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CHAPTER FIVE

Monetary Policy Making When Views Are Disparate

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I was asked to give some remarks on the themes of this conference and how they relate to monetary policy. The conference reveals a very wide range of views about monetary policy: about the proper size and pace of reduction of the Fed's balance sheet, about the effects or distortions caused by quantitative easing, about the equilibrium real interest rate, about whether low (or negative) interest rates have a positive or negative effect on the economy, about the fiscal theory of the price level, about international spillover of monetary policy actions, and of course about rules versus discretion.

In fact, the purpose of this whole conference series has been to explore a wide range of views about monetary policy. The series started during the Federal Reserve Centennial, when Mike Bordo, John Cochrane, Lee Ohanian, and I observed that conferences at that time did not portray the full range of views about monetary policy. So we decided to have a conference, which turned out to be popular, and which is now in its fourth year. (See previous conference volumes by Bordo, Dupor, and Taylor [2014], Cochrane and Taylor [2016], and Bordo and Taylor [2017].)

Of course, the range of views heard here is not exhaustive; just last week there were sessions in Washington during the IMF–World Bank meetings on the gold standard and on capital flow management. And there are new views arising all the time, including recent

efforts to bring behavioral economics to macroeconomics, expanding on previous behavioral roots of macro.

So in these remarks I would like to discuss monetary policy making in practice at a time when views about monetary policy are so disparate. I will review some history and then make suggestions. To be sure, I have been quite outspoken on many of the topics about which there are disparate views: I prefer rules over discretion and a balance sheet where the supply and demand for reserves determines the interest rate; I see advantages of the "greater-than-one" principle in both Old Keynesian and New Keynesian models; I have doubts about the effectiveness of quantitative easing and excessively low interest rates; I have concerns about the international monetary system with unconventional monetary policy and argue for reform in which policy is strategic, capital is mobile, and the exchange rate is flexible. Making the case for these views using data and theory and debating them is the best way to move forward and make progress. But, despite these efforts, views are disparate, and we need to think about policy making in such an environment.

DISPARATE VIEWS CIRCA 1979

Now is not the first time there has been a disparity of views about monetary policy. Consider the situation in 1979, when Paul Volcker orchestrated the most fundamental change in monetary policy in recent memory. Views were all over the map. Milton Friedman had been writing for a decade that the long-run Philips curve did not exist, and he faced much criticism for doing so. By the late 1970s the debate had shifted from whether the long-run Phillips curve trade-off between unemployment and inflation existed to whether the unemployment costs of *reducing* inflation were too high. Jim Tobin used an Old Keynesian model to show that the costs of disinflation were so enormous we should not even try it. By then new models were replacing the Old Keynesian models:

there were the "new classical" models with rational expectations and perfectly flexible prices, and the "New Keynesian" models with rational expectations and sticky prices. I remember the February 1977 issue of the *Journal of Political Economy*, where two papers, one by Stan Fischer and the other by Ned Phelps and me, appeared with these New Keynesian assumptions.

Despite all this disagreement—which could also be found inside the Fed—Paul Volcker proceeded with the disinflation. He went with the view that reducing inflation and unemployment required a new approach to monetary policy. On October 6, 1979, he got members of the FOMC with vastly disparate views to go along with this new approach. Just one month before, in September 1979, the Federal Reserve Board had split in approving a 0.5-percentage-point discount rate hike: the vote was three to four, with the three dissenting votes being Governors Partee, Rice, and Teeters and approvals from Coldwell, Schultz, and Wallich joining Volcker (see Federal Reserve [1979] and Lindsey, Orphanides, and Rasche [2005]).

A PACKAGE APPROACH: OCTOBER 6, 1979

After that credibility-losing split vote, Volcker put together a *package* that received the support of every member of the board and every reserve bank president. History shows that his method for getting approval was similar to how George Shultz put together a strategy for instituting flexible exchange rates and got it approved when Volcker was undersecretary of the Treasury and Shultz was secretary of the Treasury (Taylor 2012).

The October 1979 package contained three key items (see Taylor 2005): First, a full-percentage-point increase in the discount rate, which appealed to those who believed the situation called for a traditional dose of monetary medicine. Second, an increase in reserves on managed liabilities, which appealed to those who wanted

to take action to restrain the surge in bank lending. Third, new reserve-based operating procedures in which the interest rate would rise or fall depending on economic conditions. These new operating procedures allowed the Fed to say, with some legitimacy, that the market, not the Fed, was setting the level of the federal funds rate. The new procedure appealed to those who believed in timely and sizable interest rate responses to inflation. Importantly, it offered two-way flexibility for prompt downward movements in the federal funds rate, which appealed to those who feared a slowing economy. Though the new policy led to temporary economic weakness, which required great fortitude on the part of Paul Volcker and his colleagues, the policy paid off and led to lower inflation and unemployment and to the Great Moderation.

The international community also came along. The United States was not the only country that needed a change in monetary policy. The Fed's policy shift was followed by the United Kingdom, which adopted a monetary targeting framework. For a while others held to the view that monetary policy was ineffective in controlling inflation and that wage and price controls were needed. Over time, however, this new systemic approach to monetary policy spread around much of the world.

ROBUSTNESS TO DISPARATE ECONOMIC VIEWS

As in the 1970s, there is now a wide range of views about monetary policy, based largely on differences in economic models. Clearly central banks have different models, and different central banks have different models. One can criticize models, but there is a good message in Stanley Fischer's (2017a) reminder that Paul Samuelson said he would rather have Bob Solow than a model, but he would rather have Bob Solow with a model than without a model. So economic models are important in practice, as is the interface between

models and policy. Here I think it is important to have a way of evaluating the policy impacts of the different models.

The most basic question is whether the different views found in models are important for policy. Do different models really lead to different policies? Today we have new methods that people did not have in the 1970s to answer these questions. In particular, I refer to the model comparison project—now incorporating over eighty different models—taken up by Volker Wieland and his colleagues (funded in part by a grant to the Hoover Institution). Such comparisons can be very useful to policy makers. In some surprising ways, the differences in models do not matter much for policy (Taylor and Wieland 2012): the impulse response functions are the same across a wide range of models covering three generations of dynamic stochastic general equilibrium (DSGE) models, including some that incorporate financial accelerator effects.

But optimal policy rules tend to exploit special properties of models, which means that the policy makers need to look at policy robustness across different models so that the policy does not incorrectly pay too much attention to the exotic features of any one model. Here it is essential for policy strategies or rules to be robust across different models, perhaps putting more weight on some models and less on others. I have found that an insistence on robustness across different models makes policy conclusions less disparate than views about the economy based on individual models. Again, it is much easier to evaluate robustness than it was in the 1970s.

Recent model comparison work by Binder et al. (2017) finds that newer models with financial frictions have policy implications that are all over the map. This suggests that attempts to manipulate macro-prudential policy instruments in the sense of leaning against the wind of credit growth are not ready for prime time. These are examples. Another example is John Cochrane's (2017) recent study, which considers the role of fiscal policy in price-level determination in New Keynesian and Old Keynesian models. The

important point is that the Fed and other central banks could and should consider many different models and assess whether the policies are robust.

DISPARATE VIEWS ABOUT R-STAR

The disparity of views about r-star, or the equilibrium real rate of interest, has suddenly become enormous. A good way to examine the policy implications of this disparity is to place the various estimates of r-star into policy rules, an approach that would not have been possible in the 1970s, before the extensive research on policy rules. Recent speeches by Janet Yellen and Stanley Fischer provide examples.

In a recent talk here at Stanford, Janet Yellen (2017) compared current policy first with the original Taylor rule, then with a Taylor rule that is more reactive to the state of the economy, and finally with a Taylor rule with inertia. She then fed lower r-star estimates into these rules, showing that they indicate lower settings of the federal funds rate. Stanley Fischer (2017a, 2017b) gave two recent talks that take a similar approach, referring to decisions made in 2011, and in chapter 6 below he considers how rules-based approaches can be designed and evaluated with committee decision making.

However, using the same methodology, Michaelis and Wieland (2017) show that if one uses the lower r-star estimates "together with consistent estimates of potential activity, funds rate prescriptions from reference rules move back up." They add that "the decline in R-Star estimates does not justify the current policy stance. Rather, consistent application suggests that policy should be tightened." By considering the range of views about r-star in this more formal way, one finds that the range of policy implications narrows.

I think it would help further in dealing with disparate views if the process were more public, perhaps along the lines of proposed

legislation where the Federal Open Market Committee would report its own strategy and compare it with well-known rules. Again quoting Michaelis and Wieland (2017), "Comparisons of Fed policy to simple reference rules show how such legislation would serve to bolster the Federal Reserve's independence. . . . Clearly, by referring to such legislation and appropriate reference rules, the Fed would be able to better stand up to such pressure and more effectively communicate its reasons to the public."

A PACKAGE APPROACH TODAY

Given that a package approach led to monetary reform thirty-eight years ago, when views were so disparate, it is natural to ask whether such a package approach would work today. Consider the issue of normalization. While there is an apparent desire to normalize policy today, some express concern that the implied higher interest rate or appreciated exchange rate would slow the economy, much like concerns in 1979. Much about the financial world has changed since then, but there are several possibilities to consider in developing a multipart package.

First, recall that the 1979 decision to target reserves reassured people like Teeters, Rice, and Partee that the policy interest rate could easily fall if need be. The emphasis now could be on a return to rules-based policy in which interest rates could fall easily should the economy falter.

Second, recall that the 1979 decision to change reserve requirements was aimed at lending and credit creation. The emphasis today could be on a plan to off-ramp regulations for financial institutions that hold sufficient capital, appealing to those who worry that normalizing interest rates with existing compliance requirements reduce credit growth. That is similar to a proposal now in the Financial CHOICE Act, which was just voted out of the House Financial Services Committee as HR 10 of the 115th Congress. It could also

be implemented in part under current regulatory procedures developed at the Federal Reserve Board without a change in legislation.

Third, a rarely discussed implicit part of the actions taken in 1979 was the move by other central banks to change their approach to policy. This tended to mitigate concerns about dollar appreciation. The emphasis today might be that other central banks (the European Central Bank or the Bank of Japan) could begin to taper, which would appeal to those with exchange rate concerns. This, of course, is a most delicate issue and is best left to central banks operating in their own country's interest.

CONCLUSION

In these remarks, I have tried to suggest ways in which monetary policy makers can deal in practice with disparate views about monetary economics such as those discussed at this conference. Though objective empirical research, discussion, and debate can help narrow views and create progress, opinions today appear to be as disparate as they were at the time of the big change in monetary policy in 1979.

However, the methods of dealing with this disparity have improved. Model comparison and robustness studies are much easier to carry out. Systematic policy evaluation of alternative monetary strategies has become routine. Policy makers at the Fed can and should make better use of these advances. And though more difficult, looking for policy packages that can draw in policy makers with different views is still likely to be useful, especially if we study and learn from past experiences.

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GENERAL DISCUSSION

DAVID PAPELL: You discussed thinking about robustness across models when you look at policy rules. But if you look, for example, at your *Review of Economics and Statistics* paper with Volker Wieland, the three models all had the result that, in the basic Taylor rule, the optimal policy rule is inflation gap tilting with a higher coefficient on the inflation gap than on the output gap. In contrast, Robert Tetlow's *International Journal of Central Banking* paper had the result that, in the 2007 variant of the FRB/US model, the optimal policy rule is output gap tilting with a higher coefficient on the output gap than on the inflation gap. The optimal policy rule in the current version of the FRB/US model is even more output gap tilting than the rule in the 2007 version. How do you think about robustness when the leading models give completely opposite answers?

JOHN TAYLOR: First of all, I think what's happened to the models over time is quite relevant. Tetlow also has pictures in his paper that show a radical movement in the policy rules from the same model as it is evolving over time. The model comparison allows you to deal with different vintages of models. So you can see what is different about the FRB/US model, how the older MPS model was different, and then examine that. You also have other models to compare. You offer a really good example, because you don't want to be so dependent on the most recent model; one event such as the Great Recession or an unusual policy may have influenced it so much.

BILL NELSON: So the initial Humphrey Hawkins required the Fed to communicate its policy intentions and what it was going to do in terms of money growth. And over the years, that sort of solidified into the money growth cones. Ultimately, those cones didn't change for years on end, and they used boilerplate lan-

guage that didn't convey any information whatsoever, I think because they'd become largely irrelevant. So if the committee were required to communicate in terms of a rule or rules, how would you suggest that kind of obsolescence be avoided?

JOHN TAYLOR: First of all, that is a very important lesson. The Congress did require that the Fed report these money growth ranges. Originally, the Fed objected strenuously. Eventually, when they saw it was going to happen, they worked with the Congress to get something more reasonable that they could work with. And so that became part of the law—I believe it was 1977. And so they worked that way. And the discussion that Volcker went through in 1979 to some extent was bringing money into the conversation. And it may have helped. He did emphasize money growth. Eventually, he went off it, of course, in 1982. But I think the discussion of money growth was beneficial. That requirement was removed from the Federal Reserve Act in 2000. I didn't complain about it at the time. But the rationale was just what you say. It really wasn't very helpful anymore. Technology was changing, how you measure the M's was also changing, so they just took it out of the law, and that made Greenspan's life easier. But I think its removal is the reason why something else is needed. We now think of policy more in terms of interest rate rules of different kinds, and there's a reason for that: money has not been as stable. By the way, I think we ought to try to bring money back in to some extent. But short of that, the legislative proposal would have the Fed simply be required to state its strategy. It would be their job to define it completely, and then check it against some other well-known policy rules. It's not that different from what Janet Yellen has said recently in speeches. Of course, the world is always changing, and so the strategy may have to be changed in the future. But there's been lots of experience with this type of strategy—probably more experience than with money growth targeting at the time—so I think it's promising.

ROBERT HELLER: As you said, 1979 was a year of divergence, and soon thereafter came the Great Convergence. Then you had, after a minor revolt on the board in 1986, a period under Volcker, as well as Greenspan, with great unanimity. There wasn't anyone who was really disagreeing with the policy. So what do you think changed to break up this unanimity? Was it research?

JOHN TAYLOR: It was research and experience that drove the first change toward unanimity. I think the experience was tough those first few years of disinflation, to be sure. But eventually, you had a much better economy. The Great Moderation began. I think that convinced a lot of people that policy that was the way to go. And then research was certainly a part of it. Rich Clarida did work on showing that the response of the Fed did change about that time, and it's related to the improved performance. So it's a combination of research and experience. There was a whole set of new models that followed the original New Keynesian models. They took a while to seep into the central banks, including the FRB/US model. John Williams, who was a student here at Stanford, went to the Fed and was part of the reason that new modeling came in. The Bank of Canada brought the new models in too. It was with a lag, to be sure. But the policy change occurred before that. But maybe that affected the views.

JAMES BULLARD: As you're saying, the CHOICE Act now says that the Fed should report using policy rules. How should we handle the zero bound? Should the rule also specify how the committee thinks it will react in a zero bound situation?

JOHN TAYLOR: It's a good question. I should say it's up to you. [*Laughter*] But since you're asking, I would first propose a kind of mega-rule. That's like the Reifschneider-Williams approach. And if we hit the zero bound, the central bank would stay at zero for longer. I think that's where I would start.

I agree that it's hard to make this work in practice, but the FOMC has to be thinking about a strategy. "Adopting" may be

too strong a word, but there has to be a fair amount of agreement. If it is not very specific about magnitudes, then the direction of movement in interest rates and the response to certain variables should be given. The Fed already has had a discussion of r-star. They've already had a discussion of the target inflation rate. So they are close. I think some discussion of a strategy for other kinds of actions would be useful, such as interest on excess reserves, the size of the balance sheet. That might require a compromise of some kind, as in my example of Volker's experience in 1979.

CHARLES EVANS: John, that was a great talk on the history going back to 1979. I really enjoyed that. Your comments on robustness are really important and something that we should all think about in terms of what rules survive different models. As I have not thought about this enough, let me ask an impossible question that I myself couldn't answer: How do you have confidence that you've considered an appropriate span of models that takes into account mechanisms that might be common to most models that economists write down. And as I go out and talk to people about low interest rates, negative interest rates—which are extraordinarily unpopular—I also wonder how we can cover these more unusual issues. How would you think about incorporating models that do so? I don't have an answer myself.

JOHN TAYLOR: I appreciate that you can't answer your own question. I can't either, but here is a try. Volker Wieland has eighty models in his database. Some of them are not all that different, but a lot of them are different. Some bring in the financial accelerator, financial frictions. The models are beginning to examine the impact of negative or very low interest rates on the spreads. The banking sector is not described as well as it might be. So I'd look for different approaches like that. But ultimately, you're right. You can't do every model, and no robustness study is foolproof. But you can try, and I think central banks can do better with this.

LAWRENCE SCHEMBRI: John, you mentioned the international aspect, namely taking into account the behavior of other central banks. Things are very different now than they were in 1979, in the sense that we all basically have 2 percent inflation targets. We're all moving in the same direction to some extent. Do you think the same extent of coordination is needed now as was perhaps needed in 1979, when we didn't have the same viewpoint as to the goal of monetary policy?

JOHN TAYLOR: There's a lot to be learned from the previous efforts to coordinate, like the Plaza Accord, which I don't think worked very well. That agreement basically moved Japan off what would have been a good policy. But what comes out of the experience is that if each central bank focused on what is best for its own country, and each central bank believes that other central banks will do the same, then it's very close to a global optimum. And you don't need much more. You don't need to argue, "Hey, you should do this, that, or anything." The optimality result just automatically falls out. There's research on that, and I think there should be more research.