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Remarks on monetary rules for a post-crisis World☆

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1. Earlier pre-crisis and post-crisis worlds

I started working on policy rules in a pre-crisis world, about 50 years ago in the 1960s.[1] That was a pre-crisis period in the sense that it led up to the 1970s crisis of high inflation and high unemployment culminating in the back-to-back recessions of the early 80s when unemployment got to 10.8 percent. No one would defend that pre-crisis monetary policy today. It was ad hoc, discretionary, erratic, go-stop, and, of course, the performance of the economy was terrible.

In the post-crisis world that followed that crisis, monetary policy improved greatly and so did performance of the economy. Policy became less discretionary and more focused on price stability. I would call it more rule-like. The period of the 1980s and 1990s came to be called the Great Moderation, though when I first pointed out the remarkable economic improvement and connected it to improved monetary policy, I called it the "Long Boom" and have always liked that term .[2]

The empirical evidence from that period added to the support of policy rules; the period represented a victory to those of us who had been arguing for rules-based policy based on monetary theory and fact. It was during this period that the advantages of rule-like policy became globally recognized. Policy rules began to be used in many emerging market countries as a means of implementing inflation targeting regimes; performance improved there too.

Unfortunately, that post-crisis period merged into another pre-crisis period as monetary policy got off track again somewhere around 2003–2005. Many have documented a shift of policy away from rules as rates were held too low for too long. That finding holds for a variety of interest rate rules, including those that react to nominal GDP rather than to inflation and real GDP separately, as shown by Selgin et al. [3]

☆ Mary and Robert Raymond Professor of Economics at Stanford University and George P. Shultz Senior Fellow in Economics at the Hoover Institution. These remarks were prepared for presentation at a luncheon talk at the conference "Monetary Rules for a Post-Crisis World," sponsored by the Mercatus Center at George Mason University and the Center for Monetary and Financial Alternatives at the Cato Institute, September 7, 2016. Thank you for inviting me to talk about monetary policy rules for a post-crisis world. It's always a pleasure for me to talk about policy rules, whether post-crisis, in-crisis, or pre-crisis.

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[1] For a review see Taylor (2015a).

[2] Taylor (1998).

[3] Selgin et al. (2015).

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2. Today's post-crisis world

In any case, another crisis came, and thus we are here today to discuss policy rules in another post-crisis world. We have more evidence than ever that rules-based policy works and discretion doesn't. That is the key principle, but as this conference illustrates there is much disagreement about what the rule should be. There is a lot of agreement that the interest rate should be on the left hand side, but there is less agreement about the functional form and variables on the right hand side. There is also renewed interest in money growth rules whether fixed or feedback.[4] I might note that disagreement was pervasive when the Taylor rule was being developed in the 1980s; monetarist economist Laidler wondered if economists might have to give up on rules, stating that "We are left, then, with relying on discretionary policy in order to maintain price stability."[5]

As I see the post-crisis period, however, the deviation from rules-based policy has continued in much of the developed world, despite the evidence in favor of rules, and the deviation has not worked very well. We have had a very weak recovery with inflation below the targets that the central banks have set. In my view the deviation from rules-based policy is part of the problem.

To be sure there have been statements by central bankers that monetary policy should get back to a rules-based framework. Indeed, several speeches by Federal Reserve Chair Yellen have suggested such a return, once the economic environment permits it.[6] So one can expect another swing back to rules, though repeated delays in the normalization process keep pushing that period further into the future.

3. Benefits of rules despite the deviations and delays

Overall I would argue that the research on policy rules has been beneficial, even with the swings back and forth and the delays. First, the periods of rules-based policy have been good while they have lasted, and that is a benefit to people who experienced those good times. Second, rules-based policy has led to better performance in inflation targeting countries such as Mexico and India, in contrast to countries like Brazil and South Africa that have deviated. Third, the expectation of a return to sound policy rules can benefit the economy by causing it to work in a more rule like way, even when the good rule is temporarily inoperative, as a Ph.D. student at Stanford, Teryoshin is showing in his dissertation research.

However, with all the delays in the path to normalization, one worries whether the expectation of a return to policy rules might be realistic without a major change. And in Japan and Europe the "Stimulus Efforts Get Weirder" as a front page headline in the *Wall Street Journal* recently put it.[7] I recently saw a satirical advertisement for a new investment service that purposely discards economic fundamentals and simply follows central banks.

4. Central bank independence and policy rules

It is important to note that the swings toward and away from rules-based policy over the years occurred without any change in the underlying legal basis for central bank independence. While there have been changes in the Federal Reserve Act during this period, standard numerical indices of *de jure* central bank independence have not changed as shown by Crowe and Meade.[8] So the record indicates that *de jure* central bank independence is insufficient for generating good rules-based monetary policy.

To be sure there have been swings in *de facto* independence. Meltzer found that the Fed *de facto* independence declined in the late 1960s and 1970s, rose in the 1980s and 1990s, and has declined in recent years.[9] There is thus a close correlation between the ups and downs in *de facto* independence and higher and lower adherence to rules based policy during this period. These changes in *de facto* independence have been driven by both the executive branch and the central bank. Thus *de facto* central bank independence is can be taken away and given away.

5. Speeding the return to rules-based policy in a post-crisis world

The policy implication of these swings is that monetary reformers need to focus on other ways to encourage more rules-based policy. It was for this reason that I began to search for a legislative remedy. After researching the idea, I decided that the most straightforward way to legislate a rule for monetary policy would be to require that the Fed establish and report on a policy rule. I could have recommended following a particular rule like the Taylor rule, but given that many rules are out there (again as this conference illustrates) that did not seem workable. By the way, I would like to add for the record that the Taylor rule came out of economic theory and models like many of the rules discussed at this conference. It did not come from a regression, but was meant to be prescriptive, not descriptive.

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4 Ireland, and Belongia (2016).

5 Laidler (1991).

6 Yellen (2016).

7 Whittall (2016).

8 Crowe and Meade (2007).

9 Meltzer (2009),(2012)

So in a talk that I gave five years ago at the Annual Cato Monetary Conference[10] I proposed such legislation, and a proposal along those lines has now been written into actual legislative language as Section 2 of the Fed Oversight Reform and Modernization (FORM) Act. The Act would require that the Fed "describe the strategy or rule of the Federal Open Market Committee for the systematic quantitative adjustment" of its policy instruments. It would be the Fed's job to choose the strategy and how to describe it. The Fed could change its strategy or deviate from it if circumstances called for a change, but the Fed would have to explain why.

Some have expressed reservations about this type of legislation, arguing that central banks should not be chained to any mechanical rule. "Algorithms…should not supplant central bankers" is the way *The Economist* put it.[11] But the Fed would choose and describe its own strategy, so it need not be mechanical or algorithmic. The strategy could change if there was a crisis as long as an explanation was provided. The central bank would still serve as lender of last resort or take appropriate actions in the event of a crisis. The strategy does not mean that the instruments of policy be fixed, but rather that they flexibly and systematically respond to economic developments in a way that can be explained.

Another concern is that the central bank would lose its independence. The opposite is more likely: a clear public strategy helps prevent policy makers from bending to pressure. And there is the difficulty that there are many types of policy rules. Some rules are better than others. It makes sense for researchers and policy makers to do research on rules, but the legislative approach simply calls on the Fed to decide.

Of course there are perennial policy problems to deal with, such as uncertainty about the output gap, the effective lower bound on the interest rate, or movements in the equilibrium real interest rate. However, these are even more difficult issues for discretionary policy when one does not have a strategy. There is plenty of research on how policy rules can incorporate such uncertainties.

Some of the expressed concerns are reminiscent of the old rules v discretion debate, with people raising issues discussed in the past. I do not need to review this debate for this audience other than to say that some have changed sides. For example, *The Economist* is now all in for pure discretion, abandoning rules-based strategy; it's a new view compared to previous articles over the years in the magazine.[12]

6. Committee decision about a strategy

Now, to be sure there are legitimate concerns. One is the difficulty that a monetary policy committee like the FOMC might have in selecting a single strategy or rule when there are many differences of opinion on the committee about the rule. It might be particularly hard for the chair of the committee to forge a consensus. However, the possibility of dissents within the FOMC, as with decisions about setting the policy interest rate, alleviates this problem, because unanimity would not be required.

There is also some historical precedent to learn from. Legislation that appeared in the Federal Reserve Act from 1977 to 2000 required reporting of the ranges of the monetary aggregates. The legislation did not specify exactly what the numerical settings of these ranges should be, but the greater focus on the money and credit ranges were helpful in the disinflation efforts of the 1980s. When the requirement for reporting ranges for the monetary aggregates were removed from the law in 2000, nothing was put in its place. Moreover, my understanding is that there was a good, constructive systems-wide discussion about how to choose the monetary targets, as the FOMC and district banks came together.

Another way to deal with this issue is to consider a different approach to rules-based policy. An alternative, for example, to using a rule for the instruments of policy would be to state a monetary strategy in terms of "inflation forecast targeting" or simply "forecast targeting" as developed by Svensson, Qvigstad, and Woodford.[13] Indeed, Woodford entitled his paper on this approach "Forecast Targeting as a Monetary Policy Strategy," emphasizing that in his view the approach is a strategy.

According to this approach the central bank would choose its policy interest rate so that a linear combination of its forecast of different variables would fall along a given path. For example, Woodford suggested a linear combination of the h-period ahead forecast of the inflation rate $\pi_{t+h,t}$ relative to the target inflation rate π^* and the h-period ahead forecast of the output gap $x_{t+h,t}$. Thus, the policy rate would be set to so that $(\pi_{t+h,t} - \pi^*) + ax_{t+h,t} = 0$, where a is weight and where h sets the range where interest rate policy can affect these variables. While an interest rate path can be calculated, this approach does not yield a simply policy rule. According to the policy rules legislation the central bank would have the job of deciding on the strategy, and it need not be mechanical.

There is a close connection between the two approaches to rules-based policy; I have argued that they are the dual solution to the same problem, much like first-order conditions and decision rules provide dual and complementary answers to the same optimization problem.[14] While I think focusing on the decision rule for monetary policy works better in practice, this alternative approach could possibly meet the terms of the proposed legislative and might be studied by the Fed.

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[10] Taylor (2011).

[11] *The Economist* (2015).

[12] Taylor (2015b).

[13] Svensson (1998), Qvigstad (2005),Woodford (2012)

[14] Taylor (2012).

7. Dealing with a zero or effective lower bound

The zero bound on the interest rate is often given as an excuse for not following a policy rule. However, in many circumstances deviations from rules occur when the zero bound is not binding. The period from 2003–2005 is an example of such a period, and so is the current situation in the United Sates today. And in many ways, the zero bound on the interest rate is a self-imposed bound.

But the zero bound could be handled in a rules-based way using the "mega-rule" approach proposed in 1999 by Reifschneider and Williams in which the Fed holds the policy rate extra low for a while following periods when the bound is binding.[15] Another way to deal with the zero bound is to go back to money growth rules as suggested by Ireland and Belongia.[16]

8. Dealing with a moving equilibrium interest rate (r*)

There is no reason why one could not imbed a different equilibrium interest rate into a policy rule for the interest rate. And the rate could vary over time. This idea has been suggested by Yellen and is analyzed by Papell and his colleagues in paper presented at this conference.[17]

There is a danger of making movements of r^* dominate the decision about the interest rate, however, with a rule effectively morphing into a purely discretionary process. Moreover, based on my research with Volker Wieland there is no strong evidence that r^* has declined as many are indicating now.[18]

9. International Monetary Reform

Finally let me discuss international issues, because the international monetary system as a whole has drifted away in recent years from a rules-based system long advocated by monetary economists. These international problems trace to deviations from rules-based monetary policies at the national level, and they spread and multiply because central banks tend to follow each other. Extra low interest rates in the larger countries are followed by extra low interest rates in many other countries in an effort to fight off currency appreciations. These deviations are a source of exchange rate movements and capital flow volatility, which in turn cause governments to impose capital controls, intervene in exchange markets, and use regulations to affect international exchange transactions. Staffs at the international financial institutions have recently endorsed such controls, in contrast to the 1990s when they suggested that they be removed.

Many are calling for a new international monetary strategy to deal with these problems, including Volcker who argues that "the absence of an official, rules-based, cooperatively managed monetary system has not been a great success" and Rajan who says that "what we need are monetary rules that prevent a central bank's domestic mandate from trumping a country's international responsibility." [19]

I have argued that economic research indicates that a rules-based international monetary system should be built up from rules-based monetary policy in each country, and thus, that a natural reform proposal would be for countries to forge an agreement where each country commits to a rules-based monetary strategy.[20]

Essentially this is a multi-country version of the national reform I suggested earlier in these remarks. Each central bank would describe and commit to a monetary policy strategy for setting the policy instruments. The strategy could include a specific inflation target, a list of key variables to react to in certain ways, and some notion of the long run equilibrium interest rate. Each central bank would formulate and describe its strategy. The strategies could be changed if the world changed or if there was an emergency. A procedure for describing the change and the reasons for it would be in the international agreement.

There are relevant lessons from previous international monetary agreements. For example, consider the Plaza Accord of the 1980s between the United States, the United Kingdom, Japan, Germany and France. In this Accord the Bank of Japan agreed to shift its monetary policy in a way that adversely affected its economy—too tight at first and too easy later—causing a boom and later a bust. In contrast, other central banks' monetary policies were not affected by the Accord. The Fed under Volcker simply clarified what it was already doing. The lesson is that a new international agreement should not impose specific strategies on central banks. As with the legislative proposals suggested earlier in these remarks, such a process poses no threat to the national or international independence of central banks.

10. Conclusion

Let me conclude with another benefit of a return to rules-based monetary policy. In my view monetary policy in this post-crisis period has not been conducive to economic reform, and may have served the interests of anti-reformers. By

[15] Reifschneider and Williams (2000)
[16] Ireland and Belongia (2016)
[17] Nikolsko-Rzhevskyy et al. (2016)
[18] Taylor and Wieland (2016)
[19] Volcker (2014), Rajan (2016),
[20] Taylor (2016)

holding out the possibility that unconventional monetary policy will increase growth, public officials have put aside or delayed much more effective pro-growth reforms in the budget, tax or regulatory areas which are more difficult to implement. In contrast, by admitting that monetary policy has a limited purpose and that it cannot increase productivity growth or long-term economic growth, public officials would have more reason to implement these harder-to-enact reforms.

Moreover, I have found that there is an empirical association over time between various types of interventionist un-rule-like policies that tend to override markets, whether they involve budget, taxes, regulations or monetary issues. Hence, a return to less interventionist, rules-based monetary policy is likely to be contagious to other policy areas and could bring about a host of pro-growth structural reforms. That is why structural reform should not only include regulatory reform, budget reform, and tax reform, it should also include monetary reform.

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