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Perspectives on the Implementation of Monetary Policy

Address by

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It is always a pleasure to speak at a conference organized by the American Enterprise Institute. The theme of the Conference -- "Monetary Policy in an era of change" -- is obviously a timely topic. Our recent experience involving financial deregulation, increasingly integrated global credit markets, and disinflation well qualifies the past few years as "an era of change."

We have certainly learned more about the implementation of monetary policy during this period. And we have probably discovered as much about what does not work as about what does. So, it seems appropriate to assess where we have come and where we now stand.

Accordingly, this afternoon I would like to focus my remarks on the implementation of monetary policy. As I see it, there have been two primary approaches to the implementation of policy. I intend to review these two approaches, discuss how they have been affected by the various changes we have experienced in recent years, and how I think we could further improve our understanding of the mechanics of monetary management.

Analyzing the different approaches to policy requires discussion of operating procedures and instruments.

Therefore, I will attempt to briefly address, and perhaps even oversimplify, some of the more esoteric features of monetary policy operations. Further, I do not intend to be directly concerned here about intermediate or ultimate targets of policy. Rather, I will try to concentrate on policy instruments or operating procedures and on the alternative frameworks that have been used in analyzing these procedures.

The first procedure has involved interest rate levels as the focus of the policy implementation process with attention to how those rates feed through to money demand. The second procedure has emphasized the supply of money through the reserve base as the centerpiece of monetary policy.

The Level of Interest Rates and the Demand for Money[1]

During much of the 1960s and early 1970s short-term interest rates were effectively used both as the immediate focus of daily policy implementation and as the intermediate guide to the effects of policy on the economy. Short-term rates were seen as influencing longer-term interest rates and thereby investment, spending, and economic activity in general. This mechanism was embodied in most large macroeconometric models. The approach evolved so that the Fed funds rate came to be the policy guide of choice.

Through the 1970s as monetary aggregates gained increasing weight as intermediate targets, this approach was adapted. The federal funds rate remained the daily target of policy, but the interaction of this rate and the demand for money came to play an important role in the process of policy implementation. Estimations of money demand equations became essential ingredients in executing monetary policy. Knowledge of the money demand function was necessary because the Fed funds rate was being manipulated along such a function to attain the desired money stock.

That is, a level of the fed funds rate was selected that would induce the public to hold an amount of money equivalent to the targeted quantity. Before deregulation of deposit rate ceilings, a change in the fed funds rate was equivalent to a change in the opportunity cost of holding money, since any such change quickly translated into an equivalent movement in other short-term interest rates. In short, the Fed affected the opportunity cost of holding money by varying the funds rate.

Over time, movements in short-term rates tended to be translated into similar movements in long-term rates. This led to changes in spending, in income or real economic activity, and thereby also filtered back on the transactions demand for money.

In sum, the Fed controlled the opportunity cost of holding money, influenced economic activity, and thus

affected the transactions demand for money by varying the fed funds rate. Hence, movements in the fed funds rate were the first clear sign of policy change and a signal of policy ease or tightness. And the demand for money served as the centerpiece of this policy implementation process.

However, changing economic and institutional conditions affected this approach in several important ways. First, price deregulation, or removing restrictions on deposit interest rates, enabled banks to actively price-compete for deposits. Accordingly, movements in the fed funds rate could induce changes in deposit interest rates and therefore might not reliably affect the change in the opportunity cost of holding money.

Second, because of the experience of the late 1970s and early 1980s changing rates of inflation and expectations of future inflation seemed to become more important influences on interest rates. Partly because of these expectational effects, changes in the fed funds rate did not simply translate into equi-proportional movements in long-term interest rates. Thus, movements in the level of the fed funds rate were no longer as predictably related to changes in spending, real economic activity, or transaction demands for money.

With movements in the fed funds rate no longer as predictably related to either changes in opportunity costs of holding money or changes in the transactions demand for

money, the demand for money was no longer viable as the centerpiece in achieving monetary goals.

Moreover, it came to be recognized that using the level of interest rates as policy guides produced pro-cyclical, overaccommodating policies. This result was partly due to the sluggishness of policy change, but it also reflected difficulties in gauging inflation expectations and interest rates. Regardless, it contributed to a widespread disenchantment with the use of levels of interest rates as guides to policy.

The "Reserves-Multiplier" Approach

Another well-known approach to monetary policy implementation focuses on reserve creation and its multiplied effect on the money stock. This procedure evolved from the famous work of C.A. Phillips in the 1920s[2] relating to the multiple expansion of deposits. The view was further refined by a number of well-known monetarist economists.

The approach focuses on the supply of reserves and money while it eschews mention of the Fed funds or other interest rates in implementing monetary policy.[3] In this view, open market operations alter reserves which, in conjunction with a mechanical multiplier mechanism, work to change the money supply. The process is usually described as a mechanistic response by banks to changes in the quantity of reserves.

In this view, the demand for money plays no important role in implementing policy; the Fed can control the money supply without knowing about the demand for money.

A number of necessary conditions are essential for this approach to be relevant. First, operating procedures and institutional arrangements must be such that reserves are exogenous. A "non-accommodative" stance to policy implementation is essential. If operating procedures such as Fed funds targeting or borrowed (free) reserve targeting are in use, then causality may run from money to reserves. The same result could occur when the foreign exchange rate becomes a target for policy in an open economy. In these cases, the multiplier approach makes little sense, because the monetary authority provides reserves based on their derived demand.[4] In addition, if total reserves are to be the operating objective, the reserve accounting system should not be lagged. A lagged system requires some accommodation of reserve demands, at least at the discount window.

Second, conditions for a stable multiplier are also essential so that changes in reserves translate into predictable changes in the money stock. These conditions, for example, might include uniform reserve requirements as well as predictable demands for currency or excess reserves.

Finally, a stable or predictable demand for money is essential but for different reasons than the "money

demand" approach described above. Specifically, this stability is not necessary for implementing policy or determining the money stock, but such stability is necessary for enabling monetary policy to reliably influence such ultimate goals as price stability. Once the money stock is determined, stable money demand ensures that its changes influence nominal income in a predictable fashion. Tight control on income also requires a relatively interest inelastic demand for money, at least if predetermined monetary rules are to be followed.

If these conditions are satisfied, then, reserve growth is a clear guide to policy and a clear signal of policy ease or tightness.

These necessary conditions, however, have never fully existed. From the 1951 Treasury accord to the late 1960s, the Fed did not try to control the money stock. From the late 1960s until 1979 the Fed sometimes targeted money but used "accommodative" control procedures employing the Fed funds rate to do so. From (October) 1979 until (October) 1982, a nonborrowed reserve targeting procedure was used to control money. But lagged reserve accounting effectively forced the Fed to adopt a partly accommodating procedure thereby avoiding a pure reserve-multiplier framework.

Finally, since (October) 1982, a type of borrowed reserve operating procedure has been in effect. In this

procedure, changes in the demand for reserves which affect the level of borrowing are accommodated by changes in the supply of non-borrowed reserves. Accordingly, stabilizing the level of borrowed reserves roughly determines the fed funds rate and is equivalent to an accommodating regime.

Even if Fed operating procedures were appropriate, however, many other considerations suggest that the reserves-multiplier approach would not be useful. For a set of reasons I will not discuss here, the demand for money is less predictable and considerably more interest sensitive. Moreover, the exceptional swings in the dollar over the last few years necessitated consideration of the exchange rate in the formulation of monetary policy. Finally, even if total reserve targeting were desired, some economists believe that the two day lag still inherent in the reserve accounting system may prevent such an approach from being successfully implemented.

Despite these considerations, the reserves-multiplier approach does not depend on knowledge about the demand for money to implement policy. It prescribes that the monetary authority focus purely on the supply of money.

The Importance of Incentives

As I have indicated, both of these approaches have been hampered because of institutional constraints, operating procedures, or by a changing economic environment. And

the recent deterioration of the predictability of the demand for money has hindered these approaches as well.

But in addition to these major factors, there has been a tendency not to fully incorporate relative interest rate movements in the money supply process.

I feel that an improved understanding of the incentives involved in this process -- in this case interest rate spreads -- could contribute to the success of policy implementation.

This process, after all, is the means by which the Fed induces depository institutions to buy or sell assets, thereby creating or extinguishing deposits.[5]

Economic textbooks describe the deposit creation process as a mechanistic response by banks to changes in their reserve positions; banks alter their asset holdings in response to differences between total reserves and required reserves. While this description may be a useful teaching device, it does not accurately describe the behavior of banks.

Banks are profit maximizing institutions and, accordingly, respond to changes in profit opportunities as manifest in changes in the spread between the expected fed funds rate (or expected cost of funds) and their return on funds. Banks make decisions on the basis of this spread, not on the basis of reserve levels. If this spread is sufficiently wide, for example, even banks deficient in

reserves can purchase assets and cover reserve losses by purchasing more reserves in the funds market, assuming that the central bank accommodates the additional demands for reserves. Banks alter assets based upon changes in the spread rather than on reserve position, as demonstrated by the fact that large banks often purchase more reserves in the funds market than their entire level of required reserves.

Thus, other things equal, a higher fed funds rate leads to a lower money stock and a lower fed funds rate leads to a higher money stock. A higher fed funds rate relative to rates on other assets induces banks to sell assets and divert proceeds into the funds market thereby extinguishing deposits and reducing the money stock. Analogous reasoning indicates that a lower fed funds rate leads to a larger money stock. Of course, these interest rate movements have corresponding effects on the demand for money and credit.

This suggests that it is movements in the fed funds rate relative to other interest rates that are the key to activating the deposit creation process; the level of reserves can be thought of as influencing the fed funds rate, which is the proximate determinant of changes in the money stock. This corroborates from the supply side the well-known position that the money stock can be controlled with a fed funds operating guide. And some foreign central

banks successful in controlling their monetary aggregates -- such as Japan -- use interest rate operating guides.

In my view the recognition of both the importance of interest rate spreads and the shortcomings of some prevailing theories leads me to something like a Wicksellian perspective on monetary policy whereby a market interest rate is compared to the natural rate, a rate akin to the marginal productivity of capital. This spread determines the relative tightness or ease of monetary policy.

In Wicksell's theory, for example, when the market interest rate falls below the natural rate, a monetary expansion occurs. This expansion occurs because incentives are created to increase the demand for credit and the supply of money. This expansion will continue and lead to a rise in prices as long as this interest differential persists.

A major problem with Wicksell's framework is that the natural rate is unobservable. Proxies are needed either to estimate the natural rate or to indicate when the natural rate differs from the market rate and thereby signal when monetary policy is easy or tight.

Assuming a fixed exchange rate regime, Wicksell claimed that the spread would disappear as the central bank raised the market rate in response to reserve drains. In this case, reserve drains were an early signal that market rates were too low.

But under current circumstances other indicators serve a similar function. All other things equal, if the natural rate exceeds the market rate, then over time, dollar depreciation, commodity price inflation, rising bond yields, as well as other indicators should demonstrate that market rates are too low and should function to anchor the system. One can "estimate" the relation between market and natural rates by observing these financial market price indicators in conjunction with one another. While interpretations of these indicators can be tricky -- especially since they may reflect expectations about future actions by the central bank, their response to movements in the fed funds rate can serve as signals regarding the effect of changes in monetary policy.

Conclusion

In sum, the two frameworks for monetary management discussed here have been hampered by our changing economic and regulatory environment and even incompatible operating procedures. Consequently, in my opinion an incentive-based perspective analyzing interest rate spreads in conjunction with financial market and other important indicators is extremely useful.

FOOTNOTES

[1]For excellent discussions of this approach, see, for example, Stephen H. Axilrod and David E. Lindsey, "Federal Reserve Implementation of Monetary Policy: Analytical Foundations of the New Approach," American Economic Review, vol. 71, no. 2, May 1981; Paul Kasriel, "Is Deposit Rate Deregulation an Rx for M1?," Economic Perspectives, Federal Reserve Bank of Chicago, September/October 1985; Robert Laurent, "Lagged Reserve Accounting and the Fed's new operating Procedure," Economic Perspectives, Federal Reserve Bank of Chicago, 6, Mid-year 1982; David E. Lindsey, "The Monetary Regime of the Federal Reserve System," Alternative Monetary Regimes, Campbell and Dougan (eds), John Hopkins University Press, Baltimore 1986.

[2]Chester A. Phillips, Bank Credit, New York, MacMillan, 1921. For the historical evolution of this view, see Thomas M. Humphrey, "The Theory of Multiple Expansion of Deposits: What it is and Whence It came," Economic Review, Federal Reserve Bank of Richmond, March/April 1987.

[3]Interest rates are viewed not as the price of money but as the price of credit.

[4]See, for example, Marvin Goodfriend, "The Promises and Pitfalls of Contemporaneous Reserve Requirements For the Implementation of Monetary Policy," Economic Review, Federal Reserve Bank of Richmond, May/June 1984.

[5]For an excellent description of this process (which is followed here) see Laurent, op. cit., p. 35.