

On Central Banks and the Taylor Rule

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I am grateful for the opportunity to attend and speak at the XII Gottfried von Haberler Conference, and I thank Kurt Leube for inviting me and suggesting the title of my paper.

I first read Haberler's *Prosperity and Depression* when I was in college in the 1960s, trying to learn more about macroeconomic theory and the impact of monetary and fiscal policy on the economy. I learned a great deal from the book, and I still have a copy of the 1941 edition.² It is a masterful presentation and analysis of the major business cycle theories of the time, including the pure monetary theories of R.G. Hawtrey, the monetary overinvestment theories of Ludwig von Mises and Friedrich Hayek, the debt-deflation theory of Irving Fisher, the natural interest rate theory of Knut Wicksell, the then new theories of John Maynard Keynes, and Haberler's own "synthetic exposition." In later years, Haberler would also bring the work of Milton Friedman and the Chicago School into his world view, as he later explained in his 1979 interview published in the *Austrian Economics Newsletter*.³

This paper begins by describing the policy rule that came to be called the Taylor rule. Because the Taylor rule is part of a larger story of business cycle research and the application of policy rules, the paper provides an explanation of the rule's origins and relates it to earlier business cycle theories and policy research as well as to models and research that followed. The paper shows, for example, that in the years after the rule was developed, economists discovered that economic performance was good when central bank policy was close to such a rule and not so good when it was not.

The paper then goes on to show that somewhere around 2003-2005, U.S. monetary policy departed significantly from this type of rule. Poor economic performance followed this departure. It brought on a search for yield and excesses in the housing market which, along with a regulatory process that departed from rules for safety and soundness, brought on the financial crisis. Unfortunately, following the panic in the fall of 2008, departures from rule-like policy continued, including massive quantitative easing and the use of frequently changing forward guidance. Central banks followed each other down with extra low interest rates or the use of quantitative easing. Researchers at the Bank for International Settlements called it the Global Great Deviation. World monetary policy seemed to have moved into a strategy-free zone.

¹ Mary and Robert Raymond Professor of Economics and George P. Shultz Senior Fellow at the Hoover Institution, Stanford University. Parts of this paper are based on a luncheon talk at a meeting of the Shadow Open Market Committee on March 20, 2015.

² Gottfried Haberler (1941), *Prosperity and Depression: A Theoretical Analysis of Cyclical Movements*, League of Nations, Geneva.

³ Ebeling, Richard and Joseph T. Salerno (2000), "Between Mises and Keynes: An Interview with Gottfried von Haberler," (The original interview took place in 1979) *Austrian Economics Newsletter*, Volume 20, Number 1 (Spring).

With this research review and policy history of the past few decades as background, the paper then explains why it is important for central banks to get back to a rules-based strategy for the instruments of monetary policy.

Research on Policy Rules

I first started working on policy rules in college in the 1960s. I was fortunate to take a course in macroeconomics from Philip Howrey at Princeton. It was an excellent course, but it was also an unusual course, way ahead of its time. The models we studied portrayed the economy as dynamic and stochastic and ever moving, unlike the standard static models of a Keynesian ISLM variety which were mainstream at the time, and more like stochastic-dynamic versions of the theories analyzed by Haberler. It was my first real course in macroeconomics, so it was all I knew, and it naturally drew me into thinking about monetary policy as a rule. In order to assess the impact of policy on the economy in those models, you needed to know how policy instruments would evolve over time—and that meant a contingency plan, a rule or a strategy.

Of course the idea of a policy rule was not new. Economists were actively debating rules versus discretion, stimulated by the constant growth rate rule proposed by Milton Friedman. But the dynamic models I learned from Howrey left little room for debate, so it was policy rules for me, and I started doing research on them, simulating alternatives in a dynamic model of the economy. Not surprisingly I chose the money supply as the instrument in policy rules, but it was not fixed; it responded systematically to economic events. The results were published in a 1968 working paper⁴ in Princeton's Econometric Research Program, which was directed by Oskar Morgenstern from its founding in 1948 until he retired in 1970.⁵ After that I was hooked on the idea and the research. I dropped my post-graduation plans for a Masters in Business Administration and went to get a Ph.D. in economics at Stanford.

There I continued research on policy rules, advised by time series statistician Ted Anderson. I first investigated how policy rules should be designed in a world where policy makers did not know the model and learned over time⁶, and then on how policy should be designed where people did not know the policy and learned over time.⁷ The idea that very simple policy rules were robust and would work well in a complex learning environment emerged from that research.

By that time—the early 1970s—economists led by Robert Lucas started introducing rational expectations into macro models, and this explicit forward-looking behavior gave us

⁴ "Fiscal and Monetary Stabilization Policies in a Model of Endogenous Cyclical Growth," Research Memorandum No. 104, Econometric Research Program, Princeton University, <http://web.stanford.edu/~johntayl/Onlinepaperscombinedbyyear/index-papers.html#1968>

⁵ Morgenstern had earlier studied in Austria with von Mises, along with Hayek and Haberler.

⁶ "Asymptotic Properties of Multiperiod Control Rules in the Linear Regression Model," *International Economic Review*, 15 (2), June 1974, pp. 472-484.

⁷ "Monetary Policy During a Transition to Rational Expectations," *Journal of Political Economy*, 83 (5), October 1975, pp. 1009-1021.

another reason for monetary policy to be evaluated and designed as a rule.⁸ Moreover, using the rational expectations assumption, Finn Kydland and Edward Prescott showed in their work on time-inconsistency that commitment to a rule would lead to superior performance compared to discretion.⁹ In order to use and simulate the new models, however, one had to address conditions needed for unique solutions¹⁰ and also find new solution methods such as the one that came out of my work with Ray Fair.¹¹

But rational expectations also meant that one had to be more rigorous and specific in modelling the adjustment of prices and wages and the impact of monetary policy. Slow adjustment of expectations—so-called adaptive expectations—would no longer work. So in order to evaluate policy rules I developed a new model: the staggered contract model of overlapping wage and price setting which in one form or another is still a workhorse in monetary models.¹²

As a result of all this work we were able to develop pretty good quantitative models to enable us to find policy rules that worked well. Through the late 1970s and 1980s we built small models; we built big models; we built large-scale international models, all with the purpose of designing and evaluating policy rules. The performance criterion involved both price stability and output stability, and we found that there was a stability tradeoff between the two.¹³ We simulated the models with alternative policy rules trying to find optimal rules.¹⁴

Often, however, the optimal rules that came out of this research were very complex with many variables driving policy and with many lags. Serious doubts began to grow about the usefulness of the research. Some raised questions about whether the results would ever be applied in practice. Indeed, anyone with policy experience (which I gained through two academic leaves at the Council of Economic Advisers (CEA) in Washington) could see that the complex rules would not be useful. The monetarist David Laidler who had been a proponent of rules argued that we were stuck with discretion forever.¹⁵ Allan Meltzer argued otherwise, however, and encouraged me to work more on the problem after my second stint at the CEA. He asked me to present a paper on the subject at a conference in 1992 in Pittsburgh.

⁸ Robert E. Lucas Jr, "Econometric policy evaluation: A critique," *Carnegie-Rochester Conference Series on Public Policy*, Volume 1, 1976, 19–46

⁹ Kydland, Finn and Edward Prescott Rules Rather Than Discretion: The Inconsistency of Optimal Plans, *Journal of Political Economy* Vol. 85, No. 3, pp. 473-492

¹⁰ "Conditions for Unique Solutions in Stochastic Macroeconomic Models with Rational Expectations," *Econometrica*, 45 (6), September 1977, pp. 1377-1385

¹¹ "Solution and Maximum Likelihood Estimation of Dynamic Nonlinear Rational Expectations Models" (with R.C. Fair), *Econometrica*, 51 (4), July 1983, pp. 1169-1185

¹² "Aggregate Dynamics and Staggered Contracts," *Journal of Political Economy*, 88 (1), February 1980, pp. 1-23

¹³ "Estimation and Control of a Macroeconomic Model with Rational Expectations," *Econometrica*, 47 (5), September 1979, pp. 1267-1286

¹⁴ *Macroeconomic Policy in a World Economy: From Econometric Design to Practical Operation*, W.W. Norton, New York, 1993

¹⁵ Laidler, David (1991), "Price Stabilization in the 1990s: A Summary," in Kumiharu Shigihara(Ed), *Price Stabilization in the 1990s*, The MacMillan Press

A Simple Rule for Monetary Policy

It was in this environment that what is now called the Taylor rule emerged. It came out of the policy evaluation project I had been conducting at Stanford in the 1980s with a number of graduate students including Volker Wieland and John Williams. The question was: Could we design a simple monetary policy rule that we could responsibly recommend to policy makers in practice, but that was consistent with what our research was telling us about the key properties of optimal rules?

It turned out that the answer was yes. The most promising design had the interest rate—the federal funds rate—rather than the money supply or the monetary base as the instrument on the left hand side of the rule. The Fed was not even talking publicly about its settings for the federal funds rate back then, so there was a leap of faith and much initial criticism of that design. That I had talked to Alan Greenspan, Chair of the Fed, a lot when I was on the CEA gave me a degree of confidence that this design was workable. Indeed, we even tested the waters publicly by writing the idea up in informal terms in the 1991 *Economic Report of the President*. We showed that the Fed's interest rate settings could, in effect, be thought of as following a systematic policy, not simply a purely discretionary "Greenspan standard" as many had argued at the time. In fact, Greenspan later joked that the Fed deserved an assist in the developing the Taylor rule.

In any case the research we were drawing on showed that the policy interest rate need only react, at least as an approximation, to a few variables. It should react if the inflation rate moved away from target and also if real GDP moved away from its potential. Of course we had to have an inflation target, and I decided that a reasonable inflation target was 2%. That has now become the actual target for many central banks.

The research also showed that the interest rate reaction to inflation should be greater than 1, and 1.5 seemed like a representative value: The interest rate would be raised by 1.5 percentage points if the inflation rate rose by 1 percentage point and it would be lowered by the same amount if inflation fell by 1 percentage point. The research also said that the interest rate should be lowered a bit if real GDP fell relative to potential; I chose the value of .5 so that the interest rate would fall by .5 percentage point if the gap between real GDP and potential fell by 1 percentage point. The research also showed that the interest rate should not react much to other variables, such as the exchange rate or other asset prices.

Finally, we needed an equilibrium interest rate—a value for the interest rate when inflation equaled to its 2% target and real GDP equaled potential GDP. I chose 2% for the real rate based mostly on historical experience in the United States and noted some consistency with the real GDP trend growth rate of around 2% at the time. Of course 2% real plus the inflation target at 2% implies a 4% nominal interest rate That is close to what most FOMC members have been indicating in the past few of years.

The bottom line in one short sentence: set the interest rate equal to 1.5 times the inflation rate, plus .5 times the GDP gap, plus 1. And, as explained in the original paper, this is not a recommendation to follow a rule mechanically. Judgement is required to implement the rule. To

quote from the paper¹⁶, the objective was to “preserve the concept of such a policy rule in a policy environment where it is practically impossible to follow mechanically any particular algebraic formula that describes the policy rule.”

So there you have it. What was presented back in 1992 and what people started calling the Taylor rule was not the result of one short paper. It represented nearly 25 years of research work. It was not a curve fitting exercise in which any old instrument of monetary policy was regressed on a bunch of variables. A regression over the past couple of decades at that time would not have yielded such a rule. The paper did show that the rule had similarities to the decisions taken by the Fed during Alan Greenspan’s term as Chairman thus far, but that was more to talk about deviations from the rule as in the stock market crash of 1987.

The Amazing Part of the Story

With that largely academic background in mind consider the really amazing part of the story. Though the rule was presented in 1992 as a purely normative recommendation, it surprisingly and quickly turned into positive economics as well: It predicted the Fed’s actual decisions in 1993 and 1994 almost perfectly. That prediction was used by some people on Wall Street—in particular Salomon Brothers economist John Lipsky—and the rule got a lot more attention as a result.¹⁷ Indeed for most of the next decade policy rates were quite close to the rule.

Then a few years later John Judd and Glenn Rudebush at the San Francisco Fed¹⁸ and Richard Clarida, Mark Gertler and Jordi Gali¹⁹ uncovered another amazing finding: economic performance was good when the Fed was close to such a rule and not so good when it was not. The change in U.S. economic performance from bad in the late 1960s and 1970s to good in the 1980s and 1990s coincided with a change in the policy rule. The Great Moderation, or the NICE period (for non-inflationary consistently expansionary as Mervyn King²⁰ put it), was plausibly due to Fed’s effectively following a good rules-based policy. There was probably no greater fan of monetary policy than me during this period.

Even more amazing, researchers found the same results in other countries. I don’t think anybody anticipated that. Stephen Cecchetti, Peter Hooper, Bruce Kasman, Kermit Schoenholtz, and Mark Watson showed that as the deviations from the Taylor rule grew smaller in Germany, U.K., and Japan, economic performance improved.²¹

¹⁶ “Discretion Versus Policy Rules in Practice,” *Carnegie-Rochester Series on Public Policy*, North-Holland, 39, 1993, pp. 195-214

¹⁷ John P. Lipsky, “The View from the Financial Markets,” in Koenig, Evan F., Robert Leeson, George Kahn (Eds). *The Taylor Rule and the Transformation of Monetary Policy*, Hoover Press, 2012

¹⁸ John P. Judd and Glenn D. Rudebusch, “Taylor’s Rule and the Fed: 1970–1997” *FRBSF Economic Review*, 1998, No 3, <http://www.frbsf.org/economic-research/publications/98-3/3-16.pdf>

¹⁹ Clarida, Richard, Jordi Gali, and Mark Gertler (2000), “Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory,” *Quarterly Journal of Economics* (February), 115, 1, 147-180.

²⁰ King, Mervyn (2003) “Speech at the East Midlands Development Agency/Bank of England Dinner,” Leicester, October 14

²¹ Cecchetti, Stephen G., Peter Hooper, Bruce C. Kasman, Kermit L. Schoenholtz, and Mark W. Watson (2007), “Understanding the Evolving Inflation Process,” presented at the U.S. Monetary Policy Forum 2007.

A prediction about the international monetary system was also born out. The models we were building in the 1980s showed that if each country followed a good rules-based monetary policy then the world economy would effectively operate in a nearly international cooperative equilibrium, which could be viewed as another NICE following Mervyn King.²² That is what happened in actual practice among the developed economies during much of the Great Moderation when there were few complaints about spillovers or beggar-thy-neighbor policies.

There was also a surprising robustness of the simple rules. When simulated in a range of new and different models that were coming on line—as Ben McCallum urged²³ be done—the simple rules did remarkably well across the range as researchers showed in a conference volume that I edited.²⁴

The Tragic Part of the Story

But now comes the tragic part of the story, not for research on policy rules, but for the economy and for many people adversely affected. Somewhere around 2003 to 2005 US monetary policy departed significantly from the type of rule that had been working well. During this period the federal funds rate was held well below the interest rate setting that was implied by a policy rule based on the inflation rate and real GDP.²⁵ This departure has now been pointed out by many people. Though there is still some disagreement, the departure was so large that it can be clearly seen without reference to a policy rule: For example, in 1997 when the inflation rate was 2% the interest rate was 5.5%. In 2003 with the inflation rate also at 2% and the economy operating at the same capacity level, the funds rate was only 1%.

The results were not good. The departure occurred before the financial crisis, and clearly preceded the poor performance of recent years, evidence for causality. A causal mechanism was that this departure brought on a search for yield and excesses in the housing market which, along with a regulatory process which departed from rules for safety and soundness, led to the financial crisis.

So the predictions of the theory were born out in practice again. There was clearly a move away from rule like policy—defined by the Taylor rule or variants—and economic performance deteriorated.

When the panic struck in the fall of 2008, the Fed responded very well acting as a traditional lender of last resort. But soon the departures from rule like monetary policy returned,

²² “International Monetary Policy Coordination: Past, Present and Future,” BIS Working Paper 437, December 2013

http://web.stanford.edu/~johntayl/2013_pdfs/International_Monetary_Policy_Coordination_Past_Present_and_Future-BISwkgpaper-Dec2013.pdf

²³ McCallum, Bennett, “Robustness properties of a rule for monetary policy,” *Carnegie-Rochester Conference Series on Public Policy*, Volume 29, 1988, 173–203

²⁴ *Monetary Policy Rules*, University of Chicago Press, 1999,

²⁵ “Housing and Monetary Policy,” in *Housing, Housing Finance, and Monetary Policy* proceedings of FRB of Kansas City Symposium, Jackson Hole, WY, September 2007

especially if you include the discretionary and massive quantitative easing, the use of frequently changing forward guidance, and the talk about discretionary macro prudential policy. Alex Nikolsko-Rzhevskyy, David Papell, and Ruxandra Prodan have shown the harmful effects of these deviations from rule-based policy in the US using interest rate rules as a measure of rules-based policies.²⁶

Strategy-Free Monetary Actions

The global nature of the deviation was first pointed out by Rudiger Ahrend²⁷ at the OECD, and is now obvious to any observer. Central banks followed each other down with extra low interest rates or the use of quantitative easing. Researchers²⁸ at the BIS called it the Global Great Deviation. Richard Clarida remarked²⁹ that “QE begets QE!” Complaints about spillover and pleas for coordination grew. Thus, NICE ended in both senses of the word.

World monetary policy now seems to have moved into a strategy-free³⁰ zone. As James Rickards explains to readers of his popular trade book³¹, “Today every reference point is gone. There is no gold standard, no dollar standard, and no Taylor Rule.” Or as economists Michael Belongia and Peter Ireland say³²: “For all the talk about ‘transparency,’ ... the process—or rule—by which the FOMC intends to defend its two-percent inflation target remains unknown.” And Paul Volcker, recalling “memories of a more orderly, rule-based world” calls for a reconsideration of the current approach to policy.³³

In many conversations central bankers sound nostalgic for what they call normal policy times, and I have urged them to renormalize rather than a new-normalize policy—to return to a rules-based monetary strategy as soon as possible. Perhaps our current predicament is why Charles Calomiris, Mickey Levy and Peter Ireland say that³⁴ “the Taylor Rule appears, if anything, to be even better suited to guiding Fed policy today” and why references to policy rules, whether tabulated on Google Scholar, News or Web Search, keep rising.

²⁶ Nikolsko-Rzhevskyy, Alex, David H. Papell, Ruxandra Prodan “Deviations from Rules-Based Policy and Their Effects,” in *Frameworks for Central Banking in the Next Century*, Michael D. Bordo, William Dupor, and John B. Taylor (Eds.), A Special Issue on the Occasion of the Centennial of the Founding of the Federal Reserve, *Journal of Economics Dynamics and Control*, Volume 49, December 2014

²⁷ Ahrend, Rudiger (2010), “Monetary Ease: A Factor Behind Financial Crises? Some Evidence from OECD Countries,” *Economics: The Open Access, Open Assessment E-Journal*,” Vol. 4, 2010-12, April 14, 2010

²⁸ Hofmann, Boris and Bilyana Bogdanova (2012), “Taylor Rules and Monetary Policy: A Global Great Deviation?” *BIS Quarterly Review*, September 2012

²⁹ Richard Clarida, Discussion of The Federal Reserve in a Globalized World Economy, The Federal Reserve’s Role in the Global Economy: A Historical Perspective, September 2014 · Dallas Federal Reserve Bank.

³⁰ To borrow a term used by my colleague James Mattis in another context.

³¹ *The Death of Money: The Coming Collapse of the International Monetary System*, 2014.

³² Michael Belongia and Peter Ireland, “Don’t Audit the Fed, Restructure It,” *e21* February 19, 2015

³³ Volcker, Paul, “Remarks,” Bretton Woods Committee Annual Meeting, June 17, 2014

<http://www.brettonwoods.org/sites/default/files/publications/Paul%20Volcker%20final%20Remarks%20June%2017.pdf>

³⁴ Calomiris, Charles W., Peter Ireland, Mickey Levy (2015),” Guidelines for Policymaking and Communications during Normalization,” Shadow Open Market Committee, March 20

In considering the merits of such a change at this time, I think it is important to emphasize the word strategy. Though monetary researchers frequently use the word “rule” rather than strategy, the term rule may convey the false idea that a rules-based strategy must be purely mechanical.

Experienced public officials know the importance of having a strategy. George Shultz, put it this way in a compendium to mark the Centennial of the Federal Reserve:³⁵ “Let me explain why I think it is important, based on my own experience, to have a rules-based monetary policy. First of all, if you have policy rule, like a Taylor Rule, you have a strategy, which is sort of what it amounts to.... And at least as I have observed from policy decisions over the years in various fields, if you have a strategy, you get somewhere. If you don’t have a strategy, you are just a tactician at large and it doesn’t add up.” Many other economists joined George Shultz in that compendium writing about the advantages of such a policy strategy.

Janet Yellen made similar observations when she served on the Federal Reserve Board in the 1990s. In “Monetary Policy: Goals and Strategy”³⁶ she explained that “The existence of policy tradeoffs requires a strategy for managing them,” and she described a policy rule (the Taylor rule) pointing out “several desirable features” it has “as a general strategy for conducting monetary policy.” She also stated that “the framework of a Taylor-type rule could help the Federal Reserve communicate to the public the rationale behind policy moves, and how those moves are consistent with its objectives”

Responsible Oversight

Of course, it is possible technically for the Fed and other central banks to get back to such a strategy. But it is difficult in practice, especially after years of being virtually strategy-free. The long departures from a rules-based strategy illustrate the difficulty. De jure central bank independence alone has not prevented departures. De jure central bank independence has been virtually unchanged in the past 50 years, yet policy makers have varied their adherence to rules-based policy. These variations suggest the need for legislation requiring the Fed to set and clarify its strategy for its policy instruments.

Several years ago I proposed such legislation³⁷ and reiterated it in my book *First Principles* as follows³⁸:

“The most straightforward way to legislate a rule for monetary policy would...limit the Fed’s discretion by requiring that it establish and report on a policy rule for the interest rate. The proposal does not require that the Fed choose any particular rule for the interest

³⁵ *Frameworks for Central Banking in the Next Century*, Michael D. Bordo, William Dupor, and John B. Taylor (Eds.), A Special Issue on the Occasion of the Centennial of the Founding of the Federal Reserve, *Journal of Economics Dynamics and Control*, Volume 49, December 2014

³⁶ Janet L. Yellen, “Monetary Policy: Goals and Strategy,” Remarks to the National Association of Business Economics, Washington, D.C., March 13, 1996

³⁷ “Legislating a Rule for Monetary Policy,” *The Cato Journal*, 31 (3), Fall, 407-415, 2011.

³⁸ *First Principles: Five Keys for Restoring America’s Prosperity*, WW Norton, 2012

rate, only that it establish some rule and report what the rule is. But if the Federal Reserve deviates from its chosen strategy, the chairman of the Fed must provide a written explanation and answer questions at a public congressional hearing.”

A proposal along these lines has now been written into legislative language in a bill³⁹ which passed the U.S. House of Representatives last year and has been endorsed by many economists.⁴⁰ This bill 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.

There is precedent for this type of Congressional oversight in the United States. 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. A legislative void was thus created concerning reporting requirements and accountability. In many ways the proposed reform is needed simply to fill that void.

The United States Congress through the Senate Banking Committee and the House Financial Services Committee is in a good position—and in a unique position in the U.S. government—to oversee monetary policy in this strategic, rather than a tactical, sense. Allan Meltzer stressed this idea in a recent Banking Committee hearing:⁴¹

“We need change to improve the oversight that this Committee and the House Committee exercises over the Fed. You have the responsibility. Article I, Section 8 gives that to you. But you do not have the ability to exercise authority. You are busy people. You are involved in many issues. The Chairperson of the Fed is a person who has devoted his life to monetary policy. There is not any series of questions that you can ask on the fly that they are not going to be able to brush aside.... So you need a rule which says, look, you said you were going to do this, and you have not done it. That requires an answer, and that I think is one of the most important reasons why we need some kind of a rule.”

Meltzer argues that a bill requiring the Fed to report its strategy would be more effective than an “Audit the Fed” bill:

³⁹ Section 2 of the Fed Oversight and Reform Modernization Act of 2015.

⁴⁰ The following economists signed a statement supporting the legislation: Lars Peter Hansen, Robert Lucas, Edward Prescott, George Shultz, Robert Heller, Jerry Jordan, Athanasios Orphanides, William Poole, Michael Bordo, Michael Boskin, Charles Calomiris, Varadarajan Chari, John Cochrane, John Cogan, Steven Davis, Marvin Goodfriend, Gregory Hess, Peter Ireland, Mickey Levy, Bennett McCallum, Allan Meltzer, Gerald O’Driscoll, Lee Ohanian, Scott Sumner, and John Taylor

⁴¹ Transcript, Hearing before The Committee on Banking, Housing, and Urban Affairs United States Senate, March 3, 2015

“Suppose you found out [through an audit] that the Fed chooses its policy using a ouija board. What would you be able to do with that?The Congress needs to...face up to its responsibilities. Its responsibility is to be able to say to the Fed: ‘You told us you were going to do this, and you didn’t do it. Why?’ That’s what the rule gives you. That’s more important....”

Objections and Questions

So far the Fed has objected to this legislation, just as it originally objected to money growth reporting legislation in the late 1970s. Fed Chair Janet Yellen testified at the House Financial Services Committee⁴² that “I don’t believe that the Fed should chain itself to any mechanical rule.”

But neither the House bill nor my original proposal would chain the Fed to any rule. The Fed would choose and describe its own strategy, and it need not be mechanical. The Fed could change the strategy if the world changed. It could deviate from the strategy in a crisis if it explained why. It would still serve as lender of last resort or take appropriate actions in the event of a crisis. Moreover, a policy strategy or rule does not require that any instrument of policy be fixed, but rather that it flexibly adjusts up or down to economic developments in a systematic and predictable way that can be explained.

Another stated concern with policy rules legislation is that the Fed would lose its independence. In my view, based on my own experience in government, the opposite is more likely. A clear public strategy helps prevent policy makers from bending to pressure.

Some commentators say that the House monetary strategy bill would require the Fed to follow the Taylor Rule, but this is not the case. The bill requires the Fed to describe how its strategy or rule might differ from a “reference rule,” which happens to be the Taylor rule. However, describing the difference between a particular policy rule and this reference rule is a natural and routine task for the Fed. In fact, many at the Fed already make such comparisons including Fed Chair Yellen.⁴³

Nevertheless, for those mounting debating points against policy rule legislation, claiming that the legislation chains the Fed to the Taylor rule opens avenues of attack along the following lines: The policy rules bill is the Taylor rule; the Taylor rule is bad; so, the policy rules bill is bad. Thus questions about the Taylor rule are being raised. Some of these are old with many research papers written about them over the years. Others are new. In the interest of better understanding, responses are in order:

Doesn’t uncertainty about the output gap render useless the Taylor rule, or any other rule that depends on the gap, compared with discretion? No. That uncertainty is just as much a problem for discretion as it is for policy rules.

⁴² Hearing entitled “Monetary Policy and the State of the Economy,” February 25, 2015

⁴³ Janet Yellen, “The Economic Outlook and Monetary Policy, Money Marketeers, New York, New York April 11, 2012

Doesn't the zero bound on the interest rate mean the Taylor rule is no longer useful? No. In fact, the research in the 1980s that I described earlier took account of the zero bound. Here is how I put it at the AEA meetings in 2009⁴⁴, when I argued that the Fed should have kept money growth steady rather than embarking on a purely discretionary QE: When the interest rate rule hits zero the strategy "could use Milton Friedman's famous constant growth rate rule, or the money base rule proposed by Ben McCallum....For the Friedman rule, a monetary aggregate would grow at a constant rate, say 4 percent. For the McCallum rule the growth of the monetary base is flexible, but would be around 4 percent according to conditions near the end of 2008...one should not think of this as a separate or different framework for monetary policy, but rather as part of a broader framework."

Isn't the equilibrium interest rate in the Taylor rule too high at 4%? I don't think so, but if it is, one can easily adjust the equilibrium interest rate in the rule, as Rich Clarida has suggested recently. In fact, the average estimate of FOMC members appears to have come down recently to around 3.5%

There are many variants on the Taylor rule, so how can the Taylor rule be used in policy? Well there are many different types of personal display devices, but that does mean they can't be used. Some rules are better than others, and it makes perfect sense for researchers and policy makers to be looking for new and better rules. Some people have suggested focusing on nominal GDP. I think the Taylor rule does a good job at keeping nominal GDP on a steady growing trend, but why not investigate others? I do not think adding housing prices or the stock market makes much sense, but with the policy rules legislation it is the job of the Fed to decide.

Key Issues in the Rules versus Discretion Debate

Finally, let me consider general issues that go to the heart of the debate about rules versus discretion. These issues have been revived recently, perhaps because of the proposed policy rules legislation. In the interest of moving the debate forward, they are important to review.

The Fed Without a Rule is like a Doctor Without a Checklist

In a debate with me about rules versus discretion at the 2013 American Economic Association meetings, Larry Summers started off like this⁴⁵

"John Taylor and I have, it will not surprise you...a fundamental philosophical difference, and I would put it in this way. I think about my doctor. Which would I prefer: for my doctor's advice, to be consistently predictable, or for my doctor's advice to be responsive to the medical condition with which I present? Me, I'd rather have a doctor who most of the time didn't tell me to take some stuff, and every once in a while said I needed to ingest some stuff into my body in response to the particular problem that I had. That would be a doctor who's [advice], believe me, would be less predictable."

⁴⁴ "The Need to Return to a Monetary Framework," *Business Economics*, 2009

⁴⁵ Transcript published in the *Journal of Policy Modeling*, Issue 4, Volume 36, 2013

So, much as the proponents of discretion in earlier rules versus discretion debates (Keynes and Hayek, or Heller and Friedman), Summers argues in favor of relying on an all-knowing expert, a doctor who does not perceive the need for, and does not use, a set of guidelines, but who once in a while in an unpredictable way says to ingest some stuff.

Hayek issued a warning about this kind of reasoning about policymakers in the chapter “Why the Worst Get on Top?” in *The Road to Serfdom*.⁴⁶ He argued that people who have the ambition to get to the top, either by election or by appointment, frequently have a bias toward activism or doing whatever it takes. Interventionists will thus tend to rise to the top. And when they reach high positions these biases can be reinforced, as regulatory capture, crony capitalism, and the promise of further advancement set in.

But as in economics, there has been progress in medicine over the years. And much progress has been due to doctors using checklists, as described so well in the *New Yorker* article by Atul Gawande.⁴⁷ Experience shows that checklists are invaluable for preventing mistakes, getting good diagnoses and appropriate treatments. Of course doctors need to exercise judgement in implementing checklists, but if they start winging it or skipping steps the patients usually suffer. Experience and empirical studies show that a checklist-free medicine is fraught with dangers just as rules-free, strategy-free monetary policy is.

“Constrained Discretion” is Not a Rule for the Instruments of Policy

Ben Bernanke recently made two related claims⁴⁸. One was that “the presumption that the Taylor rule is the right rule or the right kind of rule is no longer state of the art thinking,” and the other was that the Fed has been following a policy rule. But the rule that Bernanke has in mind is not a rule in the sense that I have used here, or that I and many others have been working on for years, or that Janet Yellen was referring to in her speech described earlier.

Rather it is a concept that Bernanke has advocated for a long time, perhaps since before the time the Taylor rule was first presented. It is that all you really need for effective policy making is a goal, such as an inflation target and an employment target. In medicine, it would be the goal of a healthy patient. The rest of policymaking is doing whatever you as an expert, or you as an expert with models, thinks needs to be done with the instruments. You do not need to articulate or describe a strategy, a decision rule, or a contingency plan for the instruments. If you want to hold the interest rate well below the rule-based strategy that worked well during the Great Moderation, as the Fed did in 2003-2005, then it’s ok as long as you can justify it at the moment in terms of the goal.

⁴⁶ Hayek, F.A. (1944), *The Road to Serfdom*, University of Chicago Press, Chicago. Reprinted in The Collected Works of F.A. Hayek, Volume 2, Bruce Caldwell (Ed.), University of Chicago Press, Chicago, 2007.

⁴⁷ “The Checklist: If Something So Simple Can Transform Intensive Care, What Else Can It Do?” *The New Yorker*, Dec 19, 2007, <http://www.newyorker.com/magazine/2007/12/10/the-checklist>

⁴⁸ “Objections to Federal Reserve accountability bill” video <https://www.youtube.com/watch?v=KJmA5JDNpKg&t=37> of remarks at the Conference on The Fed in the 21st century: Independence, governance, and accountability, Brookings Institution, March 2, 2015

Bernanke and others have argued that this approach is a form of “constrained discretion.” It is an appealing term, and it may be constraining discretion in some sense, but it is not inducing or encouraging a rule as the language would have you believe. Simply having a specific numerical goal or objective function is not a rule for the instruments of policy; it is not a strategy; in my view, it ends up being all tactics. I think there is evidence that relying solely on constrained discretion has not worked for monetary policy.

Conclusion

I hope that this review of central bank actions as well as research and experience with policy rules like the Taylor rule over the years, shows why it is important for central banks to get back to a rules-based strategy for the instruments of monetary policy. By also considering legislative proposals and alternative views, the aim of the paper is to contribute to a rational discourse through which we can achieve the goal of a better performing economy. While Haberler’s *Prosperity and Depression* focused less on “interventions in the economic process by the State or other public bodies” and more on “responses of the economic system” than this paper, it clearly had the same goal.⁴⁹

⁴⁹ *Prosperity and Depression*, pp. 11-12