



A Question Of MONEY

Does money still matter for monetary policy?

BY VANESSA SUMO

In its early days, the Bank of England used a weather vane to predict when commercial ships would arrive at the port of London. Variable winds on the river Thames made docking times uncertain, causing sudden shifts in the demand for money and credit. But with the weather vane's guidance, central bankers could overcome this uncertainty and wield more prudent control over the quantity of money in the economy.

Such a gauge would be useful today. Central bankers find the link between money and inflation to be fickle in practice. This is partly because the definition of money has been evolving along with the financial landscape. Ideally, central bankers would like to predict shifts in the demand for money that people use to purchase goods and services. But financial deregulation and innovation has allowed banks, for instance, to create new types of products. This has blurred the line between what is "transactions" money and what is not. And so it has become harder to pin down money demand.

Central bankers all over the world, including the Federal Reserve, often give this reason as to why they have paid increasingly scarce attention to money when conducting monetary policy. Indeed, *The Economist* noted in 2006 that former Fed Chairman Alan Greenspan did not mention the word "money" in 10 speeches. His successor, Ben Bernanke, however, did talk about money in a speech at a European Central Bank conference late last year, but only to confirm that "monetary and credit aggregates have not played a central role in the formulation of U.S. monetary policy" since the monetarist experiment that brought down inflation under Paul Volcker more than a quarter of a century ago.

Is money still relevant for monetary policy? It might seem odd that money does not occupy a more prominent place. After all, Milton Friedman's proposition that "inflation is always and everywhere a monetary phenomenon" is widely accepted as a general principle, with some qualifications — which would suggest that the key to stabilizing inflation is to control the growth of money. As Mervyn King, the Governor of the Bank of England, asks, "How do we explain the apparent contradiction that the acceptance of the idea that inflation is a monetary phenomenon has been accompanied by the lack of any reference to money in the conduct of monetary policy?" The paradox is that as central banks recognize price stability as their main objective, they seem to be giving a smaller role to money. This is nowhere more apparent than in central banks' principal choice of a policy instrument.

Instruments and Rules

Achieving price and output stability is the main objective of central banks, but these are not the variables that they can directly control. Rather, central banks operate through targets and instruments to reach their ultimate objectives. Insofar as there is a reliable relationship between instruments and goals, central banks can tweak their instruments to achieve their desired impact on the economy.

Most central banks prefer to use interest rates as an instrument through which they can carry out monetary policy. For instance, the Fed's Federal Open Market Committee (FOMC) sets the fed funds rate, its policy instrument of choice. Depending on its outlook of the

economy, the FOMC meets eight times a year to raise, lower, or keep the fed funds rate constant.

But the interest rate is not the only instrument that central banks can use. They can also opt to control the quantity of money circulating in the economy. In other words, central banks can either choose to set the *quantity* of money or set the *price* of holding money; that is, the interest rate. Thus, fixing the interest rate means that the amount of money would have to adjust in response to the level of the interest rate. Likewise, if central banks decide to control money, then they would have to let the interest rate fluctuate as it will. Under certain conditions, these may not be equivalent strategies.

The classic 1970 analysis by William Poole, president of the St. Louis Fed, shows us that if the central bank has to choose a policy instrument before observing the disturbances to the goods and money markets, then setting either the interest rate or the stock of money can lead to smaller output fluctuations — variability in gross domestic product — depending on the type of shocks that are present. If there is an aggregate demand shock (say, a huge increase in government spending), then fixing the interest rate will lead to larger output fluctuations than controlling money supply and letting the interest rate rise, which automatically stabilizes output. On the other hand, if the demand for money is unruly (as explained earlier), then fixing the stock of money can lead to more volatile interest rates and larger output fluctuations, such that keeping the interest rate constant is more desirable.

Along with these debates on the choice of a monetary policy instrument were discussions on whether monetary policy would be better served by following a rule (to set the money supply or the interest rate) or to allow the central bank's discretion. Policy rules have the advantage of being easily understood by the public, so that they can hold the central bank accountable for its decisions.

Friedman, for instance, advocated adhering to a “money rule”: a proposal to increase the stock of money by a fixed percentage each month (corresponding to the growth in long-run output). His preference for a rule-based policy was founded on the observation that there is a lengthy interval from measuring current economic conditions to implementing policy to affecting the public's borrowing and spending decisions. By the time the policy takes effect, the discretionary response may no longer be appropriate. In this way, Friedman thought that simply sticking to a money rule rather than exercising discretion could do less harm to the economy.

But the policy rules that are discussed these days are “activist” rules rather than constant rate of growth rules like Friedman's. Activist rules can be expressed in terms of a formula, which describes how the value of a policy instrument adjusts or “feeds back” in response to economic conditions.

Central banks can use both rules and discretion to varying degrees, and even if some would appear to lean more toward discretion (including, arguably, the Fed), rules play a prominent role not only as a guide to discretion but also as a benchmark for outsiders to use when thinking about the central bank's monetary policy stance. And because monetary policy has evolved over the years such that the interest rate has become the preferred instrument, the choice of rules has likewise tilted in favor of interest rate rules and away from money growth rules.

Measure for Measure

In 1993, John Taylor of Stanford University formulated a policy rule that closely approximated the Fed's policy actions over several years. The Taylor rule has become very well-known, in part because it specifies a short-term interest rate and so makes it easy to compare with the Fed's actual policy stance. The Taylor rule prescribes a nominal interest rate, in this case the fed funds rate, which

reflects movements around a long-run real interest rate depending on how much actual inflation and output deviate from their respective targets.

While the central bank chooses a target rate for inflation, the output “target” is determined by economic fundamentals, such as productivity and population growth. This “feedback rule” is designed in such a way that if actual inflation and output are above their desired levels, the fed funds rate should be raised in order to dampen these inflationary forces. The bigger the gap between actual inflation and output and their targets, the higher the fed funds rate and the tighter monetary policy should be.

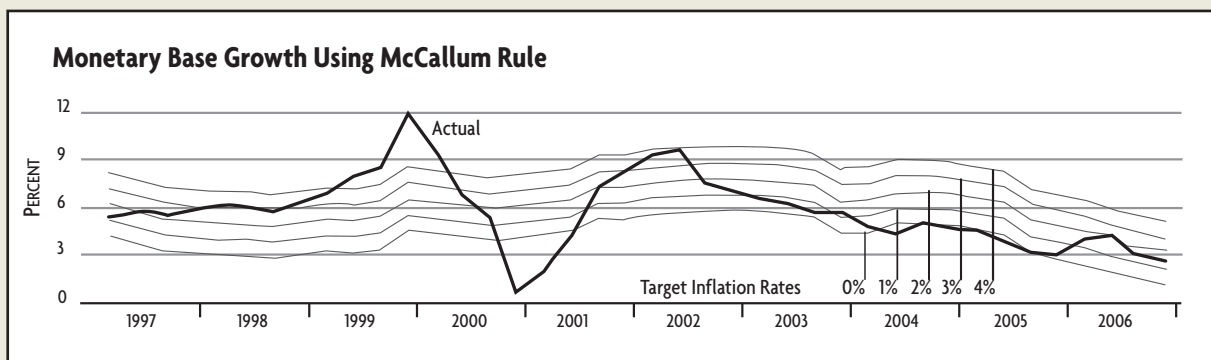
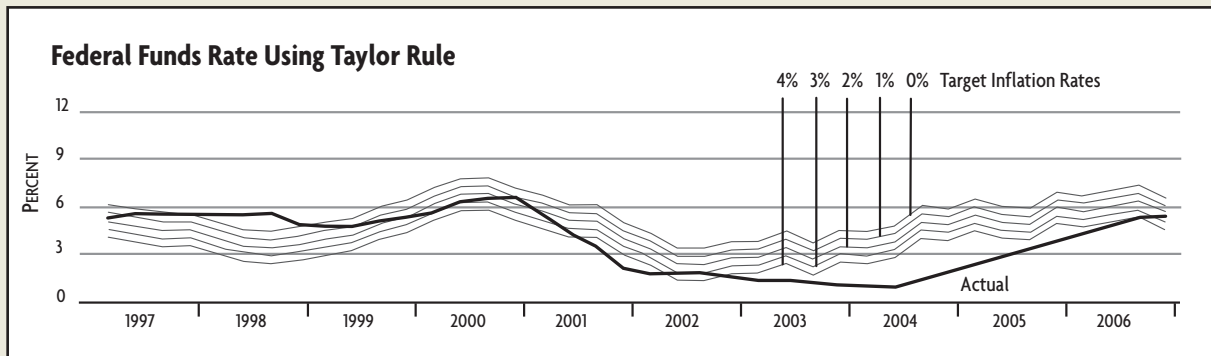
Several years before the Taylor rule, Bennett McCallum, an economist at Carnegie Mellon University and a visiting scholar at the Richmond Fed, devised a rule that is often used alongside Taylor's to track the Fed's monetary policy stance. Unlike the Taylor rule, which sets the nominal interest rate, the McCallum rule specifies a growth rate for base money, which is typically the amount of currency plus commercial bank reserves kept at the central bank. By prescribing how much the base money should rise or fall, a central bank is able to influence the stock of money in the financial system.

Base money, according to this “monetarist” rule, should expand as fast as the desired growth in nominal income — similar to Friedman's policy prescription — and adjust for deviations of actual income growth from this preferred rate. For instance, if nominal income is moving sluggishly, then the base money should be allowed to grow faster in order to stimulate the economy. Thus, while the Taylor rule feeds back from deviations of output and inflation from its targets, the McCallum rule feeds back from movements away from the desired path of nominal income.

Because the McCallum rule is a “money rule,” the conventional wisdom has been that rules like Taylor's are better able to capture the practice of well-run interest-rate-

Monetary Policy Rules

If monetary policy were set using the Taylor rule, then it would have prescribed a higher interest rate in recent years. The McCallum rule, on the other hand, would have recommended a looser policy stance.



SOURCE: St. Louis Fed *Monetary Trends*, April 2007

setting central banks — such as at the Fed. This is not necessarily accurate.

Using Greenspan's tenure at the helm of the Fed as a benchmark for a successful period of monetary policy, McCallum has compared how close the policy prescriptions of the two rules are to the actual fed funds rate set by the Fed and the actual base money growth. In a note for the Shadow Open Market Committee, a group of economists who meet regularly to evaluate the policy choices of the Fed, McCallum finds that "actual policy during the Greenspan era has not differed from that recommended by the McCallum rule by a significantly greater extent than is the case for the Taylor rule."

If the same exercise is used to gauge the tightness or looseness of a central bank's monetary policy, then the two rules have been giving different perspectives over the last four years. In the St. Louis Fed's *Monetary Trends*

report, which regularly tracks the settings prescribed by the two rules (see above), the Taylor rule has for several years suggested that monetary policy has been too loose while the McCallum rule has suggested that monetary policy has been too tight, assuming that the Fed has set an implicit 2 percent inflation target. However, the McCallum base money growth rate has been closer to the actual values. (Some observers would say that the fall in global real interest rates means that the real interest rate indicated in the Taylor rule — 2 percent — should be adjusted downward, which would allow it to come closer to the actual fed funds rate.)

Another way to compare the two rules is to look at points in history when central banks may have followed a policy that was either too loose or too tight. For instance, both rules correctly suggest that monetary policy was much too loose in the United

States during the great inflation of the 1970s. However, there were episodes when the base money rule was dropping the "right" hints while the interest rate rule was not. "I think money growth rules give better signals as to what needs to be done," says McCallum in an interview. For instance, monetary policy at the Bank of Japan may have been too loose during the asset price bubble of the late 1980s, which the McCallum rule correctly calls. The Taylor rule, on the other hand, indicated that policy was too tight or about right during that period. But McCallum recognizes that the evidence in favor of money growth rules is not completely decisive. "It's not an easy argument to make and not all good monetary economists agree with it," says McCallum.

Nevertheless, McCallum's base money growth rule seems to perform well, and can give "ideal" policy

prescriptions as well as or perhaps even sometimes better than Taylor's interest rate rule. Still, why do central banks favor interest rates over money as a policy instrument? The instability in the demand for money and how accurately money is defined is one reason, but there are others. Central banks may prefer to smooth interest rates, thus making it quite natural for them to use the interest rate as a policy instrument. Commercial banks, for instance, dislike interest rate variability because it can wreak havoc on the value of their assets if interest rates move sharply up and down. "Central bankers spend a lot of time in the company of bankers, and they want to keep the financial market happy," says McCallum.

Central banks may also have a better understanding than before of how to adjust interest rates in a timely way. "We have a much better appreciation of what disciplined discretionary monetary policy is today," says Laurence Meyer, a former Federal Reserve Board governor, who is now an economist at the consulting firm Macroeconomic Advisers.

In the 1970s, monetarists argued that the Fed needed to move away from its practice of setting the fed funds rate because it was doing a bad job of judging where the interest rate should be in order to bring down inflation. Hence, it would be better to target the supply of money. But because of the important lessons learned from that period of high inflation, central bankers have much more confidence today in their ability to conduct monetary policy by choosing the right level of interest rates. And to the extent that central banks prefer to smooth interest rates, then they don't need to abandon their instrument of choice. "I think they've reached a better compromise between the desirability of avoiding interest rate volatility and the desirability of making sure interest rates move up and down when they need to for economic stability," says Edward Nelson, an economist at the St. Louis Fed.

Follow the Money

The Fed under Paul Volcker was successful in orchestrating an end to the high and erratic inflation of the 1970s, largely because it paid attention to the band of monetarists who said that the central bank could do something about it. It might seem odd then that money no longer plays a leading role in monetary policy today, as if the Fed were risking the possibility of a return to runaway inflation.

Does abandoning an emphasis on money mean that the Fed has forgotten the lessons learned from that period? Michael Woodford, an economist at Columbia University, thinks otherwise. "I would argue that the most important of these lessons, and the ones that are of continuing relevance to the conduct of policy today, are not dependent on the thesis of the importance of monetary aggregates," Woodford said in his remarks at a European Central Bank conference late last year.

Monetarists made it clear that central banks could contain inflation, as opposed to the prevailing view at that time that inflation was largely a product of too much power being wielded by labor unions demanding higher wages and monopolist producers demanding higher prices. They also emphasized the importance of a commitment to a policy rule that would foster credibility and anchor inflation expectations. On both counts, however, Woodford emphasizes that adhering to a money growth target is not the only way to bring down inflation and not the only kind of commitment that a central bank can make. Central banks that have set an explicit inflation target, for instance, bind themselves to a specific numerical target and justify this course of action to the public. And though the Fed has no such explicit targets, it often speaks persuasively about its commitment to price stability, and its performance since the early 1980s has made these statements very credible.

But perhaps the biggest blow to the case for money is that it has been eased

out of today's consensus model for understanding how monetary policy affects the economy. It used to be that economists and central bankers thought of money as the instrument that influences aggregate spending decisions and subsequently inflation, the interest rate being determined by the demand and supply of money in the money market. In the new consensus model, however, an interest rate rule of the type proposed by Taylor has replaced the money market. In other words, the amount of money in the system is now determined by the interest rate and not the other way around, rendering money essentially superfluous in this model.

Money may not be everything, but has it become completely dispensable? Or is it still worthwhile to track the growth of money, even in some supporting role? "I've come to believe that the right thing to do is to think of monetary aggregates as an indicator, but not necessarily use it as the [instrument] that the Fed sets from week to week," says McCallum.

While Laurence Meyer was at the Board of Governors, he made it a practice to meet with money specialists on the staff before every FOMC meeting. He thought that looking at the behavior of money was a worthwhile cross-check for any signals about future macroeconomic developments which other data may not have picked up. However, he often walked away empty-handed. "In five-and-a-half years, I never got anything out of that meeting that would have altered my views about monetary policy," says Meyer.

Still, McCallum thinks that it is unwise to ignore money. "It's got better information than the interest rates for central banks," he says. Nelson likewise agrees that money could be a good indicator. For instance, if money growth is rising but the interest rate is kept unchanged (because the central bank sets the interest rate), then the central bank has to print more money just to keep the interest rate constant.

But why has the central bank needed to print more money?

Perhaps because expectations of future income or future inflation have increased, so people are building up their money holdings. “That’s a change in the economy ... that you wouldn’t see just by looking at interest rates,” says the St. Louis Fed’s Nelson. More generally, the amount of money may be influenced by the prices of an entire range of assets and the interest rate is just one price, so money may reveal

additional information about people’s spending decisions.

For McCallum and other monetarists, money may still make the world go around, but they’ve come to hold a more pragmatic view. “Central banks use interest rates rules, so we want to converse with them. John Taylor’s paper was very helpful ... It’s healthy for academics to talk to central banks,” says McCallum. Even some of McCallum’s own work reflects

the current state of affairs.

With respect to monetary policy practice, Fed Chairman Bernanke believes that it may be “unwise” to rely heavily on money as a guide to policy in the United States. But he also thinks that “money growth may contain important information about future economic developments,” enough so that the Fed will probably continue to keep an eye on money growth. **RF**

READINGS

Bernanke, Ben. “Monetary Aggregates and Monetary Policy at the Federal Reserve: A Historical Perspective.” Remarks at the Fourth European Central Bank Central Banking Conference, Frankfurt, Germany, November 2006.

King, Mervyn. “No Money, No Inflation — The Role of Money in the Economy.” Bank of England *Quarterly Bulletin*, Summer 2002, pp. 162-177.

McCallum, Bennett T. “Robustness Properties of a Rule for Monetary Policy.” *Carnegie-Rochester Conference Series on Public Policy*, 1988, vol. 29, pp. 173-204.

—. “Alternative Monetary Policy Rules: A Comparison with Historical Settings for the United States, the United Kingdom, and Japan.” Federal Reserve Bank of Richmond *Economic Quarterly*, Winter 2000, vol. 86, no. 1, pp. 49-79.

—. “Policy Retrospective on the Greenspan Era.” Shadow Open Market Committee position paper. May 8, 2006.

Meyer, Laurence H. “Money and Monetary Policy.” *Monetary Policy Insights*, Macroeconomic Advisers, November 17, 2006.

Nelson, Edward. “The Future of Monetary Aggregates in Monetary Policy Analysis.” *Journal of Monetary Economics*, July 2003, vol. 50, no. 5, pp. 1029-1059.

Poole, William. “Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro Model.” *The Quarterly Journal of Economics*, May 1970, vol. 84, no. 2, pp. 197-216.

Taylor, John B. “Discretion versus Policy Rules in Practice.” *Carnegie-Rochester Conference Series on Public Policy*, 1993, vol. 39, pp. 195-214.

The Issing Link. *The Economist*, March 23, 2006.

Woodford, Michael. “How Important is Money in the Conduct of Monetary Policy?” Remarks at the Fourth European Central Bank Banking Conference, Frankfurt, Germany, November 2006.

Research Publications — Federal Reserve Bank of Richmond

The image displays three research publications from the Federal Reserve Bank of Richmond. On the left is the '2006 Annual Report' cover, which features a road with directional signs and a 'JOB SEARCH' button. In the center is the 'REGION FOCUS' magazine cover, titled 'Stock Options: Economics Meets Accounting', with a list of articles including 'Interview with Robert Fogel', 'How Richmond Won a Reserve Bank', '1970s Inflation: Bad Luck or Bad Policy?', and 'Milton Friedman Remembered'. On the right is the 'ECONOMIC QUARTERLY' journal cover. Below the publications is the website address 'www.richmondfed.org'.