



DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICIES

Crisis Response of Central Banks – the ECB Policy in Comparison to the Policy of the FED and the Bank of England

NOTE

Abstract

This briefing paper is structured as follows. Section 1 compares the responses of the various central banks: the European Central Bank (ECB), the Federal Reserve System (FED) and the Bank of England (BoE). Section 2 discusses the balance sheet effects of the ECB, the FED and the BoE. Section 3 analyses the consequences of the responses for the interest rates (policy, short term and long term) of these central bank in real terms. Section 4 discusses the possible exit strategy for the ECB and concludes.

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1. INTRODUCTION

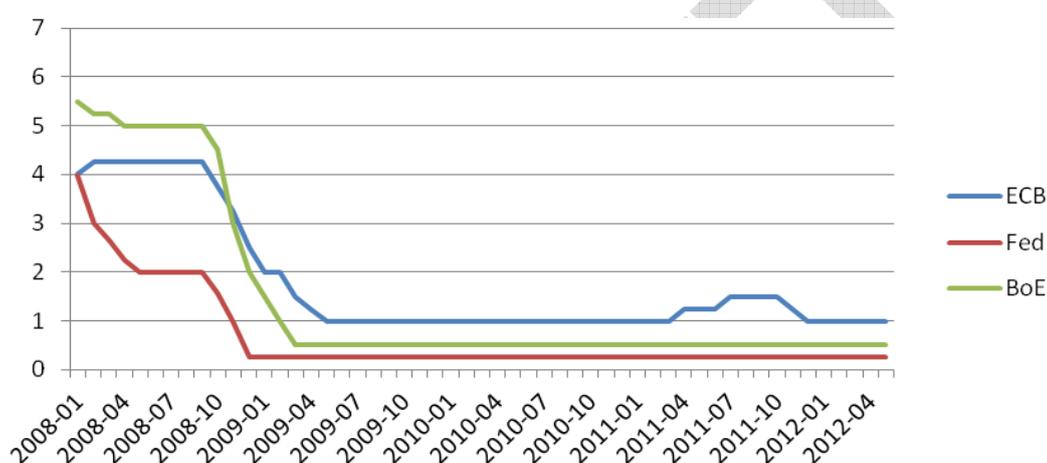
This briefing paper is structured as follows. Section 1 compares the responses of the various central banks: the European Central Bank (ECB), the Federal Reserve System (FED) and the Bank of England (BoE). Section 2 discusses the balance sheet effects of the ECB, the FED and the BoE. Section 3 analyses the consequences of the responses for the interest rates (policy, short term and long term) of these central bank in real terms. Section 4 discusses the possible exit strategy for the ECB and concludes.

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2. COMPARING THE RESPONSES OF THE VARIOUS CENTRAL BANKS

The European Central Bank (ECB), the Federal Reserve System (FED) and the Bank of England (BoE) have each reacted to the crisis in their own way. However, one action they have all taken is lowering the interest rate. As we can see in figure 1, the FED was the first major central bank to significantly lower the interest rate, from 4% to 2 % in response to the subprime crisis, and from 2% to nearly zero (the FED now employs a range of 0 to 0.25%) after Lehman's collapse. The BoE and the ECB did not lower their rates substantially until Lehman, but decreased them to 0.5% (BoE) and 1% (ECB) quickly thereafter.

Figure 1: Policy rate evolution 2008-2012



Source: European Central Bank, Federal Reserve System, Bank of England

Note: This graph represents the policy rates as set by the respective central banks. This process is not continuous; instead, the rates only change when the central bank monetary policy committee decides to change them

As decreasing the interest rate to such low levels meant that the so-called zero lower bound (ZLB) was reached, the central banks had to resort to non-standard or unconventional monetary policy measures. These responses differed in both magnitude and composition. Table 1 below provides a summary of the actions taken by the ECB, FED and BoE respectively. At first glance it appears that the ECB and the FED have done much more than the BoE to withstand the financial crisis. In absolute terms this is indeed the case, but we will see later that, relative to GDP, the ECB has done less than the BoE.

Regarding the decisiveness of the respective central banks we observe that the FED has acted most boldly, at the end of 2008 and the beginning of 2009, by purchasing large amounts of Mortgage-Backed Securities (MBS), US government debt and debt of the Government Sponsored Enterprises (GSEs) Fannie Mae and Freddie Mac. The ECB has, in 2008 and 2009, mainly broadened access to liquidity by accepting additional collateral and by switching to fixed rate, full allotment refinancing. This means that the rate at which liquidity can be obtained at the ECB is fixed, while all bidding banks are certain of receiving the funds provided they can put up collateral of sufficient quality. The BoE, finally, has set up a Special Liquidity Scheme (SLS) in 2008, allowing banks could swap their (high quality) MBS and other assets for UK Treasury bills. Additionally, it has extended the maturity of its discount lending.

Table 1: Summary of unconventional monetary policy measures since 2008

European Central Bank¹		
<i>Date</i>	<i>Action</i>	<i>Effect/amount</i>
September 2008	Start of special term refinancing operations	Ongoing
October 2008	Switch to fixed rate, full allotment refinancing	Ongoing
June 2009	Long Term Refinancing Operation, 1 year maturity	EUR 442 bn
July 2009 – June 2010	Covered Bond Purchase Programme 1	EUR 60 bn
October 2009	Long Term Refinancing Operation, 1 year maturity	EUR 75 bn
December 2009	Long Term Refinancing Operation, 1 year maturity	EUR 97 bn
May 2010	Securities Markets Programme	Decided by Governing Council
October 2011	Long Term Refinancing Operation, 1 year maturity	EUR 57 bn
November 2011	Covered Bond Purchase Programme 2	EUR 40 bn
December 2011	Long Term Refinancing Operation, 3 year maturity Loosening collateral requirements Reducing reserve requirements from 2% to 1%	EUR 489 bn
February 2012	Long Term Refinancing Operation, 3 year maturity	EUR 530 bn
Federal Reserve System²		
<i>Date</i>	<i>Action</i>	<i>Effect/amount</i>
December 2007 – March 2010	Term Auction Facility (TAF): liquidity auction under loosened collateral requirements	1 month loans of varying sizes
November 2008	Purchase \$ 100 bn Government Sponsored Enterprises' debt, and \$ 500 bn Mortgage Backed Securities (MBS)	USD 600 bn
March 2009 – June 2010	Term Asset-Backed Securities Loan Facility (TALF): similar to TAF, but collateralized by ABS	Longer term loans of varying sizes
January 2009 – March 2010	-Expansion of GSE debt purchasing programme to: -Expansion of MBS purchasing programme to: -Purchasing \$ 300 bn of longer term Treasury securities	USD 200 bn USD 1,250 bn USD 300 bn
November 2010	Additional purchases of longer term Treasury securities	USD 600 bn
September 2011	Extending average maturity of Treasury holdings by selling short term (<3y) and purchasing long term (6-30y) Treasury securities. Also called "Operation Twist".	USD 400 bn (gross, USD 0 net)

Source: ECB and FED

¹ Timeline of the financial crisis, ECB, <http://www.ecb.int/ecb/html/crisis.en.html>, retrieved 12-06-2012.

² The Federal Reserve System's response to the crisis http://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm, retrieved 12-06-2012.

Table 1: Summary of unconventional monetary policy measures since 2008 (continued)

Bank of England³		
<i>Date</i>	<i>Action</i>	<i>Effect/amount</i>
April 2008 – January 2009	Special Liquidity Scheme (SLS): banks swap high quality ABS for UK Treasury Bills. Fully closed January 2012	£GBP 185 bn
January 2009	Extended maturity of discount window	Ongoing
March – November 2009	Quantitative easing: purchase of mainly Gilts, UK government debt	£GBP 200 bn
October 2011	Additional purchases of Gilts	£GBP 75 bn
February 2012	Additional purchases of Gilts	£GBP 50 bn

Source: Bank of England

During the course of the crisis, all central banks have engaged in some form of quantitative easing. The ECB has done this by its Covered Bond Purchase Programmes (CBPP), its Securities Markets Programme (SMP) and its Long Term Refinancing Operations (LTROs). The LTROs have contributed most to the increase in liquidity in the euro area, especially in December 2011 and February 2012. The FED has purchased, as mentioned above, mainly MBS and Treasury securities. Treasury bonds have been the focus of the second round of quantitative easing and Operation Twist, in which no new bonds were purchased but shorter maturity securities were traded for longer maturity ones. In the UK the BoE has also purchased mainly government debt (Gilts) to provide liquidity to the financial system.

Of course, the central banks did not operate on their own. As banks and financial markets are internationally connected, effects from policy in one region are expected to spill over to other parts of the world. However, the cooperation between the respective central banks was limited to currency swap arrangements. Immediately after Lehman's collapse, the FED, the ECB, the BoE and other large central banks agreed to provide liquidity in exchange for decent collateral to foreign banks operating in their jurisdiction. These arrangements have been in place since.

³ Quantitative easing explained, Bank of England, <http://www.bankofengland.co.uk/monetarypolicy/Pages/qe/default.aspx>, retrieved 12-06-2012.

3. BALANCE SHEET EFFECTS OF ECB, FED AND BOE

The refinancing and quantitative easing operations have increased the size of the respective central bank balance sheets tremendously. As Pisani-Ferry and Wolff (2012) show in their note prepared for the April 2012 Monetary Dialogue, relative to (2007) GDP especially the BoE's balance sheet enlarged very quickly to more than 20% after Lehman. Unlike the FED, the BoE has shrunk its balance sheet (to about 12% of GDP) soon thereafter. Another observation is that the ECB's balance sheet has not risen as quickly as those of the BoE and the FED, until in 2011 liquidity again dried up and the ECB started engaging in more LTRO financing. To illustrate this, we can see from the figures in Pisani-Ferry and Wolff (2012)⁴ that the last 2 LTROs alone (in December 2011 and February 2012) have increased the ECBs balance sheet by 3 %-points of GDP.

In sum, the ECB's balance sheet increased by less than the FED's or the BoE's. However, the composition of the ECB's balance sheet was quite different: instead of (long term) government debt, it assumed much more (short term) liquid repo debt. Pisani-Ferry and Wolff (2012) have summarized the asset composition of the major central bank balance sheets quite comprehensively. The most striking observation from the figures in their paper is that the ECB's assets consist mainly of repurchase agreements, but the FED's and BoE's assets consist primarily of government debt. In other words: the ECB has assisted banks with refinancing operations in exchange for collateral (mostly government debt), while the FED and BoE have purchased these government securities outright. This difference in policy is a direct consequence of the Maastricht Treaty's stipulation that the ECB cannot finance government debt.

On the liability side of the balance sheet all three central banks have experienced a surge in deposits by financial institutions (mainly banks), as their respective balance sheets indicate.⁵ This indicates that the interbank market is not functioning well in Europe, the US or the UK. If it was, banks would be lending to other banks instead of parking their money with the central bank. Pisani-Ferry and Wolff (2012) stress that the euro area has additional problems: banks in southern Europe received much more refinancing liquidity than those from the north, banks in southern Europe hold government securities instead of extending credit to the real economy and the LTROs have affected the yield curve much more heavily for distressed bond issuers than for AAA issuers.

⁴ Pisani-Ferry, Jean and Guntram Wolff (2012), "Non-Standard Policy Measures - a First Assessment", Note prepared for the April 2012 Monetary Dialogue with the ECB.

⁵ ECB: <http://sdw.ecb.europa.eu/browse.do?node=bbn129>,
FED: http://www.FEDeralreserve.gov/monetarypolicy/bst_recenttrends.htm,
BoE: <http://www.bankofengland.co.uk/markets/Pages/balancesheet/default.aspx>.

4. CONSEQUENCES FOR INTEREST RATES IN REAL TERMS

Injecting large amounts of liquidity into the system inevitably leads to lower interest rates, especially in the short term. What matters for the real economy, though, is the real cost of borrowing. Thus, we have to take into account the effect that the respective central bank's actions have had on inflation as measured by the Consumer Price Index (CPI) in the US and UK or the Harmonised Index of Consumer Prices (HICP) in the euro area and, consequently, on real interest rates.

Figures 6, 7 and 8 visualize the development of the policy rates of the central banks, the short term rates (3 month) and the long term rates (10 year) in real terms. We can observe that all real policy rates have been consistently negative since 2010, while the FED funds rate was already negative after the subprime crisis. This rate has also been very volatile, mainly due to volatile inflation. As the ECB was relatively late in cutting interest rates its refinancing rate has been positive until January 2010, but as it cut the refinancing rate to 1% and inflation has been quite high recently the real refinancing rate has been negative since. The real BoE policy rate turned negative halfway through 2008 and has stayed below zero until now.

The market rates have followed a similar pattern. Especially in the United States the short term rate has followed the policy rate quite closely. Furthermore, figure 7 shows that from January 2010 onward all short term real rates have also been negative. Long term rates, however, paint a different picture. They have been positive for most of the crisis period. European long term yields are still positive. However, this may also reflect a significant risk premium on government bond yields. In any case, during 2011 both the US and the UK long term real rates have turned significantly negative due to low nominal rates and relatively high inflation.

These developments imply that, at the moment, borrowing on financial markets is very cheap in real terms. This is a dangerous development, as there will be no incentive to deleverage as long as rates are so low. Taking into account that the world economy is still heavily indebted, this is a worrying development. Moreover, none of the major central banks has devised a clear exit strategy yet. This means that the originally one-off unconventional measures have become structural and permanent.

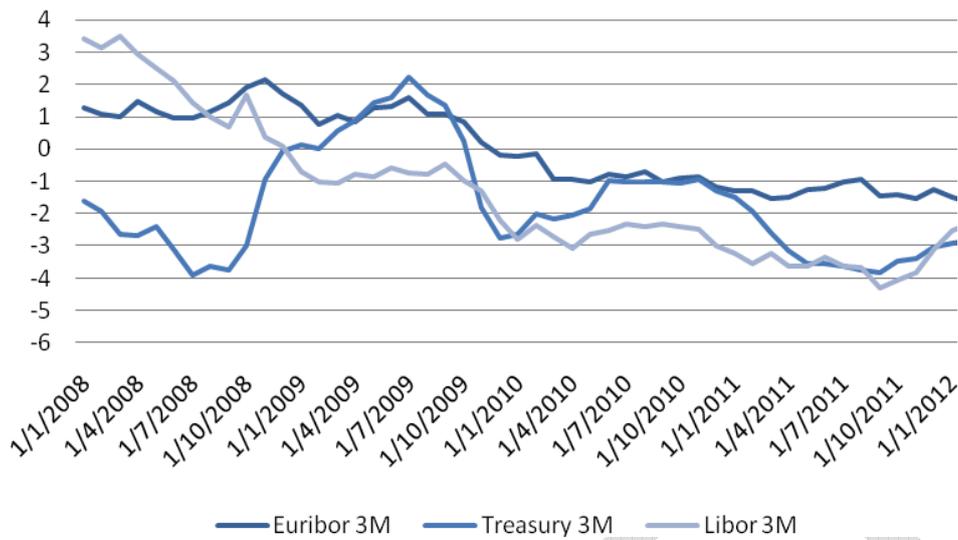
Figure 2: Policy rates in real terms



Source: ECB, FED, BoE and Eurostat

Note: Real policy rates are calculated by subtracting inflation, as measured by the CPI (US/UK) or HICP (euro area), from nominal policy rates. The data frequency is monthly

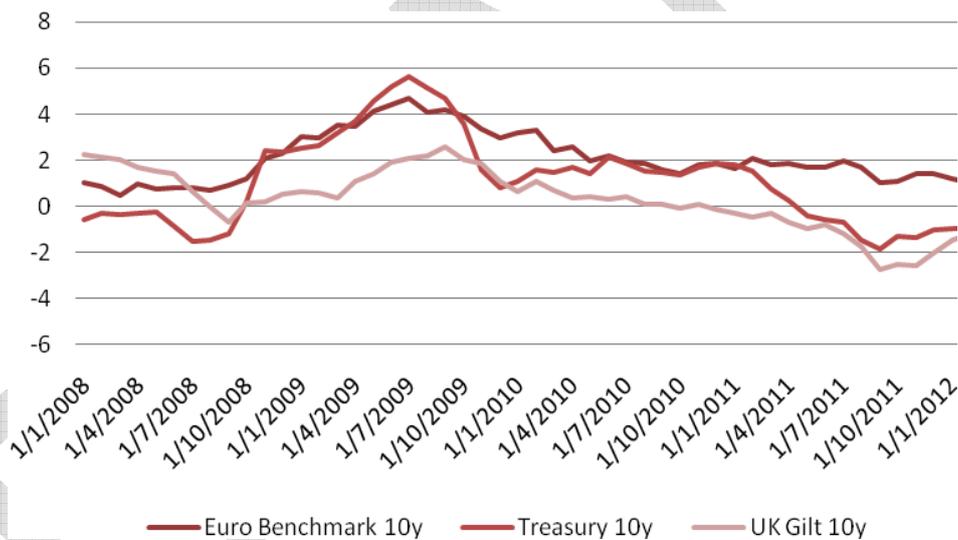
Figure 3: Short term rates in real terms (3 month)



Source: ECB, FED, BoE and Eurostat

Note: Real short term rates are calculated by subtracting inflation, as measured by the CPI (US/UK) or HICP (euro area), from nominal 3 month (interbank) rates. The data frequency is monthly

Figure 4: Long term rates in real terms (10 year)



Source: ECB, FED, OECD and Eurostat

Note: Real long term rates are calculated by subtracting inflation, as measured by the CPI (US/UK) or HICP (euro area), from nominal 10 year government bond yields. The data frequency is monthly

5. CONCLUSION: WHERE IS THE EXIT?⁶

The major central banks have reacted to the financial crisis in quite similar ways. They have all lowered their interest rates substantially, although the ECB has done this at a later point in time than the FED or the BoE. Furthermore, all three major central banks have engaged in some form of quantitative easing. While the FED and the BoE have done this by purchasing government bonds and asset-backed securities outright, the ECB has provided liquidity against collateral consisting mainly of government bonds.

These unconventional measures have led to an increase in the size of all central bank balance sheets, although their composition is different. While the balance sheets of the FED and the BoE now contain chiefly government assets, the ECB balance sheet shows that the bulk of its assets consists of repo transactions. On the liability side, all central banks have experienced a major increase in deposits by financial institutions. This indicates that interbank markets are still not functioning properly.

Additionally, the major decreases in interest rates have made borrowing very cheap in real terms. Relatively high inflation has also contributed to this. Especially short term rates are deeply negative, which means that deleveraging will be very unlikely. Why would economic agents want to deleverage if they are paid to borrow? Furthermore, this situation is expected to continue into the near future, as none of the major central banks has devised a clear exit strategy as of yet.

The ECB has been put in a difficult position due to the crisis. Views about the appropriate response to the crisis differ greatly within the Governing Council, while Council members may find themselves taking a national perspective rather than a euro area one. Another problem is that the recent unconventional measures lead to a further segmentation of euro area financial markets and, ultimately, renationalization of monetary policy.

A plan for an orderly exit of these measures is of utmost importance for the ECB. However, if it moves too early, it may create serious financial instability. If it moves too late, inflation may go up significantly. The ECB should strike a careful balance between these two.

The greatest challenge in devising an exit strategy is probably the different degrees to which euro area members fulfill the convergence criteria; this is not likely to change soon. Therefore, I propose that instead of the current inflation measure the ECB should use euro area inflation *corrected for the impact of convergence measures*. This rate should be kept this inflation below, but close to 2%. Undoubtedly this will make monetary policy more complicated and possibly also less transparent, which can be partly addressed by publishing the methodology for correcting inflation for the impact of convergence measures.

If having a more complicated monetary policy strategy is what it takes to address the differences in convergence, then this is a sacrifice the ECB has to make. We can already see the first signs of the current interest rate being too low for Germany, i.e. as housing prices have been rising by 5.5% on an annual basis. The ECB Governing Council therefore has to take up this issue as soon as possible.

⁶ This section is based on: Sylvester Eijffinger and Lex Hoogduin (2012), "The European Central Bank in (the) Crisis", CESifo DICE Report, Vol. 10, No. 1, pp. 32-38.

REFERENCES

- Bank of England, "Quantitative easing explained", <http://www.bankofengland.co.uk/monetarypolicy/Pages/qe/default.aspx>.
- Eijffinger, Sylvester and Lex Hoogduin (2012), "The European Central Bank in (the) Crisis", CESifo DICE Report, Vol. 10, No. 1, pp. 32-38.
- European Central Bank, "Timeline of the financial crisis", <http://www.ecb.int/ecb/html/crisis.en.html>.
- FEDeral Reserve System, "The FEDeral Reserve's response to the crisis", http://www.FEDeralreserve.gov/monetarypolicy/bst_crisisresponse.htm.
- Pisani-Ferry, Jean and Guntram Wolff (2012), "Non-Standard Policy Measures - a First Assessment", Note prepared for the April 2012 Monetary Dialogue with the ECB

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