A Price Level Objective for Monetary Policy: Why it is Better than Gold"

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I thank you very much for inviting me here tonight. The "Why it is Better than Gold" was added to the title, it wasn't part of the original title that I submitted. Tonight, I am going to talk about why I think the Federal Reserve should adopt a long-term path for a particular price index. Now, in the course of explaining why I think that, I'll talk a little bit about the gold standard and why I haven't recommended that we target the price of gold. I know that such a target is not what people in here at the CMRE are advocating. You are talking about changing the system so that the Federal Reserve is not targeting anything. I understand that.

Before starting, I want to remind you that what I say this evening is my own opinion. It is not the opinion of the Federal Reserve System. The policies I advocate are my own positions and they are not the positions of the Federal Reserve Bank of St. Louis or of the Federal Reserve Board of Governors in Washington, D.C.

I came into the Federal Reserve System in 1980 as a confirmed monetarist. I was at the Federal Reserve Bank of Cleveland and I was accused by my colleagues there of trying to turn Cleveland into the St. Louis Fed. I arrived in 1980 when interest rates were very high. I had a small monetarist model, an econometric model used to predict the growth in dollar spending and inflation. A key assumption in the model was that the Fed was using money growth targets to achieve objectives for nominal GDP growth and inflation.

The monetarist prescription was to have a money growth target that was based on a policy objective and two assumptions. The policy objective was the desired inflation rate which I always assumed was zero. The two assumptions were about the growth trends for the real economy and the income velocity of the monetary aggregate that was being targeted. These assumptions allowed one to calculate how much money growth was appropriate for a given inflation objective.

Also, along with this monetarist model, I built a system of Vector ARMA time-series models to test the velocity assumptions we made when we set the targets. By the first quarter of 1982, my models rejected the M1 and M2 targets that had been adopted by the FOMC. By the first quarter of 1982, money growth was too high for the amount of growth of dollar spending and the amount of inflation we were getting to be consistent with our assumptions. And having been trained as a monetarist, this experience was disconcerting. I went back to the textbooks, both macroeconomic theory and history. I found Irving Fisher.[1] Now, I don't know what people here think of Irving Fisher. He spent a lifetime crusading against the gold standard and for a standard in which the central bank stabilized a broad price index. Irving Fisher believed, and I suspect he was right, that changes in the demand for gold had caused increases and decreases in the price level that, in turn, caused disruptive fluctuations in the economy. Although my instinct is to agree with him, as far as I know, no one has convincingly shown whether these price fluctuations were stabilizing or destabilizing. But Fisher assumed that they were destabilizing.

In a 1995 *Journal of Money, Credit and Banking* lecture, Ben Bernanke of Princeton University argued that is now conventional wisdom that the institution of the

gold standard contributed to the severity of the great depression.[2] At least, trying to stay on the gold standard in the 1930s seems to have been a mistake. Bernanke documents that the countries that stayed on it longest did the worst and those that abandoned it first did the best.

The gold standard was in place when the Federal Reserve was created in 1913. I see almost no sentiment, either in policy or academic circles, for reintroducing a gold standard. On the other hand, I do not see any serious research aimed at understanding the implications of not having a secure nominal anchor. Monetarists assumed that targets for the growth rate of money would anchor the price level. Today, many economists in and outside the system seem to believe that inflation targets (even if they are not explicitly stated) will anchor the price level. My research in the last two years has investigated the degree to which commonly proposed inflation targeting rules actually serve as a nominal anchor in conventional macroeconomic models. My conclusion is that inflation targeting regimes would be significantly improved if they were anchored by a long-term target path for a particular price index.

A well-known objection to price level targeting was made by Milton Friedman in his presidential address to the American Economic Association in December of 1967.[3] It was a marvelous talk. I think every student of monetary economics should be assigned to read that article. There, Friedman explains what can the Fed can and cannot do. The Fed can control the quantity of paper money. It can control some nominal variables, but

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[1] Irving Fisher, *The Purchasing Power of Money*. New York: Macmillan, 1911.
[2] Ben S. Bernanke, "The Macroeconomics of the Great Depression," *Journal of Money, Credit and Banking*, 27 (February 1995), 1-28.
[3] Milton Friedman, "The Role of Monetary Policy," *American Economic Review*, 58 (March 1968), 1-17.

cannot control anything real, not the unemployment rate, not the real interest rate, and not the real growth rate.

In recommending how monetary policy should be conducted, he explains why he would not target a price level:

> "Of the three guides listed, the price level is clearly the most important in its own right. Other things the same, it would be much the best of the alternatives—as so many distinguished economists have urged in the past. But other things are not the same. The link between the policy actions of the authority and the price level, while unquestionably present, is more indirect than the link between the policy actions of the authority and any of the several monetary totals. Moreover, monetary action takes a longer time to affect the price level than to affect the monetary totals and both the time lag and the magnitude of the effect vary with circumstances. As a result, we cannot predict at all accurately just what effect a particular monetary action will have on the price level and, equally important, just when it will have that effect. Attempting to control directly the price level ids therefore likely to make monetary policy itself a source of economic disturbance because of false stops and starts. Perhaps, as our understanding of monetary phenomena advances, the situation will change. But at the present state of our understanding, the long way around seems the surer way to our objective. Accordingly, I believe that a monetary total is the best currently available immediate guide or criterion for monetary policy—and I believe that it matters much less which particular total is chosen than that one be chosen." (Page 15)

Now, that was written in 1967. And by the time I was going back and looking at it again, it was the early 1980s and the rational expectations revolution had taken hold. Our understanding of monetary phenomena has advanced. We now know that the immediate effect of a monetary policy action on anything will depend on circumstances. The correct way to choose among alternative policy strategies is to examine the implications of the proposed rule in dynamic model economies.

Consider the idea of long and variable lags and two possible sources of these lags. One is structural. The lags may be due to contracts, or menu costs, or any of the other

structural reasons why economists argue that prices are sticky. If there are structural reasons why prices have a different amount of delay in different sectors and expectations are not forward-looking, Milton Friedman is right. It is quite easy to write down models in which trying to stabilize the price level destabilizes the economy while stabilizing the money supply stabilizes the economy. And in those models, the lags may be long and variable across sectors, but they have to be predictable. If you make those lags unpredictable or you allow people to have forward-looking expectations when setting prices, then you do not come to Friedman's conclusion.

I believe, and the alternative is, that these long and variable lags are due to changing expectations. Prices reflect what people think the currency is going to be worth. The changing lags reflect changes in what people think monetary policy will be in the future. If you look at it from that perspective, then targeting a price index stabilizes the price level, the inflation rate and the economy and does not destabilize it.

Now, I want to talk just a little bit about my own research with Robert Dittmar and Finn Kydland.[4] We show that commonly proposed rules for targeting inflation generate an enormous amount of uncertainty about the price level, and inflation, over the long run. We also show that much of the uncertainty is eliminated if the central bank adopts a target path for a particular price index as a long-run goal. The price level objective shows up as an error correction term in the inflation targeting rule.

We have used a variety of models to address this issue. Initially, our research was conducted in classical flexible-price models, such as those implicitly used by Irving

[4] Robert Dittmar, William T. Gavin and Finn E. Kydland, "The Inflation-Output Variability Tradeoff and Price-Level Targets," *Review,* Federal Reserve Bank of St. Louis (January/February 1999), 23-31, and by the same authors, "The Inflation-Output Variability Tradeoff and Price-Level Targets," *Review,* Federal Reserve Bank of St. Louis (July/August 1999), 23-33.

Fisher 80 years ago and in use by macroeconomists today. Recently, we decided to analyze this idea in the Phillips Curve model that is widely used in policy circles—inside and outside the Federal Reserve System.

The policy model has two components. One is a central bank that cares about both inflation and unemployment. Whether you call it unemployment or real output relative to potential, there is some measure of economic utilization in the model. The second component of the model is a Phillips Curve or, equivalently, an aggregate supply relationship that ties inflation and unemployment together. There is no long-run tradeoff between levels of inflation and unemployment, but there is a long-run tradeoff between the variability of the two.

The basic structure that we assumed is closely related to both Neoclassical and New Keynesian Phillips curves. If you look at the structure of the model used by the Research Staff at the Board of Governors you can see that to lower inflation in this model policy must reduce output or employment below some full employment level. You lower inflation by lowering the demand for output and, consequently, the demand for labor. And that brings prices down.

The Fed's objectives are often represented by a simple rule for the federal funds rate. A good example is the so-called Taylor rule, which John Taylor developed to represent the rule-like behavior observed in past FOMC policy decisions. There has been an explosion of research investigating inflation targeting rules similar in spirit to the Taylor rule.[5]

[5] John B. Taylor, "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy* 39 (1993), 195-214.

Our simple models are calibrated to econometric estimates of the Phillips Curve and the time series characteristics of real GDP in the United States. We assume that the central bank's inflation objective is known and credible. There is no upward bias to the inflation rate that is typically associated with discretionary policy.

Historical CPI inflation data from the G-10 plus Switzerland provide a benchmark for the amount of uncertainty associated with inflation targeting rules. For each country, the CPI level was indexed the 100 in 1957 and plotted through 1997. There is a wide range of experience. Germany goes from 100 in 1957 to about 300 in 1997—an average 3.1 percent inflation rate over 40 years. Italy goes from 100 to 1900—at a 7-3/4 percent average inflation rate over 40 years. These two encompass the inflation rates in the other nine countries. The mean inflation rate for the 11 countries is 5 percent.

We used our simple Phillips Curve model to conduct an experiment in which a central bank with a preference for both output and inflation stability targets inflation at 5 percent for 40 years. The central bank follows the optimal policy in response to a series of output fluctuations. We tried to be very conservative. The output process was calibrated so that fluctuations were about 2/3 the size of those in the Post WWII U.S. economy. We ran a thousand replications of this model and constructed 95 percent confidence intervals for the outcome for the price level and the inflation rate. Using conservative assumptions about the size of the slope of the Phillips Curve and the persistence in the output gap, we find that our 95 percent confidence intervals encompass the real world experience of both Italy and Germany. There is just an enormous amount of uncertainty about the price level inherent in the inflation targeting rules that economists are talking about at central banks. Canada, the United Kingdom, New

Zealand, and now the European central bank are targeting inflation. Our results suggest that these inflation targeting schemes do not provide a nominal anchor unless the central bank is focussing strictly on the inflation target and ignoring the state of unemployment and the business cycle.

Contrary to the predictions of our model, inflation has been unexpectedly stable in the 1990. This may be partly because central banks have used inflation targeting as cover to ignore the real side. But it is also true that output fluctuations have been smaller in the 1990s than they were on average for most of the last half century. It may also be true that the central banks are also looking at other indicators of inflation and price stability.

Another part of our research shows that inflation performance can be enhanced, without any cost to real output and employment, by adding a nominal anchor to inflation-targeting rules. The nominal anchor takes the form of a time path for a price index that is growing at the desired target inflation rate. You start out with the current price index, wherever it is (you don't go back to some historical level). Then you let it grow at the same rate as your inflation target, one or two percent a year. I think it would be difficult to get a consensus, either in the Federal Reserve or in academic circles, to adopt a target CPI inflation rate below one percent. Economists who have looked at measures of the bias in CPI inflation (as a measure of changes in the cost of living) claim that there is an upward bias and that one percent on the CPI would be and approximate measure of price stability.

Having a price level path chosen by the FOMC and widely publicized would do much to clarify monetary policy objectives. Over time, if the FOMC used that path for the price index as a benchmark for making policy, then, I believe, long run uncertainty

about inflation would approach zero. At least, it would be reduced as close to zero as we can get given the unavoidable uncertainty about the future of our governmental institutions.

In our experiments, the price level is almost never right on target. Following the optimal policy may cause it to stay above or below the long-term path for months, or even years, at a time. The key is that the FOMC always take into account whether it is above or below the path. Without the price level objective, the central bank must ignore unemployment to achieve price stability. Our research shows that with such a price path included in the rule, the central bank can aggressively attempt to stabilize the real economy and still achieve long-term price stability. We also show that it doesn't take a very large change in the way we are operating today to tie things down. It requires making a decision about the long-term objective and showing just a small amount of concern about the deviation of the actual price level from the target path.

That is the end of my prepared remarks. I promised to talk a bit about a role that gold might play in policymaking today. I think there may be a role, but these are just preliminary ideas that deserve further consideration. I
recently attended a conference in Woodstock, Vermont. The conference focussed on a problem that occurs when central banks use a short-term money market interest rate as the guide for running open market operations. The problem is that the central bank cannot lower the interest rate below zero. Consider the case of Japan today. The Bank of Japan's target for the call money rate has been 3 basis points. People who worry about the zero lower bound on interest rates (and I don't think this includes the Japanese

monetary authorities), believe that policy becomes ineffective when the nominal rate reaches zero.

The bulk of the conference time was spent talking about ways that a central bank might stimulate aggregate demand when the nominal money market interest rate is zero. There was also concern about deflationary spirals. Some suggested that the central bank could buy long-term bonds because long-term bond yields wouldn't be at zero. Others suggested the central bank could buy foreign currencies or corporate bonds. In all of these cases, the transmission mechanism for policy would operate through marginal changes on risk and term premia. Remember, we are talking about a channel of policy going from the short-term interest rate to aggregate demand. I don't believe the central bank could get enough leverage operating on these margins to have a measurable impact on aggregate demand.

But my concern is not about aggregate demand. I would worry that about the possibility of deflation. It occurred to me as I was sitting there that we have gold on our balance sheet and that, even if nominal rates were zero, we could adopt Irving Fisher's proposal to have a flexible short-run target for the price of gold. In principle, the Fed could buy and sell gold to achieve a desired inflation rate for a general price index. Of course, this is not going on a gold standard. These are only preliminary thoughts about what we might do if we really ran into that zero lower bound. I have not analyzed these ideas systematically, but perhaps I will be able to in the future. I look forward to your comments on this idea.