

## General Discussion: How Should Monetary Policy Be Conducted in an Era of Price Stability?

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*Chair: Andrew Crockett*

*Mr. Crockett:* Thanks very much Mike. We have about fifteen or twenty minutes for general discussion, so I will open the floor. First is Wayne Angell.

*Mr. Angell:* It seems to me that in the last twenty years, we have had two very good periods of central bank operations—from 1981 to 1984. And we ended up getting a very good paper from Mr. Hall. And now we have had a very good period of monetary policy since I left the Fed in 1994, and I think we should congratulate the FOMC for this fine policy and, once again, we get a superb paper from Mr. Svensson.

Now, why am I complaining about getting good papers and good policy? Well, I am going to complain because Svensson's paper talks about words and action and credibility. I do not understand why the FOMC, in May and June, refer to the output gap as if to wish to raise inflation expectations. The core CPI, December 1998 over December 1997, was up 2.4 percent. How fine it would have been if the FOMC, in May and June, had said that that was not good enough and that they would like the core CPI to be at least 2.0 or below and that is why they were taking the actions that were taken. Instead, the FOMC refers to the output gap model that presumes that inflation will rise. Inflation expectations rising, of course, raises long-term real interest rates.

I would be happy for Mr. Svensson and the other commentators, Meltzer and Woodford, to comment on my audacity or the action in regard to the words we received. I am very pleased that core CPI for the first seven months of 1999 has averaged at an annual rate of 1.7 percent. It would be very nice to get core CPI down to at least 1 percent. That might imply that rising house prices would be inconsistent with getting core CPI down given the owners equivalent rents strong position. Thank you.

**Mr. Crockett:** Thank you, Wayne. We also have a number of FOMC members in the room. You might have asked those to comment as well, and I will recognize them if they would like to respond. In these days of transparency, I expect a response.

**Mr. Fraga:** In many ways, we are discussing and thinking about how to respond to shocks and how to make that credible and how not to fall into a time inconsistency trap. I think about this day and night, and one mapping that I have not been able to formalize or quantify is the mapping that goes from the targeted path that we have been given to the band that we have. Do we have anything to say on how wide that band should be? At the Central Bank of Brazil, we see the band as signaling how we will respond to supply shocks. It signals how much room we have, but, as of yet, we are doing it somewhat informally and intuitively. We need a better framework to determine how wide the bank should be.

**Ms. Rivlin:** This question is for Lars Svensson. If you believed, or you were forced to accept by some governmental action, that the goal of a central bank should be “maximum sustainable growth,” would your paper be any different? Would adopting such a goal, in your opinion, be just a verbal sop to the public or would it make a real difference in how the central bank operated?

If we are entering an era of low inflation—one in which the liquidity trap is not just something you read about in a textbook, but something that might really happen, and is perhaps happening in Japan—then isn't this absolutely the wrong moment for a country that does not have an inflation target to adopt one? Lars and several other authors have

suggested that the way out of a liquidity trap is to have a minimum inflation target as well as maximum. But then the central bank is forced into saying, “Our inflation has fallen below our 2 percent minimum, so we must do something about it.” However, the general public does not think that low inflation is a bad thing. The central bank will be defending the proposition that it must act because inflation is too low when most people think the real problem is that growth is too slow or that unemployment is too high. The central bank will be seen as talking nonsense, which will not help its credibility.

**Mr. Levy:** I would just like to comment on the output gap as it has been used generally in this conference. I find that it can be sometimes misleading and potentially dangerous.

I have two points. First, the use of the output gap can imply that real growth is the source of inflation without regard to whether the growth is supply driven or demand driven, and it generally ignores the role of excess demand relative to productive capacity as the true source of inflation.

Second, I don’t think any of us have a clue of what the output gap is; I certainly don’t. We have no clear thought of what potential growth is. I think the 1990s are a good example of how the perception of sustainable productivity growth and output growth have changed. I find it amazing how ex-post and seemingly arbitrary changes in the estimated potential growth can change the estimated output gap, with associated impacts on models, and the way the Fed would respond to it.

**Mr. Freedman:** I have a couple of comments on liquidity traps and then one on the output gap. The notion that the Japanese could announce an inflation target and then use the credibility from that to get out of the problem is problematic. In fact, (coming back to a point that I think was made by Michael Woodford and, as well in the picture that Lars put out for the Swedish case) the announcement of inflation targets when the inflation rate is above the target, which is the case in some of the countries that announced inflation targets, resulted in a period in which expected inflation was considerably above the target until the actual inflation rate came down. In other words, the mere

announcement does not necessarily lead to expectations coming down, and I would hypothesize that the same thing would be true in the reverse case. Although we have not had any cases where one is starting off with inflation well below a target, it would take some period of time until expected inflation moved up to the target band, which brings us right back to the question of how you get inflation up in a case like Japan.

Secondly, Lars' transversality condition is interesting, but I am not sure how much it would affect the market.

Thirdly, Allan Meltzer's pictures show real long-term interest rates as -6 and -8 percent. Allan, I am very puzzled about how you get that. Are those actual ex-post real interest rates?

*Mr. Meltzer:* Ex-post.

*Mr. Freedman:* Well, they certainly could not be ex-ante expected real interest rates at that time and, therefore, I am not sure if they are meaningful from the point that you are making.

Finally, to pick up on something that Mickey Levy said, the notion of the output gap, which we take as a given in a lot of the analysis, is something that in practice is very, very difficult to pin down. We note that from the American experience and from Canada at the moment, that capacity may be considerably larger, hopefully, than all the models suggest. And, of course, as you approach measured capacity, you are sitting there wondering, "Well, okay, should we be raising interest rates because we are approaching capacity." Or, in the absence of any other indication of inflationary pressures, is that telling us that capacity is considerably larger than we thought?

This is an ongoing problem, except in times when you really do believe those numbers. It is not a problem if you have a very large gap one way or the other. But as you get close to a measured zero gap, it becomes a real issue, especially at times of transition.

*Mr. Frenkel:* I also like the paper very much. I have a couple of comments concerning the specific part on contingency plans. I must

admit that I am a little bit worried about this. You said, in a tolerant way, that the central bank might create a special window of lending directly to the private sector. I am very worried about this, especially since it raises the question, “To whom to lend and at what terms?” rather than using and cultivating the usual intermediaries. And, by the same vein, you were a little tolerant to money financed fiscal expansion, which, again, is against the grain of the important division between monetary and fiscal policy. It plants the seed of potential moral hazard, especially since a crisis period is not in black and white. It has many shades of gray. When you get into a crisis, I do not know how you get out of it if you are going in this particular way. Again, in the same vein, the idea of temporarily raising the inflation target and then lowering it gradually, we must remember it all happens in the context of lost credibility. In a context of lost credibility, to temporarily raise the inflation target with the hope that it will pave the way for subsequently lowering it raises a little problem.

**Mr. Brinner:** I just wanted to comment on this question of output gap. And who knows what output is? I think you can divide it usefully into two questions. One is, how much output does it take to produce a given unemployment rate? And second, what is the normal unemployment rate against which prevailing unemployment should be measured?

I think if we talk about an unemployment gap instead of talking about an output gap, that would eliminate the uncertainty inherent in the first, and then you could just focus on the second. And focusing on the second, I think there still is very strong evidence that if you make a simple demographic adjustment, like Perry suggested decades ago, to demographic groups unemployment rates, you still do find a regular relationship between unemployment gaps so defined and inflation.

**Mr. Blinder:** I have just two very brief questions about this theoretical issue between Svensson and Woodford about time consistency and commitment. The first, for both of them, is where do you come out if, in fact, the model has both backward and forward-looking aspects—as surely any true model will? That is, which is the fragile state in terms of this issue—the purely backward or the purely forward?

The second question is, in the case where the whole panoply of how central bank policy is conducted is constantly being re-evaluated in terms of new information, including this history-dependence, how the private sector would know this? How would the public know that, in fact, the central bank was following the consistent policy to which it was committed?

**Mr. Poole:** I want to comment and extend Mike Woodford's point. The federal funds rate and, of course, the analog in other countries as an overnight rate, is one of the least important rates in the economy from the point of view of the behavior of most demanders and suppliers of goods. And, clearly, the way in which monetary policy works is through a term structure and expectational effects as the federal funds rate changes or does not change.

For policy to have any predictable effects, the Fed has to rely on the markets understanding how that process works or, otherwise, there is no hope for the policy-makers to be able to predict what effects they will have on inflation and output over the course of the future.

So, it seems to me that the point that Woodford was emphasizing—that the markets must understand what the central banks are going to do in a reliable way—is essential for the central bank to be able to predict the outcomes of its policy changes.

I also want to offer a generalization on his discussion in terms of shocks. I do not think it is inconsistent with what he was saying. In fact, I want to just generalize that with a daily flow of information, day by day, there is information arriving in the marketplace and the central bank and the markets need to have a common view of what that information means for policy to be effective.

**Mr. Crockett:** Thank you very much. Now, we will give up to two minutes each to Lars, Allan, and Mike. And if they could hit on the main points of the questions that have been raised and, in so far, as there are other subjects that are hard to cover in such a short period of time, we can leave those for the break a little later. Lars first please.

**Mr. Svensson:** I thank everybody for their comments. With only two minutes, I can only reply to Allan's and Mike's comments. I apologize to the others. Let me start with Allan's comments. If there are strong real-balance effects, that is no problem for forecast targeting. It just means that real balances should be incorporated among the indicators. I hope Allan is right about the effect of monetary expansion in a liquidity trap, because then we have much less to be worried about.

With regard to Mike's comments, I find his defense of a commitment to a simple instrument rule quite fascinating. It would be very interesting to see the idea of continuous re-evaluation of and recommitment to a simple instrument rule, in a timeless perspective, be tried out in practice. It would be very exciting if one of the governors present here decided to adapt this in his or her central bank. However, it would be very different from today's inflation targeting. It would mean that instead of an Inflation Report, you would have to publish an "Instrument Rule Report" where you explain what the new revised instrument rule is and what motivated your revision of the previous one. It would be a very different way of conducting monetary policy.

More seriously, I do not think this will solve the problem. It would have to be a *simple* instrument rule, in order to be verifiable. Therefore, it would still be inefficient. If it were the *optimal* instrument rule, it would be too complex to be verifiable. We have never seen an attempt like this in monetary history, and I think we are unlikely to see it in the future.

Instead, I think the best way to introduce commitment in monetary policies is commitment to a *targeting* rule rather than to an instrument rule—a commitment to do whatever it takes to minimize the loss function.

Regarding Mike's point about the potential time inconsistency of forecast targeting, I think transparency helps a lot to enhance time consistencies. Transparency really makes it very difficult for the bank to deviate from what it has announced previously without very good reasons. Any such deviation without good reason would be spotted and

scrutinized by the outside experts, and they would give the bank a hard time (as they have on occasion).

In addition, the model Mike uses to criticize forecast targeting is extremely forward-looking and exaggerates the time inconsistency problem. This is also a reply to Alan Blinder's question. If there are more backward looking elements in the model, there is more inertia, there is more pre-determinedness, and then the time-inconsistency problem is less severe. In the real world, for the next few quarters, most things are predetermined. Central banks have to look forward up to eight quarters or so. I believe that reduces the time-inconsistency problem quite a bit.

I have probably used up my two minutes. I apologize for not being able to respond to the other comments.

**Mr. Meltzer:** I have a simple task because most of the questions were not directed at me. To respond to the question from Chuck Freedman, look at Chart 2 and make a choice between two alternatives. One is that the real interest rate, measured as the ex-post real interest rate, remains negative for more than a year but that on every day, and by 8 percent for most of the time, people thought the inflation rate was going to rise by 8 percent for a whole year but it never did. So they continued to act on the assumption that it was going to. That is one explanation. That is your explanation. Mine is that they believed that there was, in fact, going to be a real interest rate somewhat similar to the ones that are shown on the chart. In any case, the periods are too long for an explanation that makes the gap between ex-ante and ex-post as large as measured by the data in the chart.

I would like to agree and reinforce what Bill Poole said. It is not just a term structure, but it is really all the relative prices between assets and output. If you have sat in this conference you have heard central bankers and others talk about these issues. They talk about the information content of stock prices. If a short-term interest rate has all of that information, then there is no information content in stock prices. And the same is true of housing prices and all of the other prices. Central bankers would only have to look at a single interest rate, the one

that they set, and get all the information that they need to judge what is going on in the economy. That seems to be an argument that falls flat. There is more information in the market than the interest rate that the central bank itself is setting.

**Mr. Woodford:** First, I should say something about the question that Alan Blinder raised and that Lars had also commented on about whether the problem that I pointed to depends on the model having only forward-looking elements. I think this is not true at all. The simple example in my comments is a model with no persistence at all in the model itself. It is a very forward-looking model. This makes the contrast very sharp because, under discretion, the effects of shocks last only as long as the shocks themselves. And the same is true under other prospective policies. But, the general point about the problem that is caused by discretionary optimizing or other purely prospective procedures will be true if there is any forward-looking element at all. Of course, if the forward-looking element is very small, perhaps, the problem is not too important. But the point is a very general point as long as expectations about anything matter for the behavior of the people in the private sector and those expectations are even partially affected by commitment to a different kind of systematic behavior. Of course, asking quantitatively how much this matters in a realistic model depends on studying it in the context of actual models.

People who have been looking at this in the context of models that have some degree of both forward and backward-looking elements, I think, do find that there is an important difference between discretionary procedures and forward-looking procedures. As an example of this, I might point you to a recent paper by John Williams at the Federal Reserve Board that looks at this sort of issue in the context of the FRBUS model, which is quite a large model that has many backward-looking elements but also important forward-looking elements based on private sector optimization on the demand side and in pricing behavior. What he shows in the context of analyzing the properties of different kinds of simple rules in his recent paper (called something like *Simple Rules for Monetary Policy*) is that rules that have this kind of history dependence have important advantages over less history dependent rule. In particular, in connection with the issue that came up

in yesterday's discussion of whether a Taylor Rule that involves the interest rate change, as opposed to just the current level of the interest rate instrument, results in better properties. He finds much better properties of the interest rate change type of rule than the simple Taylor Rule in the context of the FRBUS model. Similarly, he finds that introducing history dependence through commitment to a price level target so that past deviations of the price level from target will be subsequently undone, again, has desirable properties in the context of that model. And it is basically because the forward-looking elements that are in the model make these things important, even when you have very significant backward-looking elements still in the model.

Another issue that has come up, both in Alan's question and in Lars' discussion, is whether there is a problem of verifiability of the kind of rule-based procedure that I was suggesting. I think that is an important issue. I think there is an obvious advantage of actual commitment once and for all to a simple rule in this particular regard. If it is really a one-time commitment to a simple rule, you just state the rule, you say you are committed to it. That obviously makes verifiability, enhanced credibility much simpler. Nonetheless, for the reasons Lars was stressing, that is unlikely to be adopted and, in fact, undesirable. I do not think there is a problem of verifiability that is greater with the kind of procedure I was describing and the kind that Lars was endorsing. I think that, obviously, what you need to do in the case of a procedure that involves a lot of reaction to current information as it comes in is to try to make the process transparent. To try and explain to the public as well as you can what it is you are doing. Frequently report to them on what you are doing. I think the kind of moves toward greater transparency (the process that, for example, the Bank of England has perhaps led the way in doing through their inflation reports) are the kind of thing that would be needed. Lars seems to think that there would be a greater problem in writing the kind of report that he thinks the rule base policy-making would require than the current inflation reports of the Bank of England that obviously sound a lot like the framework he was describing. I do not see why that would be true, though. What is important is that you frequently explain to the public your decision making in terms of the model of the economy you are using and dis-

cussing how it has justified your current reading of current conditions and the kind of rule that you are trying to follow.

**Mr. Svensson:** May I once again draw the attention to a fine speech by Alan Budd cited in my paper and published in the Bank of England's Quarterly Bulletin? It is on precisely this issue—whether you want to go from current information directly to the instrument, or whether you want to stop in between and discuss the forecast, and the pros and cons of these two alternatives. It a very fine speech and I strongly recommend it.

**Mr. Crockett:** Let me thank the panel for a very interesting paper and comments and for simulating a fascinating discussion. Thank you very much.

