by the markets* or it will necessitate *active policy decisions* (for this crucial distinction see already Belke, 2010, Briefing paper accidentally titled "Driven by the Markets?"). Examples in which the *markets* determine the timing of exit are those measures employed to counteract acute market dysfunctioning. They were typically characterised by pricing structures and also "optionality", which triggered counterparties to withdraw from the facilities as soon as they have won access again to less expensive market funding. This category embraces a couple of measures used by the U.S. Fed from 2007 to 2008 (see IMF, 2013h, for more details). It also contains the ECB's LTROs at full-allotment with ECB overnight market rates still quoted

below the policy rate which may be an indication that banks' demand drives aggregate liquidity volumes in the euro area (IMF, 2013, Marquez, Morse and Schlusche, 2013).

On the contrary, central banks will have to actively decide on the exit date faced with measures taken to strengthen financial intermediation (IMF, 2013). In case of exit, a few solvent banks which are still relying on liquidity facilities such as the ECB's emergency lending assistance (ELA) facility or the Bank of England's "Funding for Lending Scheme" (FLS) are forced to look for funding elsewhere or to contract their balance sheets.[6]

The central bank's decision to start the exit from unconventional monetary policies in order to stifle economic activity at the zero lower bound should be designed in a way that is *conditionally dependent on economic performance* over time (Belke and Klose, 2013). The standard recommendation is to start with the exit and begin to tighten monetary policy when justified by the inflation forecast and the output gap and only if any concern of financial stability is absent. However, the fact that the *Phillips curve* is estimated to be *flatter* under current conditions may lead one to attach more weight to the output gap, of course under the condition of stable inflation expectations (IMF, 2013, Figure 2, and IMF, 2013e, Chapter 3).

What is more, if policymakers take into account *financial stability considerations*, the exit mechanics including issues like the timing of exit unavoidably become more complex. Earlier exit than indicated by the inflation and the output gap criterion can appear justified if the ultra-expansionary monetary policy stance risks endangering financial stability and/or the effectiveness of micro- or macro-prudential policy gets increasingly smaller (Belke, 2013). For instance, interest rates may stay on a very low level for a while whereas central banks' asset sales could be started in a smooth fashion (Belke, 2009, IMF, 2013).

There is an incentive for policymakers to *defer exit* and to shift some of its unavoidable consequences such as increasing sovereign financing costs far into the future. This expresses the high degree of *fiscal dominance* currently prevailing. The degree of dominance will even increase further, if more troubled state's sovereign bonds will be taken during future QE programmes on board the balance sheets of the central banks, or if policymakers delay the exit in order to prevent further deterioration in the quality of commercial banks' assets. This is an expression of financial dominance, but any delay probably comes at a cost such as the anticipation of higher inflation setting in later on (IMF, 2013).

But anyway, the exit from UMPs will entail several gradual phases. In spite of the potential perspective of a secular stagnation (see section 5), the main aim is to get back to conventional monetary policy. Important aspects, which render the *exit from unconventional monetary policies more demanding than the consecutive tightening of previous low rate periods*, are related to the significant excess reserves on central banks' balance sheets resulting from asset purchases in some countries, and the imponderables connected with assets sales. As a consequence, exit is faced with a lot of uncertainty about the response of market agents and the economy's reaction to tightening financial conditions (Foerster, 2011, Thornton, 2013).

The process of exit itself is operationally complex, but will, generally speaking, obey a specific sequence of events (IMF, 2013).[7] Firstly, the *forward guidance* on the future

[6] The IMF (2013b) assesses potential drawbacks from ending market support too early, or too late.

[7] Marquez, Morse and Schlusche (2013) are the first to disclose an empirical check of the FOMC's principles of the exit strategy.

trajectories of official interest rates and asset purchases will have to be *adjusted*.[8] As the next step, *asset purchases* will be *gradually reduced,* a process frequently called "*tapering*". The timing of changes to forward guidance is not as easy as it seems. Banks will have to be aware that undercutting their original guidance of persistently lower rates may be risky (IMF, 2013). Second, official interest rates will increase either in parallel with or even before a significant share of excess reserves have been eroded. Over this potentially multi-annual transition period, the central bank's overnight deposit rate will be guiding the markets (Bech and Klee, 2009, IMF, 2013). As a consequence, the central bank *balance sheet* will *shrink* with the positive side effect that it also cuts excess reserves (Belke and Polleit, 2010, IMF, 2013, Box 4).

Looking at this sequence of exit sub-steps is important in cases where the exit strategies of central banks, such as the Fed, and their impact on economies including the euro area have to be evaluated with scrutiny (Thornton, 2013). Each sub-step will have its own effects. Moreover, there will be interactive effects. The most systematic way to enact such an assessment is to employ an empirical model and enact some simulation. In the following, the IMF model-based assessment of the impacts of exit on different regions of the world, including the euro area, is described briefly.

3.4. Financial stability risks emanating from the exit

Any assessment of the risks of exit from MP-plus - as the IMF calls the combination of exceptionally low policy interest rates and unconventional policy measures - to financial stability must differentiate between two elements of unconventional monetary policies. The first element is the exit from ultra-low policy interest rates and the second, the central banks' sale of their accumulated bulk of assets, among them mostly debt securities (see IMF (2013b), Box 3.1).

As regularly conducted also in the past, central banks will have to raise rates sooner or (as it seems to be actually the case) later to safeguard price stability also in the current rate setting cycle (for details see Belke, 2010). However, any requirement to sell assets to tighten monetary policy turns out to be "less evident" than for the other ingredient of MP-plus. This is because, arguably, central banks could simply sit on them until maturity and could, instead, employ other monetary policy tools (but this does not come without side-effects, see Belke, 2009). However, as the IMF itself admits, political considerations potentially still require the sale of assets (IMF, 2013b).

Seen on the whole, the risks and the challenges of both variants of exit policies will have to be assessed and managed, with an eye on the fact that the implementation and application of MP-plus policies is, as so often expressed by ECB President Mario Draghi, "unchartered territory", containing different kinds of risks for monetary policy decision makers.[9]

One of the major risks of exit for financial stability is an interest rate increase which comes in an *unexpected* fashion or has at least *materialized more rapidly* than expected, i.e. if the previous forward guidance was insufficient. The implications from this potential imperfection are of course larger for the longer end of the yield curve. It immediately follows that, as soon as the decision has been triggered to exit by tightening policies, central banks should engage in an anticipated and gradual increase in interest rates at the

[8] Note that Mario Draghi has again emphasised at the occasion of the ECB press conference on 5 December 2013 that official ECB rates will stay low for a longer time period. Taking this as a reference point, much time will probably elapse until the forward guidance rhetoric will change (current ECB projections for the inflation rate until 2015 amount to only 1.3 per cent). Hence, the focus of this briefing paper is on the Fed's and not on the ECB's tapering.

[9] See IMF (2010a) for a description of the principles underlying exit strategies.

benefit of markets, which would then have sufficient time to adjust. The main aim should be to avoid a disorderly increase in interest rates or even an interest rate overshooting (combined with an exchange rate overshooting) having the potential to lead to shifts in market sentiment. The latter may exacerbate any adjustment to the new macroeconomic and financial environment, even amplifying the risks elaborated upon further below (IMF, 2013b).

Many MP-plus policies implemented during the crisis have been unprecedented and activated now for a comparatively long period. Two preconditions are therefore more binding in the context of exit than during usual rate tightening cycles. First, exit strategies must be extremely well communicated to the relevant audience which above all consists of the financial markets and other central banks, but also of the general public in order to avoid conflicts within, for instance, the euro area between winners and losers from exit (Belke, 2013a). The risks derived below underscore the overwhelming significance of measures to restore the soundness of commercial banks and market liquidity as quick as possible to minimise negative side effects of an exit on financial stability (IMF, 2013b).

Let us now first compile the specific risks stemming from *increasing interest rates* (IMF, 2013b).

First, rate hikes will immediately impose capital losses on fixed-rate securities hold by commercial banks and other financial institutions. These losses have to be set against increasing net interest margins for banks which, in turn, will improve their profitability over time. Whereas banks which are only weakly capitalised could be hit, financial institutions with long-term liabilities, such as pension funds and other insurers, may profit. This is because a decrease in the net present value of their liabilities may offset the incurred capital losses (Belke, 2013).

Second, commercial banks may well perceive higher credit risk after the rate increase, because loan performance may become weaker. This is especially valid, if the rise will have been triggered by increase in inflation expectations instead of improved economic perspectives (Foerster, 2011).

Third, there may be external spillovers to other countries or markets, even in case of a one-time rate hike, if expectations of the path of future interest rates are shifted by this decision. The latter have the potential to trigger sudden and sometimes even disruptive financial flows among markets and countries (Foerster, 2011). The exact degree of disruption depends on, for instance, how strong the timing of the tightening process differs across central banks.

But there are risks emerging from *asset sales* as well (IMF, 2013b).

The first that comes to mind is the risk that these sales lead to "breaks" in market sentiments. In this case yields might increase sharply. If there is uncertainty surrounding the question of whether central banks are really willing to sell their huge government bonds (Belke, 2010) or other asset portfolios, this could lead to sudden jumps and, thus, more volatility in market sentiments as soon as the central bank actually sells its assets.

Secondly, imprecise policy timing – choosing the time of exit too early, say, before the prevailing financial market vulnerabilities are addressed, or too late – has the clear potential to disrupt the markets and enable dysfunction to resurface. This kind of risk is more virulent if central banks played the role of a market-maker or hold a large share of outstanding securities. However, this kind of argument is only valid IF there has been market dysfunction during the financial crisis (Belke, 2010) and it is underlined only IF persistent market malfunctioning is now veneered by central bank intervention (IMF, 2013b).

Thirdly, asset sales by central banks may also lead to funding challenges for commercial banks since a decline in banks' excess reserves typically represents the counterpart of the central bank's asset sales (Belke and Polleit, 2010). During the crisis the central banks disintermediated interbank liquidity though asset purchases and by this increasing banks' excess reserves. After an exit, this method of disintermediation must be compensated by revived private interbank markets. However, the assumption that these are fully restored by now is critical. Exactly for this reason, a couple of banks may be confronted with funding challenges as a consequence of the exit.

But what picture is emerging from estimated or calibrated empirical models? If only *simple* restrictions are imposed the model solution delivers a sequence of long-term interest rates which would follow only a one-time jump (Foerster, 2011, IMF, 2013). Simple restrictions imply that markets anticipate the timing of exit correctly, the central bank has clearly conveyed the future path of short-term rates to the public which assesses it compatible with the inflation target, and that the path of asset sales is deemed to be credible by the markets.

Looking at these rather simple models, simulating exit does not imply any significant increase in the volatility but only a one-time jump of long-term rates. Of course, a small amount of volatility would remain simply because central banks are unable to signal or commit to specific short-term rate beyond a certain horizon (IMF, 2013).

3.5. Bumpy ways to exit - the role of uncertainty

However, with the benefit of hindsight from other historical exit episodes, there are a couple of arguments indicating *increased volatility in long-term rates* triggered by exit in practice (IMF, 2013, Box 5). There is a lot of uncertainty around exit decisions and their consequences – in several dimensions (Belke, Goecke and Guenther, 2013). These uncertainties should certainly play a role for euro area policymakers when designing their reactions to the potential tapering by the Fed.

First, *forward guidance may be limited* which in turn adds *uncertainty to the subsequent policy rate path*. A reference to the old problem of time inconsistency of monetary policy announcements and its application to the uncertainty about the central bankers' future UMP plans are extremely helpful here (Kydland and Prescott, 1977). According to a typical pattern derived by this theoretical approach, central banks can be expected to keep interest rates lower for a longer than usual time span[10] and then consecutively strive to reach the usual interest rate path through tightening much quicker than in past cycles. One example supporting this view is the uncertainty prevailing in the markets in May and June 2013 after the announcements by Ben Bernanke on tapering. Although changes in forward guidance were completely absent, there was a sudden significant hike in expectations of short-term bond rates. Finally, concerns about the timing of exit themselves from institutions such as the IMF contribute to what econometricians call "noise" around short rate expectations (IMF, 2013).

Second, there is some *uncertainty* surrounding the *central bank's capability to absolutely control short-term market rates* throughout the whole exit phase. This is especially so with an eye on limited competition for funding in an environment of significant excess liquidity (IMF, 2013, Box 4). Although the IMF, for instance, hopes that monetary policy stays effective at the cost of being less predictable, this calls for parallel deployment of liquidity

[10] Remember that this has originally been a central argument coined in favour of the introduction of unconventional monetary policies.

absorbing instruments. However, if the latter prove to be insufficient, central banks must start with their asset sales earlier (IMF, 2013).

Third, the *impact of asset sales on prices* is *ambiguous* and technically *complex,* partly because there are announcement and sale effects. At least, this was one of the important lessons from the Securities Market Programme and the OMTs (Belke, 2010, Belke and Polleit, 2010). This directly leads U.S. to the recommendation that central bank communication should focus on an interest rate path instead of a specified quantity of sales (IMF, 2013).

A fourth issue is closely intertwined with the first three problems, may *reinforce them* and is related to r*ecent reductions in structural market liquidity.* As it is well-known from the theory of finance, price discovery is more difficult in such an environment. This in turn may result in a higher degree of market fragmentation and an increase in costs for credit because credit intermediation is reduced and financial conditions are tightened (IMF, 2013). Another consequence may be changes in the leverage and duration exposure of bond investors which in turn would reinforce the impact of higher interest rates and volatility.[11]

3.6. Risks from spillovers to non-UMP economies – some specifics

As stated above, it seems fair to expect a certain degree of capital flow reversal towards the exiting UMP economy, and also an increase in borrowing costs of the non-UMP country to a certain extent. However, we might see additional volatility in the wake of an exit. Whether the exit is well-managed by the unconventional monetary policy countries or not, does not play an overly large role here. Instead, it is the degree of market imperfections which matters and tends to be large in emerging market economies which have received a significant amount of capital inflows in the more recent past. These imperfections could amplify the rebalancing of portfolios away from countries abstaining from UMP caused by higher bond rates (Belke, 2013, Carstens, 2013).

If a re-pricing of risk takes place, this could lead to a run by those investors which hold speculative positions. Under the condition that these investors use short-term funding to be highly leveraged, these effects are even amplified. In addition, thin markets as typical of some emerging markets are catalysts for movements in prices. Moreover, they may trigger sale spirals. Finally, movements of asset prices may be reinforced if there is high foreign exchange exposure, since investors are keen on deleveraging and closing positions (IMF, 2013).

The financial system is an additional catalyst with an eye on the fact that during exit, non-performing loans may tend to rise, the capital buffers may thaw away and funding disappears. This, in turn, endangers financial stability. What is more, investors contemporaneously flee from emerging markets which may cause contagion effects which in turn reinforce asset price movements and capital outflows (Forbes and Rigobon, 2002). In this context a robust *asymmetry* in the degree of co-movement in capital flows is striking: co-movement was higher as a reaction to the Fed's recent tapering indications than in the wake of earlier announcements of asset purchases (for details see IMF, 2013f). This kind of asymmetry is a common property of stretched markets.[12]

[11] The IMF (2013g) and Stein (2013) investigate the pattern of market dynamics, especially in the bond market, in the exit process as well.

[12] IMF (2013), Box 6, demonstrates shock amplification caused by exit using a non-linear DSGE model. Policymakers also in the Euro area should be aware of an exit-generated bust more abrupt than the original boom which has generated the financial instability.

It is the *exposure* and *resilience* of those economies that do not run non-unconventional monetary policies which will be determining the effects of tapering in reality. The probability of capital outflows and thus market volatility, which set in once exit has started in those economies with unconventional monetary policies, is driven by the country exposure to shocks. A country's capability to cope with market volatility and the outflow of capital is equivalent to resilience in this context (2013, Box 7).

In order to determine which non-UMP countries appear more vulnerable than others (and would implement retaliation measures which in turn may hit the Eurozone), one should look at the country-specific realisations of the exposure and resilience indicators or – even better – at the combination of both (IMF, 2013f). As a stylised fact, countries such as Australia with its higher resilience and Canada and Korea with their lower exposure – all more developed countries – and also some emerging markets are supposed to deal with an U.S. exit in an orderly fashion without being impacted too much (Carstens, 2013, and IMF, 2013). We now turn to sound numerical assessments of the impact of the Fed's exit from UMP in 2014 on the euro area economy.

4. SPILLOVER EFFECTS FROM MONETARY POLICY NORMALISATION TO THE EURO AREA – IMF SIMULATIONS

The starting point of the simulation exercise is that U.S. monetary policy should become more restrictive, as soon as the U.S. economy is back on track - which is assumed to be the case in the 3rd quarter 2014. Both items trigger capital flows into the U.S. and an increase in interest rates across the world, which per se slows down world economic activity. But higher U.S. growth and exchange rate depreciation vis-à-vis the U.S. dollar let other countries profit, especially countries such as the euro area with significant export to the U.S. and equity markets which move upwards in close correlation with U.S. equities. Hence, the relative significance of each transmission channel and some idiosyncratic country conditions determine the net outcome for an economy such as the euro area (IMF, 2013a).

The IMF makes use of *two sorts of macroeconomic models*. First, it produces simulations that are based on their G35-S model, a *structural macro-econometric model* of the world economy. G35 means that the global economy is disaggregated into 35 separate economies (Vitek, 2013). It catches temporary transmission of shocks via real and financial spillovers. However, this model cannot grasp the spillovers effects emanating from persistent changes in key macroeconomic variables. Second, the IMF makes use of the Global Integrated Monetary and Fiscal Model (GIMF)[13] and the Flexible System of Global Models (FSGM) which are capable to do this. However, they exclude financial spillovers stemming from high correlation among risk premia and asset prices and, hence, tend to come up with a lower order of estimates of spillovers. Of course, the well-known caveats about impact analysis based on empirical models also apply here.

In any case, one should distinguish three different possible modes of exit (IMF, 2013a, IMF, 2013c, pp. 161ff.):[14] a) a "smooth growth-driven exit", b) a "growth-driven exit with complications" and c) an "exit without growth". The exit is assumed to start via endogenous or exogenous tightening in all three model variants in the third quarter of 2014. However, the different scenarios allow for *different ways of phasing out* from the UMPs.

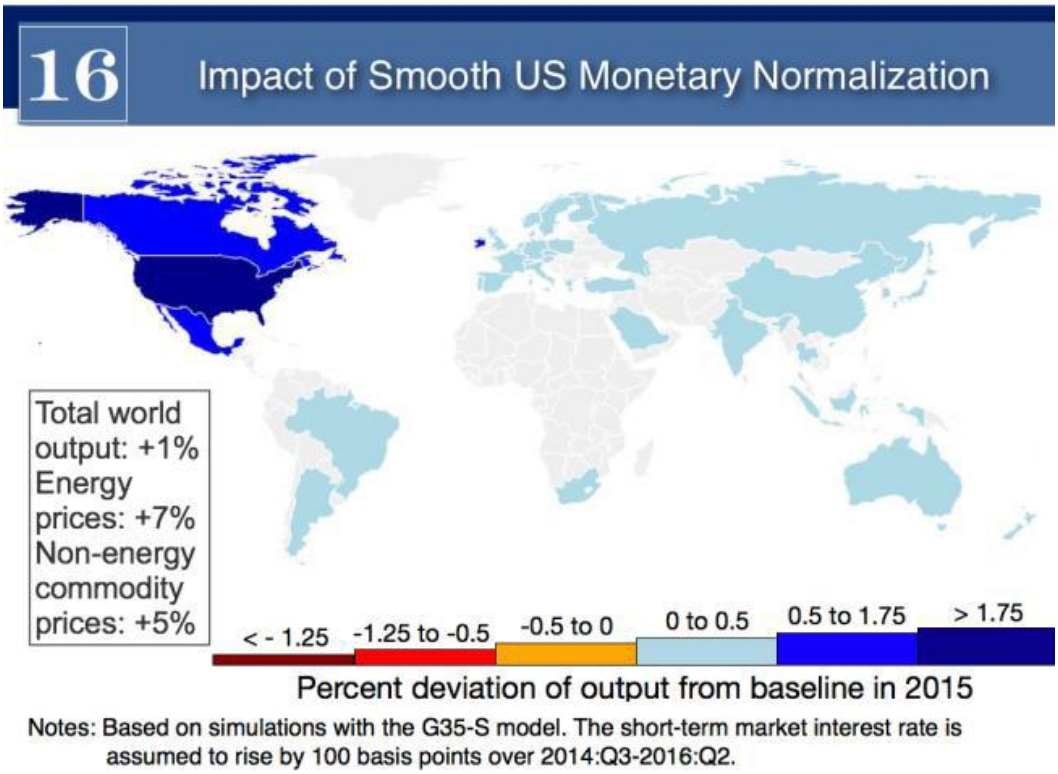
Let us now first turn to the scenario (a) of an endogenous "*smooth growth-driven exit*" (IMF, 2013a): a rise in short-term Fed interest rates by 100 basis points which comes faster and earlier than in the baseline scenario lets the standard expectations theory determine the long-term interest rate increase, because the shape of tightening is well anticipated by market agents. This enhances global output beyond the baseline (Fig. 1). Exit by the Fed lets all countries *benefit to a larger extent from additional growth than they are hit by a stricter monetary policy stance* (IMF, 2013a).[15] More specifically, the impact of U.S. exit on the euro area is 0.0 to 0.5 per cent deviation of output from baseline in 2015 (Fig. 1).

[13] GIMF denotes a multi-country dynamic structural general equilibrium model including optimising agents and a full inter-temporal stock-flow accounting. See Anderson et al. (2012) and Kumhof et al. (2010) and, as a point of reference, also Angeloni, Faia and Winkler (2011).

[14] For technical details see IMF (2013c), section IX. 25 and 26.

[15] This pattern corresponds with the IMF (2013e) FSGM simulation.

Figure 1: Impact of smooth U.S. monetary normalisation

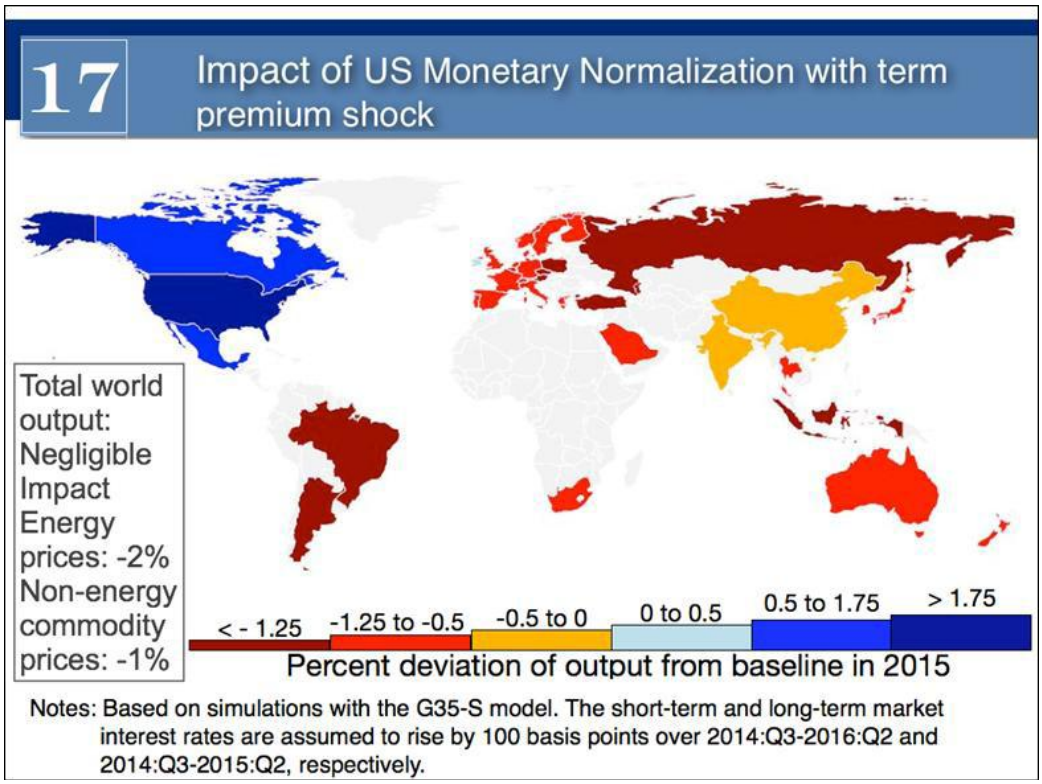


Source: IMF (2013a), p. 14.

We now consider the scenario (b) of a "*growth-driven exit with complications*" (IMF, 2013a). Now, long-term interest rates in the U.S. are not well anchored anymore and like the uncertainty indicator and "investors' fear gauge" VIX based on S&P 500 index options leap up as monetary policy is tightened. The fact that rates keep their level for quite a while, amplifies capital outflows from the remaining countries. However, these effects relate primarily to high risk countries. Except for countries with very strong trade linkages with the U.S., the outcome in terms of output would worsen.

Estimates of the impacts of Fed exit on the rest of the world including the euro area employing an G35-S simulation assume an identical short-term interest rate tightening as in the previous exercise, but additionally incorporating a shock consisting of an add on to long-term rates of 100 basis points for one year in the U.S. As a result, global growth turns out to be comparable to baseline growth (Fig. 2). However, for the economies whose trade is not as closely linked to the U.S., the exit-cost dominates the demand push from the U.S. and leads to an output fall below baseline. This is also valid for the euro area (Figure 2). The impact of U.S. exit on the Euro area turns out to be -1.25 to -0.5 per cent deviation of output from baseline in 2015. These orders of magnitude are corroborated by additional estimates gained from FSGM simulations (IMF, 2013a).

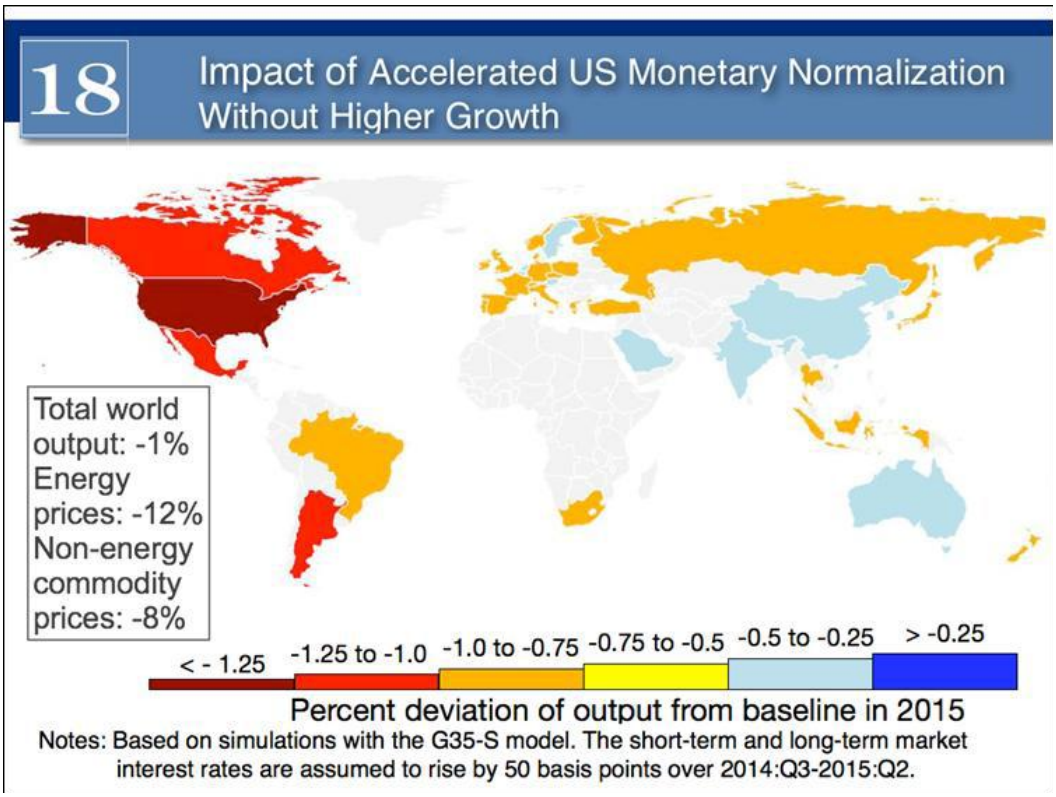
Figure 2: Impact of U.S. monetary normalisation with term premium shock



Source: IMF (2013a), p. 15.

Let us finally consider the scenario "*exit without growth*" (IMF, 2013a). This is a scenario where any growth momentum is absent and exit is conducted prematurely, with an eye on increasingly pressing financial risks. In this case, the tapering effects on output turn out to be negative on a worldwide scale. However, the IMF admits that these effects are less unpalatable than granting bubbles to emerge and then burst thereafter (IMF, 2013a, p. 16). Simulations using the IMF's G35-S model come up with the very bad scenario that the U.S. and the rest of the world suffer at an order of magnitude of several percentage points of growth. Figure 3 shows the world map of results of Fed exit for short- and long-term rates peaking at 50 basis points above the baseline for one year. The impact of U.S. exit on the euro area turns out to be -1.00 to -0.75 percent deviation of output from its baseline prevailing in 2015.

Figure 3: Impact of accelerated U.S. monetary normalisation without higher growth



Source: IMF (2013a), p. 15.

It is important to note that the IMF closely follows conceptual considerations but does not attach any probabilities to the different scenarios. But if one looks at the results under scenario c) it appears to be only a preliminary exercise because the Fed would not accept increasing unemployment figures after exit has started (Gerlach, 2013).

5. POLICY OPTIONS TO MINIMISE EXIT RISK

Policymakers dealing with non-unconventional monetary policies can choose between several policy options to cope with spillovers from (large) countries exiting from UMP. In section 2, this Briefing paper has assessed international policy coordination as a necessary, but not sufficient tool to minimise exit risk. A sufficient policy mix should also contain following elements.

The best proactive measures which can be taken by exit-affected economies such as the euro area are further progress to *strengthen the euro's fundamentals* as, above all, debt sustainability to make the euro area weatherproof and to enlarge room for maneuver later when also the ECB will exit from its UMP (IMF, 2013).

Another option to cope with the risk of exit also considered by the IMF is *tactical* outright *asset purchases*. Only recently, the U.S. Federal Reserve has indicated the possibility of tactical asset purchases if the volatility and overshooting in bond yields were severe and prices were departing too much from their fundamentals. However, the effectiveness of such an intervention to smoothen exit is known to be very low, unless yields are substantially misaligned, which can simply not be empirically corroborated in an unambiguous way as the current unresolved scientific debate about the OMTs demonstrates (Belke, 2009, 2010, IMF, 2013). In addition, there may not be a free lunch: costs of heavy and continuous interventions can be assumed to be high (Belke, 2010). Finally, tactical asset purchases bear the risk to confuse markets, in particular if the respective central bank in charge for exit is simultaneously lowering short-term rates and purchasing assets to suppress long-term yields.

As shown in section 3, exit periods are typically characterised by weakening or even reverting capital flows. Under these severe circumstances it is of utmost importance that central banks in exiting economies as well as in the non-exiting ones demonstrate credibility and excellent communication skills to convince markets that they strictly stick to low target inflation and financial stability. This would be of decisive importance to attenuate the "flight to quality" and the increases in risk premia going along with it (Belke, 2009, IMF, 2013). What is more, as stated in section 3, emphasis should be laid on letting exchange rates react to changes according to fundamentals.

As things stand, it seems as if the tool of choice to contain instability during the process of exit is *communication*,. Forward guidance, understood as a clarification of the actual Taylor reaction function of a central bank to the public, may be one important component of a successful communications strategy. The latter should also contain guiding principles for asset sales and explicitly discuss the risks to global recovery and stability from a too late exit versus exiting too early. As shown above, too much communication is less of a problem than insufficient communication, leading to shock-type surprises on the markets (IMF, 2013). According to the current economic outlook, it seems as if these principles will most probably be applied first to the Fed, but later on also for the ECB.

However, there is a non-zero probability that this normalisation will take longer than originally envisaged, at least if one follows Lawrence Summers' thesis of "secular stagnation". So there is the danger that UMP will become the „new normality" – in spite of all theoretical considerations presented in this Briefing paper. After all, one could observe a parallel negative trend in interest and inflation rates in the previous decades. As a consequence, it is quite natural that in times of crisis one arrives at the lower zero bound Further research may also focus even more on the interactions between fiscal and monetary policy exit (Belke, 2009, and Angeloni, Faia and Winkler, 2011) and their impact on the euro area.

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NOTES

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Tapering and exiting from present monetary policies

Guillermo DE LA DEHESA

NOTE

Abstract

ECB's tapering and exit strategies from the present loose monetary policy cannot be disentangled from the current fiscal adjustment needs in the euro area as fiscal consolidation is still necessary in most euro area Member States. There are major differences between macroeconomic policy in the US and in the euro area. The US is able to use both fiscal and monetary policy to counter the effect of symmetric and asymmetric shocks to the economy. By contrast, the euro area does not have a common fiscal policy and must therefore rely only on monetary policy as a stabilisation tool. The ECB overwhelming task is to counter the adverse effect symmetric shocks stemming from the euro area crisis as well as asymmetric shocks, chiefly related to fragmentation of financial markets along national borders. As a consequence, it will take longer for the euro area than for the US to recover from the crisis and therefore to adopt exit strategies.

CONTENTS

EXECUTIVE SUMMARY

- ECB's tapering and exiting from the present lax monetary policy cannot be disentangled from the current fiscal adjustment needs in the euro area, because fiscal consolidation is still necessary in most euro area Member States.
- There are major differences between macroeconomic policy in the US and in the euro area. The US is able to use both fiscal and monetary policy to counter the effect of symmetric and asymmetric shocks to the economy. By contrast, the euro area does not have a common fiscal policy and must therefore rely only on monetary policy as a stabilisation tool. The ECB is tasked to deal with both symmetric shocks stemming from the euro area crisis and asymmetric shocks, chiefly resulting from the large fragmentation of financial markets along national borders.
- As a consequence, it will take longer for the euro area than for the US to recover from the crisis as well as to taper and exit from current monetary policy stance. Given that the US Fed and the UK BOE will both taper and exit before the euro area, their currencies will appreciate against the euro, with beneficial effects in terms of competitiveness and growth.
- The best timing to taper and exit is usually difficult to predict but the stronger growth anticipated for the US and the UK compared to the euro area suggests that the both Fed and the BOE are likely to start "tapering" in 2014 and "exiting" in 2015 from their present "unconventional" monetary policies. By contrast, the ECB is likely to maintain the present "non-standard" monetary policies for longer and start "tapering" at the end of 2015 and "exiting" at the end of 2016.

MONETARY POLICY TRENDS

For more than two decades, "inflation targeting" has been the monetary policy strategy adopted by most central banks through the announcement of official target ranges for the inflation rate, at different time horizons. Inflation targeting entails the explicit acknowledgment by central banks that low and stable inflation is the overriding goal of monetary policy (B. Bernanke and F. Mishkin, 1997). This strategy has been using different variations of the Taylor rule (J.B.Taylor, 1985) as a way to allow central banks "constrained discretion" instead of the "ironclad" policy rule in the Friedman sense. Inflation targeting needs two requirements: central bank independence and an inflation threshold (or range) as the sole objective.

Nevertheless, with the worldwide financial crisis, inflation targeting has been somewhere between invisible and absent (A. Blinder (2013)). In many countries, inflation ran below target, in some others above. No one seemed to care much, although the long-run inflation targets remained intact at nominal anchors.

According to Blinder, since 2007, there are strong arguments arguing in favour of a re-"conceptualising" of the central bank's goals as a triad, i.e. low inflation, low unemployment and financial stability. The latter, however, is hard and almost impossible to capture in a number. He claims that the overnight interest rate has negligible effects on aggregate demand; the main effects of monetary policy on the economy are via intermediate and long-term rates, exchange rates and stock prices.

But the empirical failure of the expectations theory underlying the yield curve, which supposedly explains how central banks exercise influence over long interest rates, is a major headache for central bankers. According to Blinder, it has proven too difficult to shape the entire yield curve and therefore monetary policy should target only the overnight rate and the five-or ten-year rate. Quasi-arbitrage along the yield curve should do the rest.

The argument is strengthened by the fact that average inflation rates over the next, say, 50 years are likely to be lower than they have been over the previous 50 years. The likelihood of hitting the Zero Lower Bound (ZLB) on nominal short-term rates will therefore be higher, making it more difficult for monetary policy to stimulate the economy as the US experience has shown, with relevant implications also in terms of large social costs.

One way improve the situation would be for central banks to raise their inflation targets, thereby making possible to push down real interest rates, perhaps even into negative territory. Another way is to broaden the central bank's instrument list to include balance sheet policies like Quantitative Easing (QE).

In disagreement with Blinder, F. Mishkin (2013) argues that none of the lessons from the crisis in any way undermines support for central banks' adoption of a strong, credible commitment to stabilise inflation in the long run by announcing an explicit, numerical inflation objective. This does not preclude la possibility to pursue in a flexible manner policies aimed at stabilising output around its natural rate level also in the short run. According to Mishkin, Fed's commitment to do "whatever it takes" to minimise the effects of the massive negative shock to aggregate demand stemming from the financial crisis is totally in line with a flexible inflation-targeting regime. In addition, the availability of a credible nominal anchor for inflation targeting turns out extremely helpful when monetary policy needs to be extraordinarily accommodative so as to avert the effects of a financial crisis of this magnitude.

According to B. Coeuré (2013) three main developments took place during the crisis:

First, central banks collectively moved towards instruments that can effectively disentangle interest rate decisions from decisions concerning the size of their balance sheets. The ECB entered the crisis with a corridor system and an elastic operating framework which did not need much tweaking to offset shocks. Eventually, the ECB had to shift from a competitive auction system in which quantities are controlled by the central bank, to procedures of full-allotment whereby quantities are endogenously determined by banks' demand for credit and the overnight interest rate is allowed to drift to the floor.

Second, while most central banks have focused on quantitative easing and duration risk, the ECB has concentrated on liquidity risk, fully accommodating banks' demand for liquidity and expand the list of eligible collateral. In this way, banks could easily make their balance sheets more liquid and mobilise assets that had become scarcely tradable. The ECB took care of duration risk, indirectly, by replacing banks intermediate-maturity wholesale market borrowing with longer-term refinancing operations.

Third, while most central banks had to substitute for the sudden disruption of interbank market activity and became, de facto, the money market intermediary of last resort, the ECB policy was to enlarge the range of counterparties and accepted collateral.

That notwithstanding, several other issues still need to be resolved, including the size and degree of symmetry of the interest rate corridor; the duration and maturity of central bank operations; liquidity provision to banks; the assessment of banks' instruments to be accepted as collateral and the risk management implications associated to the changes in collateral policy.

As for interest rate corridor, the volatility of the ECB overnight rate fell markedly as the relevant portion of the corridor for daily market activity has shrunk, with the ceiling represented by the main refinancing operations rate and the floor by the deposit facility rate.

As for maturity duration of the central bank operations, it has been lengthened (from one week and three months duration) to include a much richer menu of maturities so as to better match longer-term borrowing needs.

As for liquidity provision of banks, the ECB moved from filling in the structural "liquidity deficit" of all the banks vis-á-vis the monetary authority to a system in which the central bank is, de facto, the market intermediary of "last" and sometimes "first" resort, reducing banks' incentives to trade liquidity in the market. The key function of markets is price discovery, but not when the price is pre-set by the central bank.

And, fourth, the collateral framework used for monetary policy has been reviewed.

These are the key features underlying ECB "non-standard" monetary policies, which have to be distinguished from Fed and BoE "unconventional" monetary policies. The main difference, between "unconventional" and "non-standard" monetary policies, is "sterilisation" or "not sterilisation" of central banks' purchases of financial assets: the US Fed (and the BOJ) did not sterilise asset purchases, while the ECB did. US Fed (and later BoJ) did not sterilise the purchases of financial assets because the interest rates was very close to or already at the Zero Lower Bound (ZLB), making conventional monetary ineffective.

Angeloni, Faia and Winkler (2011) estimate that the reversing of both fiscal and monetary policies implemented during the crisis will confront policy makers with very serious and enduring problems. Fiscal policy is at the centre of this challenge as public sector deficits and debt have expanded sharply in all developed countries, due to the working of

automatic stabilisers and the adoption of discretionary measures to support the financial, corporate and household sectors.

Monetary policy has also been expansive both through conventional and unconventional policies. Exiting the current expansionary monetary policy stance in the euro area entails a dilemma: delaying the exit helps the recovery and fiscal adjustment, but prolonged monetary expansion encourages excessive risk-taking in the financial sector.

1. THE ECB RECENT MONETARY POLICY MEASURES

The ECB policy interest rate is now close to the ZLB and the central bank might need to undertake "unconventional" monetary policies to escape from deflation. This is the reason why the ECB has recently decided to move to "forward guidance". In the introductory statement to ECB press of 5 December 2013, M. Draghi stated that *'the Governing Council confirmed its forward guidance that it continues to expect the key ECB interest rates to remain at present or lower levels for an extended period of time*'.[1]

After introducing "forward guidance" in July 2013, the ECB has lowered the "main refinancing operations" (MRO) rate by 25 basis points to 0.25 % and the rate of the "marginal lending facility" another 25 basis points to 0.75 %, keeping the deposit facility at 0.00 %. The ECB has also reiterated its 'commitment to conduct the main refinancing operations at fixed rate tender procedures with full allotment extending into 2015' to keep the MRO as fixed rate tender procedures with full allotment for as long as necessary. These important decisions were based on ECB regular monitoring the economic and financial situation, which is still characterised by subdued growth in real and credit aggregates and low inflation. Exiting form currently loose monetary policy is therefore not in the cards.

[1] https://www.ecb.europa.eu/press/pressconf/2013/html/is131205.en.html

2. "TAPERING" AND "EXITING"

The recent Geneva Report on the World Economy (September 2013), published jointly by the Centre for Economic Policy Research (CEPR) and the International Centre for Monetary and Banking Studies (ICMB) discussed issues related to tapering and exit strategies. Key speakers and discussants included A. Blinder, T.J. Jordan, D. Kohn, F. S. Mishkin, B. Coeuré and L. Bini-Smaghi.

The term "tapering" refers to the interruption of unconventional monetary policies and related expansion of central banks' balance sheets. The term "exiting" refers to the raise of policy interest rates and related portfolio adjustments of central banks' balance sheets.

It is not unusual for central banks to hold interest rates at a very low level for a while after they stop easing and before they start tightening. The first decision, i.e. interrupting portfolio expansion could well lead to the second, i.e. raising interest rates for a considerable period of time.

The timing of tapering and existing and the associated risks depend on both prevailing economic and financial conditions as well as on whether the central bank adopts forward guidance about policy rates. At least for issues must be addressed.

First, is it better to lean on the side of exiting too early to reduce inflation risks, or too late to reduce growth risks? Empirical evidence suggests that central banks are better at controlling inflation than at stimulating growth. Second, how to define central bank's objectives in the context of tapering/exiting strategies? One policy option is (standard) inflation targeting. Another is to weight also output growth as in the Fed case.

Third, how much weight should be attached to financial stability risks in a contest of very low policy rates? Prolonged periods of low short-term interest rates may induce financial intermediaries to take up excessive risks. An early exit would reduce those risks, but would also dampen growth and, perhaps, lead to deflation. It should be noted, however, that financial stability issues are better addressed by regulation and supervision rather than by conventional or unconventional monetary policy.

Fourth, what could be the implications of an early exit for global financial markets? As exit from unconventional policies would occur at different times and at different rates, the lack of coordination across jurisdictions is likely to result in enhanced volatility of both interest rates and exchange rates as well as spillover effects across jurisdictions. As national central banks are unlikely to take much care of the negative externalities generated by their policies, regulation and monetary policy coordination at the global level is warranted. Timely communication of central banks' strategies is also key.

3. EXIT STRATEGIES

The standard exit from loose monetary policy is the raise of central bank's policy rates. However, a central bank may also decide to change the reserves requirements. There is a certain degree of trade-off between selling securities and raising short-term rates, because holding on to the portfolio and keeping long-term interest rates from rising too much, implies a need to raise short-term rates sooner and faster to achieve the same macroeconomic results.

The effectiveness of any exit strategy will also depend on the sequencing of the various steps. Sequencing means a flexible approach, should actual developments fall short of expectations. If the central bank's plan is a return to conventional monetary policy by rising interest rates, this should be communicated clearly to reduce uncertainty.

4. POTENTIAL IMPLICATIONS OF EXIT FOR FINANCIAL STABILITY

Unconventional policies tend to generate a number of distortions in financial markets, which could potentially unwind in a disorderly way once interest rates begin to rise (Kohn (2013)).

First, long-term interest rates - currently very low - could rise very substantially as market participants anticipate a rise in policy rates, imposing considerable capital losses to bond holders. As interest rates go up borrowers are worse off while lenders benefit. But the distribution of gains and losses within the financial system will be difficult assess, since it will depend not only on who is holding the securities but also on how these securities have been hedged.

There are, however, a number of mitigating factors related to exit risks: the rise in rates will take place in a strengthening economy; supervisors have increased and improved their scrutiny of maturity transformation; bank capital requirements are being strengthened so as to better cope with unexpected losses; financial authorities are paying increased attention to the regulation of money markets funds.

5. POTENTIAL IMPLICATIONS OF EXIT FOR THE GOVERNMENT AND THE CENTRAL BANK

Low nominal rates have reduced the funding cost of governments (alleviating long-term debt sustainability issues). Moreover, central banks' purchase of long-term government securities have reduced the quantity of higher yielding long-term debt in the hands of the public, rising central banks' profits as well as remittances to the treasury. As exiting from current policy means a reversal of these effects, concerns may arise that increasing government debt-to-income ratios undermine confidence or the ability of governments to meet their obligations. This would put the central bank in a no-win situation whereby it has to choose between letting government to default on its debt or tolerating higher inflation by purchasing government debt (so-called "fiscal dominance").

Therefore, central banks should address these concerns and emphasise the need to re-establish the divide between fiscal and monetary policies. In a nutshell, a high degree of central bank independence will be a prerequisite for a successful exit.

According to Bini-Smaghi (2013) it is not just coordination between fiscal and monetary authorities which is at stake. Coordination among financial regulators is also key, because exiting from unconventional monetary policies will have significant effects on the balance sheet of the financial sector which must be adequately capitalised *before* an exit strategy is implemented. He suggests an early tightening of fiscal policy in order to generate a government primary surplus to be used as a buffer against higher central bank interest rates and risks of instability for debt to GDP ratio.

6. ECB'S VIEW ON EXIT

According to Coeuré (2013), exit strategies pose risks to financial stability, as the current environment of low yields and reduced volatility challenges the ability of the financial sector to properly accommodate interest rate risk.

The exit could be associated with a steepening of the yield curve as expectations of low short-term rates are reversed and central banks reduce their holdings of long-term securities. Uncertainty on the path of exit from unconventional monetary policies may trigger a rise in volatility at the long end of the yield curve, which may expose banks and investors to substantial losses.

But, at the same time, delaying the exit could also entail risks to financial stability, by inducing a further build-up in financial liabilities and exposures which make the exit already challenging in the current environment. A protracted period of low interest rates and ample liquidity could compromise the market mechanisms in efficiently allocating resources, encouraging the roll-over of loans to non-profitable businesses and weakening incentives for balance sheet repair. Low interest rates over a prolonged time period might raise the possibility of sudden shifts in market expectations and significant re-pricing of risks once indications of monetary policy tightening materialise.

These risks should also not be overestimated, however as exit from current monetary policy stance is likely to take place in an environment where credit has recovered and macroeconomic risks have receded, making the financial sector more robust to interest rate shocks. Yet, monetary policy-authorities have to be aware of these challenges and need to guard against the risk of "financial dominance" by sticking to their respective mandate. The ECB mandate on price stability provides a clear guideline that, so far, has proved to be very effective in anchoring inflation expectations. And the prominent role given to money and credit developments in the ECB strategy ensures a more symmetric reaction to financial forces over the cycle. At the same time, it is important that central banks continue to monitor closely inflation expectations. The ECB has a full battery of instruments at its disposal to ensure a smooth exit, should risks to medium term price stability materialise.

7. WHY ECB'S MONETARY POLICY IS DIFFERENT FROM THAT OF OTHER KEY CENTRAL BANKS AND MORE DIFFICULT TO IMPLEMENT?

The lack of a single euro area fiscal policy, forces ECB's monetary policy to respond also to asymmetric (either sectoral or country-specific) shocks, vividly represented by financial market fragmented along national borders. For instance, core euro area countries are benefitting from significant lower financing costs compared to the euro area periphery

This has implications for ECB monetary policy and exit strategies. The ECB is likely to keep its present loose monetary policy stance for a longer period than the Fed for three main reasons: first, US Fed tapering and exiting will strengthen the dollar (weaken the euro), making euro area exports more competitive, thus supporting growth. The same would happen in case of BOE exit. Second, the ECB faces the additional problem that its monetary policy remains not accommodative enough for some Member States, while probably is too accommodative for others. Third, GDP growth is foreseen to be stronger in the US (and the UK) compared to the euro area.

8. MONETARY POLICY WILL NEVER BE THE SAME

According to O. Blanchard (2013), "monetary policy will never be the same" for several reasons. First, keeping your house in order pays off when there is an external crisis. For instance, in contrast to previous episodes, emerging markets adopted wise fiscal policy *before the crisis* which has created room to pursue countercyclical fiscal policies *during the crisis.*

Second, after a financial crisis, it is essential to rapidly clean up and recapitalise the banks, as it happened in the US, because a recovery needs the support of bank credit and market finance. Japan did not do it in the 1990's and ended suffering a prolonged recession.

Third, the main issues for monetary policy today concern the implications of falling into a liquidity trap, the provision of liquidity and the management of capital flows.

On the liquidity trap, it has been painful to discover that the "zero lower bound" can indeed be binding for a more extended period than initially thought. On a more positive side, there are still plenty of instruments for monetary policy beyond the managing of the policy rate. Evidence suggests that unconventional monetary policy can systematically affect the term premia, and thus, shape the yield curve through portfolio effects. Its effects on the real economy are more disputable though.

There is a wide agreement, that it would be good if inflation was higher today. To be more concrete, if inflation had been two percentage points higher before the crisis, the best guess is that it would be two percentage points higher today and the real rate would be two percentage points lower and we would probably be close to in the US to an exit from close to zero nominal rates today.

We should not dismiss the possibility, that we may need negative interest rates for long time. Countries could in principle achieve negative rates through low nominal rates and a moderate inflation. Instead, we are still facing today the danger of an adverse "feedback loop", in which, depressed demand leads to lower inflation, lower inflation leads to higher real rates and higher real rates lead, in turn, to even a more depressed demand.

Turning to liquidity provision, in advanced countries but, again, the lesson is more general, we have learned that "runs" are relevant, not only for banks, but also for financial institutions and for governments. In an environment of high public debt, rollover risks cannot be excluded. As emphasised by P. Krugman, it is essential to have a lender of last resort ready to lend, not only to banks and financial institutions, but also to governments. The evidence on periphery sovereign bonds in the euro area, pre and post the ECB's announcement of the outright monetary transactions (OMT) programme is quite convincing in this regard.

Finally, turning to capital flows, in emerging markets and more general, in small advanced economies, the evidence suggest that that the best way to deal with volatile capital flows is by letting the exchange rate to absorb most, but not necessarily all, of the adjustment. The standard argument for letting the exchange rate adjust was stated by Krugman. If investors want to take their funds out, let them: the exchange rate will depreciate and this will lead to an increase in exports and an increase in output.

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DIRECTORATE-GENERAL FOR INTERNAL POLICIES

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ECONOMIC AND SCIENTIFIC POLICY

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