Thoughts on the Federal Reserve System's "Exit Strategy"

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1. Introduction

In this brief note, I examine strategies for the Fed to manage its reserves over the next few years. I review and find merit in the economic argument for the Fed to pay interest on reserves at or somewhat below the interest rate on short term government debt. I review three major strategies for managing reserves: paying the needed overnight interest rate to keep reserves high, offer a Term Deposit Facility, and sell assets on the Fed's Balance Sheet. I argue that all three are essentially the same from an economic point of view to a first approximation. Subtle questions about the extent of market segmentation and risks in the ability of the Fed to rollover its liabilities should determine which strategy is appropriate, but in my judgment these are second order considerations. One such second order consideration is that relative to a strategy of selling assets, strategies for keeping reserves high imply that the Fed is taking on "rollover risk". This risk could constrain monetary policy in undesirable ways in the future.

2. Background

The United States and the world economy have and are undergoing a severe financial crisis. The dramatic increases in spreads in the fall of 2008 together with a dramatic increase in the likelihood of failure of a number of financial institutions has led to large changes in the scale and scope of central bank activities. In particular, in response to the crisis the Federal Reserve System has increased the size of its balance sheet to a historically unprecedented size relative to the economy. From August end 2008 to early January 2010, deposits held by depository institutions at the Fed have risen from less than $20 billion to over $1 trillion. Excess reserves have risen over the same period from roughly $2 billion to over $ 1 trillion.

It is reasonable to suppose that banks have been willing to hold such a large volume of assets with the Fed for two reasons: short term interest rates have declined to essentially zero and because the Fed has been paying interest at an annualized rate of 25 basis points on balances held by depository institutions at the Fed.

The markets and the Fed are concerned about the implications of this large stock of reserves on the course of future monetary policy and the course of future inflation. The primary source of this concern is that, if the stock of high powered money is maintained at current levels, the stock of broader monetary aggregates

will rise dramatically. Let M denote the stock of a broad monetary aggregate given by the identity

$$M = C + R + D \tag{2.1}$$

where C denotes the stock of currency, R the stock of reserves and D denotes deposits held by the public in the banking system. Letting $c = C/D$ denote the currency deposit ratio and letting $r = R/D$ denote the reserve deposit ratio, we can rewrite the identity (2.1) as

$$M = (\frac{c+1}{r} + 1)R.$$

One view of the monetary transmission mechanism is that the currency deposit ratio does not vary much. Under this view, variations in the reserve-deposit ratio can imply very large variations in the stock of the broader monetary aggregate. Indeed, if the reserve-deposit ratio returns to its pre-crisis levels, we can expect broad money aggregates to increase by a factor of roughly 50. Historical evidence, as in say, Lucas, leads market participants, to expect a large increase in inflation associated with a large increase in M1 or M2.

This reasoning suggests that the Federal Reserve System must plan for an exit strategy if and when banks choose to reduce their holdings of excess reserves.

3. Exit Strategies

Here I discuss 3 exit strategies.

I. Increase the overnight interest rate on reserves to induce depository institutions to hold their reserves at the Fed. In effect, this policy attempts to keep the reserve-deposit ratio at high levels.

II. Offer depository institutions a Term Deposit Facility under which the Fed would offer banks an attractive, possibly market based, interest rate on balances held for periods of 3 months, 6 months or longer. This policy also attempts to keep the reserve-deposit ratio at a high level.

III. Sell securities on the asset size of the balance sheet to reduce the stock of high powered money. These securities consist of long term government debt and mortgage backed securities. In effect, this policy seeks to reduce $C + R$.

In evaluating these strategies, I begin with a small amount of theory. One argument for paying interest on reserves is associated with the familiar prescription that, in many economies, the Friedman Rule is optimal. The idea is that banks

must settle claims with each other in dollars or, equivalently, reserves at the central bank. When market interest rates are positive and reserves do not pay interest, each bank has an incentive to economize on holdings of reserves by holding interest bearing securities. Each bank faces idiosyncratic fluctuations in demands for cash from its customers. If a bank wishes to meet claims by selling interest bearing securities, it incurs transaction costs. Since reserves are costless for the central bank to produce, the kind of reasoning used by Friedman suggests that it is socially optimal to either pursue policies which reduce market interest rates to zero or to pay interest on reserves. If hand to hand currency is held, in substantial part, by agents whose welfare does not enter the central bank's objectives (drug dealers? foreigners?), positive interest rates and a policy of paying interest rate on reserves may be desirable. It is important to note that the quantity of reserves should be increased up to satiation, not to infinity.

In evaluating the three strategies, it is important to begin by noting that in a complete markets environment, the three strategies are essentially the same. In effect, under strategies I and II, the central bank is issuing debt claims backed by long term assets on its portfolio. In strategy III, the central bank is simply selling the long term assets on its portfolio. Thus, any evaluation of the three strategies depends on how one conceives of frictions in financial markets.

3.1. Strategy I

The main risk in this strategy is that it might lead to a great deal of volatility in the quantity of reserves and broader monetary aggregates or in the Fed's policy rate. The Fed has never had to handle such a large volume of reserves. Small movements in the markets might induce large attempted movements in reserve holdings by banks. the Fed may have to change the interest rate on reserves by large amounts. Such large movements could be interpreted as changes in the course of future policy by markets, and might hamper the Fed as it pursues its goals of low inflation and maximum employment.

It is worth comparing the costs of this strategy relative to strategy III. The direct costs to the Fed (and, by extension to taxpayers) depends on the future course of interest rates. If interest rates turn out to be higher than now anticipated by markets, this strategy would be costlier than strategy III. If interest rates turn out to be lower, then this strategy is less costly. In effect, the Fed would be bearing the interest rate risk. A potential concern is that the course of future monetary policy could be affected by concerns about the Fed's income statement.

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This concern is not as far-fetched as it sounds. Imagine a short term interest rate of 4 per cent on $ 1 trillion. The $40 billion cost is larger than the "profits' the Fed now turns over to the Treasury.

The most dangerous aspect of this strategy is that it effectively amounts to funding long term assets held by the Fed by short term debt claims. Long experience in financial markets demonstrates that this form of financial intermediation carries large risks. The recent financial crisis in the United States is just one manifestation of this sort of risk. The government of Mexico came near to default in 1994 when it elected to follow such a policy. The Fed, of course, can just print money if overnight debt holders refuse to roll over the debt. Such a policy could result in a self fulfilling equilibrium in which expectations that the Fed will pursue a lax monetary policy because banks demand a high inflation premium lead banks to expect high inflation premium.

3.2. Strategy II

This strategy has one advantage relative to strategy I and one disadvantage. The advantage is that the volatility of overnight interest rates will probably be lower. My guess is the rollover risk is also large.

3.3. Strategy III

As of early January, the Fed held about $750 billion of longer term Federal government debt and about $900 billion worth of mortgage backed securities. One concern with using only strategy III is that the prices of these securities would be depressed if the Fed sold a large amount of them over a short period of time. The extent to which these prices would be depressed depends on how segmented financial markets are. I am skeptical that, over a horizon of, say, a year, these markets are very segmented.

4. Evaluation

Economic theory suggests that it is desirable to pay interest on reserves. This general prescription needs to be divorced from the exit strategy. Marvin Goodfriend uses evidence from the 1930s to suggest that the system will be satiated

with reserves at a fraction of its current value. Until we see a better analysis, we should go with his.

Strategies I and II seem to reflect the hubris of financial managers through history reflected in the aphorisms: i) Rollover risk is a problem for everyone else except me, and, ii) I know the specific security I hold is worth more than its market value.

The obvious answer is to pursue strategy III over the long term, using strategies I and II as extremely temporary crutches so that long term assets are sold gradually over time. The length of time that strategies I and II are used as temporary crutches depends on policy makers' beliefs about the extent of segmentation of such markets. Such beliefs need to be supported with strong empirical evidence given the rollover risks in pursuing these strategies.

References

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