

Unconventional Monetary Policy

Recap

- Differences between conventional and unconventional ?
- Tools for conventional MP
 - RRR
 - Discount Rate
 - Federal Funds Target
 - Interest on excess reserves

Why the need for unconventional policy?

- The economy may hit a full-scale financial crisis, conventional policies may not be effective
 - Financial system breakdown: unable to allocate capital to productive uses leading to economic collapse
 - Zero-Lower-Bound Problem: central bank unable to lower short-term interest rates further.
 - (known also as “pushing on a string”)

Non-conventional tools

- Liquidity provision
- Asset Purchases
- Commitment to future monetary policy actions

Lender of last resort

- Or during the financial meltdown: lender of only resort!!
- Liquidity provision: The Federal Reserve implemented unprecedented increases in its lending facilities to provide liquidity to the financial markets
 - Discount Window Expansion
 - August 2007, the fed lowered the discount rate to 50 basis points above the Fed Funds Target Rate from the usual 100 bps
 - March 2008, the discount rate is lowered further to 25 bps over the target rate
 - Its use created “stigma” since it shows desperation from the borrowing banks , therefore its use was rather limited during the crisis
 - Term Auction Facility
 - Dec 2007, Fed made loans at a rate determined by auctions. The rate set is much lower than the penalty rate set by the discount window.
 - The amount started out at \$20 bn then the total outstanding is about 400 bn as the crisis worsened
 - New Lending Programs
 - Lending to promote purchases of commercial paper, MBS and other ABS
 - Fed also lent to JP morgan to buy Bear Stearns and to AIG to prevent failure
 - TAF, TSLF, PDCF, AMLF, MMIFF, CPFF, TALF (consult page 427 in Mishkin)

Asset Purchase

- During the crisis the Fed started two new asset purchase programs to lower interest rates for particular types of credit: Government Sponsored Entities Purchase Program; QE2, QE3 (open-ended)
- Key difference is normal OMOs involve only short-term government securities (Treasury bills)
- Nov 2008, the Fed set up a QE1 to buy 1.25 trillion of MBS by GSE(government sponsored entity) like Fannie Mae, Freddie Mac. Why?
- Nov 2010, Fed to purchase 600 billion of long-term Treasury Securities at a rate of 75 bn per month .(QE2) intended to lower long term interest rates,

Why the need for lower long term rates?

- Although short-term rate hit zero, but long-term rates were deemed too high .
- Since investment projects have long horizons, long-term interest rates are more crucial to investment and spending decisions.

Large-Scale Asset Purchase Programs

- **QE1**
- From **December 2008 to August 2010**, to help reduce the cost and increase the availability of credit for the purchase of houses, the Federal Reserve purchased \$175 billion in direct obligations of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. In addition, from January 2009 to August 2010, the Federal Reserve purchased \$1.25 trillion in mortgage-backed securities (MBS) guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae.
- From **March 2009 to October 2009**, the Federal Reserve purchased \$300 billion of longer-term Treasury securities to help improve conditions in private credit markets.
- **QE2**
- From **November 2010 to June 2011**, the Federal Reserve further expanded its holdings by purchasing an additional \$600 billion of longer-term Treasury securities.
- **QE3 (QE infinity)**
- Starting in September 2012, the Federal Reserve further increased policy accommodation by purchasing additional MBS at a pace of \$40 billion per month.
- Starting in January 2013, the Federal Reserve began purchasing longer-term Treasury securities at a pace of \$45 billion per month, following the completion of the maturity extension program in December 2012.
- **QE Tapering**
- In December 2013, the Federal Reserve announced that it would modestly slow the pace of additional MBS and longer-term Treasury securities purchases and would likely further reduce the pace of asset purchases in measured steps if incoming information broadly shows ongoing improvement in labor market conditions and inflation moving back toward the FOMC's 2 percent longer-run objective. Since December 2013, the Federal Reserve has announced further measured reductions in the pace of asset purchases.

Quantitative Easing **VS** Credit Easing

- Expansion of CB balance sheet is known as QE
- QE led to a huge increase of monetary base
- Theoretically that ought to lead to an expansion in Money supply * TRUE?*
- Expansion of CB balance sheet and MB could not lead to any lowering of Fed Funds rate
- Bernanke saw that QE failed to stimulate Japan's economy and further, Japan could not avoid deflation

- Bernanke, instead, called QE “credit easing”
- Credit easing is aimed at altering the composition of the fed balance sheet in order to improve the functioning of the particular segments of the credit markets
 - CE unfreeze a particular segment of the markets
 - Decline in long-term rates of about 100 bps from CE

- What is Quantitative Easing

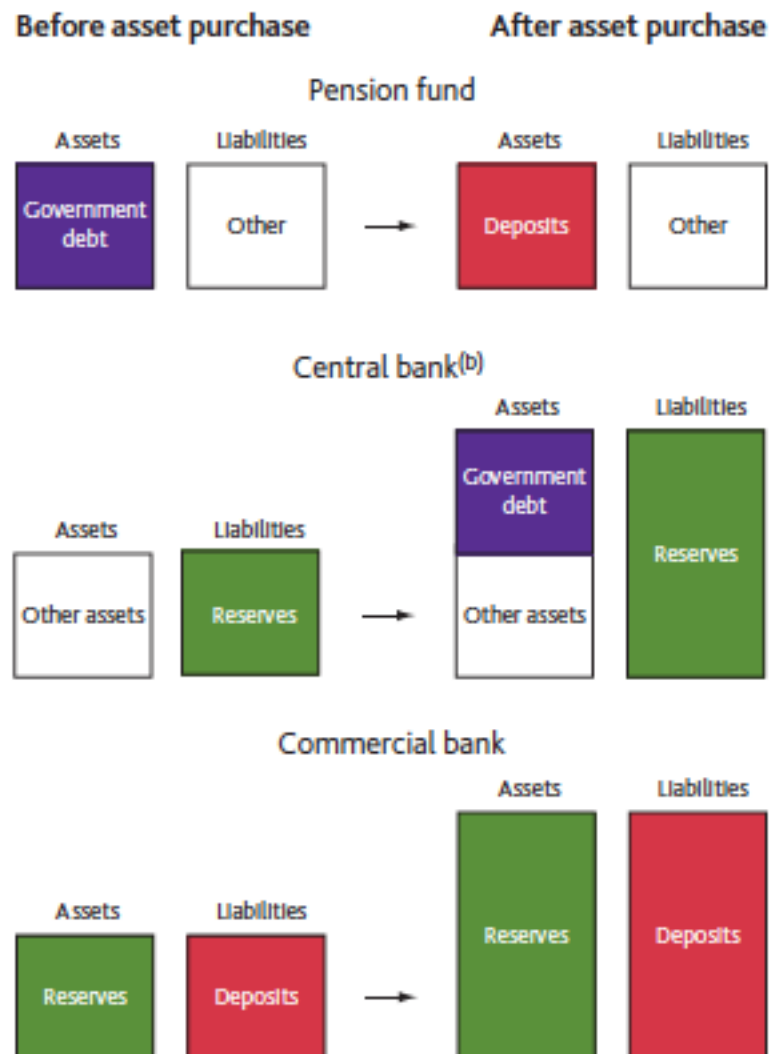
QE — creating broad money directly with monetary policy

The previous section discussed how monetary policy can be seen as the ultimate *limit* to money creation by commercial banks. But commercial banks could alternatively create too little money to be consistent with the economy meeting the inflation target. In normal times, the MPC can respond by lowering the policy rate to encourage more lending and hence more money creation. But, in response to the financial crisis, the MPC cut Bank Rate to 0.5% — the so-called effective lower bound.

Once short-term interest rates reach the effective lower bound, it is not possible for the central bank to provide further stimulus to the economy by lowering the rate at which reserves are remunerated.⁽⁹⁾ One possible way of providing further monetary stimulus to the economy is through a programme of asset purchases (QE). Like reductions in Bank

QE involves a shift in the focus of monetary policy to the quantity of money: the central bank purchases a quantity of assets, financed by the creation of broad money and a corresponding increase in the amount of central bank reserves. The sellers of the assets will be left holding the newly created deposits in place of government bonds. They will be likely to be holding more money than they would like, relative to other assets that they wish to hold. They will therefore want to rebalance their portfolios, for example by using the new deposits to buy higher-yielding assets such as bonds and shares issued by companies — leading to the 'hot potato' effect discussed earlier. This will raise the value of those assets and lower the cost to companies of raising funds in these markets. That, in turn, should lead to higher spending in the economy.⁽¹⁾ The way in which QE works therefore differs from two common misconceptions about central bank asset purchases: that QE involves giving banks 'free money'; and that the key aim of QE is to increase bank lending by providing more reserves to the banking system, as might be described by the money multiplier theory. This section explains the relationship between money and QE and dispels these misconceptions.

Figure 3 Impact of QE on balance sheets^(a)



- (a) Balance sheets are highly stylised for ease of exposition: quantities of assets and liabilities shown do not correspond to the quantities actually held by those sectors. The figure only shows assets and liabilities relevant to the transaction.
- (b) Government debt is actually purchased by the Bank of England's Asset Purchase Facility using a loan from the Bank of England, so does not actually appear directly on the Bank's official consolidated balance sheet.

Two misconceptions about how QE works

Why the extra reserves are not 'free money' for banks

While the central bank's asset purchases involve — and affect — commercial banks' balance sheets, the primary role of those banks is as an *intermediary* to facilitate the transaction between the central bank and the pension fund. The additional reserves shown in Figure 3 are simply a by-product of this transaction. It is sometimes argued that, because they are assets held by commercial banks that earn interest, these reserves represent 'free money' for banks. While banks do earn interest on the newly created reserves, QE also creates an accompanying liability for the bank in the form of the pension fund's deposit, which the bank will itself typically have to pay interest on. In other words, QE leaves banks with both a new IOU *from* the central bank but also a new, equally sized IOU *to* consumers (in this case, the pension fund), and the interest rates on both of these depend on Bank Rate.

Why the extra reserves are not multiplied up into new loans and broad money

As discussed earlier, the transmission mechanism of QE relies on the effects of the newly created broad — rather than base — money. The start of that transmission is the creation of

bank deposits on the asset holder's balance sheet in the place of government debt (Figure 3, first row). Importantly, the reserves created in the banking sector (Figure 3, third row) do not play a central role. This is because, as explained earlier, banks cannot directly lend out reserves. Reserves are an IOU from the central bank to commercial banks. Those banks can use them to make payments to each other, but they cannot 'lend' them on to consumers in the economy, who do not hold reserves accounts. When banks make additional loans they are matched by extra deposits — the amount of reserves does not change.

Moreover, the new reserves are not mechanically multiplied up into new loans and new deposits as predicted by the money multiplier theory. QE boosts broad money without directly leading to, or requiring, an increase in lending. While the first leg of the money multiplier theory does hold during QE — the monetary stance mechanically determines the quantity of reserves — the newly created reserves do not, by themselves, meaningfully change the incentives for the banks to create new broad money by lending. It is possible that QE might indirectly affect the incentives facing banks to make new loans, for example by reducing their funding costs, or by increasing the quantity of credit by boosting activity.⁽¹⁾ But equally, QE could lead to companies repaying bank credit, if they were to issue more bonds or equity and use those funds

to repay bank loans. On balance, it is therefore possible for QE to increase or to reduce the amount of bank lending in the economy. However these channels were not expected to be key parts of its transmission: instead, QE works by circumventing the banking sector, aiming to increase private sector spending directly.⁽²⁾

Are you hip or square ?

- The Fed loved music
- [twist dance craze](#)

Operation Twist(1961)

- Maturity Extension Program and Reinvestment Policy
- Operation Twist (2011 , 50 years after the the original twist)
Under the maturity extension program, **the Federal Reserve sold or redeemed a total of \$667 billion of shorter-term Treasury securities and used the proceeds to buy longer-term Treasury securities, thereby extending the average maturity of the securities in the Federal Reserve's portfolio.**
- By putting downward pressure on longer-term interest rates, the maturity extension program was intended to contribute to a broad easing in financial market conditions and provide support for the economic recovery. The Federal Open Market Committee (FOMC) announced a \$400 billion program in **September 2011** that was to be completed by the end of June 2012.
- Operation twist again 😊
- **In June 2012**, the FOMC continued the program through the end of 2012, resulting in the purchase, as well as the sale and redemption, of an additional \$267 billion in Treasury securities.

FOMC Slows Pace of Additional Asset Purchases

- On June 18, 2014, and on July 30, 2014, the Federal Open Market Committee (FOMC) announced that in light of the cumulative progress toward maximum employment and the improvement in the outlook for labor market conditions since the inception of the current asset purchase program, the Committee decided to make further measured reductions in the pace of its asset purchases. Following these two announcements, beginning in August the Committee will add to its holdings of agency mortgage-backed securities (MBS) at a pace of \$10 billion per month and will add to its holdings of longer-term Treasury securities at a pace of \$15 billion per month. Additional information is available at www.federalreserve.gov/newsevents/press/monetary/20140618a.htm and www.federalreserve.gov/newsevents/press/monetary/20140730a.htm.

Table 1. Assets, liabilities, and capital of the Federal Reserve System

Billions of dollars

Item	Current July 30, 2014	Change from April 30, 2014	Change from July 31, 2013
Total assets	4,407	+111	+835
Selected assets			
Securities held outright	4,137	+110	+841
U.S. Treasury securities ¹	2,420	+70	+438
Federal agency debt securities ¹	42	-3	-24
Mortgage-backed securities ²	1,674	+42	+427
Memo: Overnight securities lending ³	8	-4	+
Memo: Net commitments to purchase mortgage-backed securities ⁴	62	+12	-27
Unamortized premiums on securities held outright ⁵	209	-1	+5
Unamortized discounts on securities held outright ⁵	-19	-1	-15
Lending to depository institutions ⁶	*	+	+
Central bank liquidity swaps ⁷	*	-*	-1
Lending through the Term Asset-Backed Securities Loan Facility (TALF) ⁸	*	-*	-*
Net portfolio holdings of TALF LLC ⁹	*	-*	-*
Support for specific institutions ¹⁰	2	+	+
Net portfolio holdings of Maiden Lane LLC ¹⁰	2	+	+
Net portfolio holdings of Maiden Lane II LLC ¹⁰	*	-*	-*
Net portfolio holdings of Maiden Lane III LLC ¹⁰	*	-*	-*
Foreign currency denominated assets ¹¹	24	-1	-*

Table 2. Domestic SOMA securities holdings

Billions of dollars

Security type	Total par value as of July 30, 2014	Total par value as of April 30, 2014
U.S. Treasury bills	0	0
U.S. Treasury notes and bonds, nominal	2,307	2,240
U.S. Treasury notes and bonds, inflation-indexed ¹	114	110
Federal agency debt securities ²	42	45
MBS ³	1,674	1,632
Total SOMA securities holdings	4,137	4,027

Note: Unaudited. Components may not sum to total because of rounding. Does not include investments denominated in foreign currencies or unsettled transactions.

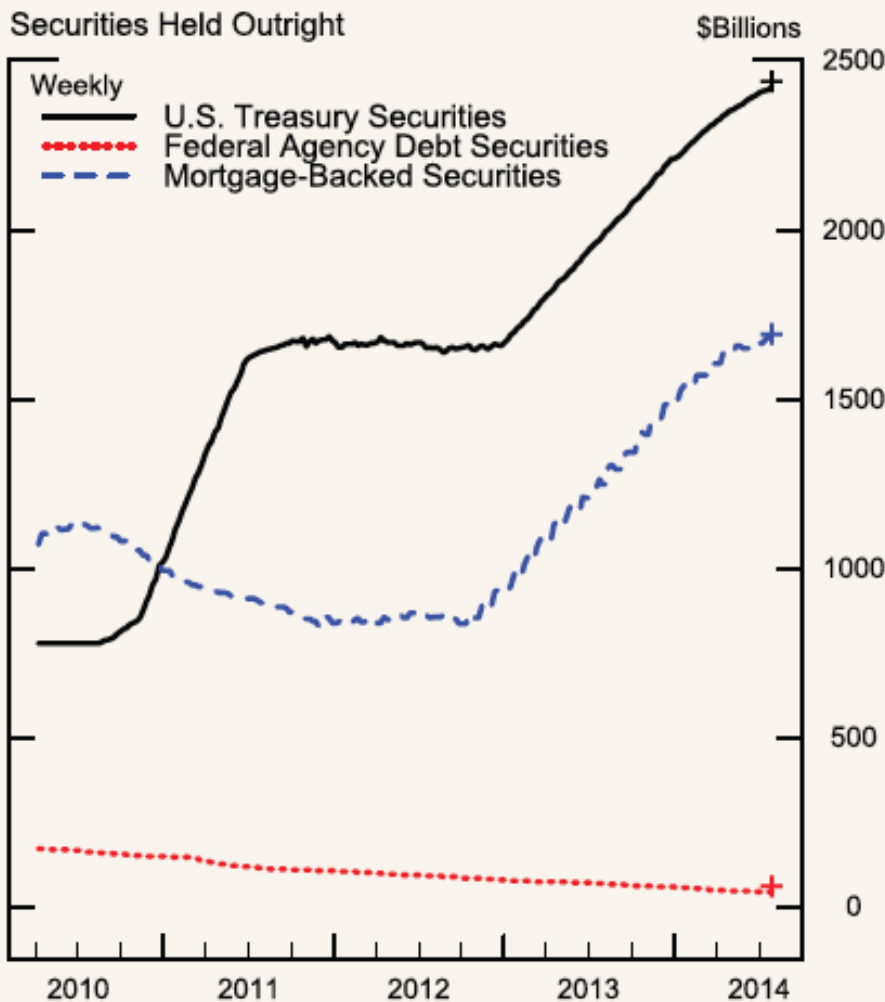
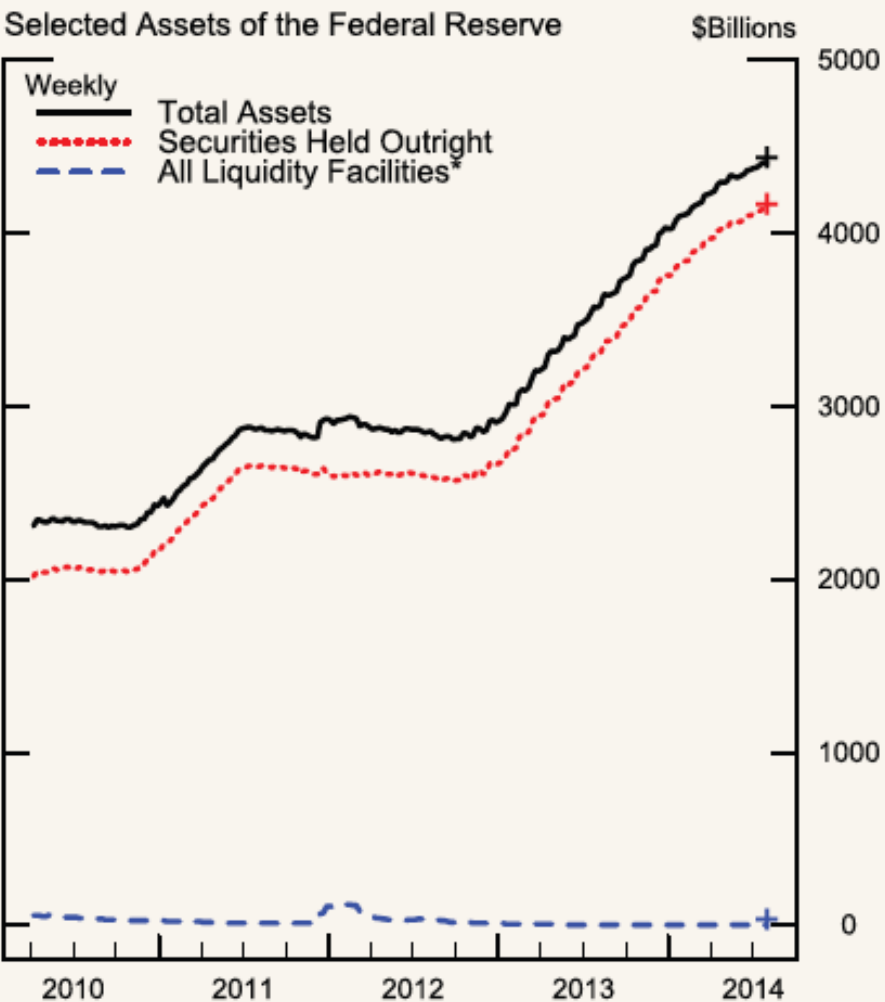
¹ Includes inflation compensation.

² Direct obligations of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks.

³ Guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae. Current face value of the securities, which is the remaining principal balance of the securities.

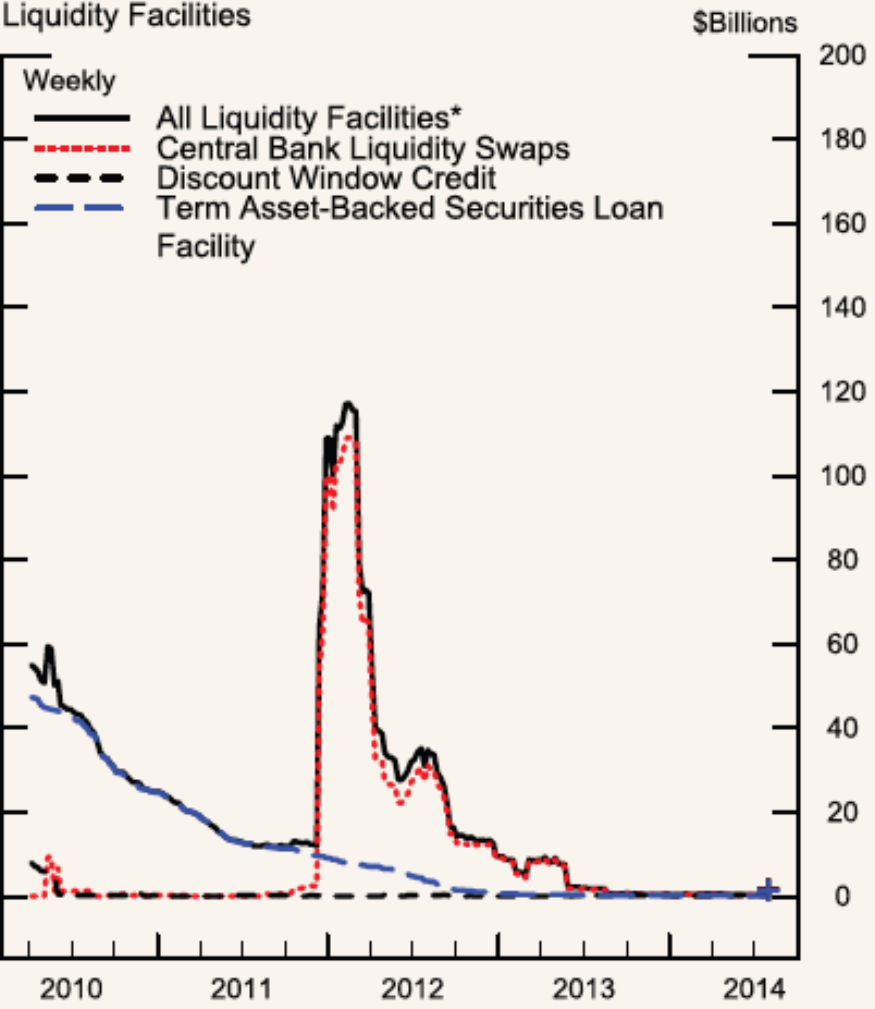
Total liabilities	4,350	+110	+834
Selected liabilities			
Federal Reserve notes in circulation	1,242	+13	+88
Reverse repurchase agreements ¹²	229	-97	+138
Foreign official and international accounts ¹²	113	-4	+22
Others ¹²	116	-92	+116
Term deposits held by depository institutions	0	0	-12
Other deposits held by depository institutions	2,786	+271	+665
U.S. Treasury, general account	70	-78	-40
Other deposits ¹³	10	+3	+1
Total capital	56	+*	+1

Figure 1. Credit and liquidity programs and the Federal Reserve's balance sheet

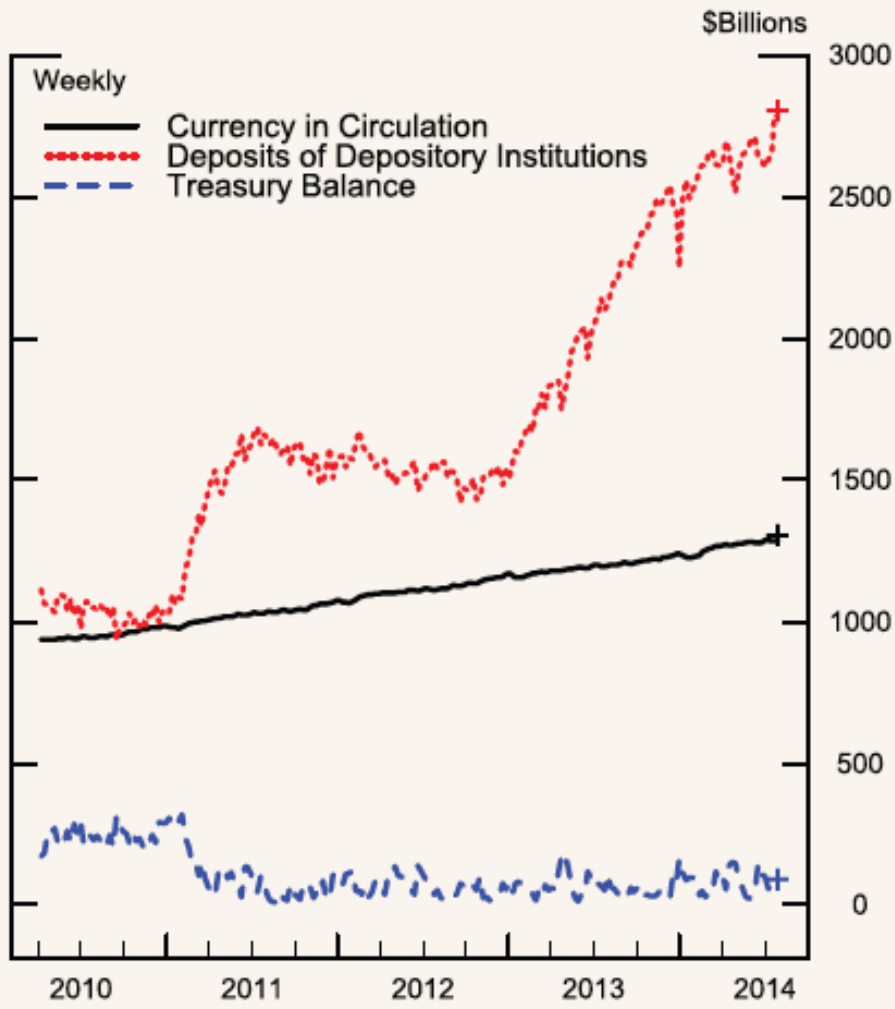


Note: On a settlement basis rather than a commitment basis.

Credit Extended through Federal Reserve
Liquidity Facilities



Selected Liabilities of the Federal Reserve



+ indicates most recent data point. Data are shown through 7/30/2014.
* All Liquidity Facilities includes primary credit, secondary credit, seasonal credit, Term Asset-Backed Securities Loan Facility, and central bank liquidity swaps.

Non-conventional tools(Recap)

- Liquidity provision (quantity)
- Asset Purchases (quantity)
- Commitment to future monetary policy actions (???)

Commitment to future actions

- A commitment to keep the fed funds rate at zero for a long period of time.
 - (recall the expectations theory of the term structure of interest rates)
 - By committing to hold the Fed funds rate low for an extended period, the Fed could lower the market's expectations of future short-term rates thereby causing the long-term rate to fall
 - Michael Woodford referred to this strategy as **management of expectations**.

- Dec 2008, the Fed announced its target for fed funds rate to be between zero and 0.25%
- In addition, the committee anticipates that weak economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time”
- The Fed continued to use this language in its FOMC statements for several years afterwards.

- In August 2011, the Fed even committed the low rate to an actual date Mid 2013!!
- Though we saw that long-term rates fell, but it's hard to attribute that to just the Fed's attempt to manage expectations versus weak economy (and European Debt crisis, QE, etc)
- Commitment could be conditional or unconditional.

- Conditional – low rate dependent on the state of the economy
- Unconditional- stronger commitment to hold rates low without indicating the rationale behind the decision or what economic conditions would change the status quo
- Example in 2003 , deflation was a serious threat and the FOMC maintains that the policy accommodation could be maintained for a considerable period.
- This may have led the fed to be “behind the curve”
- Too little too late could have contributed to the housing bubbles in 2007-2008

Forward guidance

- [Q&A forward guidance](#)

- **Isn't that what Quantitative Easing is supposed to be for?**
- QE also seeks to reduce longer-term borrowing costs, but in a different way.

- **Then why not just rely on QE?**
- There is no either/or here. The Bank of England can restart its QE purchases if it wants, while also providing forward guidance about its interest rate and QE plans.
- However, recent market jitters over plans by the Federal Reserve (the Bank's US counterpart) to "taper" or slow down the rate of its own QE purchases has highlighted two problems with QE:
 - Firstly, it has played on fears, expressed by many bankers, that QE merely inflates bubbles in the prices of other investments, such as risky loans and share prices, which will then burst as soon as the QE stimulus is withdrawn
 - Secondly, the surprisingly strong reaction of markets to the change in tone from the Federal Reserve highlights how important market expectations- as opposed to the mechanics of supply and demand - are for the effectiveness of QE

- **How did the original version of forward guidance look?**
- In August, the Bank told the market that it intended to keep the Bank rate at its current historically low 0.5%, at least until the unemployment rate fell to 7% or below.
- Mr Carney did not say that interest rates will automatically rise when that threshold is reached, rather that it is a "way station" for further consideration of the issue.
- The Bank also added some conditions that would "knock out" forward guidance. These included any sign of runaway inflation, or threats to financial stability.

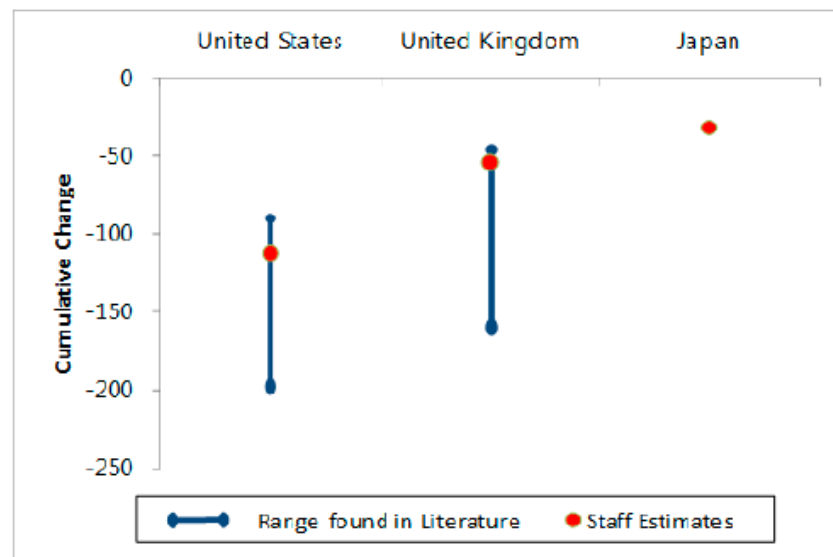
- **So what has happened since the summer?**
- In Mr Carney's own words: "The unemployment rate has fallen much faster than anticipated... and is likely to reach 7% by the spring."
- This jobs growth has meant that the Bank has had to take a fresh look at its forward guidance policy
- As a result Mr Carney said that, instead of just the unemployment rate, the next phase of the Bank's interest rate policy would be determined by a range of different indicators. These included aspects such as the output gap - the gap between potential and actual output - and broad terms such as income and spending.
- **All this has made the policy somewhat more confusing.**
- However, Mr Carney argues that the change in policy has come because forward guidance is working and has helped to secure growth.

- **Any other chances of any other changes?**
- Whatever the Bank promises, it will always have the right to change its mind later. Indeed, Mr Carney did exactly this in his time at the Canadian central bank, breaking an earlier promise not to raise interest rates for at least a year.
- This inability to tie its own hands presents the Bank with a conundrum - how to convince markets today to believe promises that in the future it may be strongly tempted to renege upon.
- The economist Paul Krugman has dubbed it "**credibly promising to be irresponsible**", while other financial bloggers have likened the problem to "**Jedi mind tricks**".

Summary

- Unconventional MP effective?
 - Objective
 - 1) to restore the functioning of the financial market and intermediation
 - 2) to provide further monetary accommodation after the ZLB is reached
 - Overall, the UMP effectively restored the financial markets and removed tail risks and also lowered long term rates and credit spreads

Figure 1. Cumulative Effects of Bond Purchases on 10-Year Government Bonds



ources: Literature (see Appendix Table 2), Bloomberg and staff calculations. Note, some estimates for the range are derived visually from graphs. Some papers study changes in bond prices over a two-day window following announcements; staff estimates consider a one day window.
