

General Discussion: Central Bank Perspectives on Inflation Dynamics

Chair: James Poterba

Mr. Bordo: My comment is for Thomas Jordan. I've been studying the history of the Swiss National Bank since its beginning in 1907, and there are these patterns that the SNB has always faced because it has followed the strategy of the stability culture. The SNB has always emphasized low inflation and price stability. The kinds of problems the SNB is facing are not new. In the Bretton Woods period, there was the same issue of undervaluation, of the exchange rate always being pushed up. And what did Switzerland do then? It imposed capital controls on capital inflows. And if you look at the 40 years since then, there have been a series of similar episodes, one after the other. The problem that Switzerland faces is its neighborhood, and it is a small rich country with an incredible history of stability. It seems to me that you're always taking these ad-hoc actions dealing with the things that are happening outside you. And now it seems the neighborhood's really gotten bad, worse than even Bretton Woods. So, perhaps Switzerland might think about reconsidering its decision to stay out of the eurozone, and maybe its situation is different from that of the United Kingdom and Sweden. You might do this on the grounds that if you can't beat them you should (wait for the current turmoil to end) and then join them and try to influence events in the future.

Mr. Blinder: I also have a question for Thomas Jordan, but it's a very different question. For many years and still, economists have talked about the zero lower bound on nominal interest rates, which has now been breached in quite a few countries. Switzerland, I think, has gone the deepest negative. Right? I'm wondering what you and, in general, the people in the Swiss National Bank, think is the effective lower bound? You're starting to see this new terminology, instead of the zero lower bound, it's some negative number below which you can't go. And I'm just wondering what are your thoughts?

Mr. Frenkel: We have heard the three perspectives of a very wide range of central banking and economic environments, different laws, different objectives, different tools, and yet I think we should not lose sight that there are at least three common principles that connect the great variety of circumstances: first, the main objective of the central bank is maintaining long-term price stability, and this is the area in which the central banks' contribution is most prominent; second, another important objective is maintaining long-term financial stability; third, the best mechanism to ensure that the central bank is able to fulfill these objectives is by providing the central bank with a strong operational independence. In this regard, the crisis of 2007-08 has highlighted the fact that whereas price stability is a necessary condition for the achievement of long-term sustainable economic growth, it is not a sufficient condition. Experience shows that in addition to price stability, it is important to ensure the smooth functioning of the financial system. As a result, it now becomes evident that in order to discharge its responsibilities in assuring financial stability, the central bank must be given the appropriate authority and tools. I have in mind, macroprudential tools. My final points, relates to the challenge that central banks face under the current circumstance. We have heard time and again, that central banks have become "the only game in town." This is a dangerous situation since by being the only game in town, central banks have found themselves somewhat lonely on the battlefield and have been drawn into areas that traditionally have not been the areas of central banks' competence and responsibility. Nevertheless, by entering that territory, the central banks may find themselves being held responsible for the challenges that cannot be fully solved just by monetary policy. Indeed, most of the

challenges today can only be solved by the appropriate application of structural policies. In this regard, while the benefits of the early application of non-conventional monetary policies have been self-evident, we need to be aware that like in medicine, the effectiveness of such policies diminishes over time, and the unintended consequences become more apparent. This argument suggests the desirability of restoring normalization as soon as feasible. I'd like to make one more point about the changing perspective. I think the crisis of 2007 and thereafter highlighted that you can still have a very serious economic and financial crisis even if you have an environment of price stability. This really brings to the fore the importance of financial stability and the role of the central bank in ensuring the smooth functioning of the financial system. But it also brings to the fore the importance of granting the central bank the authority and maybe the tools for macroprudential and, I would add apropos Thomas Jordan's discussion about how to isolate the country, I still think flexible exchange rates are the best mechanism. Let me conclude with how the great success of central banks poses two risks, the first being flattered by the title of being the only game in town. We should really make sure central banks do not become the only game in town because, at the end of the day, they will also be the only responsible agency in town. And the second risk is, I think there is a complete consensus that the first phases of the unconventional in monetary policies have been called for, appropriate and extremely successful. But the cycle is not complete, and there are some unintended consequences, especially in financial markets. I think the jury is still out, and if one talks about future programs here at Jackson Hole, there will be a time in which we will look back and say when all is said and done, how could we have minimized the unintended consequences as we get out of it.

Mr. Faust: Tomorrow morning, I'll be presenting a paper with Eric Leeper. It starts from the same starting point as Athanasios Orphanides, and you might think that there's great overlap there. I think we have a very different perspective on a lot of those facts and come to a diametrically opposed conclusion. I won't preview that paper now, but I will take—Athanasios is a long-term colleague and good friend of mine—his advice on humility. I don't know if ours is right, and I'm not sure if Athanasios is right, but I'm pretty sure that

we need to consider these two different perspectives. And so I hope that I'll do so tomorrow.

Ms. Forbes: I want to try to link this paper with the last paper we saw. A question came up in the last session of how much should we really care about pass-through to input prices when thinking about overall inflation dynamics. I think there's a very powerful answer to that in Chart 3 that Gov. Vergara showed. The correlation between inflation and the output gap is basically zero. It's heroic to put a line through something when our R-squared is 0.01. But then the correlation between inflation and the exchange rate movement is much higher, a pretty strong 0.36. So, exchange rate movements are more important to inflation across countries. Gita Gopinath presented a compelling case that when trying to explain different rates of pass-through, on average across countries, you need to look at the currency composition of imports. But the one angle of all of this that hasn't been discussed very much is what about when pass-through changes across time? This is something that we've seen at the Bank of England. Gov. Vergara hinted at this. There are periods when pass-through seems very powerful, and others it seems much less powerful. That's probably not going to be due to the currency of invoicing because it's pretty stable across time (other than the advent of the euro or some special exceptions such as that). So, there's something else going on. You could come up with arguments of why the extent of pass-through varies, based on the reason the exchange rate is moving or the nature of the shock. For example, if it's a big change in the exchange rate, you're going to get bigger pass-through because companies will adjust prices immediately. If it's a smaller exchange rate move, or expected to be temporary, you may not get as much pass-through. You also could come up with some different effects for the extent of pass through based on the source (instead of magnitude) of the shock—such as a demand shock or an oil supply shock. The type of shock that causes the exchange rate movement could have very different effects on how firms adjust and the extent of pass-through. So, I was wondering if that's something any of you had looked at for your individual countries? Has the extent of pass-through fluctuated quite a bit? And if so, can you explain that so we can have more luck predicting in the future how any exchange rate movement will affect inflation?

Mr. Meltzer: I want to very strongly agree with Jacob Frenkel's remark. There's \$2.5 trillion sitting on the banks' balance sheets. What's going to happen to that? We won't know whether this policy was a great success or a tremendous disaster until we see what's going to happen to the \$2.5 trillion. Is it going to just be absorbed? Is it going to sit there forever? Is there going to be at some point an announcement of a plan of how the Fed thinks it's going to have a conditional program for eliminating it? All this is silent, and it seems to me that's a major problem in deciding whether this program is a great success or an enormous failure. The other remark I want to make is to reinforce something Athanasios said. In the history of the Federal Reserve, there are two remarkable periods of great stability. One is 1923-28. The Fed was more or less on the gold exchange standard. The other is 1996-2002 when the Fed more or less, not precisely, followed the Taylor rule. Both periods are characterized as follows: they had low inflation, relatively stable growth, small and short recessions and relatively rapid recoveries. There is no period of discretionary policy that comes anywhere close to meeting those standards—none, whatsoever. The only one even in the game is William McChesney Martin's policy in the 1950s and that was a policy that had quite a large number of recessions and a serious one in 1957-58 followed by a very big mistake that brought another recession in 1960. Aside from that, there is not a period of discretion which even comes close to the period of operating on a rule. I would say the Fed is making a huge mistake. Chairman Hensarling of the House Banking Committee has offered them the opportunity to pick their own rule, and announce it, and they have decided, or at least announced, that they don't want to do that. That seems to me to be a great mistake because the pressure is building to have Congress do it for them. It is the Constitution of the United States that puts monetary policy into the U.S. Constitution and gives the responsibility to the Congress. The Fed is its agent.

Mr. De Gregorio: Yesterday, two points related to what was presented by Gita Gopinath and by Governor Vergara on depreciation and inflation. They have similar results for the impact of a depreciation on inflation in emerging markets: 1 percent of depreciation is about 0.2 percentage points increase in inflation. And it should be qualified that

this happens in the short run, and vanishes in the long period. So, the issue becomes that the depreciation is mostly changing relative prices, not permanently increasing prices inflation, and if the lags that Gita presented are right this effect will take place within the time horizon of regular inflation targets regimes. My concern is whether and with which strength should monetary policy respond to a depreciation. And then the second thing is regarding currency mismatches. In my view, it has been a bit overemphasized because we saw in the past that most crises in emerging markets were the result of mismatches. But this has changed enormously; in most emerging markets during the 2000s, especially as we saw it in the crisis, there were severe depreciations, in many cases of the order of 60 to 70 percent and no financial crisis at all. More recently we have seen depreciations of the order of 30 to 50 percent, some impact on inflation, but no relevant signs of financial distress I think that what's underlying this resilience is the fact that in most countries where exchange rates float corporations have become much more cautious in terms of currency mismatches.

Ms. Gopinath: I just want to raise a flag about pass-through changing over time. I believe for emerging markets, if you look at pass-through into import prices at the dock, they are fairly stable. Those numbers don't change much. And for developed countries, I know some people have said that there's evidence that pass-through changes over time and whenever I've run these regressions I'm very skeptical about some of those conclusions. You know, the standard error bands are fairly big, and depending on the specification, they're very sensitive to it. I'm not so sure at the dock whether there's much happening in terms of pass-through. And to the CPI, of course, things can be different. And of course, in some countries, there's certainly been a switch to euro adoption in the currency invoicing, and so that could also have an effect. And then to Thomas Jordan's point about Switzerland, about maybe could rely on a Swiss franc depreciation to maybe raise inflation, just looking at the invoice patterns for Switzerland. Switzerland is one of those countries that actually do use the Swiss franc a lot in its trade. I mean, that said, it's into import prices in Switzerland is about 33 percent of invoicing in Swiss franc and then the rest is in the foreign currency. So, you're kind of in the middle

range of countries that would have an effect, and not one of the countries that would have strong effects in my opinion.

Mr. Wright: I was surprised that in Athanasios's remarks there was no mention of asymmetry of the loss function, the idea that inflation coming in a bit too high is something that central banks have a long history in dealing with; whereas inflation coming in too low, depending on the circumstances can be extremely challenging to address.

Ms. Mann: I wanted to make one comment about Gov. Jordan's assessment of whether or not small open economies can use the exchange rate as an adjustment, and sort of comparing his three periods, and two of them were good and one he argued was not a good representation of being able to have the exchange rate as an equilibrating role. But I'd say you're concluding that because of the asymmetry in our attitude and this goes exactly to the previous comment. It's our attitude toward inflation being too low or negative, versus inflation being too high. And so implicitly not only is there a zero lower bound on interest rates that central banks are concerned about, but they are very concerned about effectively a zero lower bound on inflation as well. And that has to be part of the issue when we think about how much a small open economy can or cannot use the exchange rate adjustment to serve in an equilibrating mechanism. My second comment is to Athanasios, who I say this to a number of audiences, but he was in my first undergraduate class that I taught when I was a Ph.D. student at MIT. So, he learned his supply and demand really well. Now, going on from there though is this question about rules versus discretion. Nothing new there. But I worry about the conclusion that rules are better, and many people have argued that already. We saw in the first paper today that if we can't tell whether it's a demand or a financial shock, and I think we didn't really tell that very well in this most recent one until it was kind of percolated through the economy, then you don't know which rule you should be using. And so you can't just say go to the rule and that will solve some of these uncertainties that we're dealing with.

Mr. Laubach: This actually picks up on what was just said, and going to Athanasios' question of why if the goal variable seemed to be so close to the targets, the interest rate is still so low, and everything

I'm now saying is a little bit of shameless self-advertising for work with John Williams. We've been estimating a notion of the equilibrium real interest rate for more than a decade. The most recent episode really stands out. For the past six years, our estimates and those of others have been depressed and have really shown no signs of returning. Now, Athanasios is an expert in pointing out the problems of real time measurement. That said, it is now six years and counting, and even in hindsight, we've seen very little revision of the estimates in the early years of the crisis. This is not to say that three years in the future we will not be surprised and, with hindsight, estimate that actually the equilibrium real interest rate as of today is higher than we right now estimated. It still raises a question of what's the right use of such a concept in policy. Would you want to ignore such low estimates by, for example, using a rule that does not take such highly persistent fluctuations into account?

Mr. Jordan: Thank you very much for these very important questions and points. Let me first address the question about the exchange rate pass-through and its time variation. Kristin Forbes asked this question and Gita Gopinath also made some comments on this. What we can observe for Switzerland is that, indeed, we have some time variation in the exchange rate pass-through. This depends on different factors. One is the size of the appreciation. So, if you have only small shocks, then the pass-through is usually relatively small. But if you have a very big exchange rate shock, 10 percent or even more, then it is stronger. Maybe that's particular to Switzerland, but it could also be true more generally. Obviously, the Swiss retail sector is exposed to strong competition from abroad. If price differences become very large, it's easy for Swiss consumers to go shopping across the border. Increasing online shopping opportunities also have a big influence on consumer decision-making. This puts a lot of pressure on Swiss retailers to lower prices when price differences with neighboring countries become large due to strong Swiss franc appreciation. The exchange rate pass-through may then increase as well.

Alan Blinder asked about the effective lower bound for interest rates. We now have our interest rate target at negative 75 basis points. The effective lower bound is below the minus 75 basis points, but

it's very difficult to say exactly where it is. The big risk obviously is that if you go too low with interest rates, you may precipitate a flight to cash, and you cannot maintain this level of negative interest rates.

Michael Bordo asked whether Switzerland should join the euro-zone. First, this is a political question. But let me answer from a more economic point of view. We should not look at temporary difficulties. Rather we should take a long-term view on the benefits of maintaining our own currency. We encounter difficulties all the time—and maybe this period is a little more challenging than usual, but over time the performance of the Swiss economy, despite the country not being a member of the eurozone, has generally been quite successful. So it was always possible to survive and to get around these difficulties. I seriously doubt that the Swiss population would be prepared to give up the Swiss franc and accept another currency at the moment.

Let me make a final comment. Catherine Mann asked about the asymmetry in our attitude towards low inflation and low interest rates. If you take the example of Switzerland, we have had this huge appreciation, so it would be completely odd not to have lower prices for imported goods. This is one of the most effective adjustment mechanisms. If you take the example of imported automobiles, it is very good that their prices are now substantially lower in Switzerland than before; it's good for auto sales, but it's also good for consumers. The same is true for imported intermediate goods used by companies in their production. If companies were not able to benefit from lower import prices for such goods, it would make their lives even more difficult. So if you have this strong appreciation, you need some adjustment of relative prices. Under such circumstances, negative inflation is therefore something temporary and reflects these price level adjustments.

Mr. Orphanides: So let me address a couple of the questions together. Thomas Jordan asked about r^* and how you deal with an unknown r^* building on the great performance of the Laubach-Williams r^* model, which I agree is a fantastic tool to tell us about where things are going. Also, the question on how one could take into account the potential asymmetry of the loss function, that inflation getting too low may be more costly than too high. Also, the uncertainty about how to recognize what kind of situation we are in. The

whole point of devising a simple rule that is robust across models and across uncertainties is precisely to incorporate everything we know about these things and come up with something that can be systematic, which would then be very useful for the central bank to communicate. This is something that was computationally impossible 40 years ago. I recall early papers I was reading by Stan Fischer and co-authors trying to figure out policy rules with multiple coefficients using just one model, the St. Louis model, for example. These days, this is really cheap to do; computationally it's trivial. We even have collections of databases of models that could be used off-the-shelf to evaluate alternative rules in robustness exercises. Volker Wieland, another former Board colleague, actually tabulates models in databases that include models with financial stability considerations, alternative macro frameworks, etc. The technology is there. It's just a matter of the willingness to use it. We cannot, and we should not, in reference also to Allan Meltzer's point, be using the excuse that there is too much uncertainty to support discretionary decisions. I think by now we know too well that discretion is costly in a policy setting, that the formation of future expectations depends sensitively on households and businesses recognizing what the systematic policy response is in any area. What we need to do is incorporate all of that knowledge into rules rather than try to continuously defend discretion.

Just one last point on Jacob Frenkel's remark. I fully agree with the three principles you have. I deliberately chose not to talk about independence because that's not something the central banks choose for themselves. This is something that usually is given to them by others. But I have to say that as a result of the crisis, I'm questioning my view about how much independence we should be giving central banks. I think independence is very important, but it has to come with accountability and rules. Independence with excessive discretion, I think, can become destructive, and we can observe in the global experience of central banks during the crisis many instances where central banks did all sorts of things that others, on the outside, could find questionable and wonder what rules were in place at the time. So, I think that's a very, very volatile mix. In my view, we can protect the central bank and do better if we guide the central bank

toward rules that can be monitored better or find mechanisms to control the independence better.

Mr. Vergara: Thank you very much for the questions and comments. Let me address a couple of them. I definitely agree with what Jacob Frenkel said. On pass-through changes over time, what we've seen in our case is that when we had a fixed exchange rate system, or semifixed, the pass-through was higher. And also of course, back in the 1970s and 1980s when credibility was lower, pass-through was also higher. I'm not sure whether I agree the size of the depreciation matters that much. In Chile, we did have a case actually of very significant depreciation during the global financial crisis in 2008. The currency depreciated more than 50 percent. It lasted very shortly.

Within a year, the exchange rate was back at its initial level and we didn't see much effect on prices. So, I think that if it is transitory or permanent is probably more important. Now regarding currency mismatches, which are at the forefront of the debate in multilateral organizations, whether this is overrated, I don't think so. I do agree that probably currency mismatches are endogenous, namely depend very much on the exchange rate policy. But on the other hand, if you find there are currency mismatches in your economy, there is something that you should worry about, and that's the reason why some countries actually intervene more in the foreign exchange markets.

Mr. Poterba: Thank you all very much. I think what we have seen in the set of papers and the discussions in the panels this morning is really this very powerful interaction between, on the one hand, the fact that during the last seven or eight years the financial crisis and what's come since has moved the lamp post that we look under as we try to study inflation dynamics and market reactions to monetary policy. It also has opened the opportunity for studying many behaviors we always knew were important but might not be able to identify and investigate as well. To take the simple example of currency pass-through, if you'd like to study that question it's helpful to have large movements in currencies. And that's one of the things we've had. Similarly, if you'd like to understand what happens near the zero lower bound, you're going to need to get a period when interest rates are in that range to learn the answers to those questions. So, we've

had that opportunity and of course we're now getting the feedback between that and the design of policy, along with the fact that policy is being asked to address different questions and designed to address different problems than it might have been in earlier periods. So, those of you who thought this was the last symposium on the subject on inflation dynamics and monetary policy, I feel you must go away disappointed at the end of this session. I'm sure we'll be back to talk about this again.