Rules Based Policies:
Better Than International Central Bank Coordination and Cooperation

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SOMC SHADOW OPEN MARKET COMMITTEE

Shadow Open Market Committee Meeting

Princeton Club, New York City
April 29, 2016

E21 Manhattan Institute

ECONOMIC POLICIES FOR THE 21ST CENTURY

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1. Introduction

The reintroduction by the Federal Reserve of swap lines with major advanced country central banks in September 2008 and coordinated policy rate cuts announced at the G20 Summit in October 2008, cries over 'currency wars' by central bankers from emerging countries following quantitative easing by the Fed and similar actions later taken by the BOJ and the ECB have led to calls for monetary policy makers to take coordinated actions to reduce the international spillovers from their domestic actions. An alternative view argues that the externalities from recent policy actions reflects the deviation from rules based monetary policy (Taylor 2016).

By a rules based policy is meant that the central bank sets its policy instrument (in the US the federal funds rate) in an optimal way in reaction to its primary policy goals; the deviation of real growth from potential and the deviation of inflation from its target. In this view a return to rules based monetary policy and a rolling back of "the global great deviation" by each country's central bank would lead to a beneficial global outcome without the need for policy coordination.

I review the issue of monetary policy cooperation and coordination from an historical perspective. By cooperation is meant collaboration via the sharing of information and techniques of central banking, the discussion of common problems and occasional /ad hoc emergency lending or other operations between central banks in periods of financial crisis. By coordination is meant policy actions formally agreed and taken by groups of policy makers including finance ministers and central bankers aimed at achieving beneficial outcomes for the

[1] This paper draws heavily on Michael Bordo and Catherine Schenk " Monetary Policy Cooperation and Coordination: an Historical Perspective on the Importance of Rules" Hoover Institution (2016)

international monetary system as a whole. Such actions may conflict with domestic policy goals.

I argue that in monetary regimes which are rules based (in the sense of the modern literature on rules versus discretion) cooperation was most successful and less so in regimes based on discretion or poorly grounded rules. Little success is found for more elaborate schemes of coordination.

2. The Classical Gold Standard 1880-1914

The classical gold standard was the original rules based monetary policy regime (Bordo and Kydland 1995). The basic rule for each monetary authority was to maintain convertibility of its paper currency in terms of gold at the official nominal price. This required subsuming domestic policy goals to the dictates of external balance. Central banks in advanced countries before 1914 did consistently follow the convertibility rule.

Cooperation during the gold standard period was quite limited. To the extent that central banks adhered to the gold standard they implicitly cooperated.

There is evidence that in the face of several large financial crises (eg 1890 and 1907) the Banque de France, which had very large gold reserves , lent gold on commercial terms to the Bank of England , to allow it to avoid suspending convertibility. Some argue that this cooperation was essential to the survival of the gold standard (Borio and Toniolo 2005, Eichengreen 1992) but the evidence suggests otherwise (Flandreau 1997, Bordo and Schwartz 1999). The Bank of England held a 'thin film of gold' because it had a long record of credibility which ensured that capital flows would be stabilizing. Moreover, in panics which did not involve rescue loans the Bank requested a 'Treasury Letter' allowing it to temporarily suspend convertibility.

Several early unsuccessful attempts at international monetary coordination occurred at a number of conferences held in Paris to try to standardize gold coins across the major countries at the same weight as the five franc coin. They foundered on the rocks of sovereignty.

The gold standard was successful because it was rules based and each member voluntarily adhered to the convertibility rule. The gold standard collapsed because World War I completely unraveled the global financial system and virtually bankrupted all of the European belligerents. Had the War not happened it could have lasted longer.

3. **The Interwar Gold Exchange Standard 1924 to 1936**

After World War I Great Britain, France and other countries expressed a strong desire to restore the prewar gold standard. The US had never left gold. It just imposed an embargo on gold exports for two years after it entered the war in April 1917. All of the belligerents had financed their war efforts with a combination of taxes, debt and seigniorage. The debt overhang and high inflation meant that it would be difficult for most countries to go back to the prewar parities and most experts believed that it would take major international cooperation and coordination to restore it.

Two important conferences in Brussels 1920 and Genoa 1922 set the stage for the restoration of the gold standard. To economize on a predicted gold shortage it was to be a gold exchange standard under which members would hold both foreign exchange and gold as international reserves. Great Britain and the United States were to be the center countries of the new International Monetary System and they were to hold their international reserves in gold valued at the prewar parities.

Extensive international cooperation was required to stabilize the central European countries which had run hyperinflations. The stabilization packages imposed by the League of Nations and private sector lenders like JP Morgan to provide the loans to build up the reserves needed to restore convertibility involved massive disinflation and budget balance.

To facilitate Great Britain's return to gold in 1925, the New York Fed established a $200 million line of credit for the Bank of England in New York (Bordo, Humpage and Schwartz 2015, ch 2). It would also have kept its policy looser than would otherwise have been the case (Friedman and Schwartz 1963).

The interwar gold standard was based on the convertibility rule as was its prewar ancestor, but the rule was more fragile and less credible. One key difference between the gold exchange standard and the classical gold standard was that few countries were perceived to maintain external balance at the expense of domestic policy goals. Central banks began to focus more on stabilizing the business cycle in support of expansionary policy targets for employment and growth (Eichengreen 1992).

In addition, many of the post WWI parities were misaligned , reflecting mis-calculation of equilibrium exchange rates and political pressures. Sterling was pegged to gold at an overvalued (prewar) parity in April 1925 while France went back in 1926 after an 80% devaluation at a greatly undervalued parity. This meant that the adjustment mechanism of the gold standard was destined to malfunction (Meltzer 2003). The Bank of England had to continually tighten monetary policy to protect its gold reserves in the face of persistent balance of payments deficits which continually deflated the British economy. At the same time, France ran persistent balance of payments surpluses, which should have led to an expansion in the money supply and inflation but instead were continuously sterilized. This meant that France was absorbing a larger and larger amount of the world's gold reserves. The US kept sterilizing its surpluses joining France in sucking gold from the rest of the world.

Against this background of flawed rules, considerable central bank cooperation was required just to prop up the system. Much of the cooperation was personal: between Montagu Norman, Governor of the Bank of England, Benjamin Strong, Governor of the Federal Reserve Bank of New York, Hjalmar Schacht, President of the Reichsbank and Emile Moreau, President of the Banque de France (Ahamed 2009). Norman and Strong worked tirelessly to get the gold standard working.

Once underway, the perennial problem of sterling's weakness came to the fore. It was aggravated by the Banque de France's pro gold policy of converting sterling bills into gold. In July 1927 Strong organized a clandestine meeting between the four governors at the Under Secretary of the Treasury Ogden Mills' house on Long Island. At this meeting one of the classic monetary policy co-ordinations of all time was worked out to protect sterling. The New York Fed agreed to cut its discount rate and to conduct expansionary open market operations while the Banque de France (and the Reichsbank) agreed to shift their gold purchases from London to New York. Sterling was saved for another day but the fallout from the meeting kept spreading. In 1931 at the peak of the Great Contraction, Adolph Miller, a Governor of the Board, blamed Strong's actions for fueling the Wall Street boom which burst in October 1929 and for creating the Great Contraction. His criticism was picked up by Parker Willis and Carter Glass and later by Herbert Hoover in his Memoirs. The episode eventually led to a major reform in the Banking act of 1933 which stripped the New York Fed of any role in international monetary policy and gave full responsibility to the Board. Moreover, Strong's actions bailing out Britain on two occasions may have encouraged moral hazard by discouraging the British from learning to adjust (Meltzer 2003) .

After Strong's death in 1928 and Schacht's departure from the Reichsbank, Norman pushed hard to institutionalize monetary policy cooperation, which came to fruition with the creation of the Bank for International Settlement (BIS) in Basel in 1930.

The original operational purpose for the BIS was to manage German reparations after the Young Plan, but it's more fundamental function was explicitly to promote central bank cooperation. It was supposed to be a venue for central bank cooperation by sharing information and providing a confidential forum for central banks to meet on a regular basis as well as providing services for central banks (Borio and Toniolo 2005). But its early attempts at cooperation were not successful (James 2016). The BIS was involved in two failed attempts in spring/summer of 1931 to rescue the Austrian schilling and the German mark. Its resources were too small and the rescues did not have the political backing of France.

The gold exchange standard collapsed amid the monetary shocks of the Great Depression. Two major attempts at monetary policy coordination were undertaken in the 1930s as the gold exchange standard collapsed. The League of Nations sponsored the London Monetary and Economic Conference in June 1933 to try to stabilize exchange rates. The planning for the summit was already in place when the U.S. abandoned its gold peg in April 1933 and FDR announced his unwillingness to be constrained by fixed rates from pursuing expansionary domestic policies.

Three years later in 1936 the Tripartite Agreement between the US, Great Britain and France successfully coordinated exchange market interventions to prevent a disorderly franc devaluation.

Monetary policy cooperation and coordination certainly contributed to the interwar gold exchange standard's problems by propping up a flawed system and possibly even helping fuel the 1920s asset price boom. Central bankers were later blamed for the Great Depression and had their powers and independence stripped, with important consequences for the postwar period. Unlike the prewar gold standard, although the gold exchange standard was rules based, the circumstances and implementation of the rules was flawed from the beginning. Central bank monetary policy cooperation and coordination did not function well in this environment.

4. The Bretton Woods International Monetary System 1944 to 1973

A key goal of the post WWII period was to create a framework for cooperation and coordination underpinned by credible rules to ensure a lasting and prosperous peace. The rules for monetary policy were to maintain pegged exchange rates within narrow bands (+/- 1 %) supported by access to short term credit from the International Monetary Fund to cover temporary balance of payments imbalances and by controls on short term capital flows. Unlike the interwar system, member countries could adjust their parities in the event of a fundamental disequilibrium (which was never defined). The gold convertibility rule was preserved through fixing the gold price of the dollar at $35 per ounce. Gold parities for other currencies were identified through the dollar. The cornerstone of the classical gold standard – convertibility- was restricted to current account transactions to promote multilateral trade and payments. Short term capital flows were considered disruptive to cooperation and coordination and were sacrificed to enhance domestic monetary policy sovereignty in this solution to the Mundell-Fleming trilemma.

In the immediate aftermath of the war other cooperative systems were formed to allow multilateral trade without convertibility: the European Payments Union (EPU) and the Sterling Area were the two most prominent examples (Schenk 2010)., These interim solutions allowed trade liberalization to fuel growth and current account convertibility was finally introduced by the West European countries in December 1958 which allowed the Bretton Woods system to start as planned.

The convertibility rule was inconsistent with the domestic priorities of full employment and growth once international capital markets could no longer be contained. Offshore markets in London and current account convertibility in the 1960s allowed the market to test the credibility of adherence to the exchange rate rule and there were repeated adjustments that undermined the system as a whole.

The pegged rate rule was too inflexible to allow small and infrequent adjustments and instead there were small and frequent speculative rushes on the DM, Franc and sterling in particular through the 1960s. By the end of the 1960s these attacks had spread to the dollar at the heart of the system and the gold convertibility rule was effectively abandoned in March 1968.

The Bretton Woods system is an example of an elaborate effort at institutionalized coordination that failed because of fundamental flaws in the rules underpinning the system (Schenk 2016). Instead , a set of cooperative initiatives were deployed to prop up the system on an ad hoc basis until the convertibility and exchange rate rules finally gave way in 1973.

The most serious vulnerability in the Bretton Woods rules arose from the use of the dollar as an international reserve currency, and therefore reliance on US monetary policy. After the Europeans declared current account convertibility at the end of 1958 Robert Triffin (1960) warned that once the outstanding dollar reserves held by the rest of the world surpassed the US monetary gold stock that this would increase the possibility of a run on the dollar and a collapse of the system. Thinking in terms of the interwar experience, Triffin worried that the US monetary authorities would tighten policy leading to a world depression. Triffin's predictions alarmed the US monetary authorities and considerable energy was put by them and the other members of the system into efforts at renewing the framework for international policy coordination.

The General Arrangements to Borrow (GAB) in 1961 created a line of credit at the IMF sufficient to satisfy a speculative attack on a large country like the US. Its lasting importance is perhaps less through its direct effect and more from the creation of a new tier of leadership in the global system. The Group of 10 countries involved in the GAB became an alternative to the IMF Executive as leaders of reform and as a forum for cooperation,. The G10 as a coordinating forum was further reinforced since the G10 central bank governors formed the governing board of the Bank for International Settlements. The intensity of central bank cooperation through the BIS increased in the 1960s.

There were three main cooperative efforts among central banks to support the gold and exchange rate rules of the Bretton Woods system: the Gold Pool, Multilateral Group Arrangements and bilateral Fed swaps.

The Gold Pool began as an intergovernmental initiative from the US Treasury Secretary in September 1961 to keep the market price of gold at the official price. Each central bank pledged a set amount for gold sales to the pool and the Federal Reserve matched the amounts of the other members to a total of $270 million. On the other side, the Bank of England intervened to buy gold when this would not raise the gold price.

The Pool operated reasonably well until after the devaluation of sterling by 14% in November 1967. This prompted a fatal loss of confidence in the gold value of the dollar and the market price of gold was finally allowed to rise after a run in March 1968, although central banks and the IMF agreed to continue to trade at the official price of $#% per ounce. At this point , it became clear that the resources of central banks could not 'buck' the market for any length of time. From this date, the gold convertibility rule of the Bretton Woods system was essentially over and the entire system's days were numbered.

A second (and less well known) support was the arrangement of coordinated lines of credit among the G10 central bank governors at the BIS starting in 1960 (Schenk 2010). A spike in the London gold price to $40 in October 1960 on fears that John F Kennedy would follow an inflationary policy if elected led to a flurry of attempts at cooperation between the US ESF and a range of central banks, a $1 billion credit line of gold from the BIS and finally revaluation of the DM and Dutch guilder in March 1961. In this context of dollar fragility, the British convinced the G10 that supporting sterling was a vital bulwark for the continuation of the Bretton Woods system and a first line of defense for the dollar. They successfully garnered multilateral support. A series of Group Arrangements orchestrated through the BIS helped defend the pound in its ongoing travails from the early 1960s until its final exit as a major reserve currency in 1968.

A third defense for the dollar was the Federal Reserve's series of bilateral swap lines between the US and the major currencies begun in 1962. The swaps were covered short term loan facilities between the Fed and other central banks, usually for 3 months, and served two purposes. Countries outside the US drew dollars to intervene in foreign exchange markets to support their currencies. And the Fed drew on the swaps to support the dollar price of gold. These swaps provided a short term exchange value guarantee and thereby discouraged central banks from converting their unwanted or 'excess' dollars to gold. The Fed drew $11.6 billion in foreign currencies from 1962 – 1971 (Bordo, Humpage and Schwartz 2014).

These policies and rescue packages all worked in the short-run to head off the 'cris du jour' but the system was no longer consistent with US domestic policy goals. By the spring of 1971 the French and British threatened to convert their outstanding dollar holdings into gold (Garber 1993, Bordo 1993) and in August 1971 President Nixon closed the US gold window on the advice of his Treasury Secretary Connolly.

The Bretton Woods system did not collapse into deflation as Triffin prophesized; rather the problem was inflation. The US followed the key gold standard rule of keeping inflation low until 1965, but from then on the Fed followed expansionary monetary policy to help finance the Vietnam War and LBJ's Great Society. It thus broke the basic rule of the Bretton Woods system (Bordo 1993) and the Europeans became increasingly critical of US inflation.

Like the interwar system, Bretton Woods was a rules based system but the rules were both flawed and incompatible with the theory and political economy of the time. In each case the exchange rate rule was formally set (and in Bretton Woods there was an elaborate institutional framework to promote coordination) but there was no underpinning domestic policy rule to support the system. Policy makers at the time had an incomplete understanding of the role and effect of monetary policy and they prioritized the pursuit of full employment over price stability. To top this off, the US as center country broke the key rule of the system by running inflationary policy.

5. The Transition to Floating 1971 to 1973

In August 1971 President Nixon finally ended the charade of the gold convertibility rule by closing the gold window, abruptly calling time on the efforts to resolve persistent imbalances by threatening a trade war and shifting the responsibility for adjustment to surplus countries. The Smithsonian Agreement in December 1971 rebuilt the pegged exchange rate system at new parities with wider bands, but the credibility of the system quickly evaporated in repeated runs on the dollar until most countries had abandoned their dollar pegs by the Spring of 1973.

The end of an era of rapid growth with relatively low inflation prompted a loss of confidence among policymakers and they mostly abandoned efforts at cooperation and coordination in an attempt to shore up their domestic economies. The seemingly endless circus of panels and meetings to reform the international monetary system continued in Paris, London, Washington and Bonn but there was little consensus on how to achieve stable monetary policy and no rules to underpin efforts at monetary cooperation and coordination.

The key lesson from this period was the difficulty of getting the key players to agree on restoring a rule based system.

6. Managed Floating 1973 to the Present

6.1 1973 to 1980

The international monetary system switched to a managed floating regime in 1973. Milton Friedman (1953) argued that floating rates had the advantages of insulating the domestic economy from external shocks and that they gave monetary authorities the independence of conducting monetary policy to satisfy domestic goals without imposing capital controls.

According to Friedman, independence from the constraint of pegged exchange rates required monetary authorities to follow stable rules based monetary policies.

It took close to two decades for the Federal Reserve and other central banks (with the principal exceptions of the Bundesbank and the Swiss National bank) to learn this lesson. The 1970s was a decade of monetary instability manifest in high and variable inflation. This was reflected in exchange rate volatility.

The monetary authorities engaged in extensive intervention to stem the perceived volatility of exchange rates. The Fed and other central banks believed that foreign exchange market intervention was required to keep exchange rates close to their fundamentals and to reduce unexplained volatility (Bordo, Humpage and Schwartz 2015 ch 5). It was not until the next decade that the Fed and other central banks learned that stable domestic monetary policy geared to low inflation would reduce instability in nominal exchange rates.

The Fed's central bank swap system also continued, although the exchange rate cover offered to foreign central banks was removed and as a consequence no G10 central bank drew on the swaps from 1973 to 1980. The Fed, however, increasingly drew on the swap system to support their intervention to stabilize the dollar. By 1978 total facilities totaled $29.4 billion, although at its highest point (in 1978) outstanding Fed obligations amounted to only $5.5billion. (Bordo, Humpage and Schwartz 2014).

Against the background of rising inflation and with the dollar depreciating against the DM and yen and other currencies, the Federal Reserve engaged in frequent and massive sterilized exchange market intervention. Many of the sales of DM and yen were financed by borrowing via swap lines with the Bundesbank and other central banks until 1980. Some of the Fed interventions were coordinated with similar operations by the Bank of Japan, Bundesbank and other central banks. After December 1975 the Fed cooperated closely with other central banks , keeping them informed daily of their actions, although all of the operations in this period were covert. Empirical evidence suggests that much of the intervention had very small and possibly very temporary effects in reversing exchange rate movements (Bordo, Humpage and Schwartz 2015. Page 236).

The situation worsened in the next three years. In 1978 the dollar went into a free fall reflecting the Fed's lack of success in arresting inflation. On November 1 1978 the Carter administration (along with the Fed) announced a massive dollar defense package consisting of a 1 percentage point increase in the discount rate to 9 ½ % , a $300 billion increase in foreign resources and closer cooperation with Germany, Japan and Switzerland. Yet the empirical evidence for the period September 1977 to October 5 1979 suggests that "despite the changes in amounts, frequency, objectives and openness, US operations were no more effective than the earlier operations. (Bordo, Humpage and Schwartz 2015 page 247).

The Volcker shock of October 5 1979 when the Fed shifted to a tight monetarist type (targeting non borrowed reserves) monetary policy strategy , raised the discount rate , imposed reserve requirements and allowed interest rates to rise dramatically, eventually broke the back of inflation and inflationary expectations and reversed the decline of the dollar. Similar policies were followed in other countries.

The mid 1970s gave rise to the "G " summits , starting with the G6 at Rambouillet in 1975, adding Canada in in 1976 and then Russia in 1998 to form the G8. These were annual meetings of political leaders supported by finance ministers' meetings and meetings of central bankers. The summits generally resulted in rather mundane and repetitive public statements committing the members to ensuring stable markets, but they also provided an opportunity for sharing of ideas and approaches to global economic challenges informally.

The Bonn Summit of 1978 saw each government explicitly committed to specific goals of growth, low inflation and /or fiscal policy ' to bring about a better pattern of world payments balances and lead to greater stability in international exchange markets'; dubbed the “locomotive”. But these efforts were derailed by the second oil crisis so that the next summit in 1979 in Tokyo focused instead on targets to cut oil imports and consumption.

Monetary cooperation via coordinated exchange market intervention and other strategies did not work in this period. This was because most central banks did not follow a rules based policy of keeping domestic inflation low consistent with being on a floating exchange rate.

6.2 The 1980s

The 1980s saw a return to a consensus in monetary theory and policy. Paul Volcker’s success in stemming inflation in the US was applauded by central bankers and governments across the developed world. At regular meetings at the BIS the G10 central bank governors created an epistemic community with shared goals for inflation but also a general commitment to avoid destabilizing short term exchange rate changes. As the operational arm for coordination, this forum was important for sharing information and opinion even though they lacked policy independence.

Volcker’s policy shift was apparently taken with almost no external consultation so it cannot be classified as an example of cooperation or coordination. Instead it set the stage for a new domestic based rule for monetary policy.

The ability to follow a monetary rule was dramatically reinforced by innovations in smaller countries. New Zealand’s experiment with central bank independence and transparent inflation targeting set the model for the transformation of the credibility of monetary rules, just as economic theory and understanding of monetary policy was enhanced by the identification of the Taylor Rule.

By the end of the 1980s, therefore, we had returned to a rule based system founded on domestic monetary policy actions by central banks acting in their own interests, which generated a lasting period of moderate inflation.

While central bankers moved closer to a common understanding on monetary policy, governments and Treasury bureaucrats continued to seek exchange rate stability. Exchange rate volatility continued as central bankers learned to adopt and operate the new set of domestic monetary rules, and the 1980s witnessed a series of grand gesture summitry to coordinate exchange rate and fiscal policy that produced mixed results.

The Volcker shock and 3 years of tight monetary policy led to a decline in inflation from a peak of 15% in 1979 to 3% by the mid 1980s. This led to a marked appreciation in the dollar for advanced countries—by 55% on a trade weighted basis. By 1985 Germany and other countries were complaining about the imbalamces and the Bundesbank had been intervening to offset the depreciating mark. More important, the strong dollar was harming the exports of US manufactured goods and this led to threats in the US congress to raise tariffs. The incoming Secretary of the Treasury James Baker was a much bigger fan of macroeconomic policy coordination than his predecessor Donald Regan. So at the G7 Finance Ministers Summit meeting at the Plaza hotel in New York City on September 22 1985 ministers agreed that the US would follow expansionary monetary policy and Japan would do the opposite. Immediately upon the announcement the dollar declined. However it had been falling since February 1985 and the increase before the meeting was only a temporary blip. Massive coordinated intervention by the Fed, Bundesbank and Bank of Japan lasted two weeks but the evidence that it was successful is limited (Bordo, Humpage and Schwartz 2015). However the part of the agreement that urged Japan to follow tighter monetary policy than consistent with macro fundamentals led the BOJ to keep rates higher than would be the case had it followed a Taylor rule in 1986 (Taylor 2016).

The dollar declined through 1986 leading to concerns that it had fallen too far. Members of the G7 meeting at the Louvre February 22 1987 agreed to coordinate policies to stabilize the dollar. This meant coordinated EMI in the opposite direction than at the Plaza, and that Japan would follow more expansionary monetary and fiscal policy while the US and Germany and the others would keep their macro policies constant.

As with the Plaza Agreement, there is strong evidence that the EMI had little effect (Bordo, Humpage and Schwartz 2015) but there were longer lasting effects on the Japanese economy that were devastating. After the Louvre Accord policy rates deviated in a negative way from a rule based policy and many argue that this expansionary monetary policy triggered the asset price boom leading to a serious banking crisis and over a decade of stagnation.

6.3 The Great Moderation 1985 to 2006

By the late 1980s most advanced countries had low inflation and were following rules based monetary policy. This led to a 20 year period of low and stable inflation and stable and rapid real growth.

Beginning in the late 1980s the Fed began to turn away from the use of exchange market intervention as a major policy tool. An extensive debate at the FOMC and in the academy argued that sterilized intervention and credible monetary policy were conflicting goals. By 1985 Chairman Alan Greenspan agreed and the US only undertook such actions on three occasions since. Also in this period economists argued, based on game theory and multi country econometric models , that central banks that pursued credible rules based monetary policy minimized the spillovers that were believed to have necessitated coordinated policies (Taylor 1985).

6.4 2007 to the Present

The response to the crisis in 2007 was for central banks to individually follow very expansionary monetary policies. The events of the summer of 2008 leading to the collapse of Lehman Brothers created a full scale global financial panic reminiscent of the summer of 1931. This led to massive unprecedented lender of last resort actions by the Fed, the Bank of England and other central banks. It also led to a reactivation of the swap lines by the Federal Reserve in September 2008 to provide dollar liquidity to the ECB and other foreign central banks who faced dealing with the liquidation of the dollar denominated mortgage backed securities and other toxic derivatives held by their banks. This cooperative policy may have averted a global panic.

In addition to the swaps, at the Summit in Washington DC in November 2008, leaders of the G20 committed themselves 'to stabilize financial markets and support economic growth' with particular emphasis on ' the importance of monetary support' as well as fiscal expansion. They also committed themselves anew to reforming the architecture of the international financial system and the governing board of the BIS was extended to allow nine other central banks to be members.

By the end of 2008 the financial crisis had ended but the real economy was still contracting and the federal funds rate and other central bank's policy rates had hit or were close to the zero lower bound. The Fed announced its policy of quantitative easing (QE1) in December 2008—the unconventional policy of large scale open market purchases of long term Treasury securities and Agency mortgage backed securities. In addition to the purchases the Fed began forward guidance to guide financial markets expectations. The policies were successful in arresting the Great Recession by June 2009 in the US but the recovery that followed has been anemic and the spillover effects have been controversial.

QE policies deployed by advanced economies were particularly criticized for adverse effects on emerging market countries, primarily through capital flows and exchange rates. Investors surged into emerging markets increasing asset prices and appreciating currencies. These spillover effects undermined export competitiveness, increased exchange risk on debt and threatened asset price bubbles. In May 2013 when Federal Reserve Chairman Ben Bernanke suggested that QE would be 'tapered' volatility in emerging market asset prices renewed calls for greater coordination. The specter of the inter-war crisis returned and (as in the interwar period) there were calls for greater monetary cooperation to avert a 'currency war' (Eichengreen 2013).

The extent and cause of spill-over effects is disputed. Certainly, US monetary policy has global implications because of the importance of US capital markets and the role of the dollar. Spillover effects appear greatest when Fed announcements surprise the markets. On the other hand, structural factors in emerging market economies can make them more resilient to spillovers(eg higher growth, lower share of local debt held by foreigners and liquidity of financial markets). The evidence seems to suggest that advanced economies should avoid surprises and carefully signal their policies to the market while emerging market economies should reinforce their fundamentals and market liquidity to increase their resilience.

Moreover, allowing a feee float of the exchange rate ensures that emerging markets can target independent monetary policy on domestic price and output stability even in the presence of spillovers. Taylor (2016) has argued that it is deviations from rules based policies since 2002 that has led to spillovers and that the solution is to return back to the policies followed in the Great Moderation. The case that monetary cooperation is a necessary solution to spillover effects is not proven.

At the November 2008 G20 meeting new institutions were created to provide for a for cooperation. The IMF was tasked with monitoring spillover effects, publishing an annual report. The Financial Stability Board (2009) brings together central banks, finance ministries and supervisory agencies to encourage 'coherent implementation' of good practice and implement agreed standards and codes, undertaking peer reviews of macroprudential policy frameworks. While easily dismissed as ' talking shops' the exchange of information, ideas and communication may bear some fruit in the long term in creating consensus around a common or agreed framework of rules.

7. Conclusions

1. Monetary policy cooperation generally is successful when done in a rules based environment. This was the case under the classical gold standard and in the Great Moderation. Cooperation in these regimes was done for technical or Lender of Last Resort reasons and supported the communication needed to develop a shared consensus about what rule works best.

2. Monetary policy cooperation does not work when either the rules don't work or they are not followed, eg the interwar gold exchange standard, the Bretton Woods system and the 1970s and early 1980s.

3. Monetary policy coordination does not work when it involves a departure from domestic policy fundamentals eg Long Island 1927 and the Plaza and Louvre Accords.

4 Recent cooperation, largely through the BIS, has helped to create an epistemic community of has learned to follow rules based policy. This has been beneficial.

5. A return to a rules based system under floating exchange rates, now that the Great Financial Crisis is long past, would provide an environment conducive to stable growth and low inflation for the world as was the case during the Great Moderation.

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