

Working Paper

The Plaza Agreement: Exchange Rates and Policy Coordination

Edwin M. Truman, Ph.D.

Nonresident Senior Fellow, Peterson Institute for International Economics

© 2015 by the James A. Baker III Institute for Public Policy of Rice University
This material may be quoted or reproduced without prior permission, provided appropriate credit is given to the author and the James A. Baker III Institute for Public Policy.

Wherever feasible, papers are reviewed by outside experts before they are released. However, the research and views expressed in this paper are those of the individual researcher(s) and do not necessarily represent the views of the James A. Baker III Institute for Public Policy.

This paper is a work in progress and has not been submitted for editorial review.

The Ministers and Governors, noting the recent developments in the exchange markets, expressed their commitment to work toward greater exchange market stability. Toward this end, the Ministers and Governors:

- *Reaffirmed their commitment to pursue monetary and fiscal policies that promote a convergence of economic performance at non-inflationary, steady growth.*
- *Stressed the importance of removing structural rigidities in their economies to achieving the objectives of non-inflationary steady growth and exchange market stability, and expressed their intent to intensify efforts in this area; and*
- *In light of recent developments in foreign exchange markets, reaffirmed their commitment made at the Williamsburg Summit to undertake coordinated intervention in the markets as necessary.*

The Ministers and Governors believe that this approach will provide a solid framework for sustaining recovery, reducing inflation, increasing employment, and achieving greater exchange rate stability. Announcement of G-5 Ministers and Governors, January 17, 1985 (G-5,1985a)

In the 1980s and the early 1990s, international coordination of macroeconomic policies focused primarily on three interrelated topics: exchange rates, current account positions, and promotion of non-inflationary growth.¹ The meeting of the G-5 ministers and governors on January 17, 1985 marked the start of a new period of activism for the group and later for the G-7 ministers and governors.² For the first time they issued a statement. The G-7 leaders had met annually starting in November 1975 and issued statements, communiqués, and associated annexes and reports after each meeting. The G-5 finance ministers and central bank governors had met several times a year starting earlier in the 1970s, but they did not issue statements and often there was no publicity about their meetings.

¹ The last topic meant growth with low inflation or rates that did not increase. During the 1980s, international economic policy coordination more broadly also focused on the global debt crises in Latin America and elsewhere.

² The G-5 countries are France, Germany, Japan, the United Kingdom, and the United States. The G-7 includes Canada and Italy.

The January 1985 G-5 announcement mentioned exchange markets and exchange market stability five times.³ This was no accident. The statement was motivated by a desire to signal a willingness to support the British pound sterling, which had depreciated about 10 percent against the US dollar over the previous three months. Despite the Reagan administration's general disapproval of foreign exchange market intervention, outgoing Treasury Secretary Donald Regan and incoming Secretary James Baker were prepared to help President Reagan's good friend UK Prime Minister Margaret Thatcher with at least some verbal intervention in the context of continued concerns about global growth.⁴ Concerns about current account imbalances were soon to emerge as well.⁵

In this paper, I cover three episodes of international economic policy coordination each focused in large part on exchange rates: (1) The 1983 report to the G-7 leaders of the working group on exchange market intervention, known as the Jurgensen Report; (2) the Plaza Agreement in September 1985; and (3) the closely linked Louvre Accord in 1987 which built on a surveillance framework established at the 1986 Tokyo G-7 leaders' meeting. I conclude with a coda summarizing developments with respect to policy coordination on these topics from the late 1980s through the first 15 years of the 21st century.

I review each episode in terms of (a) the identification of the problem and the extent of consensus on its diagnosis; (b) treatment of the problem and the extent to which the parties followed through on their commitments and understandings, sometimes with

³ The announcement also included an introductory paragraph describing the meeting.

⁴ Sometimes personal chemistry trumps ideology. Although sterling stabilized against the dollar after the announcement, it later resumed its decline and the United States bought \$16.8 million of sterling on February 19.

⁵ In 1984, the US current account deficit more than doubled from its level in 1983 to reach \$94 billion, a record 2.3 percent of US nominal GDP.

adjustments; and (c) evaluation of these episodes in terms of their short-term and longer-term results.

To anticipate my conclusions: With respect to identification of the problem and its shared diagnosis in the Jurgensen episode, the issue of the effectiveness and appropriateness of exchange market intervention was identified quite promptly and the diagnosis, in so far as recognizing the possibility of commissioning a study, was generally shared. In the Plaza episode, the identification of the dollar's super strength was recognized late and the diagnosis of its causes was not widely shared. The same was true for the Louvre episode involving the US dollar that, by early 1987, had depreciated too far and too fast.

On treatment, in the Jurgensen episode, the treatment was the report of the working group. In the Plaza episode, a small amount of intervention treatment was applied but that was all. In the Louvre episode, a large amount of intervention treatment was applied over a period of almost 12 months and in the end the United States made a small ad hoc adjustment in its budget plans.

My evaluation of the Jurgensen episode is that it had little short-run impact, but its longer-term impacts shaped thinking about intervention as a policy tool; intervention would be more likely to achieve its objectives if it was coordinated and was linked to support for, or to supporting, policy measures. The Plaza Agreement was successful in accelerating the decline of the dollar and forestalling US protection legislation, but on the former it overachieved, requiring a subsequent effort to try to stop the dollar's decline in the Louvre Accord. Little was accomplished in terms of changes in G-7 macroeconomic policies. The Louvre Accord failed in its short-term objective to stabilize the dollar in the

short run, though the intervention may have slowed the adjustment. With respect to macroeconomic policies, the process can be credited with eventually inducing a modest adjustment in the US budget deficit contributing positively to that multiyear process.

The Jurgensen Report⁶

The Jurgensen Report's relevance to international economic policy coordination during the 1980s is not in its immediate impact on policy but rather because it formed the basis for what ultimately became the accepted G-7 approach to foreign exchange operations. With a lag, the Report opened the door to a resumption of larger scale US cooperation with its partners on exchange rate management. The episode differs from the others I examine in that, although it started and ended with the G-7 leaders and involved their finance ministries and central banks, the substance of the Report was produced by lower-level officials.⁷ Later, the G-7 deputies, ministers and governors, and leaders put their own glosses on the Report.

Problem Identification and Diagnosis

Treasury Under Secretary Beryl Sprinkel announced on April 17, 1981 that the Reagan administration would follow an approach of minimal exchange market intervention, operating only when necessary to counter conditions of disorder in the exchange market. In Congressional testimony on May 4, Sprinkel presented the rationale for the new policy. It was based, in part, on a belief in markets and their appropriate responses to sound economic fundamentals and, in part, on the view that exchange rates should

⁶ For an elaboration on some of the material in this and the following sections with respect to the role of the Federal Reserve System, see Edwin Truman (2014).

⁷ Of which I was one, representing the Federal Reserve.

respond to domestic economic policies of individual countries—the keep-your-own-house-in-order approach to international economic policy cooperation.⁸ Sprinkel did not define “disorderly market conditions.” It was the rubric that had governed US intervention policy since the late-1970s. The phrase was taken from the principles associated with IMF oversight of members’ adherence to their obligations under the new Article IV of the Articles of Agreement (IMF 2013).⁹ He said the Reagan administration, however, would adopt a stricter definition than had been the policy of the Carter administration with its more frequent larger-scale operations starting in November 1978.

10

By early June 1982, the US dollar had appreciated since December 1980 (shortly before the Reagan administration took office) by 18 percent in nominal terms and by 14 percent in price-adjusted terms against the major currencies since December 1980 just before the start of the Reagan administration.¹¹ See figure 1.

After the dollar’s weakness in the late 1970s, its recovery was welcomed by many. It came after the Federal Reserve’s determined attack on inflation in 1979. That posture continued to be associated with high nominal and real US interest rates in the

⁸ See I.M. Destler and C. Randall Henning (1989, 18-26) and U.S. Congress (1981).

⁹ Principle B for bilateral surveillance of a member’s exchange rate policy, which was put in place with the 1978 revision of the Articles, states “A member should intervene in the exchange market if necessary to counter disorderly conditions, which may be characterized inter alia by disruptive short-term movements in the exchange rate of its currency.” (IMF 2013)

¹⁰ In fact, after April 17, 1981 and during the first Reagan administration the United States intervened on 18 days. This was only two fewer days of intervention than during the entire eight years of the Clinton administration.

¹¹ The nominal appreciation against the major currencies was larger than the price-adjusted appreciation because the US inflation rate was lower than the rates of its major trading partners on average. In terms of a broader group of currencies, the dollar’s nominal appreciation was about 18 percent. Against the German mark and the Japanese yen the nominal appreciation was 20 percent. These data on exchange rates and indexes of the foreign exchange value of the US dollar cited in this paper are from the Federal Reserve <http://www.federalreserve.gov/releases/h10/hist/>. Price-adjusted indexes are deflated by the relative levels of consumer prices.

early 1980s. But some officials in other major countries thought the dollar's rise had gone too far because its strength tended to undercut their own efforts to reduce inflation or was too rapid. Even though the dollar's appreciation contributed to a sharp movement of the US current account back into deficit following surpluses in 1980 and 1981, foreign finance ministers and central bank governors bemoaned the lack of cooperation by the United States in managing exchange rate movements. Led by Germany, they also were critical of the US mix of macroeconomic policies, a federal fiscal deficit that reached 4 percent of GDP in FY 1982 and a federal funds rate averaging 14 percent during the first half of the calendar year as CPI inflation was decelerating from a 12-month increase of 8.6 percent at the end of 1981 to 4.0 percent at the end of 1982.

The central issue identified at the Versailles G-7 summit on June 6, 1982 was the absence of consensus on the effectiveness as well as the appropriateness of official intervention in foreign exchange markets. US unwillingness to coordinate (in other words participate) in exchange market operations was based on a view that such operations were ineffective and inappropriate. That view, in varying degrees, was not shared by other countries. The G-7 leaders agreed to establish a working group to study principally the impacts of foreign exchange market intervention.¹² In other words, there was a consensus to address the differences in view underlying the lack of consensus on the broader topic.

Treatment

The Working Group on Exchange Market Intervention was chaired by Philippe Jurgensen of the French Treasury. Participants were officials of the G-7 finance ministries and

¹² The study was not mentioned in the summit declaration. The declaration's only mention of intervention was in a statement on international monetary undertakings. It merely reiterated the current reality, "We are ready, if necessary, to use intervention in exchange markets to counter disorderly conditions, as provided for under Article IV of the IMF Articles of Agreement." (G-7, 1982)

central banks as well as the European Economic Communities (EEC) and the representatives of the EEC presidency (Denmark and later Belgium). The Group met ten times over the subsequent eight months and considered some 2,000 pages of documentation. That documentation included written material supplied by each participant and more than a dozen research studies.¹³ Participants consciously stayed away from drawing policy implications until the last meeting of the working group. This facilitated a free give and take in discussions of the material.

The working group's report contributed to a better understanding in official circles of the distinction between sterilized and unsterilized intervention and examined the issues associated with foreign exchange market intervention from a number of perspectives.

The distinction between sterilized intervention (that affects the currency composition of the asset side of a central bank's balance sheet but does not affect the liability side) and unsterilized intervention (that does affect the liability side) was generally understood in most academic circles at the time as well as in some central banks, but it was not a distinction that had penetrated finance ministries to a substantial degree. The working group devoted a significant amount of time to discussing this distinction and associated issues of measurement based on a paper by Donald Adams and Dale Henderson (1993).¹⁴ The working group's report devoted three paragraphs to this issue.

¹³ Ten US studies were later published as Federal Reserve Board Staff Studies and summarized by Dale Henderson and Stephanie Sampson (1983).

¹⁴ These issues of definition and measurement are not fully agreed even today. The narrowest definition is the one in the text. An expanded definition focuses on bank reserves and alloww intervention to be "sterilized" by the sale of central bank notes or bonds to offset any increase in bank reserves. A broader

I can attest that Michael Bordo, Owen Humpage, and Anna Schwartz (2010, 5-7 and 2015, 275-278) are mistaken in their criticism of the report for imprecision on this matter and in suggesting “The imprecision seemed, and probably was, intentional.” The intention in setting out the distinction in the first few pages of the report was precisely to signal the importance of the distinction. On the other hand, some central bankers and other observers felt that the distinction was too stark and oversimplified to try to isolate intervention from other policy actions all the time.¹⁵ Bordo et al are also mistaken to criticize the report for failing “to discuss the potential conflict with domestic monetary policy objectives that unsterilized [or sterilized for that matter] intervention could create.” The report written in 1983 does not use the language Bordo et al use more than 30 years later, but paragraph 20 clearly flags the issues involved:

Intervention is only one of several factors that influence the monetary authorities’ monetary liabilities (monetary base). As long as monetary targets are being met (whether or not these relate to the monetary base), the monetary effects of intervention can be considered in some sense as having been neutralized. When objectives are not met, it is a matter of judgement, in each case, whether it is intervention or some other factors (or both) that must be considered to have contributed to the outcome. (Jurgensen 1983, 6-7)

On the effectiveness of intervention, the working group concluded:

[I]ntervention had been an effective tool in the pursuit of certain exchange rate objectives—notably those oriented toward influencing the behaviour of the

definition focuses on “monetary conditions” which could have a variety of measures including one or more interest rates.

¹⁵ See, for example, Paul A. Volcker and Toyoo Gyohten (1992, 236-37).

exchange rate in the short run. Effectiveness was found to have been greater when intervention was unsterilized than when its monetary effects were offset. . . . [S]terilized intervention did not generally have a lasting effect, but . . . intervention in conjunction with domestic policy changes did have more durable impact. . . . [A]ttempts to pursue exchange rate objectives which were inconsistent with fundamentals through intervention alone tended to be counterproductive. (Jurgensen 1983, 17)

Much of the research effort was directed at trying to determine if sterilized intervention had been effective during the floating rate period. That research was primarily based on a portfolio balance model that assumes that securities denominated in different currencies are not perfect substitutes.¹⁶ The research results supplied weak support for the effectiveness of intervention via the portfolio balance channel but also identified the possibility of a signaling channel for its effectiveness.

The working group expressed the view that “closely coordinated action had at times been more effective than intervention by only one central bank because it gave a signal to the market that the authorities were working to the same purpose.” (Jurgensen 1983, 26) The group discussed at its last meeting, but did not report on, proposals from the French and the Japanese to move toward a regime in which there was more coordination of exchange rate management. Discussion of these proposals was repeated in meetings of the G-7 deputies reviewing the Jurgensen report. Japan put forward a

¹⁶ The effectiveness of large-scale asset purchases (quantitative easing or QE) by the Federal Reserve and other central banks relies on the same basic assumption. Researchers, in some cases using more modern techniques, have found substantial impacts of such operations on interest rates. However, recent central bank operations in domestic securities have been on wholly different scale than operations in foreign currencies in the 1970s and early 1980s.

rather complete plan for target zones based on real exchange rates linking the dollar, yen, and mark.

The report of the working group went next to the Summit finance ministers, central bank governors, and representatives of the European Community who, based on a draft by the deputies, issued a statement (G7, 1983b) on April 29, 1983 in which they agreed:

The achievement of greater exchange rate stability, which does not imply rigidity, is a major objective and commitment of our countries. . . . Under present circumstances, the role of intervention can only be limited. Intervention can be useful to counter disorderly market conditions and to reduce short-term volatility. Intervention may also on occasion express an attitude toward exchange markets. Intervention will normally be useful only when complementing and supporting other policies. We are agreed on the need for closer consultations on policies and market conditions; and, while retaining our freedom to operate independently, are willing to undertake coordinated intervention in instances where it is agreed that such intervention would be helpful.¹⁷

The release of the working group's report and the associated statement on April 29 did not attract much attention in the markets. Sam Cross (1983), manager of foreign exchange operations at the Federal Reserve Bank of New York (on behalf of the US Treasury's Exchange Stabilization Fund (ESF) and the account of the Federal Open Market Committee (FOMC)), commented that, perhaps, the non-reaction was because,

¹⁷ My hope in participating in the intervention study was that we would be able to preserve a role for sterilized intervention as a supportive tool of economic, including monetary, policy. In that we were successful though the results of our empirical research were disappointing.

immediately after the April 29 meeting, Secretary Ragan said that US policy had not changed. It did not change for another 21 months.

When G-7 leaders subsequently met in Williamsburg on May 28-30, 1983, they added little more to what the ministers and governors had said other than a reference to the Jurgensen Report itself (G-7 1983a):

We agree to pursue closer consultations on policies affecting exchange markets and on market conditions. While retaining our freedom to operate independently, we are willing to undertake coordinated intervention in exchange markets in instances where it is agreed that such intervention would be helpful. . . . We will improve consultations, policy convergence, and international cooperation to help stabilize exchange markets, bearing in mind our conclusions on the Exchange Market Intervention Study.

That declaration also did not produce a ripple in foreign exchange markets. In a sense, the treatment was prepared but was delayed in application.

Evaluation

Although the Jurgensen Report did not lead to immediate changes in policies, the participating finance ministries and central banks gained an enhanced understanding concerning the possibilities and limits on foreign exchange market intervention and the attitudes of other officials. The ground was laid for future cooperation in this area, in particular with respect to coordinated operations and signaling official attitudes to the market.

The Plaza Agreement

Paul Volcker (Volcker and Gyohten 1992, 238-39) describes his concerns about the adverse implications for the domestic and international economy in the period before 1985. They were contained in a note that he did not send to Regan in early 1984 in which he advocated a fresh approach that included US intervention to limit the dollar's appreciation in cooperation with other countries, in particular the Bundesbank, which had begun to intervene heavily. Volcker's non-note also raised his concerns about the combination of a large US budget deficit, growing US current account deficit, and reliance on a net inflow of foreign capital that he was already sharing with the Treasury in private. For that reason, he chose to avoid a more-public brawl.

During late 1984 and the first half of 1985, the G-10 as well as the G-24 group of developing countries drafted separate reports on the functioning of the international monetary system. These reports were motivated in part by ruminations, including those coming from the US administration about a "new Bretton Woods" conference. In the G-10 discussions, the French delegation raised the possibility of a system of target zones for exchange rates in order to provide more stability to the exchange rate system in which countries would be under some obligation to act to keep their exchange rates within those zones. The initiative did not generate much traction, in part because of opposition from the US treasury and the Bundesbank. The G-24, on the other hand, endorsed target zones. An IMF staff proposal for the use of objective indicators to guide policies, in particular policies toward exchange rates also resurfaced, echoing US proposals during the monetary reform discussions by the Committee of Twenty in the first half of the 1970s (James Boughton, 2001, 203-206).

By the end of 1984, the US dollar had strengthened substantially further. Compared with four years earlier, the dollar had now risen 37 percent in terms of the Federal Reserve Board staff's price-adjusted index for the dollar's value in terms of US major trading partners, 41 percent in nominal terms, a whopping 60 percent against the German mark and 24 percent against the Japanese yen. However, the mark's appreciation was substantially smaller than that of the yen in real effective terms; compare figures 1 and 2. This was the context in which the G-5 finance ministers and central bank governors met on January 17, 1985 and made the announcement quoted at the start of this paper.

The action signified a new type of exchange market intervention, coordinated verbal intervention. The public statement was followed immediately by substantial dollar sales by European central banks and Japan. The US monetary authorities sold dollars on two days later in January. The US authorities' total sales (\$659 million) between the G-5 meeting and March 1 (Cross 1985d) were substantial compared with the scale of operations in previous three years, but the amounts were small relative to those of the other G-5 and G-10 authorities. Cross (1985a) reported to the FOMC on February 13, "The current attitude of other G-10 countries toward our intervention seems to range from frustration to irritation. They acknowledge US concerns about our not bashing our own currency. . . . Very broadly there is concern that the element of uncertainty introduced by the January G-5 agreement may be fizzling out unless there are some new initiatives."

The foreign exchange value of the dollar dipped following the January G-5 statement, but after recovering it peaked within a month or two in terms of the various

indexes and against the German mark and the Japanese yen. By early September 1985, the dollar was down, but only slightly, from its level at the end of 1984, less than 4 percent in terms of the nominal index in terms of the major currencies.

Problem Identification and Diagnosis

Prior to the agreement announced at the Plaza Hotel in New York City on September 22, 1985, US administration officials tended to applaud the dollar's strength. They saw in the strong dollar international investors' show of support for US economic policies and the positive performance of the US economy that was welcoming and encouraging the inflow of foreign investment that was the counterpart to the expanding US current account deficit (Destler and Henning 1989, 26-30). In the eyes of some (Bergsten 1994), the administration tolerated the widening of the US current account deficit (see figure 3) because it facilitated the economic expansion while limiting inflation.

The political and economic environment was changing. The strength of the dollar was becoming a problem for the United States as well as for its foreign partners. The challenge was to establish a consensus diagnosis of the problem. In Truman (2006) I argue that developments in advance of the Plaza meeting conveyed three messages to policymakers: (1) a flawed US fiscal/monetary mix, (2) warnings of protectionism, and (3) a bubble in the dollar's foreign exchange value in particular during 1984 and early 1985 when the dollar's rise accelerated. All three messages eventually contributed to a weak international consensus on the problem of the dollar's high value and what to do about it. Conspicuously, in terms of debates today, foreign exchange market intervention by other countries was not one of the candidate causes.

Many economists, including Volcker and others at the Federal Reserve, focused on the US fiscal deficit and the associated mix of monetary and fiscal policies in the United States as the cause of the dollar's strength. Drawing on a briefing of the Federal Reserve Board by Peter Isard that illustrated the statistical connection between the high federal budget deficit at about 5 percent of GDP, rising net private investment in the context of the recovery, other sources of net private saving, and net inflows of saving from abroad (the counterpart to the current account deficit), Volcker hammered on the need to address the budget deficit in testimony before the Joint Economic Committee and Senate Budget Committee (Volcker 1985a and 1985b). Peter Isard's tables were attached to the testimonies. Volcker knew that there was no simple causal link between budget deficits and current account deficits, but in the circumstances he believed both were serious problems.

Economic and financial officials in other countries were more attracted to the notion of a causal link because it conveniently took their own policies off the hook. If only the United States would reduce its budget deficit, they would not have to change their policies, experience an appreciation of their currencies, or face lower external surpluses. This pseudo-analysis of miraculous global adjustment was wrong, convenient, and not limited to this period.

On the other hand, US politicians, when they were not supporting protection legislation, argued for a lower dollar to take them off the hook of having to address the US fiscal deficit as part of a solution. Scores of proposed protection legislation were introduced in the Congress. Some explicitly mandated a more activist US foreign exchange policy (Destler and Henning 1989, 90-112). Moreover, the mid-western rust

belt, where traditional US manufacturing was concentrated and a large share of US exports originated, was hurt by the high dollar and did not receive much benefit from the Reagan expansion. Manufacturing tends to be more interest sensitive and real interest rates remained high because of a combination of the pressure of large fiscal deficits and the Federal Reserve's continuing effort to reduce US inflation, which also contributed to the strength of the dollar.

Central bankers in the United States and the other G-5 countries were concerned that the soaring dollar was being fueled by speculation rather than fundamental forces and would end in an uncontrollable bust with serious global economic and financial consequences—a hard landing.¹⁸ In May 1984, when the dollar's nominal value in terms of its major trading partners was only 30 percent above its level in December 1980, my colleagues at the Federal Reserve made a presentation to the FOMC on the US external position (FRB 1984). They concluded that with an unchanged value of the dollar the US external position was unsustainable because US net external debt would be rising faster than US nominal GDP and reach close to 15 percent of GDP by 1990. They investigated the implications of a rapid depreciation of the dollar by 45 percent over two years. They concluded it would boost growth and inflation over the first 2-1/2 years but produce a lower level of economic activity after that as monetary policy responded to the growth and inflation and continuing fiscal deficits crowded out investment. They also investigated a smoother adjustment that combined fiscal tightening and compensatory monetary adjustment.

¹⁸ The most prominent alarms about a hard landing for the global economy were delivered by Stephen Marris (1985). James Boughton (2001, 202) cites a IMF staff study for the 1985 US Article IV review that concluded “a substantial portion of the real appreciation of the dollar, particularly in the second half of 1984, remains unexplained.”

Maurice Obstfeld (1990, 205) reports that Volcker testified on February 20, 1985 that the Federal Reserve had cut the discount rate and eased pressures on bank reserves in November and December 1984 in part because of the potential disruptive situation of the continuing dollar's strength. Concerns about a sharp decline of the dollar, if not a disorderly bursting of the dollar's bubble, were not unfounded.¹⁹

The three diagnoses and concerns about the dollar (the US monetary/fiscal mix, rising protectionism, and a bubble that would end badly) were not mutually exclusive. They each contributed to establishing a weak consensus that collective action was needed. For one reason or another, by the summer of 1985, not only US Treasury officials and importantly US Secretary of State George Shultz (Volcker and Gyohten (1992, 242) and Yoichi Fundabashi (1988, 76-79)) but also officials of the other G-5 countries were persuaded that something had to be done to bring the dollar down even though the dollar had already begun to decline. As David Mulford (2014,170) reports "Eventually, in September the critical mass of credible cooperative understandings was judged to be sufficient to lay the plan for a G-5 finance ministers meeting at the Plaza Hotel."

Treatment

The US Treasury under Baker, Deputy Secretary Richard Darman, and Assistant Secretary for International Affairs David Mulford began to develop a strategy to deal with the problem based on a June 1985 memorandum by Mulford (Mulford 2014, 167). According to Funabashi (1988, chapter 1), preliminary discussions began in July 1985

¹⁹ At the February 1985 FOMC, the staff projected that the price-adjusted foreign exchange value of the dollar against the major currencies would depreciate by about 15 percent over the next two years under the weight of the rising US current account deficit. The dollar finally peaked in March 1985 and subsequently declined by 38 percent over the next three years.

with Japanese officials leading up to the agreement unveiled by the G-5 finance ministers and central bank governors on September 22 at the Plaza Hotel. As James A. Baker III (2006, 429) reports, “Our leverage with them was that if we didn’t act first, the protectionists in Congress would throw up trade barriers.” The Federal Reserve was not brought into the planning until quite late when issues of intervention tactics had to be discussed.²⁰ This approach may have been a mistake because it meant that the Federal Reserve, along with other central banks, did not have ownership of, and therefore commitment to, the substance of the Plaza Agreement.

Market forces alone might have continued the dollar’s decline beyond the summer of 1985, but they were reinforced by the Plaza Agreement (G-5, 1985b):

[T]hat exchange rates should play a role in adjusting external imbalances. . . .
[E]xchange rates should better reflect fundamental economic conditions than has been the case. . . . [A]greed policy actions must be implemented and reinforced to improve the fundamentals further . . . [and] some further orderly appreciation of the main non-dollar currencies against the dollar is desirable. They stand ready to cooperate more closely to encourage this when to do so would be helpful.

Volcker, supported by Bundesbank President Karl Otto Pöhl, expressed concerns about the dollar’s moving too far too fast and insisted on inserting the word “orderly” before “appreciation” in the G-5 statement. Although coordinated foreign exchange operations were not mentioned in the press release, they were implied by the last sentence and were the center of discussion at the meeting in New York. Some degree of

²⁰ What I, at the Federal Reserve Board, knew about Treasury’s thinking came in mid-July from my close friend and counterpart at the Bundesbank, Wolfgang Rieke, who was privy to Treasury’s conversations in Europe.

consensus, but not total precision, was reached over the scale and sharing of intervention operations over the next six weeks in order to achieve a further decline of the dollar of 10-12 percent. (Funabashi 1988, chapter 1)

The intervention operations proceeded roughly as discussed by the G-5 officials at the Plaza meeting. The small amounts were coordinated and sterilized, as implicitly recommended in the Jurgensen Report. But, contrary to the Jurgensen consensus, they were not supported by other policies. The dollar quickly declined 10.5 percent against the German mark and 14 percent against the yen. The G-5 authorities sold only \$8.1 billion during the six-week period compared with a notional budget of \$18 billion laid out in a not-fully-agreed non-paper. The US share of the \$8.1 billion was about 40 percent. (Cross 1985b)²¹

Funabashi reports some US disappointment at the scale of Bundesbank intervention and the German counter-argument that they were coordinating and financing intervention in dollars within the European Monetary System (EMS) in particular by the Italians. Funabashi also reports that the Bundesbank had been annoyed by the lack of intervention follow-through by the US authorities following the January 1985 G-5 meeting. Bundesbank purchases of German marks (DM) during the six weeks after January 17 were DM 10.9 billion compared with DM 2.7 billion during the six weeks after the Plaza meeting.²²

²¹ Funabashi (1988) suggests that the US share was to be 35 percent. Of course, during early 1985 the DM was still weakening and during the later period it was strengthening. At the Federal Reserve, those of us who knew about the non-paper did not pay much attention to it.

²² Source: <https://research.stlouisfed.org/fred2/categories/32145> for these and other data on Bundesbank intervention.

By the end of 1985, the dollar was down 14 percent against the German mark and 17 percent against the yen. Cross (1985c, 2) commented on some of the reasons for the apparent success:

In part, the exchange market reaction reflected the fact that the announcement was unexpected. More importantly, market participants noted that the initiative had come from the United States and was viewed as a change in the U.S. government's previously perceived attitude of accepting or even welcoming a strong dollar. In addition, the agreement was interpreted as eliminating the likelihood that the Federal Reserve would tighten reserve conditions in response to rapid U.S. monetary growth.

The G-5 ministers and governors also included in the text of the Plaza Agreement three pages of text concerning their countries' other policy intentions, five to seven commitments per country. All were statements of policies rather than of changes in policies. The United States included in its commitments a restatement of its intention to reduce government expenditures as a share of GDP and to reduce the budget deficit in FY 1986 by over 1 percent of GDP. Each country included resisting protectionism in its list. Indeed, one of the more forceful paragraphs in the Plaza statement pointed to the risks from protectionist pressures (G-5, 1985b):

The U.S. current account deficit, together with other factors is now contributing to protectionist pressures which, if not resisted, could lead to mutually destructive retaliation with serious damage to the world economy: world trade would shrink, real growth rates could even turn negative, unemployment would rise still higher,

and debt-burdened developing countries would be unable to secure the export earnings they vitally need.²³

Evaluation

The Plaza Agreement was an immediate success with respect to achieving a further depreciation of the dollar. One can disagree about the role that official foreign exchange market intervention played in this episode. But the depreciation of the US dollar did accelerate for a while.

Michael Klein, Bruce Mizrach, and Robert G. Murphy (1991) established that after the Plaza announcement foreign exchange markets reacted to unexpected movements in the US external accounts. The dollar tended to decline against the DM and the yen when the monthly US trade balance was lower than expected, and vice versa. This had not been the case previously. The authors' conclude that the Plaza Agreement marked a change in regime as viewed by market participants.

With respect to the effectiveness of G-5/G-7 pronouncements on exchange rates, Marcel Fratzscher (2009) distinguishes between two counter-factuals. In the first, a random walk approach, changes in exchange rates in the wake of G-7 meetings are measured over successive intervals up to 12 months from the date of the meeting to test whether there was he calls "perceived" success. In the second, the counter-factual of "actual" success is based on the difference between the actual path of the exchange rate and the path of the exchange rate where the starting point is derived from a four-factor projection as of the day before the G-7 announcement, one of the factors being the

²³ It is noteworthy that Baker (2006, 433) points proudly to this sentence as motivating his emphasis on the importance of international economic policy coordination.

deviation of the exchange rate from its average over the previous five years – a measure of underlying misalignment.

Not surprisingly, he finds more evidence of perceived success than of actual success.²⁴ With respect to perceived success, the post-Plaza movements of the dollar conformed to what might well have happened without the extensive exchange market operations in the fall of 1985. The Fratzscher results also support the view that exchange market intervention is not just about changes in the supply of or demand for a currency, or about signaling future changes in monetary or other policies, including fiscal and structural policies, consistent with improvements in the fundamental determinants of exchange rates, but also may serve to coordinate market views on the level or direction of exchange rates (Lucio Sarno and Michael Taylor 2001, Truman 2003).²⁵

Recent research tests the portfolio balance model mentioned earlier in connection with research underlying the Jurgensen report (Gustavo Adler, Noemie Lisack, and Rui C. Mano 2015). They use instrumental-variables in panel regressions and find robust evidence that foreign exchange market intervention affects the level of exchange rates with impacts that persist for some time. However, the size of the effects is small in light

²⁴ This is a more sophisticated finding than my (Truman 1994) post-hoc-ergo-proctor hoc criticism of the results of Pietro Catte, Giampaolo Galli, and Salvatore Rebecchini (1994).

²⁵ The signaling channel was hinted at, without using the current terminology, in the Jurgenson Report. Critics of exchange market intervention, for example Bordo et al (2015, 9-15 and 302), state incorrectly that any signals are only about monetary policy. That need not be the case. In fact, the signals can be about fiscal and other policies, such as banking, which are often designed to support the intervention or the intervention may provide a bridge to implementing those other policies. Obstfeld (1990), writing about the Plaza-Louvre period, has a nice discussion of the signaling channel including why actual intervention, rather than just words in a communiqué, can reinforce policy credibility and time consistency. He concludes (page 223), “On several occasions, however, intervention seems to have been effective in signaling to exchange markets the major governments” resolve to adjust other macroeconomic policies, if necessary, to achieve exchange rate goals.” Mulford (2014, 168) articulates his view in the context of the Plaza Agreement, “it was possible to signal markets as to underlying developments, not to manipulate or direct the market, but possibly to change its focus and priorities.”

of the scale of intervention in the 1980s. Sterilized intervention of 1 percentage point of GDP depreciates/appreciates a nominal exchange rate by as much as 2.0 percent, with a half-life of 1-2 years. In the wake of the Plaza Agreement (not covered by Adler et al), with US 1985 GDP of \$4,213 billion, US intervention of \$3.3 billion would have produced a depreciation of 0.16 percent and only 0.38 percent based on the combined G-5 intervention of \$8.1 billion. Joe Gagnon and collaborators (Tamim Bayoumi, Joseph E. Gagnon, and Christian Saborowski 2015 and Gagnon 2015), similarly, have resuscitated the portfolio balance model in the wake of its success in explaining the effects of quantitative easing by central banks after the global financial crisis hit.²⁶

Judging by data on the media treatment of G-5/G-7 meetings assembled by Marcel Fratzscher (2009), attitudes toward these gatherings gradually changed from the time of the summit meeting in June 1982 through the Plaza meeting of finance ministers and central bank governors in September 1985; see table 1. Before the meeting in January 1985, the media treated the G-5 negatively. Following the surprise announcement, the press treatment was close to neutral, leaving the average treatment before and after the meeting still negative. Prior to the Plaza meeting, which was also unscheduled, the press treatment was even more negative, but again after the meeting the coverage was less so. This pattern (negative before the meetings, less so after the meetings, but on average negative) continued through April of 1987. The emerging higher profile of the G-5/G-7 reinforces, from a different perspective, the Klein et al finding of a regime change.

²⁶ Note that the intervention data that I cite are actual purchases and sales. They are not net changes in foreign assets on the balance sheets of the monetary authorities (or related measures) employed by Adler et al and Gagnon and his collaborators.

The debate about the effectiveness of foreign exchange market intervention in general and in the wake of the Plaza Agreement, in particular, will never be resolved definitively. The key point with respect to policy coordination and the Plaza Agreement is that the stated or implicit short-run objective was achieved. It is more difficult to establish whether this apparent success was the result of causation (verbal or actual intervention) or simple correlation (or some combination).

In fact, the Plaza Agreement can be said to have over-performed. That was a concern at the Federal Reserve almost from the start. At the October 1, 1985 FOMC meeting, only nine days after the G-5 meeting, concerns were raised about the implications of a “precipitous decline of the dollar” and a request was made for a special briefing on the topic. On the way to the IMF meetings in Seoul later in the week, Volcker, in what should have been treated as an off-the-record comment to *Washington Post* columnist Hobart Rowen, commented that “one could have too much of a good thing.”²⁷ At the November 4 FOMC meeting, the staff made a presentation (FRB 1985) on the economic and policy consequences of exchange rate adjustment. The presentation outlined the possible paths of external adjustment, the implications for the real economy, the dynamics of possible interest-rate and price changes, and associated monetary policy issues in terms of the risks to inflation and/or growth. In his conclusion, Stephen Axilrod, staff director and secretary of the FOMC, favored engineering a gradual adjustment of the dollar.

Gradual adjustment was not in the cards, but neither was US recession or inflation. Aided by the collapse of energy prices in 1986, US inflation did not rise

²⁷ The quotation showed up on a column by Rowen a number of weeks later.

appreciably until late in the decade. Real interest rates, in particular long-term rates, did not increase much either. However, similar concerns about excessive or excessively rapid dollar depreciation were expressed at a meeting of the G-10 governors at the Bank for International Settlements (BIS) that I attended in early December 1985. During congressional testimony, Volcker was frequently asked about the risks associated with a sharp dollar decline. On February 19, 1986, according to my notes, Volcker responded to a question from then-Congressman Charles Schumer that he was not interested in seeing the dollar falling further. At that point, the dollar had declined 14 percent against the major currencies since the day before the Plaza meeting.

With respect to other supporting policies, Volcker (1992, 247) reports that there was no agreement with respect to interest rates at the Plaza or with the US treasury though he notes “it is hardly unusual for secretaries of the Treasury to want easier monetary policy; from that viewpoint there would have been nothing new in the Plaza Agreement. But the real effect, at the margin, was to reduce the size and likelihood of any easing of [US] monetary policy.” In this context, he was shocked and dismayed that the Bank of Japan on October 24 allowed a substantial increase in Japanese short-term interest rates in the context of a slight rebound by the dollar.²⁸

On the US fiscal commitments in the Plaza Agreement, US FY 1986 expenditures did decline as a share of GDP, but revenues declined as well, and the deficit declined by only 0.1 percentage point to 5.0 percent of GDP.²⁹ Baker (2006) acknowledges that

²⁸ According to Shinji Takagi (2015, 154), neither the Japanese ministry of finance (MOF) nor the US authorities were consulted or informed in advance. An increase in the discount rate would have required MOF approval.

²⁹ The FY1987 deficit did drop to 3.2 percent of GDP, but that was followed by 3.1 percent in FY1988, and 2.8 percent in FY1989, before rising back to 4.7 percent in FY1992.

critics say the United States reneged on its fiscal commitments, but he adds that they were made in good faith. The US administration and Congress were by that time wrestling with the fiscal deficit, but having difficulty reaching its own consensus how to deal with it. The first Gramm-Rudman-Hollings (GRH-I) Balanced Budget Act was signed into law on December 12, 1985.³⁰

Mulford (2014, 169) points to “clear policy commitments for stronger growth” from US partners at the Plaza as key to the deal. Unfortunately, the commitments of other countries to promote growth or structural change in their economies also were not fulfilled. In the face of small output gaps in Germany and Japan, now estimated in the IMF’s World Economic Outlook Data Base (April 2015b) at -0.5 and -0.3 percent of potential GDP, respectively, one would have wished that these countries would have sought to offset the potential negative impact of currency appreciation. Instead, their output gaps increased in 1986 and 1987. In both countries, the increase in domestic demand exceeded the increase in GDP in both years, suggesting the influence of currency appreciation. In Japan, the increase in domestic demand slowed to 3.7 percent in 1986 from 4.1 percent in 1985, but picked up to 5.1 percent in 1987. In Germany, domestic demand increased to 3.3 in 1986 from 0.9 percent in 1985, but dropped off to an increase of 2.6 percent in 1987 (IMF 1993).

In summary, the short-term effects of the policy coordination in the Plaza episode were impressive in terms of the subsequent further correction in the dollar’s foreign exchange value even if the small amount of foreign exchange market intervention in the immediate aftermath had little directly to do with it. However, the longer-term effects

³⁰ The procedures in GRH-I were subsequently declared to be unconstitutional in 1986 and replaced in September 1987 with GRH-II.

were between minimal and nugatory. The reasons are two: First, the G-7 never reached full consensus on diagnosis of the immediate problem they were trying to address. Yes, they were trying to depreciate the dollar, partly responding to the threat of protectionist threats derived, again partly, from the growing US current account deficit and drag of net exports on the US expansion. But the other parties saw the US fiscal deficit as the principal cause of the US current account deficit. Second, partly because of this difference in diagnoses, no countries took fiscal or structural policy actions designed to support the exchange rate changes that occurred, to increase domestic demand growth in the countries whose currencies were appreciating and to reduce it in the United States, in part via reducing the fiscal deficit.

The Louvre Accord

The conventional view is that the Plaza Agreement was aimed solely at bringing down the super-dollar. By that metric, it was a widely perceived success. However, the dollar's descent was not welcomed by all parties. Concerns were expressed by officials of other countries about the perception that US officials were talking down the dollar (Volcker and Gyohten 1992). Obstfeld (1990, 227) quotes the 1986 annual report of the Bundesbank:

These [pre-Louvre intervention] efforts were in vain, not least because statements by U.S. officials repeatedly aroused suspicion on the markets that the U.S. authorities wanted the dollar to depreciate further. Moreover, until then [late January 1987] the Americans hardly participated in the operations to support their currency. Nor did the Federal Reserve counteract the downward trend of the

dollar through monetary policy measures, despite the risks to price stability which it clearly perceived.

On the other hand, 1986 did feature a remarkable amount of policy coordination among the major central banks, albeit not initially. At a meeting of the G-5 ministers and governors in London in January, Secretary Baker and the other finance ministers pressed for coordinated cuts in central bank interest rates (Baker, 2006, 431). Volcker and Pöhl successfully resisted this proposal. They blocked including any mention of monetary policy in a proposed communiqué, which ultimately was scrapped. They were not attracted by the publicity that would be associated with that degree of cooperation with finance ministries. However, after the London meeting, the Bank of Japan cut its discount rate on January 30, 1986.

In late February, Volcker stared down a unilateral cut in the Federal Reserve's discount rate that was favored by a majority of the Board of Governors. Subsequently, in early March, first, the Bundesbank and, the next day, the Bank of Japan and the Federal Reserve cut their discount rates (Boughton 2001, Funabashi 1988, Volcker and Gyohten 1992). Both the Bank of Japan and the Federal Reserve cut their discount rates again on April 21. The Federal Reserve also cut its rate in July and in August.³¹ The Bank of Japan cut its rate again on October 31 in the context of Baker's meeting with Japanese finance minister Kiichi Miyazawa (see below) and again on the eve of the Louvre

³¹ Over the course of 1986, the federal funds rate declined by about 200 basis points. The interest rate on 10-year US treasury securities declined about 70 basis points in the first half of the year, but subsequently increased about 150 basis points. Judgments about inflation were complicated by the collapse in price of petroleum and petroleum products.

meeting.³² The central banks had two concerns: slowing if not stopping the dollar's depreciation and, in particular on the part of the Federal Reserve, encouraging foreign growth.

Meanwhile, building on discussions in the IMF, the US treasury embraced the idea of developing a set of economic indicators to guide international economic and monetary cooperation. The leaders at the G-7 summit in Tokyo in May, 1986 somewhat reluctantly endorsed this ambitious approach (G-7, 1986b):

[T]o cooperate with the IMF in strengthening multilateral surveillance, particularly among the countries whose currencies constitute the SDR [Special Drawing Rights], and request that, in conducting such surveillance and in conjunction with the Managing Director of the IMF, their individual economic forecasts should be reviewed, taking into account indicators such as GNP growth rates, inflation rates, interest rates, unemployment rates, fiscal deficit ratios, current account and trade balances, monetary growth rates, reserves, and exchange rates.

This initiative was resisted by the Japanese and Germans (Funabashi 1988, 142) because they, correctly, anticipated that the process would focus on their external surpluses. The idea harkened back to US proposals to the Committee of Twenty in the early-1970s and presaged a similar initiative launched by the G-20 almost 30 years later in the form of the mutual assessment process in support of the G-20 commitment to strong, sustainable and balanced growth (IMF 2015a). As Volcker (Volcker and Gyohten 1992, 278-279) commented and predicted, these structures were well-intentioned but

³² At the time, the Bank of Japan did not enjoy the degree of independence from its finance ministry that the Bundesbank and Federal Reserve enjoyed.

generally failed to overcome political resistance to policy change. On the other hand, the 1986 initiative, as a by-product, opened the door for the IMF to play a more central role in the G-7 policy consultation and coordination process that persists in the G-7 and G-20 to this day.

At their statement following their meeting on September 27, 1986, the G-7 (1986a) finance ministers addressed the issue of global imbalances, recited various steps being taken, promised to address them, and observed “These actions should help to stabilize exchange rates, and all are necessary so that imbalances can be reduced sufficiently without further significant exchange rate adjustment.” They were disappointed.

As the dollar continued to decline, in particular, against the yen, the Japanese authorities beseeched the US treasury to do something (Funabashi 1988, 1959-161). Ultimately, Baker and Miyazawa on October 31 agreed to a joint statement (Funabashi, 1988, 274-275). From the standpoint of the Japanese the most important sentence was: “They expressed their mutual understanding that, with the actions and commitments mentioned above, the *exchange rate realignment achieved between the yen and the dollar since the Plaza Agreement is now broadly consistent with the present underlying fundamentals*, and reaffirmed their willingness to cooperate on exchange market issues.” (Emphasis added) Contrary to the market expectations fed by the Japanese authorities following the October 31 Baker-Miyazawa meeting, the US authorities did not intervene to support the dollar as it weakened somewhat further.

From the standpoint of the US economic authorities, the most important points were the commitment by the Japanese to a fiscal stimulus package, a tax reform, and

another cut in the Bank of Japan's discount rate that was announced as part of the joint statement. The US authorities had adopted the view that exchange rate adjustments alone would not correct the US current account deficit. At the December 10-11, 1986 meeting of Working Party Three (WP-3) of the Organization for Economic Co-Operation and Development's (OECD's) Economic Policy Committee, which I attended, Mulford lectured other delegates on the importance of policies to stimulate growth. It was either that, he said, or further changes in exchange rates. In the fall of 1986, Volcker and the staff of the Federal Reserve had a similar view, pressing central bank partners to relax their monetary policies further, although our approach was less forceful than Mulford's. In mid-December, Baker and Mulford met with German finance minister Gerhard Stoltenberg and his deputy, vice minister Hans Tietmeyer, in an effort to build on the agreement with the Japanese and to get a commitment from the Germans to promote growth (Boughton 2001, 218 and Funabashi 1988, 172-173). They made only limited progress, but talks continued.

By the end of 1986, the dollar had declined since the Plaza Agreement 15 months earlier by about 20 percent against the major currencies on average in both nominal and price-adjusted terms. The nominal decline against both the mark and the yen was more than 30 percent.

By January 20, 1987 the dollar had depreciated against the yen by another 3.5 percent since the end of 1985. On January 21, Baker and Miyazawa again met. They issued a statement (Funabashi, 1988, 276) reiterating that the bilateral exchange rate "has been broadly consistent with fundamentals" and "reaffirmed their willingness to cooperate on exchange market issues." The US authorities did not "cooperate" in the

form of intervention until seven days later when they bought \$50 million of yen. By that day, the dollar had declined a further 7 percent against the mark from the end of 1986. During the month of January 1987, the Bundesbank sold marks on six days, but the US authorities did not operate in marks because they were not yet fully committed to the Louvre strategy. But the stage was almost set.³³

Problem Identification and Diagnosis

In February 1987, the problem that the United States and its principal partners ultimately agreed and identified was the dollar's persistent decline. Again, however, the diagnosis of the problem, while shared to some extent, was less than a full operational consensus. The candidate diagnoses bore some relation to those prior to the Plaza meeting: (1) macroeconomic policies, now fiscal stimulus in other countries in addition to a tightening of US fiscal policy; (2) trade except that now the issue was not only the risk of US protectionism but also the stubborn continued expansion of the US external deficit; and (3) the possibility that the decline of the dollar would accelerate and contribute to a hard landing for the global economy.

First, with respect to macroeconomic policies, the debate was no longer entirely one-sided concentrating on the US fiscal deficit. Other countries still saw that as a major, if not the principal, cause of the US external imbalance. For their part, the US authorities had been pressing other countries for months to stimulate growth in their economies both to compensate for the effects of changes in exchange rates and to reinforce the impact on the US current account balance. See figure 4. Volcker (Volcker and Gyohten 1992, 275) recalls his view, "without more expansionary action abroad, I was afraid the momentum

³³ I say "almost set" because the meetings of the G-5 and G-7 were not actually set until February 18.

of world expansion would falter, that the [US] trade and current account would remain in deep deficit, and that the dollar would eventually and unnecessarily weaken further.”

Second, with respect to external adjustment, the US current account deficit in 1986 was \$147 billion (3.2 percent of GDP) up from \$118 billion (2.7 percent of GDP) in 1985 and was headed for \$161 billion (3.3 percent of GDP) in 1987. In 1986, the current account surpluses of both Germany and Japan were more than 4 percent of their respective GDPs. See figure 3.

Third, on the exchange rate front, the movements of the dollar in 1986 and 1987 against the mark had contributed to the need for exchange rate realignments within the exchange rate mechanism (ERM) of the European Monetary System (EMS) in April of 1986 and again in January of 1987. Shinji Takagi (2015, 158) reports the Japanese authorities were “desperate for exchange rate stability.” Arguably, a rapid US fiscal adjustment might weaken the dollar, in particular if US monetary policy eased at the same time. Those calling for the US fiscal adjustment to abort the dollar’s decline had to appeal to positive effects on confidence to make their argument hang together.

The Federal Reserve was more involved in the pre-Louvre discussions than with the pre-Plaza discussions. The concern, shared by Volcker (see above) and G-7 officials was that a continued decline of the dollar would further undermine global growth and at best complicate and postpone the necessary adjustment process.³⁴ Baker had an additional motivation; he did not want the Federal Reserve to have to hike interest rates to combat inflation and resist dollar depreciation during the run-up to a presidential election year. I and others on the Federal Reserve Board staff thought that it was a

³⁴ World growth was 4.9 percent in 1984, 3.9 percent in 1985, and 3.2 percent in 1986 (IMF 2015b).

mistake to try to cut short the dollar's depreciation, in part, because the depreciation to date would not be sufficient to eliminate the US current deficit and, in part, because we anticipated that downward pressures on the dollar would continue to be intense.³⁵ We sent a memorandum to Chairman Volcker outlining our arguments. He did not buy them.

Treatment

On February 22, the ministers and governors of the G-6 countries met in Paris and announced the Louvre Accord (G-6, 1987).³⁶

The Ministers and Governors agreed that the substantial exchange rate changes since the Plaza Agreement will increasingly contribute to reducing external imbalances and have now brought their currencies within ranges broadly consistent with underlying economic fundamentals, given the policy commitments summarized in this statement. Further substantial exchange rate shifts among their currencies could damage growth and adjustment prospects in their countries. In current circumstances, therefore, they agreed to cooperate closely to foster stability of exchange rates around current levels.³⁷

³⁵ In the February 4, 1987 staff forecast for the FOMC (FRB 1987), we incorporated a moderate continued decline of the dollar through 1988, less than the 10 percent that occurred mostly in 1987, and foresaw the US current account narrowing only to \$127 billion in 1988. (The deficit turned out to be \$121 billion that year.) On the other hand, by the end of 1986 the dollar's depreciation was already contributing to an improvement in US real net exports of goods and services in the GDP accounts, which we recognized.

³⁶ The Italian officials were invited, but they went home when they learned that the G-5 had met the day before.

³⁷ It is noteworthy that the Louvre communiqué also stated "it is important that the newly industrialized developing economies should assume greater responsibility for preserving an open world trading system by reducing trade barriers and pursuing policies that allow their currencies to reflect more fully underlying economic fundamentals." Similar concerns led to the enactment of the Omnibus Trade and Competitiveness Act of 1988 which mandated that the US Treasury twice a year report on developments in international economic and exchange rate policies in consultation with the Board of Governors of the Federal Reserve System and the International Monetary Fund. The Treasury's report continues to attract both market and political attention.

This announcement inaugurated a brief real world experiment involving major currencies with target zones, reference ranges, or reference zones for exchange rates; the precise terminology was never agreed.³⁸ Mulford (2014, 171) recalls that the G-6/G-7 “agreed on a plan to stabilize currencies within certain broadly understood ranges. . . . If our currencies moved outside the consensus ranges, the understanding was that national policies would need to be reviewed.”

The reference (base) levels and their associated ranges were not announced. However, it has been accurately (Boughton 2001, 219 fn. 77 and associated references) reported that the reference rate for the mark was 1.8250 per dollar and that for the yen was 153.50 per dollar. The scheme involved an inner range of +/- 2.5 percent after which action, implicitly intervention, should be considered and an outer range of +/- 5.0 percent after which there would be a greater presumption (but no requirement) of action/intervention. The scheme was not entirely accepted, in particular not by Pöhl on behalf of Germany and the Bundesbank who was supported by Volcker in not willing to embrace any automaticity about intervention. A notional budget of \$4 billion, divided one third each between the Europe, Japan, and the United States, was intended to carry the scheme until early April when the group would next meet (Funabashi, 1988, 187).

Even within the Federal Reserve, few were privy to the details of the Accord, such as they were. For example, Sam Cross (1987a) reported to the FOMC on March 31:

On March 11, as the dollar moved up through the DM 1.8700 level, the Desk sold \$30 million against marks *in accordance with the agreements reached in Paris.*

³⁸ It can be argued that the exchange rate mechanism of the European monetary system was a “target zone” system and that some countries have used this type of system unilaterally (Williamson 2007), but the Louvre Accord is the only example involving the major currencies.

This operation, though limited in size, was visible and taken by market operators as a signal that the Paris Agreement would seek to limit any significant rise of the dollar, as well as any significant decline. As a result, the dollar's recovery was, in a sense, capped and the dollar subsequently began to move lower. (Emphasis added.)³⁹

The inner point of the upper range for weakness in the mark was DM 1.8706, and the United States chose to act as this rate was pierced in New York on March 11. The Bundesbank did not operate that day.⁴⁰

The pace of coordinated and sterilized intervention purchases of dollars and sales of yen accelerated in April. Between March 31 and May 19, total dollar purchases were \$24 billion of which the United States purchased \$3 billion bringing the US total since the Paris meeting to \$4.2 billion, only \$200 million were purchases against German mark (Cross 1987b).

At the April 8 G-8 meeting, the indicative range for the yen against the dollar was raised to 146 yen with the same +/-2-1/2 and +/-5 percent ranges. By May 5, the yen was again above the 5 percent top of the range, and the mark was above the inner range but below the top. The dollar recovered somewhat over the summer but subsequently resumed its decline.

Initially and after the flurry of yen strength in March through May, 19887 at meetings at the OECD and BIS, international officials and national representatives were

³⁹ Cross added that the subsequent movement of the dollar was largely against the yen triggering more than \$10 billion of intervention, again “consistent with the understandings” in Paris, of which \$2.1 billion was by the United States.

⁴⁰ In fact, the Bundesbank’s first post-Louvre intervention was purchases of dollars on May 5, following US sales of mark for dollars on the two previous business days.

generally satisfied with the results of the Louvre Accord. The June 10 G-7 (1987b) summit in Venice was characteristically upbeat about prospects while also noting that “exchange rate changes alone will not solve the problem of correcting . . . imbalances while sustaining growth. Surplus countries [must] design their policies to strengthen domestic demand Deficit countries . . . [must] reduce their fiscal and external imbalances.”

By the time of the meeting of WP-3 on July 9-10, 1987, which I attended, doubts were being expressed about how long exchange rates would hold around current levels and whether the commitments of Germany and Japan to stimulate their economies and by the United States to address its fiscal issues would be met.

On September 4, 1987 in response, in part, to a resumption of dollar weakness triggered by the release of poor US trade numbers of August 14 and, in part, to signs of an uptick in inflation, the Federal Reserve raised the discount rate to 6 percent and tightened up on the provision of reserves, which served to push up the federal funds rate by about 75 basis points between then and the stock market break on October 19.⁴¹ The G-7 ministers and governors remained upbeat in their statement following their meeting on September 26, but at that same meeting IMF managing director Michael Camdessus told them that even with improved macroeconomic policies more exchange rate movement would be necessary to remove global imbalances (Boughton 2001, 221).⁴²

⁴¹ This was in the first month of Alan Greenspan’s tenure, and he was about to travel to his first meeting with his central bank colleagues at the BIS. Volcker had also snugged short-term rates in April in response to dollar weakness, but conditions were later relaxed. He told me recently that in retrospect he wished Federal Reserve policy had been tightened before he left office in August 1987, but he did not want to complicate life for his successor.

⁴² Camdessus weighed in because at the Venice summit the leaders invited the IMF managing director to participate in the development of mutually consistent medium-term objectives and projections. Boughton

In late September, short-term interest rates began to rise in Japan and in particular in Germany ostensibly because of increasing inflation. The inflation pick-up was hardly provocative. In Germany, the CPI increase in 1987 was 0.2 percent after a decline of 0.1 percent in 1987 and before a rise of 1.3 percent in 1988. The pattern in Japan was similar.)The interest rate on 10-year German government bonds rose by 70 basis points over the summer to about 6.7 percent in September and 6.9 percent in October. The comparable US rate dipped by about 100 basis points over the summer but in the fall backed up 70 basis points toward 9 percent. US consumer price inflation was about 4 percent and rose less than half a percent toward the end of the year. High real long-term rates were a puzzle in several countries.

Another set of disappointing US trade data was released on October 14, upsetting foreign exchange and financial markets. On Sunday, October 18, Baker (2006, 440) criticized the Bundesbank “We will not sit back in this country and watch surplus countries jack up interest rates and squeeze growth worldwide in the expectation that the United States somehow will follow by raising its interest rates.” These comments were negatively received by the press and by the markets, contributing further downward pressures on the dollar (Cross 1987c).

What role these developments played in the stock market break on October 19 is both unclear and beyond the scope of this account. What is clear is that the Federal Reserve responded to the stock market break by adding liquidity and letting the federal

cites this as the highpoint of this round of efforts to improve multilateral surveillance with the involvement of the IMF.

funds rate ease while other central banks eased only grudgingly and with a lag.⁴³ This lack of parallel action helped to spell the end of what was left of the Louvre Accord.⁴⁴

On October 16, the Friday before Black Monday and the US stock market break, the dollar was again in the lower half of its ranges against both the yen and the mark. By October 29, the dollar had passed through the outer points of its notional ranges against the yen and mark. By the end of the year, it had depreciated 21 percent against the yen and 14 percent against the mark and against the major currencies as a group from the levels at the time of the Louvre Accord.

International cooperation did not entirely dry up. The relevant authorities consulted with their counterparts almost daily about market conditions. But there were tensions about whether and how to respond to the stock market break.⁴⁵

The Louvre Accord was somewhat more explicit than the Plaza Agreement had been in terms of macroeconomic commitments. The G-6 (1987) statement called for countries with current account surpluses to strengthen domestic demand and to reduce their external surpluses. The specific commitment by Germany, which was less than dramatic, was to follow through with a “comprehensive tax reform” and other structural supply-side measures. Japan similarly signed onto the principle of stimulating domestic demand, but Japan only pledged to complete its “comprehensive tax reform” and to put

⁴³ The federal funds rate rose by about 75 basis points from the end of August to mid-October, and it declined by a like amount through the end of the year. However, at that time the FOMC was not focusing its policy narrowly on the funds rate.

⁴⁴ Randall Henning (1994) argues -- incorrectly in my view (Truman 2006, 194) -- that the reference ranges continued through Baker's departure from the Treasury in August 1988 to guide US intervention operations and gradually unraveled in 1989-90. It is possible that the framework persisted in the minds of some US Treasury officials, but that was never communicated to me.

⁴⁵ Funabashi (1988, 211) argues that in their choice of policies, in particular monetary policy, US officials ignored the Louvre Accord after the stock market break or at least ignored the spirit of the Accord.

forward a “comprehensive program” to stimulate domestic demand only after the 1987 budget would subsequently be approved. The United States pledged to pursue policies to reduce the FY 1988 deficit to 2.3 percent of GNP from an estimated 3.9 percent in 1987 and hold the growth of government expenditures to less than 1 percent.

The US authorities were disturbed by the further rapid depreciation of the dollar. But their G-7 partners were unwilling to act, or even to make a collective statement in support of the dollar, until and unless the United States produced something more on the fiscal front. After an intense set of negotiations, an agreement was reached between the administration and the bipartisan leadership of the Congress on a budget package that promised to cut the FY1988 and FY1989 budgets by a combined \$76 billion via both spending restraint and tax increases. It was passed on December 21 and signed by President Reagan on December 22, 1988. The budget agreement took so long to complete that the G-7 did not have time to meet physically before Christmas. The result was the first issuance, on December 22, of a statement by the G-7 ministers and governors without an actual face-to-face meeting, often called the “Christmas or Telephone Communiqué” (G-7, 1987a).

Curiously, on exchange rates, the communiqué stated “The Ministers and Governors agreed that either excessive fluctuation of exchange rates, a further decline of the dollar, or a rise in the dollar to an extent that becomes destabilizing to the adjustment process, could be counter-productive by damaging growth prospects in the world economy.” The United States was not eager to recoup the dollar’s depreciation since September. The market appeared to be unmoved by the G-7 statement, and the dollar

declined by a further 3 percent against the major currencies on average over the remaining trading days of the year.

The end-of-year market apparently was oversold on the dollar. Immediately after the turn of the year, the authorities successfully mounted a concerted, aggressive counter attack. Over the first nine trading days of 1988 the US authorities bought only \$685 million though sales of mark and yen, less than half the amount they bought after December 22. The same was true for the Bundesbank in its operations. However, the operations were conducted in such a manner that they helped to reverse market sentiment. By mid-January, the dollar had risen 11 percent against the mark, 2 percent against the yen, and 4 percent against the major currencies on average from the end of 1987.

Evaluation

As with the Plaza Agreement, the Louvre Accord had two basic objectives: exchange rates (stabilization in the Louvre case) and, with greater urgency than in the Plaza case, promoting external adjustment via pro-active macroeconomic policies. On the first, the Louvre was a qualified failure even in the short run. On the second, participants did not deliver the promised changes in policies at least in the required timeframe, which was short. One consequence for the longer term was that the structure of economic policy coordination that had been constructed on a range of indicators and was not limited to exchange rates collapsed because of a lack of sufficient, substantive policy actions outside of the intervention realm.

With respect to exchange rates, the dollar continued to depreciate unevenly throughout 1987, despite heavy intervention support, with a final period of weakness leading up to and, in particular, after the US stock market break. The yen was formally

rebased once and de facto rebased a second time. The mark also was de facto rebased in the fall. This is sufficient evidence that the Louvre Accord failed to deliver on its promise that exchange rates should remain around the levels observed in February 1987.

This harsh judgment can be qualified in two respects: First, without the Louvre Accord with its soothing statements by policy makers and the associated, largely coordinated, heavy (by the standards of the day) foreign exchange intervention the decline of the dollar might have been larger during 1987. However, applying the results of Adler et al (2015) in the case of the 1987 Louvre Accord with its much larger scale intervention does not suggest that the intervention should have been expected to be very successful. The US net intervention of \$8.8 billion (0.19 percent of US 1987 GDP) translates into support for the dollar of 0.4 percent, and the combined intervention of the United States, Germany, and Japan of approximately \$50 billion (including German intervention of an estimated \$3.8 billion, and allowing for Japanese intervention for the rest) would have produced support of only 2 percent at most—a tiny offset to the dollar’s nominal depreciation against major currencies of 14 percent that occurred from before the Louvre until the end of 1987. The fact is that the political economy in neither the United States or in other G-7 monetary authorities would have supported foreign exchange operations on the order of 7 percent of US GDP, \$332 billion.

Second, as an attempt to implement a system of target zones or reference ranges for exchange rates, the system was too tight with inner margins of +/- 2-1/2 percent and outer margins of +/- 5 percent. These margins were half as wide as those suggested by France’s Daniel Lebegue in 1985 and 1986 (Funabashi 1988, 198-199), and they were

half as wide as those suggested by John Williamson and Marcus Miller (1987) in their blueprint on the topic.⁴⁶

Wider margins would have implied less intervention, less need for rebasing, and perhaps more of a buy-in from some of the governments and central banks. Volcker, for example, has never been a fan of freely floating exchange rates and was broadly receptive to restraints on wide swings in major exchange rates. As it was, the Bundesbank and the German government never really embraced the Louvre Accord intervention understandings. The ranges also were not taken seriously at the Federal Reserve after the first six months or so.

Funabashi (1988, 203) offers further technical criticisms. They include: The initial central values were arbitrary rather than based on analysis of the exchange rates that would have been consistent with external and internal balance in the economies of the participants, so-called fundamental equilibrium exchange rates. The ranges were not published, suggesting the participants were not serious and limiting the scope for stabilizing speculation from the market. The arrangements were provisional, because that was all that could be agreed. And intervention was not required; it was merely a matter of consultation. It should be added that as a structure to guide exchange-rate policy, the Louvre scheme was deficient in placing sole emphasis on nominal, bilateral exchange rates, rather than effective (average) rates, preferably real effective rates. Compare, again, figures 1 and 2 contrasting the behavior of the yen and the mark. See also Williamson (1985) and Williamson and Miller (1987).

⁴⁶ Fred Bergsten and Williamson (1983, but delivered at a conference in 1982) as well as Williamson and Miller (1987) were influential and active in interesting the US Treasury, as well as others, in the concept of target zones. See also Williamson (2007).

On external adjustment, the participants did not agree on the basic analytical framework involving compensating, pro-growth policies on the part of the countries with surpluses whose currencies were to stop appreciating and more aggressive action on the part of the United States to address its fiscal deficit. Although the United States was struggling with its fiscal challenges, it was not able to put enough on the table as a quid pro quo to induce the other countries to act as well. Volcker (1992, 272 and 283) attests to both problems. On the latter, he reports questioning Secretary Baker's candor in his fiscal promises at the Louvre meeting to reduce the FY 1988 fiscal deficit to 2.3 percent of GDP from its FY 1987 estimated level of 3.9 percent and to hold the growth of government expenditures to less than 1 percent. Baker replied that he was bound by the administration's recent budget. This comment reinforces one of the critiques of the Plaza-Louvre period: the domestic policy and political institutions in the participating countries constrained the international coordination process. In the event, the US federal budget deficit in FY1988 was down only 0.1 percent of GDP from 3.2 percent in 1987. Outlays rose 6.4 percent in nominal terms and as a share of GDP declined by only 0.4 percentage points. But in the aftermath of the Louvre, pressures for policy coordination can be credited with promoting the US budget adjustments agreed by the US administration and Congress at the end of 1987.

The impulse from fiscal policies in countries with current account surpluses, as estimated in this period by the IMF staff, was negative for Japan in 1986, 1987, and 1988 and for Germany in 1985 and 1986, and only neutral in 1987 and 1988 (IMF 1993). The response of growth rates was disappointing. See figure 4. The increase in Germany's GDP in 1987 was only 1.5 percent compared with 2.4 percent in 1986, and an average of

2.5 percent the two previous years. The 1987 increase in Japan's GDP was 4.1 percent in 1987, up from 2.8 percent in 1986, but well below the average of 5.4 percent the two previous years. Growth picked up smartly in both countries in 1988, perhaps responding to a short period of monetary ease following the stock market break.

Given the domestic policy processes and political institutions of the day, which are not all that different from today, were the Louvre and the associated system of indicators too ambitious? Did any of the participants really take seriously the new structure of multilateral surveillance in the sense that they were prepared to act upon its implicit recommendations? Given that the participants were unable to match talk with action, it is fair to say that the Louvre Accord was too ambitious and the framework on which it was constructed lacked the substantive political and, therefore, policy support to make it robust and effective.

On the other hand, the G-7 was riding quite high in media opinion; see table 1. Although the chatter before the Louvre meeting was negative, after the meeting it was only slightly negative. Six weeks later, press reports were only slightly negative. Interestingly, by September 1987, the press had turned positive before the G-7 meeting and was more positive after the meeting. The same was true around the time of the December 1987 statement, but this time the G-7 got little bounce from its announcement. In 1988, the G-7 received its most favorable pre-meeting reviews but its post meeting press treatment while still positive waned in intensity.

Coda⁴⁷

Coordinated attempts to deal with global imbalances did not end in 1987 with the Louvre Accord. Coordination of intervention operations by the major countries was not abandoned, but operations became more ad hoc. The US current account reached a then-record deficit in 1987 at \$161 billion (3.3 percent of GDP). The German and Japanese surpluses that year were slightly smaller as a percent of GDP than they had been the year before, but the absolute size of the German surplus was larger, and it expanded further in 1988 and 1989 in dollar terms and as a percent of GDP. See figure 3. Among policymakers and analysts, doubts were expressed about whether the external imbalances would ever be reduced and concerns persisted that the global economy risked a hard landing if the US did not curb its external and internal deficits.

In fact, the United States current account deficit did begin to narrow in 1988 and that process continued until it recorded a small surplus in 1991 accompanied by large transfer payments in connection with the financing of the First Gulf War. The deficit, as a share of GDP, stayed below its record levels of the 1980s until 2000. The initial narrowing of the deficit was accompanied by persistent US intervention from mid-1988 to early 1990 designed to resist dollar appreciation and generally coordinated with partners. The US authorities built up quite large holdings of foreign exchange reserves. Whether because of the intervention or not, the broad index for the real foreign exchange value of the dollar on a monthly basis fluctuated in a narrow range of +4 percent and -6 percent of its average value in December 1987 until December 1991.

⁴⁷ Again, see Truman (2014) for more on this later period.

At the same time, the United States continued to plug away at reducing its fiscal deficit with the Omnibus Budget Reconciliation Act of 1990, which contained the pay-as-you-go (PAYGO) provisions of the Budget Enforcement Act of 1990 as well as President George H.W. Bush's step back from his pledge of no new taxes; with the Omnibus Budget Reconciliation Act of 1993 passed by the Clinton administration; and with unanticipated good fortune on the performance of the US economy in the middle and late 1990s. Early in the Clinton administration, the G-7 ministers and governors in their statement of April 29, 1993 (G-7 1993) praised US fiscal plans, and the administration used that praise and appealed to those international commitments in its successful effort narrowly to gain congressional passage of its fiscal program.

The dollar began to weaken in the early months of the Clinton administration. That weakness was accompanied from time to time by US foreign exchange market intervention in coordination with its major partners. The operations were on a larger scale than during the 1980s. In July 1994, the US treasury publicly articulated a desire to see a stronger dollar. In early 1995, this morphed into a statement that a strong US dollar was in the national interest. That policy formulation, while controversial with those who think the United States can and should have a pro-active exchange-rate policy, has been shared by Treasury secretaries for the past 20 years with respect to the dollar's value in terms of the major currencies. US policy with respect to the currencies of emerging market countries has been another matter.

Since August 1995, the United States has operated only occasionally in the foreign exchange markets and always in coordination with its major partners. The support for the yen in June 1998 was explicitly linked to Japan's taking action on its

banking problems. The same restraint has been true for the other G-7 countries. Japan was the last member of the group to embrace a policy of limited exchange market operations in 2004.⁴⁸

In January 2013, the G-7 ministers and governors issued a statement (G-7 2013) that ritually reiterated their commitment to consult closely on exchange markets and cooperate as appropriate and, in the context of discussions of the use of other policies to influence exchange rates such as large-scale asset purchases by central banks (quantitative easing), declared “our fiscal and monetary policies have been and will remain oriented towards meeting our respective domestic objectives using domestic instruments, and that we will not target exchange rates.” This statement is important because not only did the participants commit not to use foreign exchange market intervention as part of their quantitative easing, but they also implicitly endorsed a policy of limited, transparent, and generally coordinated intervention. The G-7 ministers and governors have taken this policy perspective to meetings with representatives of the larger group of G-20 countries with some success judging by the reduced intervention in foreign exchange markets in recent years.

With respect to global external imbalances, the lesson of the Plaza-Louvre period was that a substantial degree of coordination on exchange rate policies is relatively easy (perhaps because those policies principally involve only finance ministries and central banks) but that coordination of macroeconomic policies is more challenging. This lesson was not new. The Committee of Twenty in the early 1970s was unable to agree upon the

⁴⁸ The Japanese authorities acted unilaterally to sell yen on September 15, 2010 and jointly with the United States and other partners on March 18, 2011 to sell yen in volatile markets following the Japanese earthquake.

use of one or more indicators to guide the global macroeconomic adjustment process. The lesson would be repeated in the 2006-2007 IMF sponsored multilateral consultation on global imbalances (IMF 2007).⁴⁹ As far as one can tell, this lesson is being relearned in the G-20's mutual assessment process (IMF 2015a) in which the IMF staff play a supportive role providing indicators and analyses.

Global imbalances have receded somewhat as a matter of high-level policy concern in the wake of the 2008-2009 global financial crisis and recession, but they could well emerge again. The foreign exchange market intervention of some emerging market and developing countries in the context of their large current account surpluses remains a matter of some concern (Gagnon 2015). It cannot be excluded that the United States and other G-7 countries will resume large-scale foreign exchange market intervention, but at the moment that appears unlikely.

My conclusion is that international economic policy coordination is episodic because it is directed not at fine tuning policies but at making gross policy adjustments. To be successful, the sine qua non is that the issues should be promptly identified and the consensus on their diagnosis must be strong. The stronger the consensus, the more likely treatment will be comprehensive and forceful, including by making alternations as the participants gather experience. Episodic international policy coordination has a reasonable chance of achieving some degree of short-term success. Longer-term success derived from specific episodes is likely to founder on the weakness of the diagnostic consensus that, in turn, undercuts thorough treatment. On the other hand, policymakers

⁴⁹ See Truman (2014, 31) for some observations from Karen Johnson on this exercise that mirror the 1985-87 lack of consensus.

and students of policy making can learn from experience. This is one of many reasons why a conference like this is valuable.

Table 1—Analysis of Systemic Orientation of Media Treatment of the G-5 and G-7: 1982 to 1988 (- indicates a negative orientation of press coverage)

Date of Meeting ^a	Orientation			Before-After Average
	Before Meeting	After Meeting	Change	
June 6, 1982 (S)	-0.01	0.00	0.01	0.00
May 30, 1983 (S)	0.03	0.05	0.01	0.04
June 9, 1984 (S)	0.00	0.05	0.05	0.03
January 17, 1985 (F)	-0.09	-0.01	0.09	-0.05
September 22, 1985(F)	-0.14	-0.03	0.11	-0.09
September 27, 1986 (F)	-0.12	-0.05	0.07	-0.09
February 22, 1987 (F)	-0.15	-0.02	0.13	-0.09
April 8, 1987 (F)	-0.05	-0.01	0.05	-0.03
September 26, 1987 (F)	0.02	0.13	0.11	0.07
December 22, 1987 (F)	0.13	0.14	0.01	0.13
April 13, 1988 (F)	0.22	0.11	-0.11	0.16
September 24, 1988 (F)	0.25	0.11	-0.14	0.18

Source: Fratzscher (2009) and supporting data.

^a (F) Indicates a meeting of finance ministers and central bank governors and (S) indicates a leaders' meeting. Analysis only covers meetings in which the post-meeting statements addressed exchange rates.

Figure 1

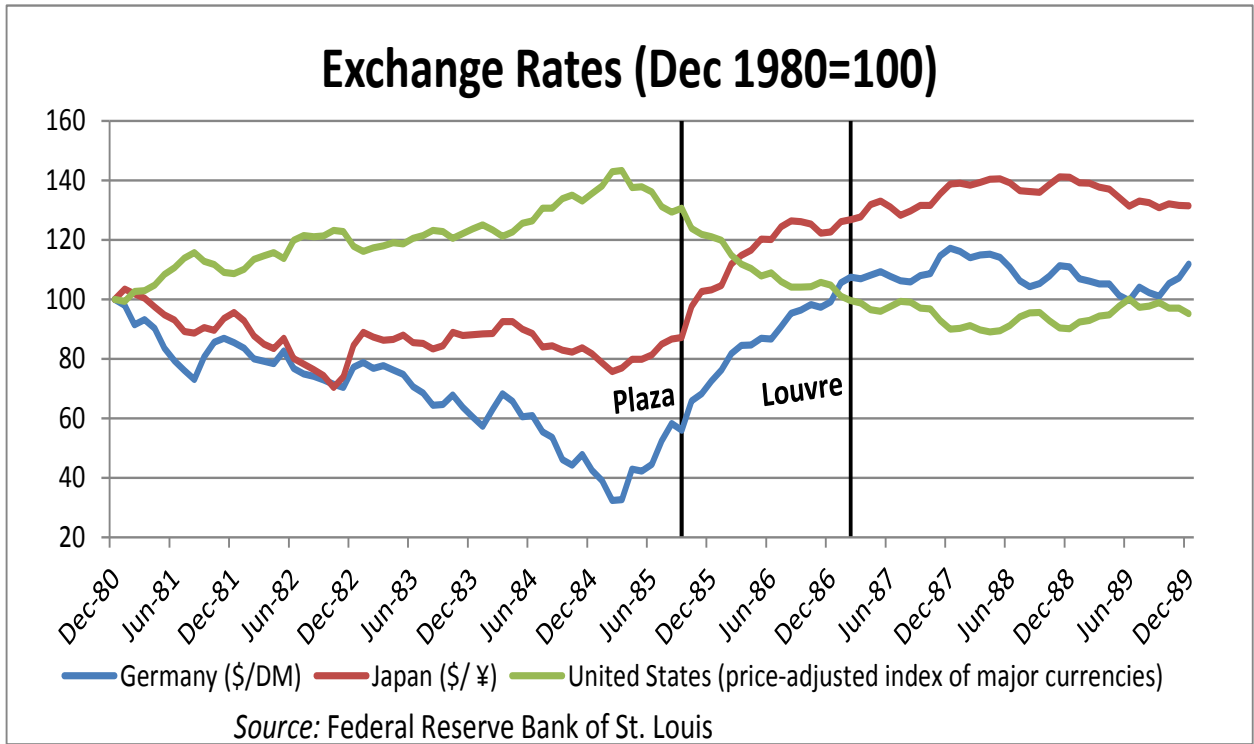


Figure 2

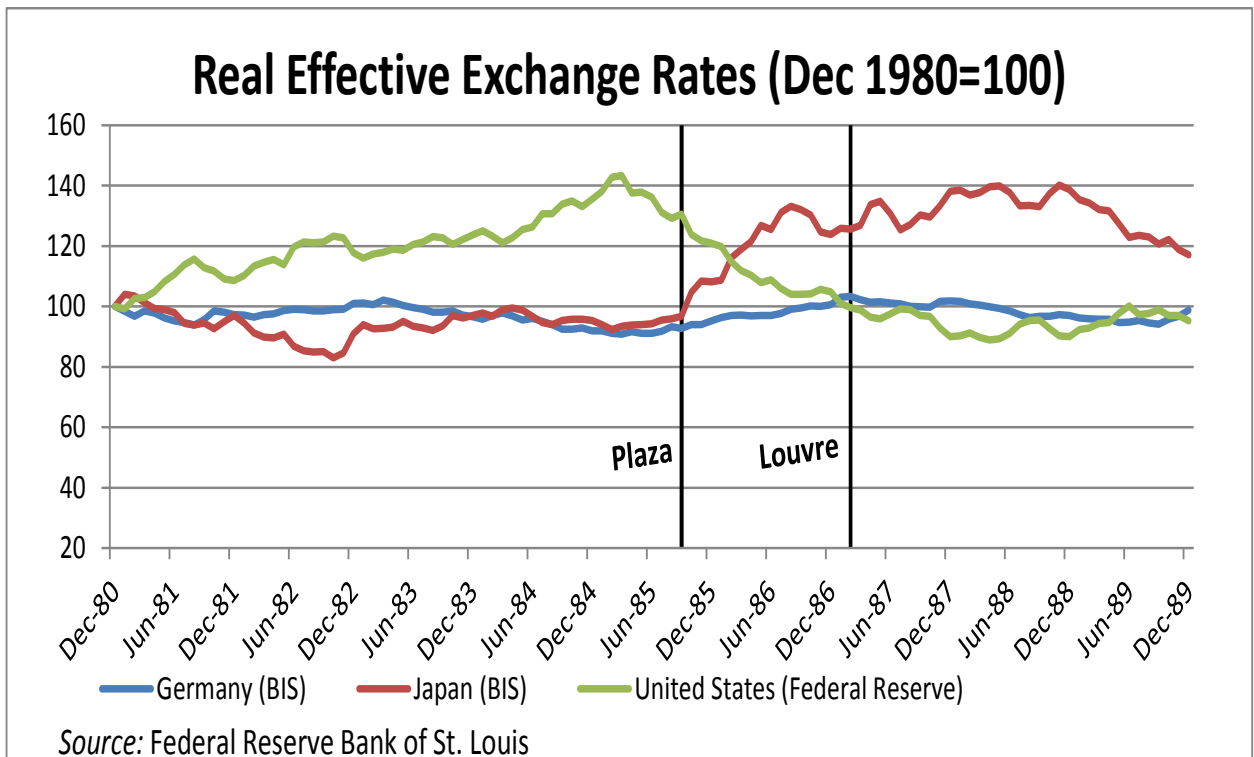


Figure 3

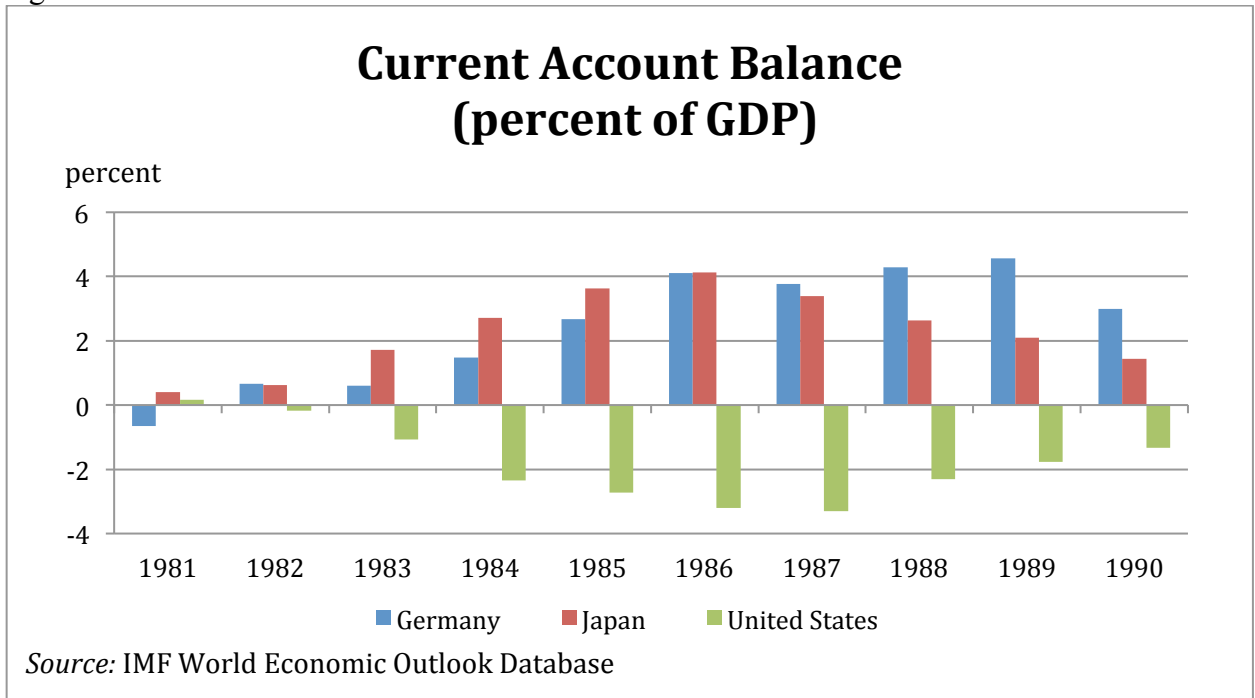
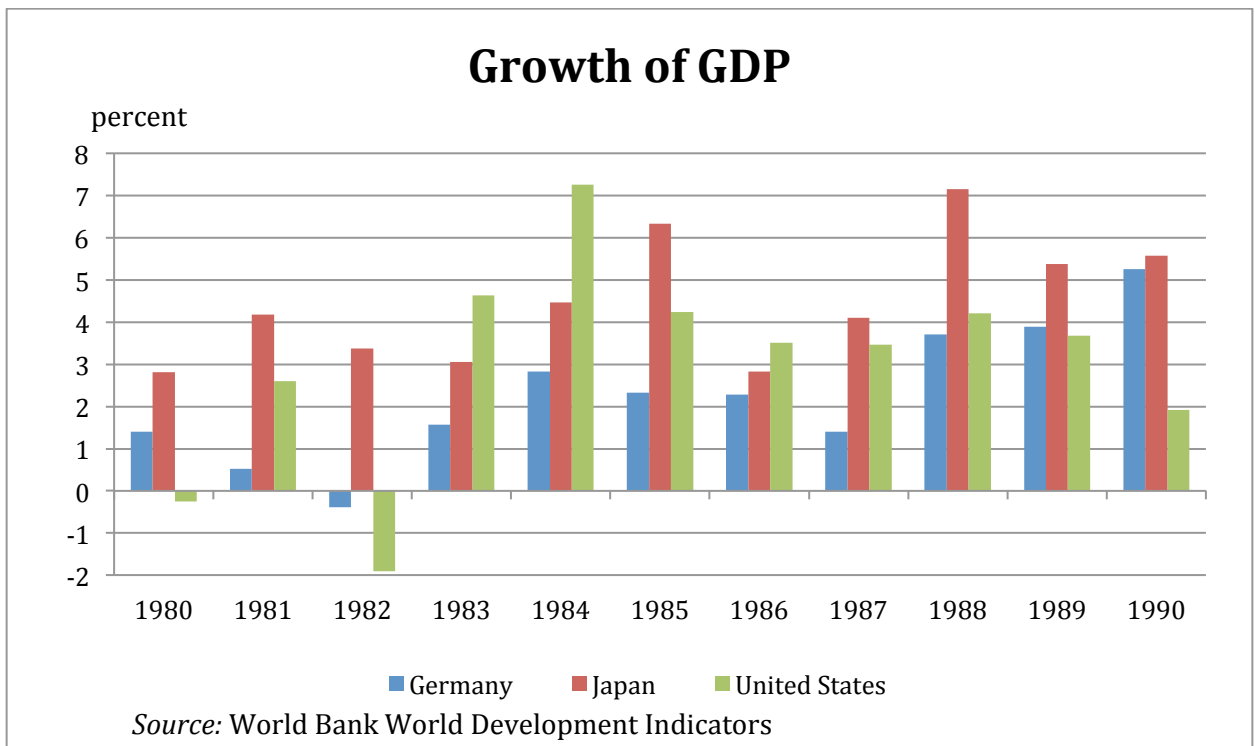


Figure 4



References

- Adams, Donald B. and Dale W. Henderson. 1983. *Definition and Measurement of Exchange Market Intervention*. Staff Study 126 (September). Washington: Board of Governors of the Federal Reserve System.
- Adler, Gustavo, Noemie Lisack, and Rui C. Mano. 2015. *Unveiling the Effects of Foreign Exchange Intervention: A Panel Approach*. IMF Working Paper 15/130 (June). Washington: International Monetary Fund.
- Baker, James A III. 2006. *“Work Hard, Study . . . and Keep Out of Politics!”: Adventures and Lessons from an Unexpected Public Life*. London: Penguin Group.
- Bergsten, C. Fred. 1994. Exchange Rate Policy. In *American Economic Policy in the 1980s*, ed. Martin Feldstein. Chicago: Chicago University Press.
- Bergsten, C. Fred and John Williamson. 1983. Exchange Rates and Trade Policy. In *Trade Policy in the 1980s*, ed. William R. Cline. Washington: Peterson Institute for International Economics.
- Bayoumi, Tamim, Joseph E. Gagnon, and Christian Saborowski. 2015. Official Financial Flows, Capital Mobility, and Global Imbalances. *Journal of International Money and Finance* 52 (April): 146-74.
- Bordo, Michael D., Owen F. Humpage, and Anna J. Schwartz. 2015. *Strained Relations: US Foreign Exchange Operations and Monetary Policy in the Twentieth Century*. Chicago: University of Chicago Press.
- Bordo, Michael D., Owen F. Humpage, and Anna J. Schwartz. 2010. *US Foreign-Exchange-Market Intervention in the Volcker Greenspan Era*. NBER Working Paper 16345 (September). National Bureau of Economic Research.
- Boughton, James M. 2001. *Silent Revolution: The International Monetary Fund 1979-1989*. Washington: International Monetary Fund.
- Catte, Pietro, Giampaolo Galli, and Salvatore Rebecchini. 1994. Concerted Interventions and the Dollar: An Analysis of Daily Data. In *The International Monetary System*, ed. Peter B. Kenen, Francesco Papadia, and Fabrizio Saccomanni. Cambridge, England: Cambridge University Press.
- Cross, Sam Y. 1983. Notes for F.O.M. C. Meeting. May 24. Available at <http://www.federalreserve.gov/monetarypolicy/files/FOMC19830524material.pdf> (accessed on July 8, 2015).
- Cross, Sam Y. 1985a. Notes for FOMC Meeting, February 13. Available at <http://www.federalreserve.gov/monetarypolicy/files/FOMC19850213material.pdf> (accessed on July 9, 2015).
- Cross, Sam Y. 1985b. Notes for FOMC Meeting, November 4-5. Available at <http://www.federalreserve.gov/monetarypolicy/files/FOMC19851105material.pdf> (accessed on July 9, 2015).
- Cross, Sam Y. 1985c. Treasury and Federal Reserve Foreign Exchange Operations: August-October 1985. *FRBNY Quarterly Review*, Winter 1985-1986, 1-8.
- Cross, Sam Y. 1985d. Treasury and Federal Reserve Foreign Exchange Operations: February-July 1985. *FRBNY Quarterly Review*, Autumn 1985, 1-18.
- Cross, Sam Y. 1987a. Notes for FOMC Meeting Held on March 31, 1987. Available at <http://www.federalreserve.gov/monetarypolicy/files/FOMC19870331material.pdf> (accessed on July 17, 2015).

- Cross, Sam Y. 1987b. Notes for FOMC Meeting Held on May 19, 1987. Available at <http://www.federalreserve.gov/monetarypolicy/files/FOMC19870519material.pdf> (accessed on July 17, 2015).
- Cross, Sam Y. 1987c. Treasury and Federal Reserve Foreign Exchange Operations: August-October 1987. *FRBNY Quarterly Review*, winter, 48-53.
- Destler, I. M. and C. Randall Henning. 1989. *Dollar Politics: Exchange Rate Policymaking in the United States*. Washington: Peterson Institute for International Economics.
- FRB (Board of Governors of the Federal Reserve System). 1984. *The US External Position, May 21, 1984*. Available at www.federalreserve.gov/monetarypolicy/files/FOMC19840522material.pdf (accessed on June 24, 2014).
- FRB (Board of Governors of the Federal Reserve System). 1985. Staff Presentation to the FOMC on Economic and Policy Implications of Exchange Rate Adjustments. Available at <http://www.federalreserve.gov/monetarypolicy/files/FOMC19851105material.pdf> (accessed on July 9, 2015).
- FRB (Board of Governors of the Federal Reserve System). 1987. Greenbook (February). Available at <http://www.federalreserve.gov/monetarypolicy/files/fomc19870211gbpt119870204.pdf> (accessed August 26, 2015).
- FRB St. Louis. Economic Data: Foreign Exchange Intervention. Available at <https://research.stlouisfed.org/fred2/categories/32145> (accessed on July 10, 2015).
- Fratzscher, Marcel. 2009. How Successful is the G7 in Managing Exchange Rates? *Journal of International Economics*. 79, no1:78-88.
- Funabashi, Yoichi. 1988. *Managing the Dollar: From the Plaza to the Louvre*. Washington: Peterson Institute for International Economics.
- G-5 (Group of Five). 1985a. Announcement by G-5 Ministers and Governors, Washington, DC, January 17. Available at <http://www.g8.utoronto.ca/finance/fm850117.htm> (accessed on July 9, 2015).
- G-5 (Group of Five). 1985b. Announcement of the Ministers of Finance and Central Bank Governors of France, Germany, Japan, the United Kingdom, and the United States, New York, September 22. Available at <http://www.library.utoronto.ca/g7/finance/fm850922.htm> (accessed on July 9, 2015).
- G-6 (Group of Six). 1987. Statement of the G6 Finance Ministers and Central Bank Governors. February 22. Available at <http://www.g8.utoronto.ca/finance/fm870222.htm> (accessed on July 17, 2015).
- G-7 (Group of Seven). 1982. Declaration of the Seven Heads of State and Government and Representatives of the European Communities. Versailles Summit, June 6. Available at <http://www.g8.utoronto.ca/summit/1982versailles/communique.html> (accessed on July 8, 2015).

- G-7 (Group of Seven). 1983a. Declaration on Economic Recovery. Williamsburg Summit, May 30. Available at <http://www.g8.utoronto.ca/summit/1983williamsburg/communique.html> (accessed on July 8, 2015).
- G-7 (Group of Seven). 1983b. Statement on the Intervention Study. April 29. Photocopy.
- G-7 (Group of Seven). 1986a. Statement of the Group of Seven Finance Ministers. September 27. Available at <http://www.g8.utoronto.ca/finance/fm860927.htm> (accessed on August 12, 2015).
- G-7 (Group of Seven). 1986b. Tokyo Economic Declaration. May 6. Available at <http://www.g8.utoronto.ca/summit/1986tokyo/communique.html> (accessed on July 17, 2015).
- G-7 (Group of Seven). 1987b. Venezia Economic Declaration. June 10. Available at <http://www.g8.utoronto.ca/summit/1987venice/communique/index.html> (accessed on July 17, 2015).
- G-7 (Group of Seven). 1987a. Statement of the G7 Finance Ministers and Central Bank Governors. December 22. Available at <http://www.g8.utoronto.ca/finance/fm871222.htm> (accessed July 17, 2015).
- G-7 (Group of Seven). 1993. Statement of the G7 Finance Ministers and Central Bank Governors. April 29. Available at <http://www.library.utoronto.ca/g7/finance/fm930429.htm> (accessed August 26, 2015).
- G-7 (Group of Seven). 2013. Statement of G7 Finance Ministers and Central Bank Governors. February 12. Available at <http://www.g8.utoronto.ca/finance/fm130212.htm> (accessed on July 20, 2015).
- Gagnon, Joseph E. 2015. Foreign Exchange Intervention since Plaza: The Need for Global Currency Rules. Paper prepared for Conference on Currency Policy Then and Now: The 30th Anniversary of the Plaza Agreement. October 15, 2015.
- Henderson, Dale W., and Stephanie Sampson. 1983. Intervention in Foreign Exchange Markets: A Summary of Ten Staff Studies. *Federal Reserve Bulletin* 69, no. 11 (November):830-836.
- Henning, C. Randall. 1994. *Currencies and Politics in the United States, Germany, and Japan*. Washington: Peterson Institute for International Economics.
- IMF (International Monetary Fund). 1993. *World Economic Outlook* (May). Washington: International Monetary Fund. Available at <http://www.imf.org/external/pubs/ft/weo/weo0593/> (accessed on August 11, 2015).
- IMF (International Monetary Fund). 2007. *IMF's International Monetary and Financial Committee Reviews Multilateral Consultation*. April 14. Washington: International

Monetary Fund. Available at <http://www.imf.org/external/np/sec/pr/2007/pr0772.htm> (accessed on July 20, 2015).

IMF (International Monetary Fund). 2013. "Decision on Bilateral and Multilateral Surveillance" July 24, 2012. In *Selected Decisions and Selected Documents of the International Monetary Fund*. Washington: International Monetary Fund. Available at <http://www.imf.org/external/pubs/ft/sd/2013/123113.pdf> (accessed on August 10, 2015).

IMF (International Monetary Fund). 2015a. *Factsheet: The G20 Mutual Assessment Process (MAP)* (March 15). Available at <https://www.imf.org/external/np/exr/facts/g20map.htm> (accessed on July 17, 2015)

IMF (International Monetary Fund). 2015b. *World Economic Outlook Database* (April). Available at <http://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx> (accessed on July 10, 2015).

Jurgensen, Philippe. 1983. *Report of the Working Group on Exchange Market Intervention* (March). Washington: US Treasury Department.

Klein, Michael, Bruce Mizrach, and Robert G. Murphy. 1991. Managing the Dollar: Has the Plaza Agreement Mattered? *Journal of Money, Credit, and Banking*. 23, no 4 (November): 742-751.

Marris, Stephen. 1985. *Deficits and the Dollar: The World Economy at Risk*. Policy Analyses in International Economics 14. Washington: Peterson Institute for International Economics.

Mulford, David. 2014. *Packing for India: A Life of Action in Global Finance and Diplomacy*. Lincoln, Nebraska: Potomac Books, the University of Nebraska Press.

Obstfeld, Maurice. 1990. Effectiveness of Foreign-Exchange Market Intervention. In *International Policy Coordination and Exchange Rate Fluctuations*, eds. William H. Branson, Jacob A. Frenkel, and Morris Goldstein. National Bureau of Economic Research. Chicago: University of Chicago Press.

Sarno, Lucio, and Mark P. Taylor. 2001. Official Intervention in the Foreign Exchange Market: Is It Effective and, If So, How Does It Work? *Journal of Economic Literature* 39 (September):839-68.

Takagi, Shinji. 2015. *Conquering the Fear of Freedom: Japanese Exchange Rate Policy Since 1945*. Oxford: Oxford University Press.

Truman, Edwin M. 1994. Comment on Concerted Interventions and the Dollar: An Analysis of Daily Data, by Pietro Catta, Giampaolo Galli, and Salvatore Rebecchini. In *The International Monetary System*, ed. Peter B. Kenen, Francesco Papadia, and Fabrizio Saccomanni. Cambridge, England: Cambridge University Press.

Truman, Edwin M. 2003. The Limits of Exchange Market Intervention. In *Dollar Overvaluation and the World Economy*, ed. C. Fred Bergsten and John Williamson. Washington: Peterson Institute for International Economics.

Truman, Edwin M. 2006. What Can Exchange Rates Tell Us? In *C. Fred Bergsten and the World Economy*, ed. Michael Mussa. Washington: Peterson Institute for International Economics.

Truman, Edwin M. 2014. *The Federal Reserve Engages the World (1970—2000): An Insider's Narrative of the Transition to Managed Floating and Financial Turbulence*. Peterson Institute for International Economics Working Paper 14-5 (August). Washington: Peterson Institute for International Economics. A revised version of the paper will appear in *The Federal Reserve's Role in the Global Economy: A Historical Perspective*. Forthcoming. Eds. Michael D. Bordo and Mark A. Wynne. Cambridge: Cambridge University Press.

US Congress, Joint Economic Committee. 1981. *International Economic Policy*. Hearings, 97th Congress, 1st session. May 4. Testimony of Beryl Sprinkel, 2-14. Available at <http://www.jec.senate.gov/reports/97th%20Congress/International%20Economic%20Policy%20%281064%29.pdf#page=16&zoom=auto,-269,191> (accessed on July 8, 2015).

Volcker, Paul A. 1985a. Testimony before the Joint Economic Committee (February 5). Available at http://fraser.stlouisfed.org/docs/historical/volcker/Volcker_19850205.pdf (accessed on July 9, 2015).

Volcker, Paul A. 1985b. Testimony before the Senate Budget Committee (February 8). Available at http://fraser.stlouisfed.org/docs/historical/volcker/Volcker_19850208.pdf (accessed on July 9, 2015).

Volcker, Paul A., and Toyoo Gyohten. 1992. *Changing Fortunes: The World's Money and the Threat to American Leadership*. New York: Random House.

Williamson, John. 1985. *The Exchange Rate System*. Policy Analyses in International Economics 5. Washington: Peterson Institute for International Economics.

Williamson, John. 2007. *Reference Rates and the International Monetary System*. Policy Analyses in International Economics 82 (January). Washington: Peterson Institute for International Economics.

Williamson, John, and Marcus H. Miller. 1987. *Targets and Indicators: A Blueprint for the International Coordination of Economic Policy*. Policy Analyses in International Economics 22 (September). Washington: Peterson Institute for International Economics.