

# General Discussion: Overview Panel on Global Inflation Dynamics

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*Chair: Erica L. Groshen*

**Mr. Kroszner:** First, on Raghuraj Rajan's point on the political economy challenges, I think that is very refreshing to hear that because it is very difficult to talk about these issues. And I think the last one you spoke of in some sense kind of a constrained discretion regime, I think is effectively how most central banks operate and practice, even if it's difficult to describe it in that way because I think as Stan Fischer and others had mentioned, there are judgment calls involved in exactly when is inflation going to come back. We should be looking forward, not looking backward, but that means it's based on forecasts, and forecasts, of course, can diverge. And as we heard in the discussion from everyone here, there's a lot of uncertainty about exactly where that goes. So, first question is to Raghuraj, if he could flesh out this constrained discretion approach? How do you interact the use of models, like many of the models that you've been talking about, as a basis for what you want to do with the appropriate amount of discretion? A second quick question is on inflation expectations. I think the three first speakers all mentioned something about inflation expectations, but one of the jokes that I sometimes had with the staff at the Fed when I was there is that inflation expectations are well anchored until they're not. That is, that it's very hard to know the process. So, we've been talking a lot about the dynamics of actual inflation outcomes.

I think it's clear inflation expectations play an important role. There are different views on the value of forward guidance. We certainly heard Vítor Constâncio speak about that, perhaps it's not extremely important. I think the other speakers may have a different view on that. So, I'd like to think about that process, if we can think about what actually does anchor or unanchor inflation expectations, and what are the tools the central bank has best to deal with that. And not just the traditional inflation targeting regime, but the technical tools in the shorter run to try to affect that?

**Ms. Gopinath:** I just wanted to comment quickly on Stan Fischer's chart where he showed a model simulation for a 10 percent dollar appreciation. First, I'm glad to see those numbers line up quite closely with what I had yesterday. And second, the fact that this is very front-loaded. I think it's actually probably more front-loaded than what this figure shows. I think most of the effects show up in the first two quarters, not even one year out. And this long effect that you are seeing five years out probably is insignificantly different from zero. So, it's really very heavily front-loaded. This implies most of the effect is going to be fairly transitory in terms of the impact on inflation as long as it's not going to have an effect on inflation expectations. To reiterate what I was saying yesterday about these impacts being relatively small, and also if you compare this to the impact of the same kind of a 10 percent appreciation for any other country. For most other countries, the effect is about two to three times as high as it is for the United States. So, I understand compared to a zero percent number, a 0.4 percent number looks big, but these are still relatively small.

**Mr. Feldstein:** Two comments. First for Vítor Constâncio. Last year at this meeting, Mario Draghi came and he explained at lunch that the eurozone won't be able to get back to strong recovery through fiscal policy or through structural reforms, although he hoped that both of those might happen. But instead, it would take a reduction in the value of the euro, which would come about as a result of the European Central Bank (ECB) maintaining low interest rates while the U.S. interest rate increased. So, certainly the euro has fallen very sharply relative to the dollar, about 20 percent, in the last 12 months. So my question is two-part. How well has that worked? How well has

the exchange rate policy of the ECB worked in terms of increasing real incomes and inflation? And more specifically, if U.S. rates now do begin to rise over the next 12 months, what impact do you think that will have on the euro, on economic activity and on inflation in the eurozone?

And then second, I have a comment on what Raghuraj Rajan said about the Volcker disinflation, which was really quite remarkable, from 11 percent in the middle of 1981 to less than 3 percent two years later. But the good news is that Volcker wasn't out of a job. He kept his job, and although he had been appointed by a Democrat, he was reappointed by Ronald Reagan. What happened in that process of disinflation was driving up the Treasury bond yields to more than 14 percent. Last summer, as part of the NBER's celebration of the 100th anniversary of the Fed, Paul Volcker came to the Summer Institute and I had a chance to interview him. I asked him innocently, "Well, how difficult was it to persuade your colleagues on the FOMC to increase interest rates?" And he said, "The Fed didn't increase interest rates. The market increased interest rates. All that we did was to reduce the growth of the money supply." So, it tells you something about effectively disingenuous communication of monetary policy.

**Ms. Mann:** I want to develop a little more what Gov. Rajan was saying about distributional consequences, and if somehow they would all equal out over the business cycle if it was a short enough time period. From a model perspective, what that means is that the rate of growth of output is going to be greater than the rate of growth of potential output, and in fact we're going to have a positive output gap. That's how we get back the resources that were unemployed or underutilized in the period of recession. And by symmetry, it also means that inflation is going to be greater than your targets. Those two things are ingredients of a symmetric approach to the monetary rule. Now, it seems though that it's very challenging to have those things happen, that we don't seem to have output gaps that are positive; and it seems like every time we get close to target, it's viewed as we're about to lose control. Does it mean that this notion of symmetry, which Jacob Frenkel mentioned yesterday as well, that this is fiction, and this is not just a comment to you, but it's also a comment

to Stan Fischer and to Vítor Constâncio. But it's also very relevant for Mark Carney because the Bank of England is one that has actually had experiences of reaching your target for kind of a long time, longer than anybody else at the table I think in recent memory. And you've been able to communicate effectively and maintain your anchored expectations. Can we really be symmetric, because I think that's what we need to do to unravel the negative consequences of this long period of negative output gap.

**Mr. Li:** A very interesting panel, thank you very much, and a very simple question for Stan Fischer. What have you learned from the recent feedback in the financial markets from the Chinese stock market downfall to Europe and the United States, taking into account the fact that the perceived potential hike of the U.S. Fed is one, not all, of the factors behind the Chinese stock market downfall?

**Mr. De Gregorio:** This is regarding Stan Fischer's comment on the role of the exchange rate on inflation dynamics. He mentioned the role of the dollar in holding inflation down in recent months. So, my question, and it's in general also for Europe (we see the same), but I would like to know how the fall of the dollar during the global financial crisis kept inflation from falling to deflation. We would say the same thing in recent months with the fall of the euro, and in general the countries that are in a weak cyclical position, also weaken their currencies which add some inflationary pressures and may avert deflation.

**Ms. Forbes:** This is a question for any of you that have thought about this. Yesterday, Thomas Jordan raised an interesting point that in Switzerland, after accounting for exchange rate effects and pass-through effects, he was seeing increased sensitivity of prices in Switzerland to prices in neighboring countries. He stated this was because of the ease of buying something across the border, especially related to changes such as Amazon and the ability to shop online. I was wondering if any of you have seen any evidence that after adjusting for slack, commodity price movements, exchange rate pass-through and those types of standard effects, if you've seen any additional sensitivity of inflation in your countries to inflation in neighboring countries, or just inflation more generally? Or, to link this to the first paper today, one thing we should consider thinking about in expanding our

models is the fact that low inflation globally, or especially in certain neighboring countries, might be exerting an additional effect on our inflation dynamics. Should this be included in our models in way we aren't doing yet?

**Mr. Hoenig:** I was, in the past, a central banker myself. The first thing I want to do is prove that you tend to stand where you sit. So, my comments are coming from that perspective, and that is I first want to thank Mark Carney because I too was relieved and pleased that the major financial institutions did show some important resilience during this recent crisis, or I should say turmoil. I don't want to say crisis. But I want to make the point to this panel how important it is, I think, that since this past period, the central banks and supervisors have been so insistent on stronger capital that I think gave the resilience through that period. And that's particularly important now because what I'm seeing is increasing market pressure to back away from those strong incentives toward capital and the leverage ratio. I saw it when they were talking about liquidity being a big problem in this because of the capital requirements, rather than the capital requirements being a strong factor for the resilience. So, I keep that in front of me, and I would encourage the panel to keep that. And I would say to Raghu Rajan that there is another way to bring inflation down quickly, and that is to have a financial crisis. And I don't recommend it.

**Mr. Carney:** To pick up on Randy Kroszner's question on inflation expectations; how do we address this? I think the first is being clear about how you're measuring it, and being very broad. The Bank of England now publishes all the measurements and their standard deviations from historic averages across a very broad range of surveys, plus the financial market indicators. And then we do the next level, which are adjustments in the sensitivities of these indicators to surprises in data. And there's some discipline around the measurement of these through a heat map. Secondly, I think in terms of communication, obviously clarity in the current environment of how we see the oil shock, the one-off nature of it. Enjoy it while it lasts is sort of our mantra here. We are monitoring to see if it seeps into wage developments. We have to be clear about our objective in terms of how we're going to bring inflation back to target, over what horizon,

and I think that discipline helps as well. Obviously, we also have to be clear when we fail, an ex-post accounting of forecast errors or outcome errors, and that is a painful process, but also can help build some credibility.

I would say quickly to Catherine Mann, on that last point, it's not clear that we necessarily, consciously counterbalanced with excess demand and higher inflation during the period. There's looking through with intent, and there's looking through ex post, and there was as much of the latter as the former. But there are instances at the Bank where the horizon has been explicitly extended for reasons including hysteretic effects. In February 2013, before I arrived, the Monetary Policy Committee stretched the return of target from above out to three years. We did the same in August 2013 with forward guidance. And that is a way to adjust it. I would argue, though, that it is not about excess demand. I would take one issue, if I may, with Raghuraj Rajan's framing. It's always dangerous to do, but he used the word "choices." We make choices all the time about distribution. We make choices about the horizon over which we will return inflation to target. We make choices about how we try to achieve financial stability. They have consequences, and they have consequences for distribution, but the right nexus to address those consequences is in the broader political sphere.

And then on Tom Hoenig's point, I absolutely agree. It's very important to reinforce this, and it's very important to reinforce this in a global sense as well, because when you look at some of the nature of some of the challenges in China, you have some familiar aspects. You have quasi-structured investment vehicles; you have a lot of off-balance sheet debt; you have the absence of that debt being reintegrated in a leveraged framework; you have less capital than it appears; and you have the consequences that propagate through that system. Given that it is less connected to the global system, it has fewer ramifications at this point. But that will not be the case 10 years from now because we will have properly integrated those systems on common standards.

**Mr. Constâncio:** I have one direct question and I will also comment on inflation expectations. But coming to Martin Feldstein's

question, my reading of Mario Draghi's speech last year is not exactly the one you got, which of course these things happen all the time because we had just taken the package of measures in June, and the important message of that speech, in my reading, were the following: first, the recognition that there was a more severe problem of lack of demand and cyclical unemployment in Europe. So, more was necessary. It was the first thing. And then, he spent the last third of a speech talking about the help that he expected from fiscal policy using all the space that would be available within the rules, and also insisting very much on structural reforms. And so in September, we had a second package as a consequence of that speech, which was repairing that. And finally in January, we went into a broad QE program. It was not relying so much on the exchange rate, a fact which was unavoidable when we have expansionary monetary policy, but *ex post* what we see is that the pass-through from the exchange rate is not very significant. But other channels of the policies that we had decided are working were working very much significantly, especially until June when the new decline in the price of oil affected again headline inflation. Nevertheless, in December last year and the beginning of this year, we had negative headline inflation, and that was then corrected. More importantly also, we totally stopped the decline in inflation expectations and we indeed looked to a broad spectrum of indicators about inflation expectations, and we saw that there was a reverse. It has now declined a bit after June because of the price of oil. But at the same time, the core inflation has firmed itself from a level at the beginning of the year where it was 0.6 to 1 percent now. So, the facts on the rebalancing of portfolios, on equity prices, on bond prices and yields, all those other channels of the type of policies we adopted indeed have been working. There have been other shocks—Greece, oil, Ukraine, many other things. We cannot assess the effectiveness of a policy just by looking at what happened after we took the measures. We would have to build a counterfactual world, which is always very difficult to do out of models to really assess. But think about what could have happened if we had not adopted such policies with all the shocks that we had, for instance Greece, and as a result of our policy there was virtually no contagion within the euro area of the turmoil in Greece. That now is overcome.

**Mr. Fischer:** I'll try to comment very briefly on a few of the questions and comments. Unexpected inflation. Randy Kroszner, I think we really didn't have any basis for forming long-term expectations of inflation before central banks started putting out inflation targets. If you'd ask what do you expect inflation to be 10 years from now, the people would have searched around, but they wouldn't have known. But now, you see that the numbers that are being quoted are essentially the central bank targets, and then the question is, what are we doing to maintain the credibility of those targets? And whether expectations will stay that way depends very much on how we behave and how the economy responds in trying to maintain the inflation rate that we're supposed to maintain.

Gita Gopinath, thanks. Thank you for your comments and particularly for your refinements about the dynamics of the adjustment of prices to the exchange rate.

Cathy Mann, I think the overshooting problem that you talk about is clear in the types of models we use typically. Unless you're very sophisticated, you're going to find that problem if you've got to get inflation up. So people are aware of it, and I'm sure they're looking at how to deal with it.

David Li, I'm not sure what we should learn from the Chinese stock market crash about the effect of our interest rate. The stock market went up to a multiple of 70 when people knew what our interest rate policy was, and it collapsed to 17 percent when they also knew what our interest rate policy was. So, I'm not quite sure which part of that might be the influence of the Fed. I just think it's a very complicated issue, which we've all been trying to figure out and we're grateful to you for your speech yesterday.

Last two quickly. José De Gregorio, I thank you for that suggestion about the depreciation of the dollar earlier in the great financial crisis possibly having played a role in keeping the inflation rate from declining, and I'll check it out. I don't know what the answer to your question is.

And finally, Kristin Forbes, I think that we have seen an increase in the sensitivity of the U.S. economy to what's going on abroad,

but I think that's because we've got more connections to the rest of the world. Imports and exports are bigger than they used to be, and capital markets are more integrated than they used to be. So, I'm not sure to what to assign the responsibility for that.

**Mr. Rajan:** To Randy Kroszner's question about how do you implement constrained discretion, let me give an example. We focused on WPI inflation. Why do we have 10 years of nearly double-digit CPI inflation? Because we were focusing on the wrong index. It was the right index from the perspective of producers who saw a whole lot of imported disinflation. But it was the wrong index for the consumer or the average citizen. So, when we shifted, we just said we're shifting the index because this is what the consumer looks at. Of course, it created many problems with producers because now we started cutting every time oil prices fell, and focused more on domestic sources of inflation. So, they're having a harder time. But it's one example where a technical change is in the right direction of maximizing social welfare, at least in my view. But it's not sold as a political economy change.

On a related point, Mark Carney's point about do we choose between outcomes or do we choose between instruments, well to the extent that the instruments lead to outcomes, I think we do choose between outcomes. It is important that we say we're choosing between instruments, not choosing between outcomes, and that's part of the constrained discretion aspect. You don't want to say that you're choosing between different distributional consequences.

Other examples, extending the horizon, which Mark talked about, putting more weight on one objective of your multiple objectives rather than the other. For example, employment rather than on inflation.

To Mark's point about the Volcker disinflation, mine was a joke. Not meant to be seriously taken. The reason we don't do the Volcker disinflation in India is simply because the amount of dislocation financial stress it would cause corporations and banking, we don't have the resolution mechanisms the United States had. After all, you managed the savings and loan crisis. Even that was difficult for the United States. For us, without the bankruptcy systems, without the

resolution systems and without the public safety nets, going through that level of unemployment would just be impossible.

And to Cathy Mann's point, a question is, would a target with bands around it, and you can go above the target within the band and come down below, would that fix your problem? That's a question more than a statement.

**Ms. Groshen:** I want to take a minute to talk about what it is we've learned. Speaking as a recovering central banker, I think it's worth reminding ourselves that monetary policy, if nothing else, has two important features. First, it's really important. It affects the quality and the paths of lives of everybody in the countries that we serve. Secondly, it's not easy. If monetary policy were simple and unimportant, then most of the people here today would be doing something else. So, on behalf of all of us here, I want to give our thanks and our compliments to our hosts from the Kansas City Fed, again for their excellent foresight in the timely choice of topic and agenda. I think we owe them a round of applause. Now, it's my great pleasure to turn the microphone over to our host, President Esther George to close out the formal program.

**Ms. George:** Thank you, Erica. I want to thank each of you for your participation in this year's symposium and with particular gratitude to the authors, discussants, panelists and our moderators for their contributions. This topic is one of great importance to central bankers around the world and we certainly need to have a solid understanding of inflation dynamics if we're going to set appropriate monetary policy. As I've listened over the past few days through the analysis that's been offered, the different views expressed and the comments that have been shared, I think we've made some progress, and along the way also raised a number of new and important questions. Finally, Erica, I want to add to your thanks my thanks to my staff for the outstanding job that they have done in developing the program and in organizing this event. I could not do this without them, of course. Thank you again.