

# Rethinking the International Monetary System

John B. Taylor<sup>1</sup>

Prepared for Presentation at the  
Cato Institute Monetary Conference on  
Rethinking Monetary Policy

November 12, 2015

## Abstract

This paper shows that the international monetary system has drifted away from a steady rules-based system long advocated by economists and policy makers. Some have concluded that a rules-based system is impossible, at least one built on the three-pillar foundation of flexible exchange rates, open capital markets, and an independent monetary policy in each country as in Milton Friedman's classic proposal for flexible exchange rates. Despite arguments to the contrary the paper shows that there is no inherent incompatibility between internationally independent monetary policies and either open capital markets or flexible exchange rates. Empirical correlations that suggest otherwise are likely spurious, stemming from deviations from rules-based monetary policy in many countries, which are neither necessary nor advisable. Basic monetary theory tells us that adherence to rules-based policy can prevent excessive capital flows and can allow each country to pursue its own domestic stability goals without disrupting the system. Hence, a solution to the problem is an international agreement in which each central bank describes and commits to a monetary policy rule or strategy for the policy instruments.

Thank you for inviting me to speak at the Annual Cato Monetary Conference. In previous talks here I drew on historical facts and economic theory to explain the benefits of rules-based monetary policy and why legislation could help the United States reap those benefits.<sup>2</sup> Today I would like to talk about the *international* aspects of monetary policy, a subject often glossed

---

<sup>1</sup> Mary and Robert Raymond Professor of Economics at Stanford University, George P. Shultz Senior Fellow in Economics at the Hoover Institution, and former Under Secretary of Treasury for International Affairs, 2001-2005. I am grateful to John Cochrane for helpful comments.

<sup>2</sup> Taylor (2011), Taylor (2013a)

over in modern debates about rules-based policy, at least compared with discussions about the classic rules-based gold standard.<sup>3</sup>

## **The Situation**

As I see it, the international monetary system has drifted away in recent years from the kind of steady rules-based system long advocated by academic reformers and experienced practitioners across the economic spectrum all the way from Milton Friedman (1953) to Paul Volcker (2014). When you look around the world you see huge swings of capital flows especially into and out of emerging markets; you see increased volatility of exchange rates reminiscent of currency wars and competitive devaluations; and worst of all you see poor economic performance, including a global financial crisis, a great recession, a very slow recovery, and now disappointing economic growth in many emerging market and developing countries.<sup>4</sup>

On the economic policy front you see the spread and amplification<sup>5</sup> of unusual monetary policy actions and interventions across countries; you see governments increasingly imposing capital controls, intervening in exchange markets, and fine-tuning macro-prudential regulations to affect international exchange transactions. You even see top officials at the international financial institutions endorsing such controls and interventions, suggesting that they should be

---

<sup>3</sup> For example, Hume's international specie-flow mechanism is central to discussions of the gold standard by Bordo (2007) or Ickes (2006).

<sup>4</sup> I refer in this statement to *gross* capital flows; see Borio and Disyatat (2015) for a useful discussion of the relationship between the current account, net and gross capital flows.

<sup>5</sup> Amplification occurs when more than one central bank follows other central banks. Then a series of spillovers evolves in which each central bank reacts by moving its interest rate when another central bank moves, resulting in a multiplier effect as explained in Taylor (2009).

built into a new global system, a far cry from the days when these institutions were arguing for the removal of such controls.<sup>6</sup>

These developments have led some to conclude that a steady rules-based international monetary system is literally impossible, at least one built on the three-pillar foundation of flexible exchange rates, open capital markets, and an independent rules-based monetary policy in each country. This foundation was implicit in Milton Friedman's (1953) case for flexible exchange rates which held that "The logical domestic counterpart of flexible exchange rates is a strict fiduciary currency changed in quantity in accordance with rules designed to promote domestic stability." And it was explicit in research work starting in the 1980s which found that if each country followed its own rules-based monetary policy consistent with its own domestic stability, the result would be a nearly optimal international rules-based system.<sup>7</sup>

After documenting recent "surges and retrenchments in capital flows" for central bankers at a recent Jackson Hole conference, Helene Rey (2014) argued that there is an "irreconcilable duo: independent monetary policies are possible if and only if the capital account is managed, directly or indirectly via macro-prudential policies" and "if they are not sufficient, capital controls must also be considered." In other words, independent monetary policies and open capital markets are irreconcilable.

---

<sup>6</sup> Compare, for example, the International Monetary Fund (2012) report which states that "In certain circumstances, capital flow management measures [that is, capital controls] can be useful," with the 1997 Communique of the Interim Committee of the IMF which states that "an amendment of the Fund's Articles will provide the most effective means of promoting an orderly liberalization of capital movements."

<sup>7</sup> See Carozzi and Taylor (1985) and Taylor (1985), for example.

And after reviewing evidence that monetary policy in several central banks is significantly contaminated by policy spillovers from decisions at other central banks,<sup>8</sup> Sebastian Edwards (2015b) called “into question the idea that under flexible exchange rates there is monetary policy independence.” He thereby pointed out another apparently irreconcilable duo: independent monetary policies designed to achieve domestic economic stability and flexible exchange rates.

### **The Problem**

In my view, there is no inherent incompatibility between internationally independent monetary policies and either open capital markets or flexible exchange rates. The recent empirical correlations that suggest otherwise are likely spurious, stemming from a substantial deviation from rules-based monetary policy in many countries, which is neither necessary nor advisable.

That there has been such a deviation is beyond dispute. Empirical research by Ahrend (2010) on interest rate policy in the OECD countries and by Taylor (2007), Kahn (2010) and Selgin, Beckworth and Bahadir (2015) on interest rate policy in the United States shows that a deviation from rules-based policy started around 2003-2005—well before the financial crisis—creating a boom and an inevitable bust. Hofmann and Bogdanova (2012) find an ongoing “Global Great Deviation,” which is caused in part by the spread and amplification of policy deviations around the world. Deviations from rules are also seen in the large-scale asset purchase programs known as quantitative easing and in frequently changing discretionary

---

<sup>8</sup> Many studies have documented policy spillovers by showing that foreign interest rates appear with statistically significant coefficients in policy rule regressions, including Edwards (2015a), Carstens (2015), Gray (2013) and Taylor (2007). There is also direct evidence reported by central banks as discussed in Taylor (2013b).

forward guidance operations. In response to quantitative easing in the United States, policy makers in Japan engaged in quantitative easing and then policy makers in Europe expanded their own quantitative easing in response to both. Exchange rate effects were on their minds and openly discussed. Note that these departures from rules-based policy refer to events before and after the panic of 2008, not to the actions taken by central banks during the panic.

There is evidence that the increased volatilities of capital flows and exchange rates are associated with these deviations from rules-based policy. Taylor (2015) finds an increase in exchange rate volatility of the U.S. dollar starting around 2003, around the time of the recent deviation from rules-based policy. Carstens (2015) finds a sharp rise in the volatility of emerging market capital flows, debt and equity around the same time. Rey (2014) finds that “monetary policy in the center country...affects leverage of global banks, credit flows and credit growth in the international financial system.” Much of this effect appears to be due to excessive swings in monetary policy starting about a dozen years ago when very low interest rates in the United States drove an international search for yield.<sup>9</sup>

There is also evidence that the increased spillovers of central banks’ actions on other central banks are associated with the deviations from rules-based policy. Cries of spillover of Fed policies by emerging market officials certainly have grown louder during this period. And the currency-war-like sequence of QE begetting QE from the United States to Japan and to the Eurozone in recent years occurred with discretionary rather than rule-like policies. Much of the empirical work documenting a significant presence of foreign interest rates in central bank policy rules started after the shift away from rule-like policy.

---

<sup>9</sup> John Cochrane notes that simply talking about policy shifts—whether interest rate changes or quantitative easing—may have the same effects.

## The Solution

Basic monetary theory tells us that adherence to rules-based policy can prevent excessive capital flows and can allow each country to pursue its own domestic stability goals without disrupting the system. To see how this theory works and where it might go wrong, it helps to try to run through some simple scenarios. Consider a world in which exchange rates are flexible, capital is mobile, and each central bank sets its policy interest rate according to a rule. Interest rate differentials between countries can occur with capital flows bringing any differences into alignment with the expected percentage change in the exchange rate. Movements in real exchange rates affect imports and exports, and thus the trade balance and real GDP. Prices and wages are sticky so that changes in the policy interest rate in one country can affect output as well as the inflation rate in that country. Depreciations or appreciations in the exchange rate also affect inflation. Shocks can hit anywhere.

For concreteness, let the policy rule be one in which each central bank systematically increases the interest rate when inflation rises above a target or when real GDP falls below its estimated potential; similarly, the central bank systematically reduces the interest rate when inflation falls below target and real GDP rises above its estimated potential. Let the inflation target be set at 2% in all countries, and let the given long run real policy interest rate be 2%. If this world were not subject to shocks, the global inflation rate would settle at the 2% target, the nominal policy interest rate at 4%, and real GDP at potential. The exchange rate would be stable.

Suppose now that—starting from this equilibrium—there is a price shock which raises inflation in one country above the target. This will cause the central bank in that country to take actions to raise the interest rate, and output will thus temporarily fall while the inflation rate declines back to its target. Eventually the effects of the shock will wear off.

What about the impacts abroad? The initial inflation shock will cause the inflation rate to rise abroad as the costs of imported inputs to production rise, but by a small amount according to most models with the effects of the inflation shock abroad mitigated by the initial central bank's stabilizing actions. So if foreign central banks follow their rules, they will raise their policy interest rates, but by a small amount, and there will be little effect on their economies.

However, with interest rate differentials rising, central banks abroad may fear an outflow of capital or a depreciation of their currency. They may decide to raise interest rates by a larger amount getting closer to the rate increase of the initial central bank, and thereby deviate from the rule. This would be an example of the phenomenon of central banks following each other. However, if the first central bank is committed to the policy rule, the effect on interest rate differentials would be known to be quite temporary, reducing the need or incentive for other central banks to over-react. In effect the commitment to the rule enables each foreign central bank to better commit to its own rule.<sup>10</sup> In contrast, if the first central bank's policy is ad hoc or discretionary, the foreign central bank may fear a larger or longer capital outflow and even a downward spiral of the exchange rate, and thereby take more aggressive action. A greater adherence to rules-based policy by the first central bank will reduce the likelihood that the other central banks will follow, and thereby detract from their own performance. This reasoning suggests that the volatility of capital flows would diminish with a more rules-based policy: With the exchange rate expected to stabilize there would be less reason to pull out of the currency in fear of a large depreciation.

These same arguments apply to other types of shocks. Suppose that there is a shock that lowers the inflation rate. In this case the first response is to lower the policy interest rate below

---

<sup>10</sup> Thus, the rule would have less reaction to exchange rate changes, but just as important any such reaction will be more predictable.

the starting point of 4%. After an adjustment period this action brings the inflation rate back up to target. However, after a smaller rule-like interest rate response in the rest of the world, interest rates will now be higher abroad generating concerns about capital inflows or exchange rate appreciation. There will be a tendency for central banks abroad to lower their interest rate further. But with a rules-based policy this tendency will be mitigated by the knowledge that the capital outflows and exchange rate effects will be temporary.

There are many other types of shocks and policy scenarios which would require a full blown monetary model to analyze. However, the general prediction that rule-like policy will mitigate excessive capital flows and unnecessary monetary spillovers is likely to be robust.

There is empirical support for these predictions. Regarding exchange rates, empirical research by Eichengreen and Taylor (2003) found that “countries that target inflation,” a form of rules-based policy, “have significantly less volatile exchange rates.” Regarding capital flows, Vegh and Vuletin (2012) found that the adoption of rules-based inflation targeting had the effect in a number of emerging market countries of reducing large capital movements associated with “fear of free falling” exchange rates. And Coulibaly and Kempf (2010) show that inflation targeting rules reduce the pass-through of exchange rates to inflation. This further reduces the need for over-reaction of policy due to concerns about exchange rate changes.

While the scenarios examined here apply to a particular policy rule, the arguments are likely to be robust to other types of policy rules examined over the years. Beckworth and Hendrickson (2015), for example, have examined interest rate rules where the central bank reacts to nominal GDP rather than to the inflation rate and GDP separately. They stress that such a rule has the advantage that the central bank does not have to estimate potential GDP, reflecting concerns raised by Orphanides (2003). Though more research is needed I see no reason why the

same types of arguments would not apply to this particular implementation of nominal GDP targeting or others suggested by Sumner (2014). Another recent example is due to Fagan, Lothian, and McNelis (2013) who examine two monetary policy rules in a model estimated over the classical Gold Standard period from 1879 to 1914. One policy rule has the monetary base following an auto-regression with the interest rate determined by the supply and demand for money. The other is an estimated interest rate rule. They find that inflation volatility decreases a lot while output and employment volatility decreases a little with the interest rate rule. Of course the dynamic properties of rules are very important for policy evaluation, and it is necessary that the rules do well domestically if they are to contribute to a global rules-based system.

### **The Implementation**

The implication of these results is that the international economy would be more stable if policy makers could create a more rules-based international monetary system. But how could such a system be implemented? One possibility would be to forge an international agreement where each central bank would describe and commit to a monetary policy rule or strategy for setting the policy instruments. The strategy could include a specific inflation target, an estimate of the equilibrium interest rate, and a list of key variables to react to in certain specified ways. The process would not impinge on other countries' monetary strategies. It would be a flexible exchange rate system, though currency zones, like the Eurozone, and their central banks could certainly be part of it.

Such an agreement would pose no threat to either the national or international independence of central banks. Each central bank would formulate and describe its strategy. Central banks participating in the process would not have a say in the strategies of other central

banks, other than that the strategies be reported. And the strategies could be changed or deviated from 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 agreement. It is possible that some central banks will include foreign interest rates in the list of variables to react to, but when they see other central banks not doing so, they will likely do less of it, recognizing the amplification effects.

The agreement would be completely global in principle, rather than for a small centralized or regional group of countries. As with the process that led to the Bretton Woods system it could begin informally with a small group and then spread out. The rules-based commitments would reduce capital flow volatility and remove some of the reasons why central banks have followed each other in recent years.

A companion reform would set up rules for eventually removing capital controls. According to a recent classification of countries by Fernandez et al (2015), 36 countries now have “open” capital accounts, but 48 are classified as “gate” countries and 16 as “wall” countries with varying degrees of capital controls. The reform could be phased in with a transition period, and should be accompanied by adequate enforcement of safety and soundness regulations on financial institutions.<sup>11</sup> Though controversial, this reform is conceptually the same as the agreement by initial IMF members to remove exchange controls in 1944.

Implementing an international understanding and agreement along these lines may be less difficult than you think. Many have called for reforms of the international monetary system, reflecting concerns about the instabilities, international policy spillovers, volatile capital flows, and poor economic performance. The Bank for International Settlements (BIS) has been researching the issues and Jaime Caruana, the General Manager of the BIS has promoted it. The

---

<sup>11</sup> If prudential regulations were already in place, a gradualism phase-in may not be necessary.

approach suggested here may not be the be-all and end-all of such a reform, but it is supported by experience and research. It is attractive because each country can choose its own independent strategy and simultaneously contribute to global stability.

Some form of re-normalization of monetary policy is needed first, but that could be phased-in during a transition period. Goals and strategies for the instruments of policy to achieve the goals would come next. The major central banks now have explicit inflation goals, and many policy makers use policy rules that describe strategies for the policy instruments. Thus, explicit statements about policy goals and strategies to achieve these goals are feasible. That there is wide agreement that some form of international reform is needed would help move the implementation along.

The biggest hurdle to an agreement of this kind is disagreement about the problem and the solution. Some are not convinced of the importance of rules-based monetary policy; others may doubt that it would deal with the problems of volatile capital flows or policy following. Some believe that the competitive depreciations of recent years are simply part of a necessary process of world monetary policy easing.

In any case a clear commitment by the Federal Reserve to move in this rules-based direction would help start the implementation process. Legislation to require that the Fed report its rules-based strategy —such as that which is now working its way through the U.S. House of Representatives and the U.S. Senate—would be a constructive part of the implementation effort.

## References

- Ahrend, Rudiger (2010), "Monetary Ease: A Factor Behind Financial Crises? Some Evidence from OECD Countries," *Economics: The Open Access, Open Assessment E-Journal*, 4
- Beckworth, David and Joshua R. Hendrickson (2015), "Nominal GDP Targeting and the Taylor Rule on an Even Playing Field,"
- Bordo, Michael D. (2007), "Gold Standard", *The Concise Encyclopedia of Economics*, second edition, David R. Henderson, (Ed.), Liberty Fund
- Claudio E. V. Borio and Piti Disyatat (2015), "Capital Flows and the Current Account: Taking Financing (More) Seriously," BIS Working Paper No. 525
- Carlozzi, Nicholas and John B. Taylor (1985), "International Capital Mobility and the Coordination of Monetary Rules" in J. Bhandhari (Ed.) *Exchange Rate Management Under Uncertainty*, MIT Press,
- Carstens, Agustin (2015), "Challenges for Emerging Economies in the Face of Unconventional Monetary Policies in Advanced Economies," Stavros Niarchos Foundation Lecture, Peterson Institute for International Economics, Washington, April 20.
- Communique of the Interim Committee (1997), International Monetary Fund, September 21
- Coulibaly, Dramane, and Hubert Kempf (2010) "Does Inflation Targeting Decrease Exchange Rate Pass-through in Emerging Countries?" Documents de Travail du Centre d'Economie de la Sorbonne, 2010.49
- Edwards, Sebastian (2015a) "Monetary Policy Independence under Flexible Exchange Rates: An Illusion?" NBER Working Paper No. 20893
- Edwards, Sebastian (2015b), "The illusion of monetary policy independence under flexible exchange rates," VOX, CEPR's Policy Portal, February 4
- Eichengreen, Barry and Alan M. Taylor (2003), "The Monetary Consequences of a Free Trade Area of the Americas," NBER Working Paper No. 9666, April
- Fagan, Gabriel, James R. Lothian, Paul D. McNelis (2013), "Was the Gold Standard Really Destabilizing?" *Journal of Applied Econometrics*, 8, 131-249
- Fernández, Andres, Michael W. Klein, Alessandro Rebucci, Martin Schindler, and Martín Uribe (2015) "Capital Control Measures: A New Dataset," IMF Working Paper, April.
- Friedman, Milton (1953), "The Case for Flexible Exchange Rates" in *Essays in Positive Economics*, University of Chicago Press, 1953.

- Gray, Colin (2013), “Responding to a Monetary Superpower: Investigating the Behavioral Spillovers of U.S. Monetary Policy,” *Atlantic Economic Journal*, Vol 21 (2) pp 173-184.
- Hofmann, Boris and Bilyana Bogdanova (2012), “Taylor Rules and Monetary Policy: A Global Great Deviation?” *BIS Quarterly Review*, September.
- Ickes Barry W. (2006) “Lecture Note on the Gold Standard.”
- International Monetary Fund (2012), “The Liberalization and Management of Capital Flows: An Institutional View,” approved by Olivier Blanchard, Sean Hagan, Siddharth Tiwari, and José Viñals, November 14.
- Kahn, George A. (2010), “Taylor Rule Deviations and Financial Imbalances,” *Economic Review*, Second Quarter, Federal Reserve Bank of Kansas City, pp. 63–99.
- Orphanides, Athanasios (2003), "Monetary Policy Evaluation with Noisy Information," *Journal of Monetary Economics*, Vol. 50(3), pp. 605-631
- Rey, Helene (2014), “Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence,” In *Global Dimensions of Unconventional Monetary Policy A Symposium Sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Aug. 22-24, 2013*
- Selgin, George, David Beckworth and Berrak Bahadir (2015), “The productivity gap: Monetary policy, the subprime boom, and the post-2001 productivity surge” *Journal of Policy Modeling* Volume 37, Issue 2, pp. 189–207
- Sumner, Scott (2014) “Nominal GDP Targeting: A Simple Rule to Improve Fed Performance,” *Cato Journal*, Vol. 34, No. 2 (Spring/Summer).
- Taylor, John B. (1985), “International Coordination in the Design of Macroeconomic Policy Rules,” *European Economic Review*, 28, pp. 53-81.
- Taylor, John B. (2007), “Housing and Monetary Policy,” in *Housing, Housing Finance, and Monetary Policy*, Federal Reserve Bank of Kansas City, Sept., pp. 463-476.
- Taylor, John B. (2009), “Globalization and Monetary Policy: Missions Impossible,” in Mark Gertler and Jordi Gali (Eds), *The International Dimensions of Monetary Policy*, University of Chicago Press, 609-624, NBER conference Girona, Spain, June 13, 2007
- Taylor, John B. (2011) “Legislating a Rule for Monetary Policy,” *The Cato Journal*, 31 (3), pp. 407-415.
- Taylor, John B. (2013a) “Monetary Policy During the Past 30 Years With Lessons for the Next 30 Years,” *The Cato Journal*, Volume 33, pp. 333-345.

Taylor, John B. (2013b), “International Monetary Coordination and the Great Deviation,” *Journal of Policy Modeling*, 35 (3), pp. 463-472.

Taylor, John B. (2015), “A Rules-Based International Monetary System for the Future,” in C. Fred Bergsten and Russel Green (Eds.) *30 Years after the Plaza Agreement*, Peterson Institute for International Economics.

Vegh, Carlos and Guillermo Vuletin (2012), “Overcoming the fear of free falling: Monetary policy graduation in emerging markets,” NBER Working Paper No. 18175, June.

Volcker, Paul A. (2014), “Remarks,” Bretton Woods Committee Annual Meeting, June 17