

"MONETARY POLICY IN A LOW INFLATION ENVIRONMENT: THINKING ABOUT UNCONVENTIONAL MONETARY POLICY TOOLS"

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The policy errors of the 1970s have been corrected, and after more than two decades of hard work, inflation is under control. But low inflation means a new set of challenges. Policymakers cannot be complacent. In many ways, their job becomes more difficult. Adjusting to the new environment means both changing the way in which they use the conventional policy tools at their disposal, and developing new tools designed to address the new challenges that they face.

We all hope that low inflation is a permanent state of affairs. With that in mind, I will organize my discussion around four questions that policymakers must face now that the bad-old days are gone:

- 1) How should they set their inflation objective? Since nominal interest rates can't fall below zero, is true price stability really the right objective?
- 2) How should they adjust their interest-rate instrument in response to shocks? Again, how does the presence of the zero nominal interest rate bound influence policy before we get there?
- 3) What should they do if disaster strikes, and the nominal interest rate target hits the zero bound, the economy is still struggling with growth below potential, and prices are falling?
- 4) Finally, and this is what's on many of your minds today, how should the central bank talk about all of this? Does low inflation mean a change in how policymakers communicate with market participants and the public?

Before getting to the answers, let me say at the outset that I agree with the overall theme of Chairman Greenspan's Jackson Hole speech, that central bankers are the risk managers for the financial system and the macroeconomy. And like any risk manager, their objective is to keep really bad things from happening. This means constantly assessing the entire distribution of possible economic and financial outcomes, focusing especially on low probability, high cost events. The issue, and this is there has been broad disagreement with the Chairman, is how to go about doing this.

Setting the Inflation Objective

Ingrained in my mind is the phrase "maximum sustainable growth through price stability." I'm tempted to call this the mantra of the Federal Reserve except that I don't hear

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people say it very often. It is easy to find references to Chairman Greenspan's definition of price stability. To quote from the fascinating transcript of the July 1996 Federal Open Market Committee (FOMC) meeting, "Price stability is the state in which expected changes in the general price level do not effectively alter business or household decisions [pg. 51]."¹ When pressed for a number by Governor Janet Yellen, Greenspan responded "I would say the number is zero, if inflation is properly measured." Several years later, in October 2001, the Chairman reiterated this definition of price stability, but added that as a consequence of "conceptual uncertainties and measurement problems, a specific numerical inflation target would represent an unhelpful and false precision."²

This is where matters stood for some time. The FOMC seemed committed to price stability, and yet was unwilling to define exactly what that means. Most analysts interpreted this to mean that the Committee was aiming for zero inflation, properly measured. And since estimates of the bias in the Consumer Price Index are about one percent, this meant that we should expect to see inflation drop to levels somewhere close to that level.³ I will sidestep the apparent Fed preference for the personal consumption expenditure chained-type index. For my purposes here, these differ only in the size of the bias. Bias in the CPI is higher. It is fair to say that by this standard, the FOMC has achieved its price stability objective. Aggregate inflation is well within the range of the bias.

Having lived with low inflation for a decade -- the 12-month change in the CPI has been below 3 percent since January 1994 -- we now have a somewhat new perspective. While everyone surely agrees that the central bank should strive to deliver low, stable inflation, the question is: How low? Because of the zero nominal interest rate bound, the answer is not zero, even adjusted for the bias.

Formal modeling confirms this common sense conclusion. The higher the inflation objective, the lower the probability of hitting the zero bound. While our models can spit out estimates of probability for a given inflation target, the numbers are sensitive to the exact construction of the model and the numbers that are fed into it. A sensible reading of literature on the subject suggests that increasing the inflation objective by 1 to 2 percent will reduce the probability of tolerable levels. Acting as our macroeconomic risk manager, my conclusion the FOMC should adopt a target that is between 2 and 3 percent, as measured by the CPI -- in the parlance of the Bank of England, they could "target 2½."⁴

¹ Greenspan was the second Fed Chairman to use this construction. In 1983, Paul Volcker argued that "...A workable definition of ... "price stability" would ... be a situation in which expectations of generally rising (or falling) prices over a considerable period are not a pervasive influence on economic and financial behavior... "[price] stability" would imply that decision making should be able to proceed on the basis that "real" and "nominal" values are substantially the same over the planning horizon -- and that planning horizons should be suitably long."

² See Alan Greenspan, "Transparency in Monetary Policy," remarks to the Federal Reserve Bank of St. Louis Economic Policy Conference, October 11, 2001

³ The most recent estimate from inside the Federal Reserve System is reported in Lebow, David E., and Jeremy B. Rudd, 2003. "Measurement Error in the Consumer Price Index: Where do we stand?" *Journal of Economic Literature*, Vol. 41, No. 1, March 2003, pp. 159-201.

⁴ A target based on the PCE chain index would be roughly one-half a percentage point lower.

Adjusting the Interest-Rate Instrument

When inflation is high, adjusting interest rates may be politically difficult, but it is conceptually easy. Everyone knows what has to be done -- interest rates need to be raised to reduce inflation. The only question is when to do it. Should policymakers initiate slowdowns in activity with express intention of reducing inflation? Or should they behave opportunistically, waiting for recessions to come on their own and taking advantage of the inflation reduction that follows naturally? These questions sound almost quaint from today's perspective.

With low inflation, our concerns are very different. Crucially, the looming possibility of nominal interest rate falling to zero affects policy when interest rates are above zero, too. Again, formal modeling and common sense give us the same answer. The prospect of hitting zero means acting earlier and faster. What looks like caution in moving slowly, can turn out to be very risky. This was surely on the minds of the FOMC members in 2001 when they reduced interest rates by 4¾. And careful research tells us that, when you are worried about hitting zero, the best policy is to first reduce interest rates quickly, and then keep them low for an extended period of time. The target federal funds rate has now been below 2 percent, and real interest rates have been negative, for nearly two years, and most business economists are forecasting that they will leave them at least into next summer. That seems like a pretty long time!

Being Ready Just in Case

What if none of this works? What if policymakers have an inflation objective of 2½ percent, reduce interest rates quickly to zero when the faced with a significant shock, and still the economy doesn't recover? What if they wake up one day and are staring into the deflationary abyss? Then what?

Being good risk managers, central bankers have thought about this. In the same way that they did contingency planning that enabled them to keep the payments system operating in the immediate aftermath of the September 11 attacks, they have extensive plans for how to address the problem of a deflationary spiral.

The solutions are well known, and so I will be brief. First, there is the commitment to keeping short-term interest rates at zero for a significant period. Since long-term rates are averages of expected short-term rates -- yes, the expectations hypothesis of the term structure does work -- this will keep long-term rates low.

Alternatively, the Fed could put a cap on the yields at longer maturities. In speeches last fall, both Chairman Greenspan and Ben Bernanke, his fellow governor, suggested that, once the target for the overnight interest rate hits zero, the FOMC would begin targeting longer-term interest rates.⁵ That is, they suggest that the Fed would put a ceiling on US Treasury securities interest rates at maturities of two, three or even 10 years. For example, the Fed might decide to put a ceiling of 3 per cent on the 10-year Treasury, while holding the federal funds rate at zero.

⁵ See Ben Bernanke, "Deflation: Making Sure 'It' Doesn't Happen Here," remarks before the National Economists Club, Washington, D.C., November 21, 2002; and Alan Greenspan, "Issues for Monetary Policy," remarks before the Economic Club of New York, New York City, December 19, 2002.

As a technical matter, this is straightforward. All the open market desk at the Federal Reserve Bank of New York has to do is stand ready to purchase and sell a particular set of long bonds at price consistent the interest rate target. If the market price exceeds the cap, the interest rate is lower than the target interest rate. Otherwise, the Fed's open market account will simply start to accumulate the bonds in question.

It is important to note that for these interest-rate based strategies to succeed in eliminating deflation the financial system must be functioning normally. That means that banks have to be intermediating loans. Banks are hub of the financial system, and provide the connection between the central bank and the real economy. They provide a critical channel through which monetary policy is transmitted. When banks stop operating, then monetary policy no longer works very well. Once we realize this, it becomes clear why the Bank of Japan's policies have been so ineffective and why the FOMC has succeeded in nurturing a recovery.

While I do believe that these contingencies suffice for the U.S., let me stop and insert a short comment on the current Japanese situation and what I would call the "unconventional monetary policy of last resort." Over much of the past decade, Japanese growth has been low, prices have been falling, and interest rates have been low. For the past three years, the Bank of Japan controlled overnight cash rate has been zero. What's left to do? Simply adopting an inflation target today, as some observers have suggested, is unlikely to do anything except make the Bank of Japan look bad. And implementing an ad hoc policy of "quantitative easing," in which the BoJ decides each month how much to expand the monetary base, has been ineffective.

There is another option. Several years ago, Lars Svensson suggested that Japan should adopt a temporary exchange-rate target coupled with a long-term price path target.⁶ His proposal is still sound today. The quantitative easing would then be systematic. Initially, the Bank of Japan would increase the monetary base until the yen depreciated significantly, and then it would be manipulated until domestic prices reached the desired path. I use the term "price-path targeting" to emphasize that this is not a zero inflation target in which the price level is returned to some earlier level.⁷ And apropos of my earlier comments, it is appropriate to set a price-path target based on average inflation of several percentage points.

Let me emphasis that these unconventional policies begin when the federal funds rate hits zero. Some people seem to believe that they will begin before that. One argument is that the FOMC cannot reduce the fed funds target below $\frac{3}{4}$ percent or so because doing so would disrupt the operation of money market mutual funds. While it may make it harder for the managers of these funds to cover their short-run costs, the argument ignores that commercial paper rates are determined by supply and demand. I would think that the cost structure of these funds puts a ceiling on what they are willing to pay for commercial paper, and that this then puts a floor on the commercial paper rate. The fed funds rate can fall lower, but the commercial paper rate can't. This attenuates the impact of further fed fund's rate cuts, but it would not force the FOMC to

⁶ See Lars E.O. Svensson, "The Zero Nominal Interest Rate Bound in an Open Economy: A Foolproof Way of Escaping the Liquidity Trap," NBER Working Paper No. 7957, October 2000.

⁷ This is the proposal made by Ben Bernanke in "Some Thoughts on Monetary Policy in Japan," remarks before the Japan Society of Monetary Economics, Tokyo, Japan, May 31, 2003. In that speech, Governor Bernanke proposes that the BoJ "announce its intention to restore the price level ... to the value *it would have reached* if, instead of the deflation of the past five years, a moderate inflation of, say, 1 percent per year had occurred" (emphasis in original).

commence unconventional policies before the target hits zero. But then, as a technical matter, the unconventional policies will force the fed funds rate to zero.

How Central Bankers Should Talk⁸

Finally, we come to the issue that is on all of our minds today: Central bank communication; and specifically, FOMC communication. As everyone in financial markets around the world knows, the Federal Reserve's Federal Open Market Committee now makes a public statement at 2:15pm Eastern U.S. time immediately following each of its scheduled meeting. But it is important to keep in mind that this is a very recent phenomenon. In fact, the first public announcement of a move in the Federal Funds rate target was on February 4, 1994, and the regular issuance of a statement became an official feature of the FOMC's procedures on January 19, 2000. Before that, it was customary for FOMC policy changes to be communicated to market participants through actions rather than words. Greenspan and his colleagues have worked diligently for a decade to remove an additional uncertainty – the uncertainty they themselves create. We have come a long way from the days when central bankers relied primarily on obfuscation and mystique, claiming that even accurate information could be misinterpreted and result in undesirable financial market volatility.

Nevertheless, there are still substantial problems in the current system. And these difficulties will persist even if the FOMC were to announce its objectives clearly and publicly. My sense is that terse statement that comes at the end of the meeting and the environment in which it is interpreted is the primary culprit. Here something has to change.

The essence of good monetary policy is that the economy and the markets respond to the data, not to the policymakers. Policy needs to be transparent. But transparency is not nudity. Understanding policymakers' contingency plans does not mean laying the policymaking process bare for all to see. Monetary policymakers should not put cameras in the meeting room. But they do need to find a mechanism for giving us a better sense of how they are likely to react to unfolding events.

I believe that the best solution to this problem is to make two explicit changes, one involves goal clarity and the other relates to the timely publication of the minutes. There is a growing chorus of voices calling on the FOMC to provide us with a public statement of its objectives. This brings us back to Chairman Greenspan's risk-management view of central banking. What risk is he managing? Without clear objectives, there is no way to even start talking about risk. And if you can't evaluate risk, there's no risk to manage.

To improve clarity of communication, the FOMC should eliminate the balance of risks assessment at the end of the statement issued following each meeting, and accelerate publication of the minutes of the meeting.⁹ The confusion surrounding the changes in the balance of risks

⁸ As I was writing this, the September 12, 2003 US Economic Analyst from Goldman Sachs entitled "The Need for Clear Communication" arrived. Bill Dudley's essay contains a more detailed (and more clearly written) justification for the recommendation I discuss in this section.

statement this spring made the deficiencies of the system clear. When it mattered most, when everyone was anxious about economic prospects, the FOMC changed the wording of the statement creating confusion.¹⁰

The obvious solution is to eliminate the statement of the balance of risks, and issue minutes more rapidly. Minutes are anonymous summaries of the arguments made by participants, providing a detailed window into the deliberations. While FOMC meeting participants do say the same thing in public that they say in the meetings, because some individuals give very few speeches they are no substitute for a detailed summary of the meeting.

Current practice is to publish them after the following meeting, significantly reducing their usefulness. By contrast, the Bank of England's monetary policy committee publishes minutes two weeks after the meeting, when they can still inform observers about what is likely to occur at the next meeting. Can't the FOMC do the same?

Finally, FOMC members really need to watch what they say and how they say it. In retrospect (and probably in prospect, too) having a central banker stand up and discuss their concerns about deflation and unconventional policies is a mistake. I'm sure that when Fed officials decided to start talking publicly about deflation they had good intentions. The point was to reassure people that they had the weapons to face the problem. And I was reassured -- not that I really needed to be. But for most people, including financial market participants, the immediate reaction was "You're thinking about THAT?!"

As a number of people have observed, the Fed doesn't start talking about financial instability as soon as they get worried about it, and for very good reason. When a government official says that the possibility of a panic has gone up, people panic. By discussing deflation, and mentioning it repeatedly both implicitly and explicitly over the next six months, they created a sense of panic and a dramatic decline in risk tolerance. At the very least, when the FOMC and its members said that further declines in inflation would be unwelcome, they should have said either that further increases would be unwelcome as well, or told us how large an increase they were working to create.

Over the years I've come to the hard conclusion that even sophisticated people don't understand small risks. They react emotionally rather than analytically. This is the only explanation I can muster for why we are spending such enormous amounts of time and money to make our airports and airplanes safe, while our cars are so dangerous. Saying that there's a very

⁹ On March 18, 2003, the Committee said that uncertainty was so high they couldn't even characterize the balance of risks. And then, two months later on May 6, there was entirely new construction.

¹⁰ At the end of its March 18, 2003 meeting the FOMC did not use one of the three stock phrases in its arsenal. Instead it said: "In light of the unusually large uncertainties clouding the geopolitical situation in the short run and their apparent effects on economic decision-making, the committee does not believe it can usefully characterize the current balance of risks with respect to the prospects for its long-run goals of price stability and sustainable economic growth." The result was confusion. Central bankers are conservative in every way and especially careful with their words - that is one of the primary qualifications for the job. So why would they refuse to follow the protocol? Was it a signal of a higher probability of an interest rate change before the next meeting, scheduled for tomorrow? How could things be so unclear that even the experts, with hundreds of Fed staff, did not know whether interest rates were more likely to go up, or down, or stay the same in the next few months?

small risk of deflation, focuses attention and elicits a disproportionate response. Instead, top officials should refrain from making public speeches about contingency plans. To the extent that contingency planning is part of the discourse with academic monetary economists -- and I would place the discussions of unconventional tools in that category -- then the research done inside the Federal Reserve should be presented, discussed, peer-reviewed, and published. But for the principle decision makers to then discuss this is, in my view, a mistake.

Concluding Remarks

In closing, let list my recommendations. And while the NBER eschews explicit policy recommendations in its own publications, these suggestions to improve our monetary policy are very much the result of the research done by the monetary economist affiliated with the NBER. First, the FOMC would be well served by adopting an inflation objective of a year-on-year increase in the Consumer Price Index of between 2 and 3 percent; and that this objective should be announced publicly. Second, misunderstandings between policymakers and the markets would be reduced (but not eliminated) if the minutes of FOMC meetings were published with a two-week lag. And finally, I believe that it is unwise for Federal Reserve officials to give speeches discussing the extensive contingency planning that is going on inside of the system.