Unwinding: A Tale of Corridors and Floors

Monetary policy in market economies has been extraordinary by historical standards for almost a decade. Following the 2008 financial crisis, central banks throughout the world expanded their balance sheets, in some cases by a factor of four or more. Historically, central banks purchased safe assets. Beginning in 2009, they began to purchase risky assets, a policy that would have struck fear in the hearts of their prudent predecessors. Central bankers are now considering a return to more normal times, a task they refer to as 'unwinding'. How should unwinding be accomplished? This article discusses the options.

Two questions I ask and answer are first: should the Bank of England continue with its current policy of paying interest on reserves and flooding the system with liquidity? This is called a 'floor system'. Or should it revert to its former policy of paying zero interest on reserves and restricting domestic credit to control the interest rate? This called a 'corridor system'. And second: should the Bank retain long-dated and risky assets on its balance sheet? Or should it revert to a traditional policy of holding only safe assets?

The Bank of England has at least six distinct policy tools at its disposal. Three of these tools have been used for centuries: Three are new. The six tools are:

1. The Required Reserve Ratio. This is the fraction of its liabilities that a commercial bank is required to hold as reserves with the Bank of England. From 1971 through 1980 the required reserve ratio was 1.5%. From 1981 through 2009, commercial banks set their own individual reserve targets. Since 2009, the required reserve ratio in the UK has been equal to zero.
2. The Penalty Rate. This is the interest rate at which the Bank of England is willing to lend to commercial banks. Because this rate is higher than the rate at which commercial banks borrow from each other in the inter-bank market, I refer to it as $R^{Penalty}$.
3. High Powered Money. This is the quantity of notes in circulation plus the reserves of commercial banks with the Bank of England. The Bank changes high powered money through operations in the inter-bank money market.

   Tools 1 through 3 have been used to operate monetary policy in market economies since the inception of central banking in the seventeenth century. Tools 4 through 6 are new.

4. The Reserve Rate. This is the interest rate paid by the Bank of England on reserves of commercial banks held on deposit with the Bank of England. Historically, this rate was zero but, after the 2008 financial crisis, it is positive and it is potentially now a separate tool of Bank policy.
5. Risk Composition. Historically the Bank of England held only very safe assets; predominantly short duration treasury liabilities. After the 2008 financial crisis the Bank

purchased treasury assets of longer duration. It also bailed out commercial banks by accepting risky assets of uncertain value in return for lending them money.

6. Forward Guidance. This refers to the communication strategy of the Bank and it emerged as a topic of interest when a prominent academic (Woodford 2012) suggested that the method by which the Bank communicates its policy to the public can be used as an independent tool to manage expectations. It is my personal opinion that this tool is useful as a means of communicating the views of central bankers to the public but it is unlikely to be effective as an independent tool unless backed up by active asset market intervention in some more concrete form.

Historically the Bank operated by paying zero interest on reserves and it influenced the interest rate in the inter-bank market by collateralized borrowing or lending. Under this operating system, the Bank lends money to a commercial bank for a short period in the "repo market", accepting private assets as collateral. The commercial bank agrees to repurchase the collateral at a predetermined price at a date in the future that may vary between one day and several weeks. By varying the scope of its activities in this market the Bank of England influences the quantity of liquid funds available to the commercial banking system.

Monetary Policy in a Corridor System

Figure 1, plots central bank liabilities on the horizontal axis and the interest rate in the interbank market on the vertical axis.[1] The downward sloping curve is the demand for reserves by commercial banks: It slopes down because a prudent commercial bank will choose to hold excess reserves as a precaution to allow for unforeseen contingencies (Keister and McAndrews 2008). The inter-bank rate is the opportunity cost of precautionary reserves. The demand-for-reserves slopes down because, as the opportunity cost of precautionary reserves increases, the demand for these reserves falls.

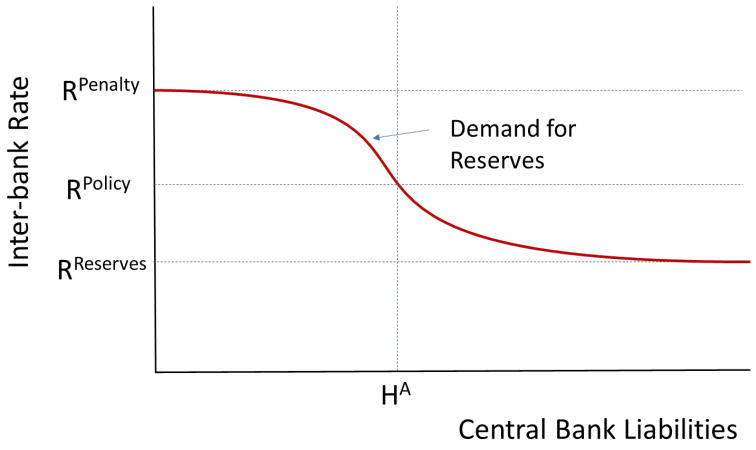

Figure 1: Monetary Policy in a Corridor System

The upper horizontal line at $R^{Penalty}$ is the interest rate at which the Bank of England is willing to lend to commercial banks. The lower line at $R^{Reserves}$ is the rate the Bank pays on reserves held by commercial banks at the Bank of England. $R^{Penalty}$ places a ceiling on the inter-bank rate. $R^{Reserves}$ places a floor on the inter-bank rate. Variations in the quantity of reserves in the system cause variations in the inter-bank rate within the corridor set by $R^{Reserves}$ and $R^{Penalty}$.

[1] See Keister (2012) and Clews et al (2010) for a discussion of the UK case.

In the UK prior to 2008 the Bank operated a corridor system in which $R^{Reserves}$ was equal to zero. The Monetary Policy Committee set R^{Policy} based on its assessment of economic conditions and the trading desk of the Bank operated in the repo market to target the overnight value of Bank liabilities. Figure 1, illustrates this method of operation. By varying H^A, the Bank can implement any desired policy rate in the corridor defined by $R^{Penalty}$ and $R^{Reserves}$.

Monetary Policy in a Floor System

Figure 2 illustrates the operation of monetary policy in a "floor system" of the kind operated in the UK since 2009 (Bank of England 2015). Following the 2008 financial crisis the Bank of England expanded its balance sheet from £100b in 2008 to over £400b in the autumn of 2014. High powered money increased from H^A in Figure 1 to H^B in Figure 2. The policy rate was lowered and set equal to the Reserve Rate, currently equal to one quarter of one percent. This change in policy is referred to as 'Quantitative Easing'.

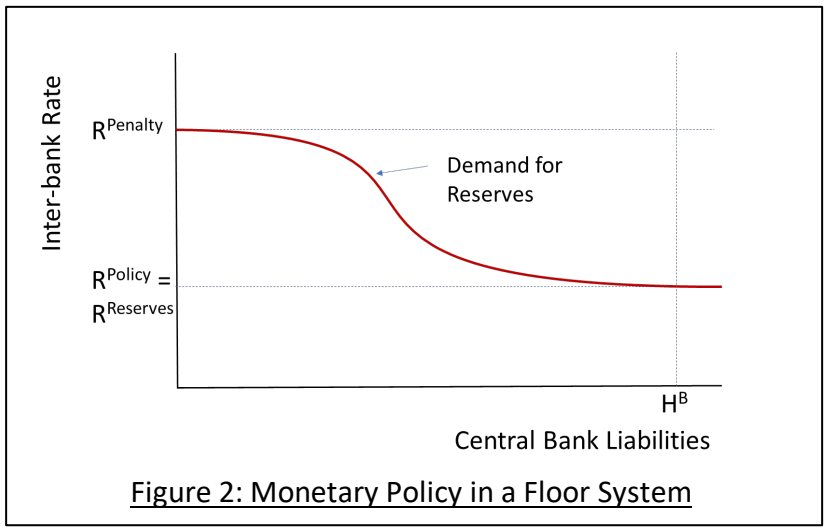

Figure 2: Monetary Policy in a Floor System

In addition to expanding the size of its balance sheet, the Bank of England, along with other world central banks, changed the risk composition of its assets by purchasing long-dated treasury securities and by accepting the liabilities of failing banks as collateral for its loans. Historically, central bank balance sheets have consisted of short-term assets or of short-term loans to the private sector that are guaranteed by high quality collateral. A policy that operates through changes in the risk composition of the Bank's balance sheet is referred to as 'Qualitative Easing' (Buiter 2008).

How to Unwind

How should the Bank of England operate moving forwards? The first decision is: when should the Bank of England raise the Policy Rate? The conventional answer to this question is; keep an eye on economic activity and begin to increase the interest rate if inflation begins to emerge or, if output growth begins to increase above the sustainable long-run potential growth rate. The inflation rate in the UK has been increasing steadily for more than two years and that signal, in my opinion, will likely lead the MPC to raise the policy rate at its next meeting.

When the Monetary Policy Committee decides to raise the interest rate, it will face two additional questions. Should the Bank continue with a floor system in which it raises the Reserve Rate and retains a large balance sheet? Or should it contract its balance sheet to the point where the policy rate increases above the Reserve Rate. The Federal Reserve in the

United States has already begun monetary tightening and they have chosen the former route. In my view, the Bank of England will follow the Fed's lead.

My first recommendation is that the Bank *should* maintain a floor system. This is the right policy because liquidity has zero social cost but positive social benefit (Friedman, 1969). By raising the Policy Rate and the Reserve Rate at the same time the Bank of England will increase the interest rate without, at the same time, restricting credit. If the real interest rate is determined by factors beyond the control of monetary policy, as many economists believe, an increase in the nominal interest rate will be consistent with the Bank's remit of bringing CPI inflation back in line with the 2% target. Running a floor system implies that the Bank should maintain a large balance sheet into the indefinite future.

My second recommendation is that the Bank of England should retain a large fraction of its balance sheet in the form of risky assets and that it should systematically alter the magnitude of this fraction to stabilize asset prices. This recommendation, which I explained in detail in my book *Prosperity for All*, (Farmer 2016), is designed to promote financial stability and it represents a complement to alternative policies that have the same goal; for example, counter-cyclical credit buffers.

I propose that the Bank should engage in counter-cyclical asset trades by buying and selling shares in an index fund with the goal of preventing bubbles and crashes. My proposal is based on the proposition that asset price fluctuations are inefficient in a very specific sense.

I am not claiming that an average investor can make money by buying and selling equities. The idea that a private investor cannot make money by trading in the asset markets is called "*informational efficiency"* and that proposition is correct, at least to a first approximation. But the Bank of England is not a private investor. It is the agent of the Treasury and its trades are backed by the financial wealth not just of those of us alive today, but by our children and our grandchildren. As I argued in evidence presented to the Treasury Select Committee, the Financial Policy Committee of the Bank of England can, and should, use the risk composition of its asset portfolio to prevent bubbles from arising in the first place (Farmer 2017). And by stepping in when markets crash, the Bank can head off a financial panic before it happens.

Conclusion

It's a brave new world and, to quote Dorothy from the Wizard of Oz, 'We're not in Kansas anymore'. Every major crisis has the potential to teach us more about the word in which we live and every previous crisis has been a crucible for the development of a new institution or a new idea. The 2008 financial crisis will, in my view, be no exception. The tools I have discussed in this article, if used wisely, offer the prospect of a brighter future.

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