U.S. Foreign Exchange Market Operations in the Twentieth Century

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The monograph provides a history of U.S. exchange market intervention. It describes the evolution of exchange rates as objectives of monetary policy, the historical development of the institutions for intervention, and the conflicts that arose between intervention and the Federal Reserve's monetary policy credibility.

~ We used **a unique data set** consisting of all official U.S. foreign exchange transactions that the Foreign Exchange Desk at the New York Federal Reserve Bank conducted between 1962 and 1995.

~ Although we had access to many internal Federal Reserve memorandum, we had no such material from the Treasury.

Overarching Thesis:

U.S. monetary policy evolved during the twentieth century from a near-exclusive focus on fixed exchange rates under the gold standard to a near-exclusive focus on price stability and full employment under floating exchange rates.

The fundamental trilemma of international finance constrained this evolution because it limited the number of objectives that monetary policy could achieve.

~ The trilemma posits that countries cannot simultaneous maintain fixed exchange rates, keep free cross border financial flows, and conduct an independent monetary policy. At best only 2 of the 3 can be achieved.

U.S. monetary authorities undertook foreign-exchange operations in an attempt to overcome the fundamental trilemma.

The United States ended foreign-exchange intervention in the 1990s because it interfered with the Fed's credibility for price stability.

Antecedents, Precedents & the ESF

Gold Standard: Under the gold standard, exchange rates were derivatives of official gold prices and could fluctuate within gold export and import points.

~ It anchored expectations about the long-run internal and external value of money by limiting monetary authorities' discretion.

~ Central banks could operate with some latitude within gold points, and countries adopted gold devices to effectively alter the gold points.

Gold Exchange Standard: Strong commitment to fixed exchange rates, but countries would no longer sacrifice internal economic conditions.

Exchange Stabilization Fund (ESF): Established in 1934. Intervened in the gold and exchange market in the 1930s to promote exchange-rate stability.

~ An attempt to provide an additional instrument to meet expanding policy objectives

Bretton Woods & the Decision to Intervene

The United States would buy or sell gold at $35 per oz.; other countries intervened to defend their exchange rates.

~ Triffin's paradox (***figure 1***) undermined the peg.

Problem: By the late 1950s, the U.S. began running a persistent and rising balance of payments deficit matched by a growing surplus in Western Europe. Because the dollar was the principal reserve currency, this lead to growing foreign dollar liabilities.

~ U.S. monetary authorities worried that the Europeans would convert their dollar holdings into gold, hence reducing the U.S. monetary gold stock and precipitating a run on the dollar.

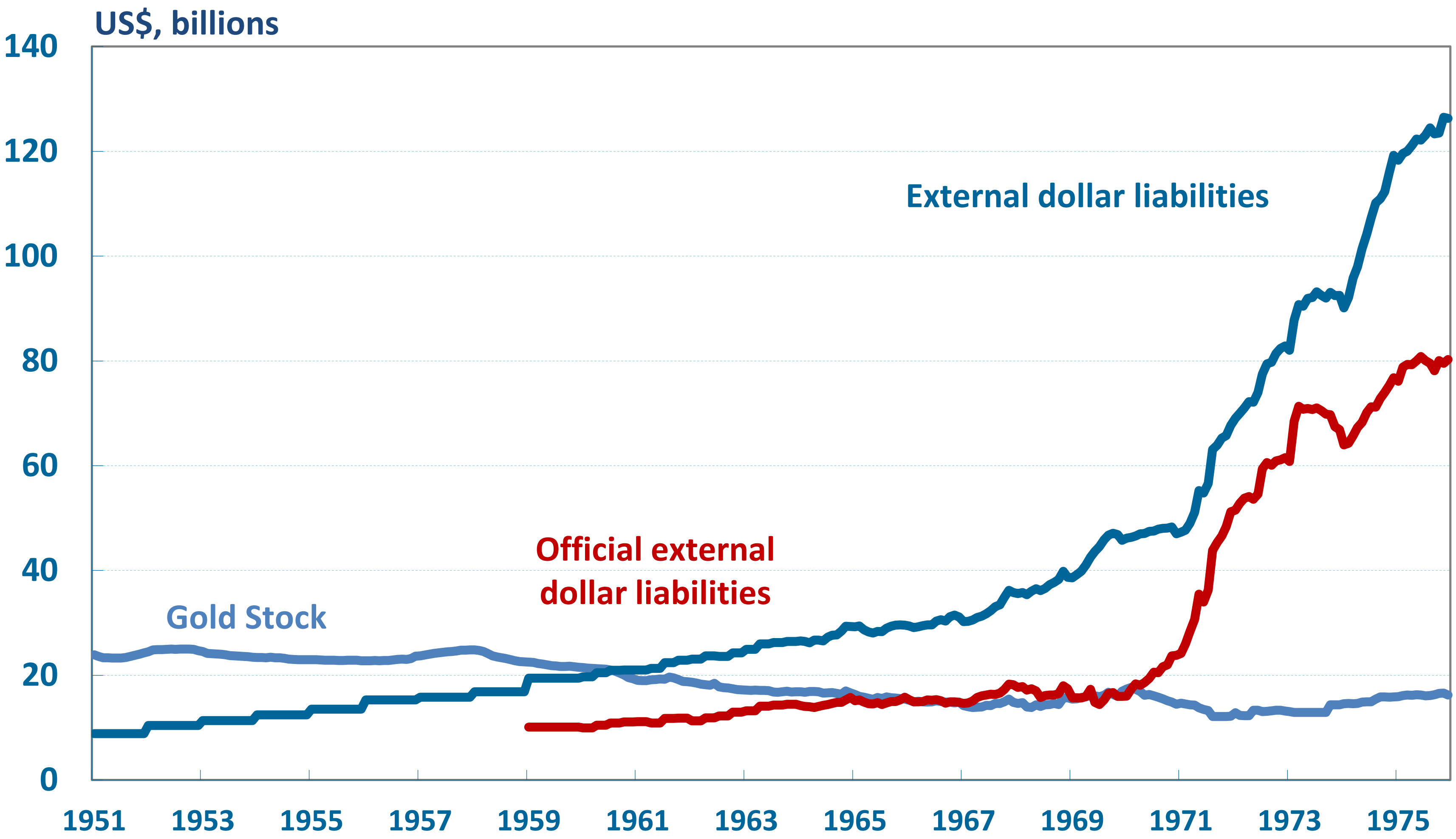
~ Ultimately to correct these imbalances, the dollar needed to depreciate in real terms. This could be achieved through raising the price of gold or by internal deflation.

~ Policy makers opposed devaluing the dollar or subverting domestic policy—then attempting to promote full employment and growth at potential—to international objectives.

~ To some extent the U.S. viewed developments as temporary, but they also looked for appreciations of foreign currencies.

~ U.S. adopts temporary palliatives, notably foreign-exchange intervention.

Figure 1: U.S. Gold Stock and External Liabilities



Source: Banking and Monetary Statistics 1941-1970. Washington D.C. Board of Governors of the Federal Reserve System. September 1976 Table 14.1, 15.1

Bretton Woods & the Decision to Intervene

1962: Federal Reserve, which sees itself as independent within the government, not of the government, participates with the U.S. Treasury.

~ **Hackley memo**: Various sections of the Federal Reserve Act, when considered together, authorize the System to hold foreign exchange, intervene in the spot and forward markets, and to engage in swaps with the market and U.S. Treasury.

~ **Other concerns**: 1) Circumvention of the appropriations process.
2) Treasury oversight of intervention for the System's account.
3) Board or FOMC function and role of the Special Manager.
4) Extent of intervention.

Bretton Woods & Reciprocal Currency Agreements

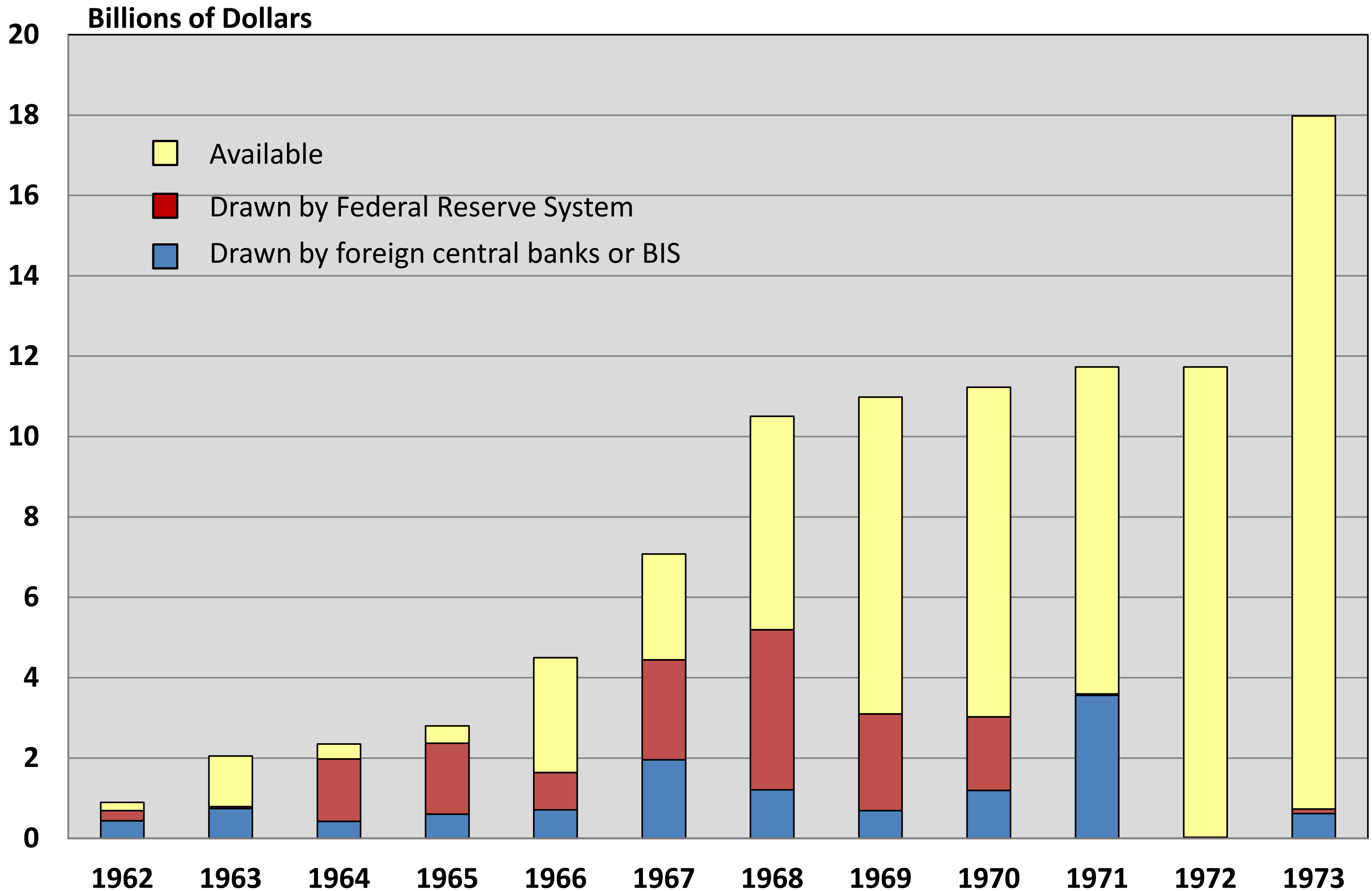
Swap lines were the main mechanism for intervention under Bretton Woods: Reciprocal lines with 14 key central banks growing to $11.2 billion by August 1971 (***figures 2 & 3***).

~ The System drew on swap lines primarily to **provide cover** to foreign central banks temporarily holding excess dollar balances. Thereby swaps reduced the potential drain on the U.S. gold stock.

~ Provided a source of **dollar liquidity** to foreign central banks with temporary balance of payments deficits to finance interventions.

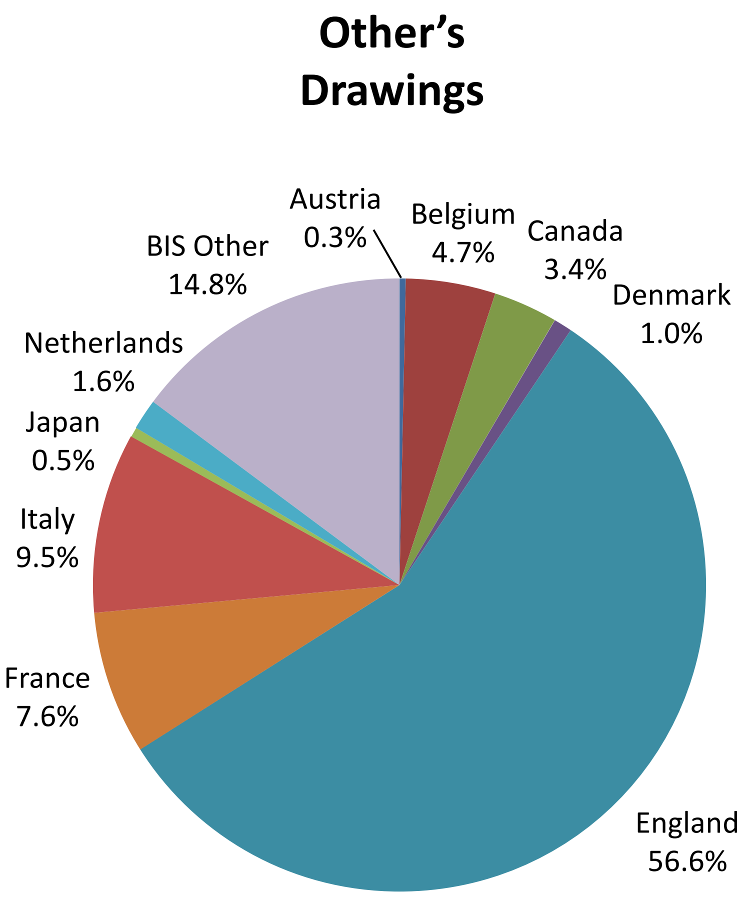
~ Raised the potential **cost of speculation**, signaled central-bank cooperation.

Figure 2: Federal Reserve Swap Lines 1962 –1973

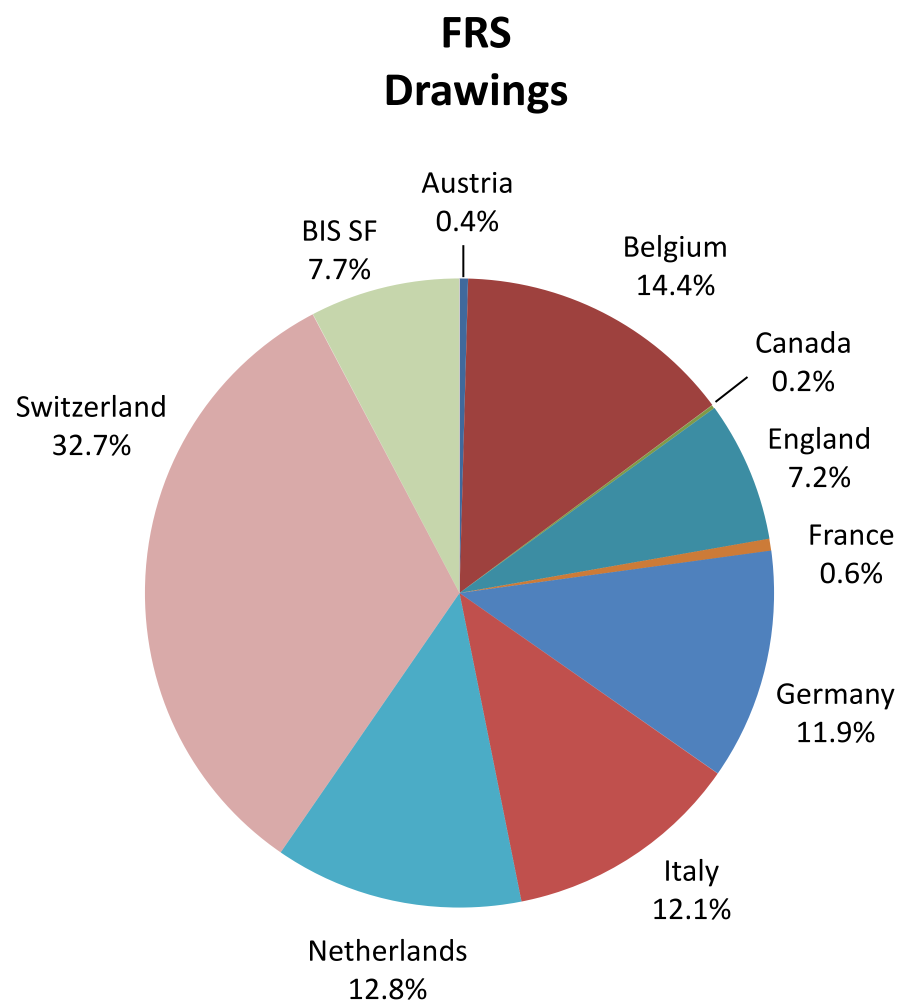


Source: Federal Reserve System

Figure 3: Composition of Swap Drawings 1962 –1971



Total: $15.3 billion



Total: $11.5 billion

Source: Federal Reserve System

Bretton Woods & Reciprocal Currency Agreements

Fed-Treasury **division of labor**: The Federal Reserve was the "first line of defense." The Treasury, because of its clearer authority for intervention, undertook operations of a longer-term nature, notably backstopping the swap lines.

Devaluation of the British Pound (November 1967)

The first major existential crisis.

The pound's weakness presented the Federal Reserve System with two problems: 1. Speculation against the pound left strong currency countries holding more unwanted dollars. 2. A sterling devaluation could create a run on the U.S. gold stock.

~ The Federal Reserve expanded the swap lines, both to provide the BoE with additional dollars and to provided additional support to the dollar.

~ The devaluation ended the Gold Pool and led to the adoption of a two tiered gold market.

Breakdown of Bretton Woods

Much of the turmoil between 1967 and 1969 stemmed from the adjustment problems of individual currencies, which created undesirable reshufflings of dollar reserves: e.g., the French franc and German mark crises.

By 1970, inflation in the United States had risen from less than 2% in 1965 to around 6% and **created a dollar crisis**.

~ The United States closed the gold window on 15 August 1971.

~ The United States devalued the dollar: $38 per oz. on 18 December 1971; $42 per oz. on 12 February 1973.

~ Joint float established by 12 March 1973.

The dollar's devaluation resulted in **heavy losses on swap drawings** and Roosa bonds because revaluation clauses did not apply.

Intervention and the Early Float

Initially the international community expected to return to fixed exchange rates, but fundamental economic conditions made this impossible. Eventually, policy makers realized that floating rates fostered macroeconomic stability better than fixed rates.

Underlying beliefs:

~ Foreign exchange markets were subject to periodic bouts of disorder stemming from information imperfections.

~ Official foreign exchange market intervention could direct rates along a path consistent with fundamentals and could reduce volatility.

The Federal Reserve never clearly explained an intervention transmission mechanism, and the operations seemed inconsistent with any transmission mechanism.

Intervention and the Early Float

The Fed only actively intervened to support the dollar. It usually drew on swap lines to finance intervention sales of foreign exchange. Consequently, it had to quickly buy foreign exchange to repay swap drawings.

The Desk claimed that intervention had a **psychological effect** that came about because the intervention expressed an official concern for the exchange rate.

~ Intervention was conducted covertly, which is inconsistent with providing information to the market.

Board staff routinely discussed intervention in a **portfolio balance framework** (*explained below*), in which intervention offers a way around the fundamental trilemma because it affects exchange rates without altering bank reserves.

~ The need to repurchase foreign exchange and repay swap drawings nullified any portfolio-balance effects.

Intervention and the Early Float

The dollar only gained strength after Volcker made his fundamental changes to U.S. monetary policy. Little evidence that intervention affected the exchange value of the dollar.

By 1978, foreign central banks—notably the Bundesbank—threatened to apply **conditions on further swap drawings**.

~ In response to this threat, the System began acquiring a substantial portfolio of foreign exchange in 1979 and in the early 1980s with which to finance future interventions.

On 17 April 1981, the **Treasury announced a minimalist approach** to intervention, noting that intervention did not affect fundamental determinants of exchange rates and that monetary authorities did not routinely have an information advantage over the market.

Intervention (How it might work)

Portfolio-balance channel: The act of sterilizing an intervention increases the stock of publicly held bonds denominated in the currency that the central banks want to depreciate relative to publicly held bonds denominated in the currency that the central banks want to appreciate. If these bonds are imperfect substitutes, the public will demand a risk premium to hold the abundant bond. This risk premium comes about through a spot depreciation of the currency being sold.

~ Virtually no empirical support for the portfolio-balance channel.

Expectations Channels: Sterilized intervention can affect an exchange rate if the central bank has an information advantage relative to the market.

~ ***Signaling*** (1980s early 1990s): The central bank has better information about future monetary policy and uses intervention to signal that information.

~ ***Broad***: The central bank sometimes has better information about fundamentals or other developments than the market.

Intervention (Did it work?)

Between 1973 and 1997, U.S. sales or purchases of foreign exchange did not seem to foster a dollar appreciation or depreciation. Speculators who knew the United States was intervening could have taken a position opposite the Federal Reserve and made money on average.

Between 1973 and 1997, U.S. interventions were associated with more moderate movements in the dollar, but only about one in four interventions were successful in this sense.

Combining these two criteria, only about 60% of all U.S. interventions were successful—a number not different than random.

Intervention under Volcker & Greenspan

The Federal Reserve System underwent a long—sometimes tentative—process of rebuilding its credibility under the Volcker and Greenspan chairmanships.

~ Eventually, the System found that sterilized intervention did not provide an additional instrument with which to systematically affect exchange rates independent of monetary policy. It did not afford a means of breaking the fundamental trilemma of international finance.

~ More importantly, by the late 1980s and through the early 1990s, the FOMC determined that sterilized intervention and the associated institutional arrangements for intervention undermined its credibility for price stability—its key policy objective.

Intervention under Volcker & Greenspan

The **Jurgensen Report** (1983) was the first official study of intervention. It was imprecise and failed to clearly address the critical issue: Did intervention provide an additional independent instrument?

~ The report indicated that unsterilized intervention was more effective than sterilized intervention and that in the face of persistent market pressures sterilized intervention was ineffective and that **"supportive" domestic monetary policy changes were necessary**.

In February 1985, James Baker became U. S. Secretary of the Treasury. He pursued macroeconomic policy coordination to resolve perceived global imbalances. Unlike his predecessor—Donald Regan—Baker had never objected to intervention.

~ He undertook the Plaza Accord to promote a dollar depreciation and then the Louvre Accord to stabilize the now depreciated dollar. He attempted to influence monetary policy through international policy coordination.

Plaza and Louvre Accords

Plaza Accord: On 22 September 1985 the G5 agreed to concerted intervention to promote a dollar depreciation.

~ The dollar had been depreciating since early in 1985 in response to an easing in monetary policy.

~ The interventions were "massive," closely coordinated, and highly visible to the markets (see figures 4 & 5)

~ The primary effect was to induce a one-shot depreciation immediately after the announcement of the Accord.

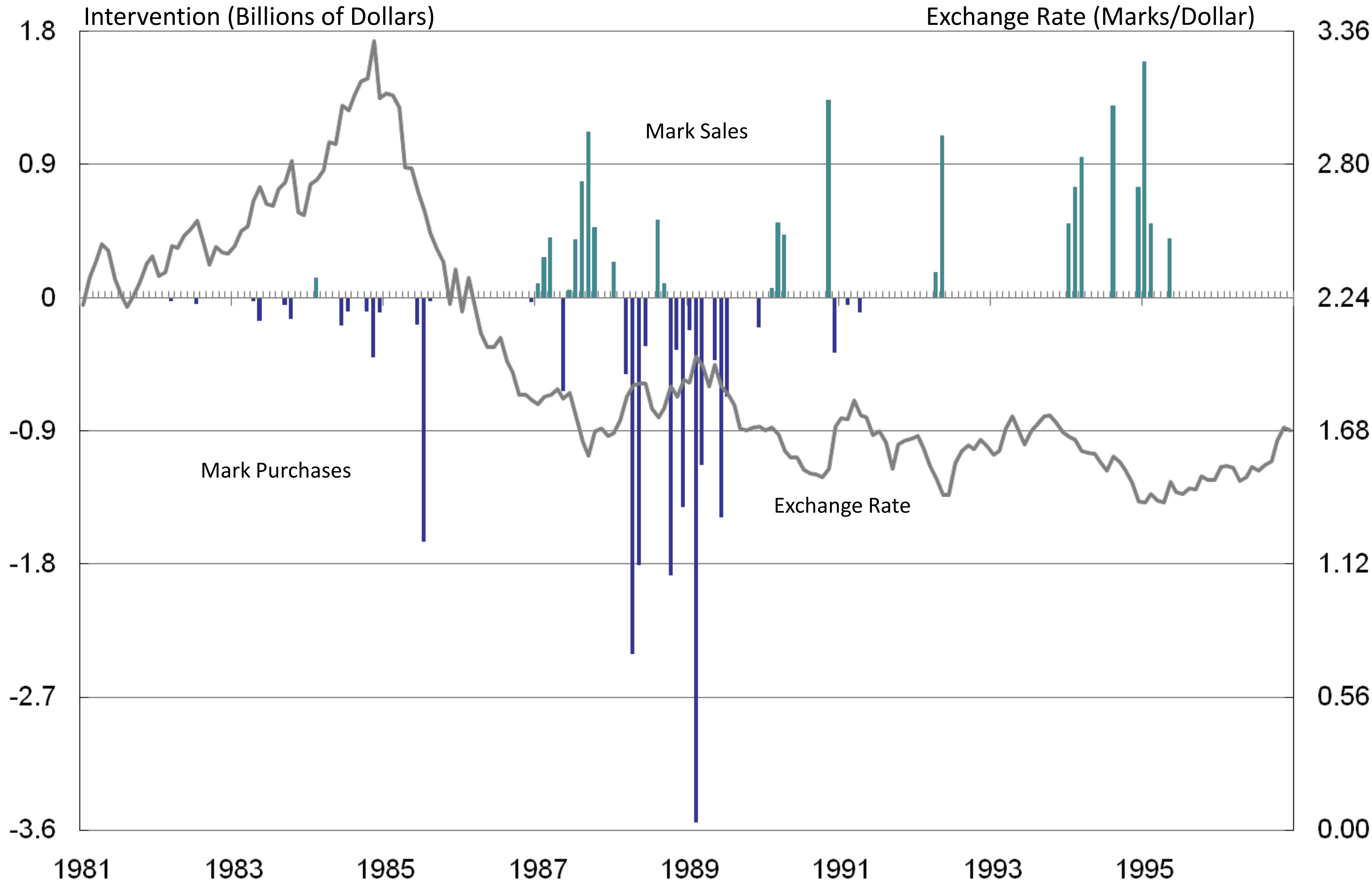
Louvre Accord: On 22 February 1987, the G6 agreed to concerted intervention to stabilize the dollar within unannounced target ranges.

~ The interventions were again large, closely coordinated, and highly visible to the markets (see figures 4 & 5)

Intervention in this period seemed **no more effective than in other periods** even though it was closely coordinated and large in size.

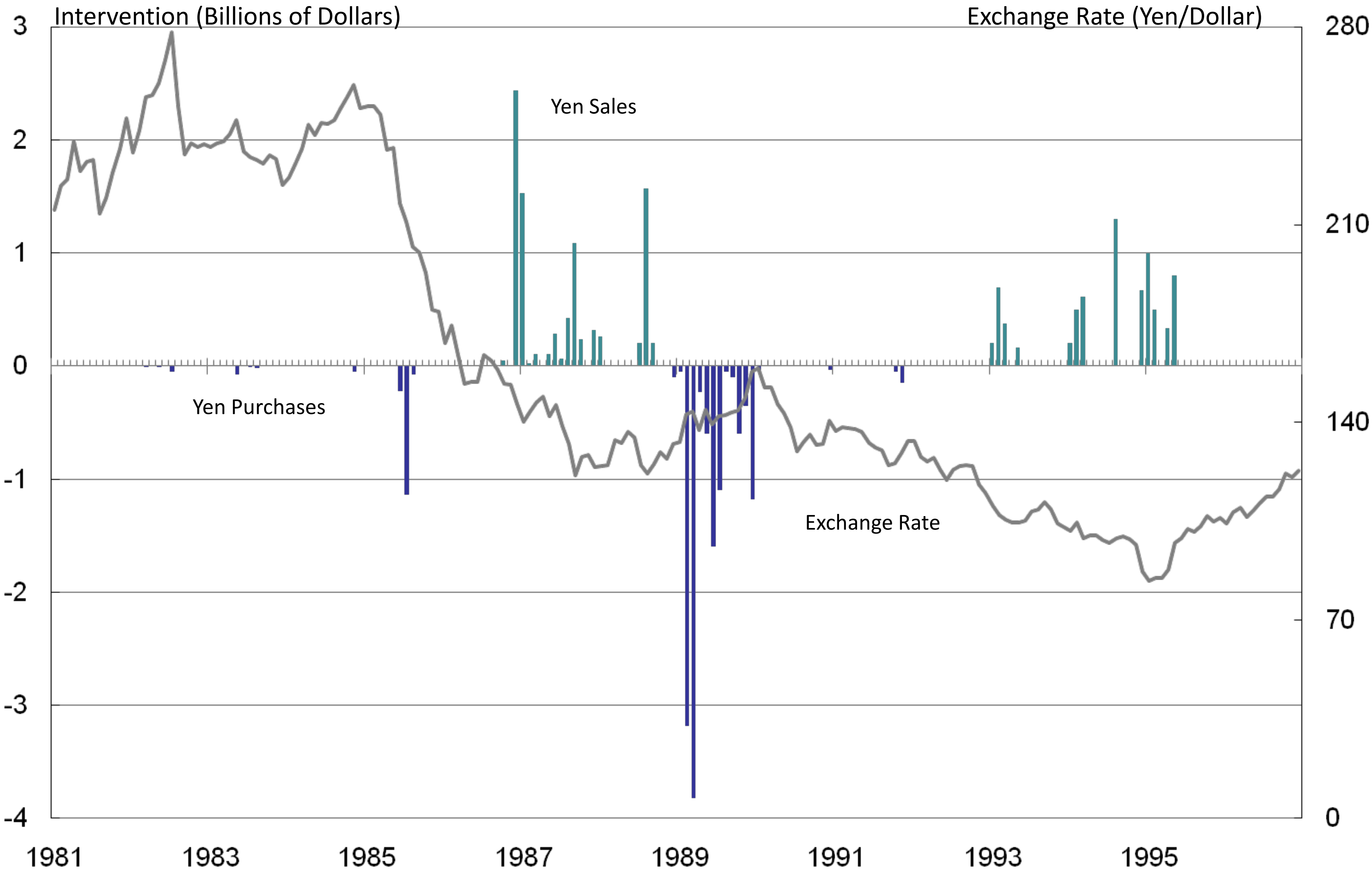
Figure 4: U.S. Intervention against German Marks

April 1981 – March 1997



Sources: Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York

Figure 5: U.S. Intervention against Japanese Yen
April 1981 – March 1997



Sources: Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York

Intervention under Volcker & Greenspan

The friction between monetary policy and sterilized foreign-exchange intervention first heated up following the **October 1987 stock-market crash**.

~ Over the following few weeks, the System used high-profile techniques to inject liquidity into the banking system. The dollar depreciated, prompting heavy, concerted intervention to support the dollar.

~ "…I find it a little anomalous that we are draining reserves to defend the dollar while, at the same time, we are adding reserves to add liquidity to the domestic economy." (Forrestal, FRB-A.)

~ At least this did not undermine Fed credibility for price stability.

During the last half of 1988, intervention and monetary policy became incompatible.

~ "…when we are doing consistent interventions and it's **working in the other direction from our open market operations**, it does run the risk…of confusing the federal funds market….we don't want this uncertainty." (Johnson, BoG)

Intervention under Volcker & Greenspan

At this point, the U.S. Treasury was typically leading the foreign exchange operations, often with broad G7 support.

~ Boehne (FRB-Phil.) in an apparent **reference to the Jurgensen Report**, suggested the policy makers must be contemplating some other policy changes (e.g., U.S. monetary policy easing) because intervention had only a temporary effect when not supported by other policy moves.

~ FOMC members, increasingly upset with intervention, began to question the usefulness of **warehousing**—a special swap arrangement in which the Federal Reserve accepted foreign exchange from the Treasury in exchange for dollars.

Greenspan (3 October 1989) indicated that the U.S. Treasury and the Japanese MoF were the driving force behind recent large interventions. He could not bring intervention to an abrupt halt, but he would try to contain the damage.

Intervention under Volcker & Greenspan

By 1990, some FOMC members were suggesting that the System refuse to intervene for its own account or severely limit its participation with the Treasury in foreign exchange intervention—an Accord II.

In 1990, the Treasury's views about the effectiveness of intervention began to inexplicably change. U.S. intervention started to become much less frequent, but it still continued.

In 1992, the United States intervened to depreciate the strong German mark in cooperation with the Europeans. U.S. authorities did not view this as a dollar problem.

~ While the Desk was buying dollars, Treasury Secretary Brady publically called for lower interest rates.   He seemed to sabotage the operation and interfere with monetary policy.

~ The debate within the FOMC renewed and focused increasingly on the System's credibility of monetary policy.

Intervention under Volcker & Greenspan

The Richmond Critique: Broaddus and Goodfriend (1996) clearly articulated the debate within the FOMC during the early 1990s.

~ Sterilized intervention and the institutions associated with it damage the System's credibility for price stability. The System's credibility was purely reputation-based. Keeping the System free of political influence was essential to its credibility.

~ Sterilized intervention was ineffective—as everyone understood—unless monetary policy supported it.

~ Participation in sterilized operations under the Treasury's leadership –often within G7 forums—must create uncertainty about the System's ability to undertake an independent monetary policy.

This sentiment—not concerns about the empirical effectiveness of sterilized intervention—ended the FOMC's support for intervention.

~ The active U.S. intervention policy ended in 1995.

Mexican Crisis, Warehousing & Swap Lines

Although the FOMC worried that warehousing and swap lines could threaten its independence, that specific issue never became critical until the peso crisis of 1994 and 1995.

Mexico devalued on 20 December 1994. This precipitated a financial crisis.

After **Congress refused to finance a bailout**, the Clinton administration arranged a $12 billion bailout for Mexico with $6 billion from Europe and $6 billion from the United States. The administration also offered Mexico $20 billion in other possible loans and loan guarantees. The IMF chipped in $17.8 billion in credits and the BIS offered a $10 line of credit.

~ Half of the U.S. funds would come from a **temporary $3 billion Federal Reserve swap line**. The System would also increase its existing Mexican swap line from $700 million to $3 billion.

~ To back up future possible loans and loan guarantees, the administration asked the Federal Reserve to **warehouse up to $20 billion** for the Treasury, possibly for as long as ten years.

Mexican Crisis, Warehousing & Swap Lines

Many on the FOMC objected to the Federal Reserves involvement. First, Congress could easily interpret the extension of the swap lines and the warehousing limits as a Fed subversion of its will and the appropriations process. Second, the operations set a dangerous precedent.

In the end, the Treasury never warehoused currencies with the Federal Reserve and Mexico quickly repaid its swap drawings.

The System has not warehoused funds with the Treasury since 1992 and the System eliminated its extensive initial swap network in 1999 when the euro was established.

Lessons

Sterilized foreign-exchange-market intervention does not affect fundamental determinants of exchange rates and, therefore, does not afford monetary authorities a means of ***systematically*** affecting exchange rates independent of their domestic monetary-policy objectives.

Persistent use of sterilized intervention can create uncertainty about the willingness and ability of a central bank to meet its domestic policy objectives, specifically price stability.

~ This is especially important for central banks whose fiscal authorities have primary control over foreign exchange operations.

These concerns do not mean that intervention is entirely ineffective or inappropriate, but its ability to affect exchange rates seems more of a hit-or-miss proposition than a sure bet.

~ Central banks do not ***routinely*** have better information than the market.

Epilogue

Central banks—notably Japan, Switzerland, and China—still undertake sterilized, partially sterilized, and unsterilized foreign exchange market interventions.

The United States still maintains a substantial portfolio of euros and Japanese yen for intervention purposes.

~ The United States intervened on 22 September 2000 to support the euro and on 18 March 2011 to prevent a yen appreciation following the Japanese earthquake and tsunami.

~ These actions were in large part to demonstrate international cooperation.

~ Will we soon intervene against the euro or drachma?

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