

DISCUSSION PAPER SERIES

DP12425

**THE GOLD POOL (1961-1968) AND THE
FALL OF THE BRETTON WOODS
SYSTEM. LESSONS FOR CENTRAL
BANK COOPERATION.**

Michael D Bordo, Eric Monnet and Alain Naef

**ECONOMIC HISTORY and
INTERNATIONAL MACROECONOMICS
AND FINANCE**



THE GOLD POOL (1961-1968) AND THE FALL OF THE BRETTON WOODS SYSTEM. LESSONS FOR CENTRAL BANK COOPERATION.

Michael D Bordo, Eric Monnet and Alain Naef

Discussion Paper DP12425
Published 06 November 2017
Submitted 06 November 2017

Centre for Economic Policy Research
33 Great Sutton Street, London EC1V 0DX, UK
Tel: +44 (0)20 7183 8801
www.cepr.org

This Discussion Paper is issued under the auspices of the Centre's research programme in **ECONOMIC HISTORY and INTERNATIONAL MACROECONOMICS AND FINANCE**. Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as an educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: Michael D Bordo, Eric Monnet and Alain Naef

THE GOLD POOL (1961-1968) AND THE FALL OF THE BRETTON WOODS SYSTEM. LESSONS FOR CENTRAL BANK COOPERATION.

Abstract

The Gold Pool (1961-1968) was one of the most ambitious cases of central bank cooperation in history. Major central banks pooled interventions – sharing profits and losses – to stabilize the dollar price of gold. Why did it collapse? From at least 1964, the fate of the Pool was in fact tied to sterling, the first line of defense for the dollar. Sterling's unsuccessful devaluation in November 1967 spurred speculation and massive losses for the Pool. Contagion occurred because US policies were inflationary and insufficiently credible as well. The demise of the Pool provides a striking example of contagion between reserve currencies.

JEL Classification: F31, N14, E42, F33

Keywords: Gold Pool, Bretton Woods, reserve currencies, central bank cooperation, international monetary system, sterling crisis

Michael D Bordo - bordo@econ.rutgers.edu
Rutgers University, NBER

Eric Monnet - Eric.MONNET@banque-france.fr
Banque de France, Paris School of Economics and CEPR

Alain Naef - an445@cam.ac.uk
University of Cambridge

Acknowledgements

We thank the archivists of the Bank of International Settlements, the Bank of England, the New York Fed and the Banque de France for their help. Piet Clement kindly shared by email some additional documents. Kathleen Rasmussen guided us to the US Department of State online archives. We are grateful to seminar participants at the University Paris 1 Sorbonne, the credit, currency and commerce conference (University of Cambridge), Saint Louis Fed and World Cliometrics Congress for comments. We are indebted to Owen Humpage, Walter Jansson and Catherine Schenk for comments on previous drafts. We also thank David Chambers for sharing data. The views expressed in this paper do not represent the opinion of the Banque de France and Eurosystem.

The Gold Pool (1961-1968) was one of the most ambitious cases of central bank cooperation in history. In the early 1960s, the main central banks of the Western World decided to pool their interventions in the gold market to ensure the stability of the international monetary system. They coordinated their purchases and sales of gold in London to stabilize the gold-dollar parity on which the whole Bretton Woods system was built. They shared profits and losses from common operations.

The Gold Pool worked effectively for almost seven years but ultimately collapsed. The consequences were important: members of the Pool experienced large losses and it triggered the creation of a two-tier gold market (which *de facto* seriously threatened gold-dollar convertibility; cf. Bordo, 1993), leading to the fall of the Bretton Woods system a few years later.

The history of the Gold Pool is a milestone in understanding the functioning and collapse of the Bretton Woods system. More generally, it provides an excellent example for the study of the success and failures of central bank cooperation, as well as of the status of a reserve currency in the international monetary system.

So why did the Gold Pool collapse after several years of operation? Previous research has argued that the Gold Pool suffered from a flawed design which could not prevent free-riding by its members (Eichengreen, 2010) and that central banks finally left the Pool because they experienced financial losses (Toniolo and Clement 2005). Such arguments about the benefits and the design of cooperation, however, cannot explain why the Gold Pool ended in March 1968 and why it had operated quite successfully before that. Why did the Gold Pool not experience major losses before 1967? In particular, why did it survive despite the notorious non-cooperative behavior of the French in 1965 (Bordo, White and Simard 1995, Monnet 2013, 2017)?

In this paper, we show that the devaluation of sterling in November was an external shock that caused major losses for the Gold Pool, leading to its demise. This link between sterling and the market price of gold was not a sudden phenomenon arising in 1967 but a key feature of the international monetary system since at least the troubles of sterling in the fall of 1964. Our contention is that contagion between reserve currencies, rather than non-cooperative behavior, explains the failure of the Pool. Our argument echoes claims by contemporaries (as quoted in Coombs 1976, Solomon 1982, Gavin 2004, Schenk 2010) who viewed sterling as the first line of defense for the dollar and anticipated that the fall of sterling would deliver a serious blow to the credibility of the gold-dollar parity.¹ Contagion from sterling to the dollar was made possible because sterling was the second reserve currency (Eichengreen et al. 2016) and, despite its decreasing role, it was still viewed by investors as a pillar of the international monetary system (Schenk 2010, Naef 2017). It was understood that a devaluation of sterling could make a devaluation of the dollar possible, while the gold-dollar peg was itself under pressure because of expansionary US monetary and fiscal policies leading to inflation (Meltzer 1991, Bordo and Eichengreen 2008). Put differently, domestic inflationary US policies were a necessary condition for contagion whereas a sterling crisis turned to be the sufficient condition that triggered speculation on the gold-dollar parity.

Our argument is based on evidence from a vast amount of previously unused archival material and historical statistics, mostly from the BIS and the Bank of England, complemented with other primary sources from French and US institutions.² We are able to

¹ American policymakers in the 1960s were aware of the systemic risk of sterling for international stability and this is why they repeatedly supported sterling rescue packages under the umbrella of the BIS and through swap agreements. However, as explained by Schenk (2010, 205 et al.), the discussions on the troubles of sterling in the 1960s were conducted in a separate forum from those on the role of the dollar and the demand for global liquidity.

² The BIS and the Bank of England were the two key institutions of the Pool since coordinated decisions were taken at the BIS and were implemented by the Bank of England, the operator of the Pool. The quantitative analysis and the narrative based on BIS and Bank of England archives is complemented with archives from the New York Fed, the US State Department, the Banque de France, as well with writings of contemporary

study two key policy actions which were not publicly observable in the 1960s: central banks' demand for gold at the US Treasury (including demand by the Bank of England to settle Gold Pool operations) and Gold Pool interventions. From this, we first show that the dramatic decline in US gold reserves in 1967, leading to the demise of the Pool, was not caused primarily by free-riding by other central banks. Instead, US gold reserves fell because the Gold Pool worked as expected and experienced losses. The figures for gold purchases at the US Treasury gold window show that Gold Pool interventions accounted for three-quarters of the massive decline in US gold reserves in the last quarter of 1967. During these months, outside of Gold Pool operations, demand for gold at the US gold window was neither exceptional nor unprecedented (much less important than the French demand in 1965, the year of the De Gaulle speech on the role of the US dollar). Second, we use daily data on Gold Pool interventions, gold prices and sterling exchange rates to study the link between sterling and the credibility of the gold-dollar peg. Econometric results point out that the London dollar price of gold was influenced by the sterling forward rate, well before the November 1967 sterling crisis and devaluation. The credibility of the gold-dollar parity was influenced by the credibility of the pound, especially since the 1964 sterling crisis which appears as a turning point in the history of the dollar price of gold and Gold Pool interventions.³ Estimations with monthly data (where we are able to control for a wider set of variables) confirm these results and show that Gold Pool interventions were also triggered by US

economists and memoirs of some key US figures of the Gold Pool (Charles Coombs, the Vice-President of the New York Fed and Robert Solomon, chief international economist for the Federal Reserve Board). The data on central banks' demand for gold at the Federal Reserve were found in the BIS archives (reports for the gold expert meeting) and could not have been accessed at the New York Fed because of restrictions: US gold transactions with specific account holders/foreign central banks are currently not accessible to researchers. Monthly figures of Gold Pool interventions were displayed on a graph by Toniolo and Clement (2005, 419), based on various sources from the BoE and BIS archives, but it did not lead to a quantitative analysis. Our paper is the first to use daily series of prices and interventions.

³ Absent common unobserved shocks that would systematically cause a joint depreciation of sterling and dollar, a negative correlation between the dollar price of gold and the dollar price of sterling is interpreted as contagion between these currencies: the dollar depreciates relative to gold when sterling depreciates relative to the dollar. Absent contagion, the 1967 sterling devaluation should have been a positive confidence shock for the gold-dollar parity since it implied an appreciation of the (real & nominal) effective exchange rate of the dollar. The opposite phenomenon occurred.

domestic variables such as inflation and the government deficit. The demand for gold on the London market (i.e. betting against the dollar) was influenced both by US domestic policies and stress on sterling. However, before the 1967 devaluation, the magnitude of these effects was not large enough to significantly affect US gold reserves through losses of the Pool, and it is only in December 1967 that the US gold stock experienced a sudden break.⁴

Our paper contributes to several strands of literature. First, the study of the Gold Pool sheds light on the wide literature on central bank cooperation. Whereas theoretical literature (Oudiz and Sachs, 1985, Rogoff 1985, Taylor 1985, 2013, Benigno and Benigno 2006, Engel 2016) views central bank cooperation as the coordination of monetary policy (i.e. setting the interest rate taking into account the international externalities), the historical literature (Eichengreen 1992, 2010, James 1996, Bordo and Schwartz 1999, Toniolo and Clement 2005, Bordo, Humpage and Schwartz 2015, Bordo and Schenk 2017) has shown that actual central bank cooperation was mostly “technical” (loans, swaps, reserve pooling, exchange rate management, etc.) rather than coordination of economic policies. Cooperation was directly aimed at stabilizing the international monetary system through foreign exchange transactions rather than obviating spillovers onto domestic monetary policy reaction functions. A key – but unsolved and rarely addressed – question is whether technical cooperation can be effective without monetary policy rules or without monetary policy coordination. The history of the Gold Pool shows that technical cooperation may lead to unexpected unfavorable outcomes if it is not sustained by rules-based domestic policies (i.e., in the context of the 1960s, policies that are able to ensure the stability of the peg), as argued by Bordo and Schenk (2017) in a more general context.

⁴ The reasons why US gold reserves were not significantly affected by sterling fluctuations before 1967 are twofold. First, Gold Pool losses remained minor because sterling’s troubles were contained (partly thanks to international help, see Schenk 2010). Second, the Bank of England let the gold price rise, within acceptable margins. In November 1967, the gold price was already close to its maximum (\$35.20 per ounce).

Second, the relationship between sterling and the dollar during the 1960s offers a unique case study about a multipolar international monetary system (i.e. with several reserve currencies). The literature on this subject is often divided between Nurkse (1944)'s argument on the destabilizing effect of having two leading currencies (because of frequent switches from one to another) and the opposite argument that states that a system with multiple currencies provides more stability because it diminishes the privilege of the hegemon and provides more insurance against risk. In a recent theoretical contribution, Farhi and Maggiori (2016) discuss conditions under which these respective arguments hold. Eichengreen (2012) discusses how these issues are still relevant today, as a multipolar currency system, he posits, is likely to emerge. Absent from this literature, however, is the possibility of contagion between the leading currencies. The story of the Gold Pool highlights that such contagion can occur and may even be more likely when the two reserve countries are tied by cooperative agreements. It is all the more striking that the contagion from sterling to the dollar occurred in the late 1960s when the role of sterling as a reserve currency was rapidly decreasing.⁵ However, the perceived role of sterling by markets and policymakers exceeded its actual role in the international monetary system (Schenk 2010).

Finally, our analysis casts a new light on the fall of the Bretton Woods system. The role of sterling in the demise of the Gold Pool is not necessarily inconsistent with arguments that state that the Bretton Woods system was doomed to failure (for example because of the Triffin dilemma or other structural flows). However, the empirical analysis presented in this paper emphasizes that the market dollar price of gold was impacted primarily both by US domestic policies and the sterling exchange rate. We show that the Gold Pool did not need to sell gold continuously during the 1960s in order to support the dollar. Only in some circumstances, because of political factors (1960 US elections, 1962 Cuban Missile Crisis,

⁵ According to IMF statistics on foreign exchange reserves, the share of sterling in global foreign exchange reserves was around 25% (at current exchange rates) before the November 1967 sterling devaluation. This is a similar share as the Euro in 2013 (Eichengreen, Chițu & Mehl, 2016).

1964-1967 sterling crises, etc.) did the Pool have to heavily intervene to calm down the market. It was an external negative shock coming from the UK that delivered the fatal blow to the Gold Pool, given the inconsistent path of US monetary policy with respect to maintaining the nominal anchor of the Bretton Woods system. By contrast, during some years (1962, 1963 and some months of 1965-1966), the London gold market could function smoothly with the Gold Pool being able to build up reserves, in spite of the continuously decreasing share of gold in total world foreign reserves. These empirical observations suggest that, contrary to what Triffin argued, the gold-dollar parity did not suffer systematically from a structural problem during the 1960s. Thus, a different counterfactual emerges – closer to the views of Despres, Salant and Kindleberger (1965) or McKinnon (1969) – where it is possible to imagine that absent US inflationary policy and the 1967 sterling crisis, the Bretton Woods system could have evolved very differently. This paper re-assesses the role of historical contingencies in the process that led to the end of the Bretton Woods system.

1. Context and Issues

a. The Bretton Woods System, the dollar and sterling

The Bretton Woods System (BWS) was created by the 1944 Articles of Agreement to design a new international monetary order for the post war period at a global conference organized by the US Treasury at the Mount Washington Hotel in Bretton Woods, New Hampshire, at the height of World War II.⁶ It was established to avoid the perceived problems of the interwar: protectionism, beggar-thy-neighbor devaluations, hot money flows and unstable exchange rates, and to provide a framework of monetary and financial stability to foster global economic growth and the growth of international trade.

⁶ This section draws partly on Bordo (2017).

The system was a compromise between the fixed exchange rates of the gold standard, seen as conducive to rebuilding the network of global trade and finance, and the greater flexibility to which countries had resorted to in the 1930s to restore and maintain economic and financial stability. The Articles represented a compromise between the American plan of Harry Dexter White and the British plan of John Maynard Keynes. The compromise created an adjustable peg system based on the US dollar convertible into gold at \$35 per ounce along with capital controls. The compromise gave members both exchange rate stability and the independence for their monetary authorities to maintain full employment. The IMF, based on the principle of a credit union, whereby members could withdraw more than their original gold quotas, was established to provide temporary relief for current account shortfalls.

It took close to fifteen years to get the Bretton Woods system fully operational. A number of overwhelming obstacles stood in the way including bilateralism; the dollar shortage; the role of the IMF which was not equipped to deal with the post war reconstruction problem which was dealt with by the Marshall Plan, and other US aid including the Anglo-American loan of 1945. In a sense the US replaced the IMF, whose resources were inadequate to provide global liquidity. The difference between the growth of international reserves required to finance the growth of real output and trade and avoid deflation and the growth of the world's monetary gold stock was met largely by an increase in official holdings of US dollars resulting from the US balance of payments. By the time full current account convertibility was achieved in December 1958, the US dollar was serving the buffer function for which the articles intended the Fund's resources (Mundell 1969a).

The final development that preceded the full operation of the Bretton Woods system was the decline of sterling as a reserve currency. At the outset it was expected that sterling would play an important role in the post war period. At the end of World War II, Britain ran a massive balance of payments deficit in gold and dollars. It also had an outstanding sterling

debt of 3.7 billion pounds amassed by borrowing from the British Empire, most of which was made inconvertible into dollars. The 1946 Anglo American Loan of \$3.75 billion from the US and \$1.25 billion from Canada were to allow Britain to ratify the Bretton Woods Articles and restore current account convertibility in dollars. Current account convertibility was restored on July 15 1947 quickly followed by a run on sterling which rapidly depleted the UK's reserves and led to the suspension of convertibility on August 20, 1947. This event, as well as the devaluation of sterling in 1949, greatly weakened sterling's credibility as a reserve currency.

The convertible Bretton Woods System that began at the end of 1958 differed in a number of ways from the system intended by its architects. These included the dominance of the United States in the international monetary order, the reduced prestige of the IMF, the rise of the dollar as a key currency and the decline of sterling, a shift from the adjustable peg system towards a de facto fixed exchange rate system and growing capital mobility.

Although the Bretton Woods system was short lived, it lasted in its convertible phase from 1959 to 1971, and it had many problems. Its economic performance in terms of growth, stability and low inflation was better than any other period in the past 150 years with the exception of the Great Moderation from 1983 to 2006 (Bordo and Schwartz 1999, Benati and Goodhart 2010). As the BWS evolved into a gold dollar standard, the three big problems of the interwar gold exchange standard re-emerged: the *adjustment*, *confidence* and *liquidity* problems.

The *adjustment* problem in Bretton Woods reflected downward rigidity in wages and prices which prevented the normal price adjustment of the gold standard price specie flow mechanism to operate. Consequently, payments deficits would be associated with rising unemployment and recessions. This was the problem faced by the UK between 1959 and 1967 as it alternated between expansionary monetary and fiscal policies designed to maintain

full employment and encourage economic growth and austerity—stop-go. The expansionary policy inevitably led to deterioration in the current account, a decline in international reserves and speculation against the sterling parity. On several occasions, standby loans were drawn from the IMF and rescue packages arranged by the G10 through the BIS. These took place in 1957, 1961 and 1964 (Schenk 2010). The final crisis occurred in 1966-67 ending in sterling's devaluation in November 1967. For surplus countries like Germany and the Netherlands inflationary pressure would ensue, which they would try to block by sterilization and capital controls.

A second aspect of the adjustment problem was asymmetric adjustment between the United States and the rest of the world. The dollar emerged into prominence because of the sheer size of the role the US played in the world economy, its importance in world trade and its open and deep capital markets. By the 1960s it was used as a unit of account in invoicing imports and exports, as a medium of exchange in serving as a vehicle currency for interbank transactions, and as a store of value for private claims for much of the world. At the same time, the dollar emerged as official international money. This stemmed from its use as a unit of account to define the parities of the member countries and because the dollar was used as the primary intervention currency. Finally, because of its role as a unit of account and a medium of exchange and its growing private acceptance, it became the dominant international store of value to be used as reserves. In the BWS pegged exchange rate system, the US as central reserve country did not have to adjust to its balance of payments deficit. It was the n-1th currency in the system of n currencies (Mundell 1969b). Other countries had to intervene in their foreign exchange markets and buy or sell dollars to maintain their pegs. The US Treasury only had to intervene in the gold market to maintain the fixed price of gold at \$ 35 per ounce. Indeed, as a matter of routine the Federal Reserve automatically sterilized dollar outflows (Bordo 1993).

This asymmetry of adjustment was resented by the Europeans. The Germans viewed the US as exporting inflation to surplus countries through its deficits (Emminger 1967). The French resented US financial hegemony and the seigniorage that the US earned on its outstanding liabilities (Rueff 1967). In the 1960s, they made a series of proposals to reform the international monetary system, all of which gave a prominent role to gold and aimed to impose constraints on the US ability to run a balance of payments deficit (Monnet 2013, 2017). While France was enjoying having achieved external and internal equilibrium from 1960 to 1968, French policymakers tried to put pressure on the US and the UK which were running balance of payments deficits during the same period. French attacks culminated in a noted De Gaulle speech in February 1965 that suggested that returning to the gold standard would be the best option in order to constrain US temptations to print too many dollars.

The US monetary authorities began to worry about the balance of payments deficit because of its effects on *confidence* (Gavin 2004). As official dollar liabilities held abroad mounted with successive deficits, the likelihood increased that these dollars would be converted into gold and that the US monetary gold stock would eventually reach a point low enough to trigger a run. This was exactly what happened to the Gold Exchange standard in the interwar period. Indeed, by 1959, the US monetary gold stock equaled total external dollar liabilities and the rest of the world's monetary gold stock exceeded that of the United States. By 1966, official dollar liabilities held by foreign monetary authorities exceeded the US monetary gold stock (see Figure 1).

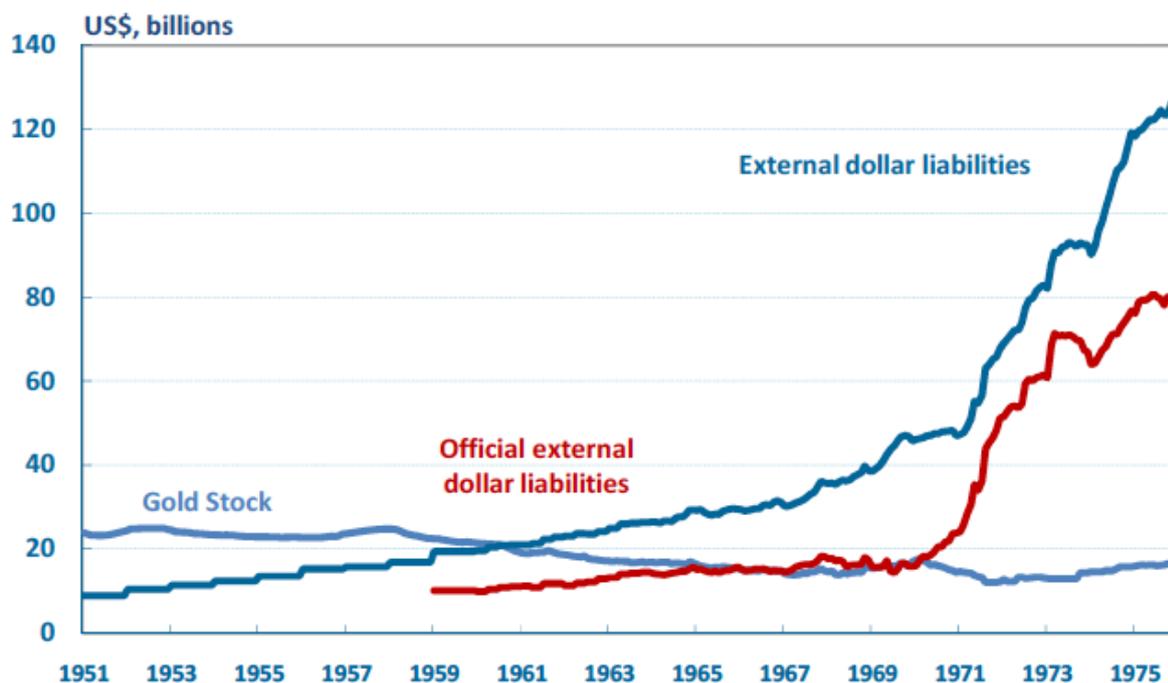


Figure 1 - U.S. Gold Stock and External Liabilities 1951-1975. Source: Banking and Monetary Statistics 1941-1970. Washington D.C. Board of Governors of the Federal Reserve System. September 1976 Table 14.1, 15.1

A second source of concern, which also echoed the interwar period, was the dollar's role in providing liquidity to the rest of the world. Elimination of the US balance of payments deficit (as the French and Germans urged) could create a worldwide liquidity shortage. Much concern through the 1960s was over how to provide this *liquidity*. Robert Triffin (1960) captured the problems in his famous dilemma. Because the Bretton Woods parities which were declared in the 1940s had undervalued the price of gold, gold production would be insufficient to provide the reserves to finance the growth of global trade. Moreover, the main source of supply at the time, the USSR and South Africa, were unreliable (Triffin 1964, Gilbert 1968). Under the gold standard the shortfall would be met by US dollars provided by capital outflows from the US manifest in its balance of payments deficit. Triffin posited that as outstanding dollar liabilities mounted they would increase the likelihood of a classic bank run when the rest of the world's monetary authorities would convert their dollar holdings into gold (Garber 1993). According to Triffin, when the tipping point would occur the US monetary authorities would tighten monetary policy and this would lead to global

deflationary pressure. Triffin's solution was to create a form of global liquidity like Keynes's (1943) *bancor* to act as a substitute for US dollars in international reserves.

The problems of the BWS were dealt with by the IMF, the G10 plus Switzerland and by the US monetary authorities (James 1996, Bordo, Humpage, Schwartz 2015). The remedies often worked in the short-run but not the long-run. The confidence problem was exacerbated after 1965 by US expansionary monetary and fiscal policy which led to rising inflation. Misalignments between member countries other than the US also aggravated the basic problem because deficit countries like the UK would settle their imbalances with surplus countries like Germany in dollars, which in turn increased the threat of eventual conversion into US monetary gold.

The ongoing US balance of payments deficits and depleting gold stock, which were initially viewed as temporary, were dealt with by actions taken both by the Treasury and the Federal Reserve (Gavin 2004, Bordo, Humpage and Schwartz 2015). After a spike in the London price of gold to \$40 in October 1960, based on fears that John F. Kennedy, if elected, would pursue inflationary policies led the Treasury to develop policies to discourage conversion of dollars into gold by the Europeans. These included: moral suasion on Germany with the threat to pull out US troops; the creation of the Gold Pool in 1961; the issue of *Roosa* bonds (foreign currency denominated bonds to discourage US allies from converting dollars into gold); the General Arrangements to Borrow (GAB) in 1961 (an IMF facility large enough to offer substantial credit to the United States); Operation Twist in 1962 (the US Treasury bought long-term debt to lower long-term interest rates and encourage investment while the Federal Reserve simultaneously sold short-term rates to attract capital inflows); and the Interest Equalization Tax in 1963 (which imposed a tax on capital outflows). The US Treasury aided by the Federal Reserve also engaged in sterilized exchange market intervention. The main instrument used by the Fed to protect the gold stock was the swap

network. It was designed to protect the US gold stock by temporarily providing an alternative to foreign central bank conversion of their dollar holdings into gold. In a typical swap transaction, the Federal Reserve and a foreign central bank would undertake simultaneous and offsetting spot and forward transactions typically at the same exchange rate and equal interest rate. The Federal Reserve swap line increased from \$900 million to \$11.2 billion between March 1962 and the closing of the gold window in August 1971 (Bordo, Humpage and Schwartz 2015). The swaps and ancillary Treasury policies did protect US gold reserves and were viewed at the time as a successful policy.

In addition, a number of plans were instituted to provide alternative forms of liquidity for the international monetary system to gold and dollars (James 1996, Connell 2015) to have the IMF serve as the world's central bank and issue international money, the plan to issue CRU—a composite reserve unit; and the Special Drawing Rights (SDR) which were adopted under the First Amendment to the IMF articles in 1969. In the SDR scheme, a special drawing account was set up at the Fund, access to SDRs was made available to all members who were credited SDRs in proportion to their quotas. The SDR was a fiat obligation not backed by gold, although it was valued in terms of gold at par with the dollar. Several plans were also suggested to alleviate the confidence problem. These included substituting SDRs for gold and dollars as reserve assets “the substitution account” (McCauley and Schenk 2015); doubling the official price of gold (Rueff 1967, Gilbert 1968). This policy was opposed on the grounds that it was time inconsistent, that if the official price of gold were raised once would it not happen again (Bordo 1993).

b. The London gold market

The reopening of the London gold market on March 22, 1954, was a major event in the unfolding of the Bretton Woods system. The London gold market was closed at the outbreak of the war in 1939 (Capie 2010, 158). The BIS in its annual report of 1954

celebrated an “event which was not only of great potential significance but which also had an immediate influence, since it coincided with steps taken by a number of countries to normalize their foreign exchange systems” (BIS 1960, 144).

British and American governments did not allow private ownership of gold (other than jewelry) and there was no mention of private gold markets in the Articles of Agreement creating the IMF at the Bretton Woods conference. By no means, the functioning of an international gold market had been originally seen as a key element of the Bretton Woods system, nor was it a priority objective of international institutions. Before the opening of the market in London, the Bank of England allowed bullion dealers to trade as long as the premia over the official price did not exceed 1 per cent. After the Second World War, South African gold was sold directly in South Africa and gold dealers from London or elsewhere had access to the South African market.⁷

In 1954, the US had only limited interest in the reopening of the London gold market and did not consider that the market price of gold could differ markedly from the official gold-dollar parity. Coombs (vice-President of the New York Fed at the time) argued that, “in Washington the official mood was not to worry unduly over such distant problems” (Coombs 1976, 45-6). Discussing potential risks associated with the reopening of the market, Fed officials stated that it was “far too early to say much about these problems, many of which may be purely academic since they deal with eventualities in a rather uncertain future”.⁸ The US gold reserves were still high enough for this not to be a pressing issue. Anecdotal evidence for this overconfidence in the American reserves in 1950 can be found in the transcript of a phone conversation between George Bolton from the Bank of England and L.W. Knoke from the New York Federal Reserve. Knoke said: “We still have \$23 billion in gold bars and even if present selling continues I see no danger of our falling to a level where

⁷ ‘Procès-verbal du Conseil Général’, 25 March 1954, Paris, Archives of the Bank of France, Tome 145.

⁸ Research Memorandum on the Reopening of the London Gold Market’, Alan Holmes (Foreign Research Division), 8 April 1954, New York, Archives of the Federal Reserve, p. 9.

we might be scared”.⁹ As Russian gold sales took place in offshore gold markets in 1953, US officials understood the usefulness of a market where both Russian and South African sales would meet, increasing global demand (Coombs 1976, 43). And the market could of course not be in New York if it were to accommodate Russian sales in the context of the Cold War. The Fed thought that this market would help the “reestablishment of London as the center of the world gold trade”.¹⁰

However, observers soon realized that “The London gold market thus functions, in effect, like a dollar market” and that the “relationships between the sterling price of gold, the sterling-dollar exchange rate, and the dollar equivalent of the London gold price therefore bear importantly on the direction and the volume of international gold movements today.”(Kriz, 1959, 7- 9) The London gold price had become a barometer of the credibility of the gold-dollar peg. Investors and policymakers were looking every day at the London price of gold, published in dollars in the Financial Times and the Wall Street Journal. Another major issue, as a result of the re-opening of the London gold market, was that central banks could now purchase gold in London rather than at the US Treasury.

2. The design and beginning of the Gold Pool

The Gold Pool (Gold “consortium”, “club” or “syndicate” as it was also known to contemporaries) started as a bilateral gentleman’s agreement after the spike in the gold price in October 1960 (Bank of England 1964, 18, James 1996, 159). The fixing rose as high as 38\$ an ounce on October 25, with intraday prices reaching 40\$ an ounce. This spike was caused by the anticipation of the election as President of the United States of J.F Kennedy, who had made promises to run an expansionary fiscal policy. The US and UK were forced to

⁹ ‘Telephone call from Sir George Bolton from the Bank of England’, Phone memorandum, L.W. Knoke, 8 December 1950, New York, Archives of the Federal Reserve, box 617031.

¹⁰ ‘Research Memorandum on the Reopening of the London Gold Market’, Alan Holmes (Foreign Research Division), 8 April 1954, New York, Archives of the Federal Reserve, p. 2.

intervene. In practice, the Bank of England sold gold in the market on behalf of the US authorities. Subsequently, the Basel group of central banks, meeting regularly at the Bank of International Settlements (Toniolo and Clement 2005, 363), committed informally not to buy gold in the London market when prices were at or above the shipping parity from New York.¹¹ When turmoil on the London gold price returned in July-August 1961, US officials decided that they alone could not bear the cost of such interventions and in October 1961, Alfred Hayes (President of the Federal Reserve Bank of New York) proposed a multilateral agreement to countries who were allies and regular buyers on the London gold market (UK, Switzerland, France, West Germany).¹² The Bank of England was reluctant to give up its privileged access to the London gold market and share information with other central banks (Toniolo and Clement, 2005, 375). Throughout the duration of the Gold Pool, the UK would repeatedly fear that too much intervention in the London gold market would lead South Africa to stop selling gold in London and leave the sterling area.¹³ Finally, the UK authorities recognized that there was no viable alternative and that they could not afford to be left outside.

A few months after the October 1960 crisis, the French had been the first to foster the idea of a coordinated central bank intervention scheme to stabilize the price of gold in the spirit of the prewar Tripartite agreement. Hence the US proposal put forward in October 1961 also faced the resistance of the French. They were upset because their multilateral proposal had been turned down the year before and because they feared that the US and the UK would rely on central bank cooperation to stabilize their exchange rates rather than solving their balance of payments deficits through domestic measures (Monnet, 2013, 2017). Furthermore,

¹¹ BISA_7.18 (12) DEA 14_ G10, "The cooperation of central banks in the gold market", 3 Dec. 1963.

¹² Italy and Netherlands were first excluded because Italy had too little gold (in proportion of its reserves) and , on the contrary, the Netherlands kept almost all their foreign reserves in gold. Archives of the Bank of France (ABF), 1489200803/60, "Historique sommaire du Gold Pool". Confidential.

¹³ BISA (BIS archives), 7.18(16), HAL 2. "Gold club. Effect of various participants", 11th January 1962. See also Schenk (2010).

they refused to accept any role for the IMF in the arrangement as they viewed the institution as an Anglo-American vessel. Hence, the BIS emerged as an alternative solution by welcoming the meetings of central banks participating to the consortium.¹⁴ During the 1950s, the BIS had proved a reliable home for central bank cooperation when it organized the European Payments Union, and the institution gained the trust of the Europeans. The Governor of the BIS, Guillaume Guindey, played a key role, both in convincing the US to come to the BIS (rather than to the IMF) and in convincing his reluctant French peers to accept the American deal. Guindey wrote to the Governor of the Bank of France that cooperation through gold interventions would be a way to increase policy coordination and thus would impose more discipline on the UK and US who were running balance of payments deficits: “the central banks which, like the Bank of France, behave correctly and rigorously, would benefit from the reinforcement of monetary discipline at the international level.”¹⁵ However, nothing in the Gold Pool formally enforced monetary discipline.

In November 1961, Alfred Hayes formally presented the American Gold Pool plan to European central banks at the BIS (Coombs 1976, 62-64). The participating central banks would commit not to buy gold in London, Russia or South Africa above a fixed price determined by the Gold Pool members. In exchange, they would have access to the surplus gold accumulated by the syndicate. In addition, the New York Federal Reserve Bank (which was in charge of selling and purchasing gold for the account of the US Treasury) committed to stop assessing commission fees on gold transactions with the members of the Pool.

The Bank of England was to act as the agent of the Gold Pool, operating on behalf of the syndicate. The Bank of England was not present at the daily fixing at Rothschild’s but

¹⁴ Some voices among the BIS management (especially Donald MacDonald, the head of the Banking department) were however sceptical about the scheme because they thought that intervening in the gold market was going against the BIS interest in promoting the rebirth of market forces in the international financial system. See Toniolo and Clement 2005, p.377 and BISA, 7.18(16), HAL 2. “Gold club. Effect of various participants”, 11th January 1962

¹⁵ Quoted in Monnet (2017). Original source: Archives of the Bank of France (ABF), 1489200803/60, « Note. Confidentiel », Octobre 1961.

had been intervening in this market since it opened, in 1954. The Bank's dealers therefore had the expertise to conduct such operations. The Bank of England started operations for the gold consortium on November 6, 1961. A few days later (November 18), the quotas and the members of the Pool were finally defined. The Gold Pool's executive arm was the "Gold Experts" who met during the bi-monthly meetings of the BIS in Basel. The first meeting of the "Gold experts" took place on February 9-11th 1962.¹⁶

Technically, the Gold Pool was formed as a selling syndicate in 1961 but it also became a gold buying syndicate in February 1962. Both actions would be activated when the members felt it was necessary. When the Pool was activated, the Bank of England – as any other member – did not intervene on its own account in the London gold market. The buying syndicate would buy gold on the market and offer it to the participating countries in accordance with their quota. Quotas had been fixed in a quite pragmatic manner. First, participating central banks set the amount of gold they agreed to provide to the selling syndicate, and second, the US doubled the sum in order to reach 50% of the total.¹⁷ In 1962, the same quotas were applied to the buying syndicate. Some countries – especially France – later complained about this rule when the buying syndicate made important profits but members never reached an agreement on a different formula.¹⁸ Table 1 shows the initial quotas for each country. The shares stayed the same until the end of the syndicate but the overall limit of the syndicate increased. The original limit for the Gold Pool gold-selling syndicate was set at \$270 million and then increased periodically from September 1966. By

¹⁶ The chronology is based on these two documents: Archives of the Bank of France (ABF), 1489200803/60, "Historique sommaire du Gold Pool". Confidential. and BISA_7.18 (12) DEA 14_ G10, "The cooperation of central banks in the gold market", 3 Dec. 1963.

¹⁷ This explains why Germany held a greater share than other members since, when the Gold Pool negotiations took place in the fall 1961, it was a few months after the commitment of West Germany to hold dollars rather than gold in exchange for the reinforcement of the American troop presence in Germany after the erection of the Berlin Wall (Gavin 2004, 66-7; Clement and Toniolo 2005, 379).

¹⁸ ABF, 146720050173; "Note de repartition...", Septembre 1964.

the fall of the Gold Pool in March 1968, the limit had reached \$2570 million, an almost tenfold increase.

Gold Pool initial quotas		
	per cent	(million US\$)
United States	50%	135
Germany	11%	30
United Kingdom	9%	25
Italy	9%	25
France	9%	25
Switzerland	4%	10
Netherlands	4%	10
Belgium	4%	10
Total		270

Table 1 – respective quota by member and initial share

The gold-selling syndicate is the main subject of this paper. Its mission was to avoid raising the London gold price too far above the official price at the gold window and to avoid destabilizing the Bretton Woods system. However, it is important to bear in mind that the Gold Pool members made profits for a significant period by buying gold at a low price. From February 1962 to the end of 1964, the Gold Pool was almost always in excess. From 1962 to 1966, the Gold Pool remained on average a profitable activity for its members.¹⁹

The Gold Pool members agreed on the minimum and maximum gold prices that would automatically trigger daily interventions of the Bank of England, in the name of either the buying or the selling syndicates. However, within this range, the Bank of England enjoyed great flexibility in its operations on behalf of the Pool, building on its intimate knowledge of the market (Naef 2017). The upper and lower limits were decided as follows. The price of gold at the New York Fed window was \$35 per ounce. This facility was only available for central banks, not private customers. The US Treasury taxed these transactions by 0.25% making the official price \$35.0875. Adding the transportation cost between New

¹⁹ BISA_7.18 (14) LAR27 “Summary of Gold Pool operations” 28th June 1968. During the years 1962-1965, the Gold Pool had a cumulative surplus of 1437 million. From the end of 1965 to March 1968, the cumulative deficit was 3692 million. See also the document quoted by Eichengreen (2010, 54). Note that, when the Gold Pool was making benefits, it was frequent that members did not accept the gold they were entitled to because they thought they held sufficient gold reserves. ABF, 1489200803/60, “Historique sommaire du Gold Pool”. Confidential.

York and London drives this price up to \$35.20. Above this price, central banks could make an arbitrage profit by buying in New York and selling in London. 35.20\$ per ounce represented the point at which the system would lose credibility. It became the upper band target rate for the Gold Pool. Furthermore, even if the Bank of England did not follow a clear buying and selling rule to avoid predictability, it was understood that the syndicate would be buying gold on the market when the price was at par or below the Fed window price of \$35.08.

To sum up, several features of the design of the Gold Pool are noteworthy:

- There was no clear designed plan at the beginning other than the common objective of stabilizing the price of gold. Operations began before all members joined and quotas were defined. The Gold Pool was a selling syndicate that later became a buying and selling syndicate. At the beginning, it was supposed to be temporary (and it was de facto “deactivated” several times in 1962) but it was continuously in operation starting 1963. Together with quotas, the members set a maximum limit of the resources that could be used by the Pool, but this limit was sharply increased during the last 6 months of operations.
- There was neither a formal agreement nor established measures of enforcement, as emphasized by Eichengreen (2010). Central banks committed not to buy gold freely on the gold market but they could buy gold at the US Treasury, as France did extensively in 1965. There was no monetary policy discipline or exchange rate rules associated with being a Gold Pool member.
- The Gold Pool was at first a secret arrangement. It was only leaked to the press in March 1962 (first revealed by *Le Courrier de Genève*). Gold Pool operations, quotas as well as net losses and profits for each country remained secret throughout. However, starting in

February 1962, information on Gold Pool activities was transmitted to some other central banks of other countries active in the gold market: Canada, South Africa, Austria, Greece, Spain, Japan. Beginning in October 1964, the central banks of Japan and Canada attended the meeting of the Gold experts in Basel, as they were members of the “G10”, but they remained out of the Pool.

3. Success and Failure of the Gold Pool

The dollar-price of gold accepted by the Gold Pool lay within a wide band [35.08 - 35.20] and was not stable within the band over time. After the two successful stabilizations during turmoil on the gold market in 1960 and 1961, the price stabilized and the implicit target remained around 35.08. In 1964, however, the gold price came under stress and experienced an upward trend reaching a new plateau closer to \$35.20 in mid-1966 and even more markedly in the spring of 1967. Then, once the upper band was reached, members of the Pool had no choice but to increase the resources of the syndicate, which they did repeatedly until the end of the consortium in March 1968.²⁰

This chronology suggests 4 phases of the Pool that clearly stand out when we apply a statistical analysis to the dollar-price of gold. Structural breaks are identified with the methodology of Bai-Peron (1998, 2003) applied to the daily series of the gold price in London from January 1961 to March 1968 (the series is simply regressed against a constant). Our estimation starts in early 1961, just after bilateral interventions by the Bank of England and the US had stabilized the price of gold under \$35.20. Now that the Gold Pool was in operation, the price would never exceed this limit again. Figure 2 displays the series of the dollar price of gold as well as the following estimated structural breaks: *6 November 1962, 29 September 1964, 31 June 1966.*

²⁰ The successive limits were (in millions of US dollars): 320 (September 1966), 370 (May 1967) 420 (June 1967), 470 (July 1967), 520 (October 1967), 1370 (November 1967), 2570 (February 1968).

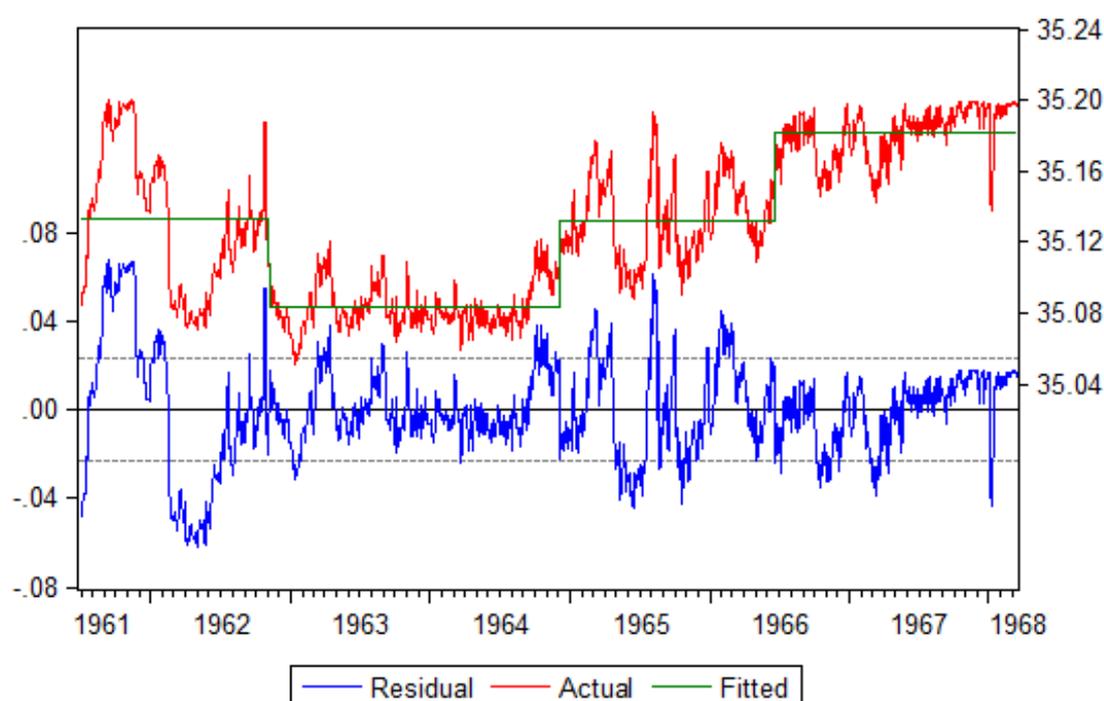


Figure 2 – Breaks in the daily gold price. All results are significant at the 1% level (N=1750, $R^2=0.72$, trimming 15%, maximum breaks: 3).

The four distinct phases are characterized by different average values of the price of gold: the early stage (1960-1962) with an average gold price of \$35.13 per ounce and a lot of volatility (standard deviation 0.04); the successful years of the Gold Pool (1962-1964) with an average gold price of \$35.08 per ounce at par with the price of Gold at the Fed window (standard deviation 0.01); the troubled years of the Pool (1964-1966 with an average price around \$35.13 per ounce (standard deviation 0.02); the final years of the Pool in 1967-68, with average rates at \$35.18 per ounce (standard deviation 0.01), very close to the upper arbitrage point of 35.20.

Important political events affected the price of gold during each phase (Figure 4). In March-June 1961, the UK experienced increasing pressure on the sterling exchange rate and received a rescue package from the BIS in March and from the IMF in August (Blackaby

1979, 350, Schenk 2010, 125).²¹ On August 15 1961, the Berlin wall was erected after weeks of increasing tensions after Nikita Khrushchev had threatened to cut off US access to Berlin in June, following the Bay of Pigs invasion in April. The political uncertainty following these events all the more had an effect on the price of gold as the US external deficit had increased markedly in the first quarter, driven by Kennedy's first measures of deficit spending (Gavin 2004). The creation of the Gold Pool in November 1961 and the temporary decrease in political uncertainty had managed to stabilize the price of gold successfully in early 1962 but Cold War tensions soon re-emerged early in 1962 and finally culminated in the October Cuban Missile Crisis. This latter crisis (October 16-28, 1962) moved the closing price over \$35.18 per ounce, a price that would not be reached again until 1965. During this crisis, the Bank of England traders were not particularly active, but had to sell \$18.9 million on October 23, a significant amount not particularly worrying by comparison with 1967. Once the crisis was over, the gold price quickly recovered, falling back to \$35.05 by the end of the year. Ironically, Russian sales of gold on the London market – caused by poor Russian harvests and the need to import cereals – had been helpful to push the gold price down.²²

²¹ The BIS loan should be 'repaid either by the reflux of the speculative fund, or if the reflux did not occur reasonably quickly, by recourse to the IMF'. In August 1961, there was still an outstanding debt and the Bank of England had to go to the IMF to repay that debt.

²² BISA_7.18 (12) DEA 14_ G10, "The cooperation of central banks in the gold market", 3 Dec. 1963.

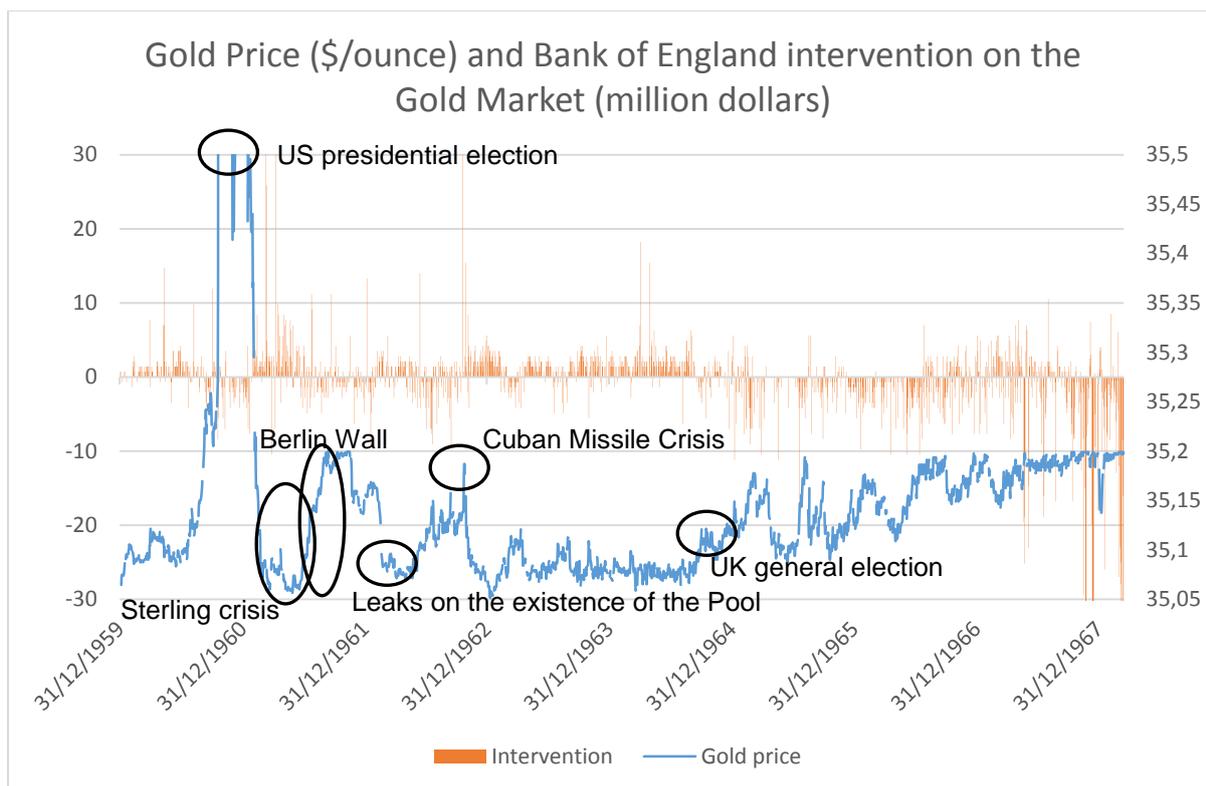


Figure 3 – Gold price and Bank of England intervention (mostly on behalf of the Gold Pool). Source: Bank of England Dealer's reports (C8), 1959-1968.

The second phase of the Pool started in November 1962, after the Missile crisis. The price of gold remained stable around \$35.08 from late 1962 until Autumn 1964. It was probably helped by US measures to reduce its balance of payment deficits: Operation Twist and the interest equalization tax (Bordo, Schwartz, Humpage 2015). This phase of the Gold Pool ended with a clear turning point in September-October 1964. This can be observed not only when looking at the gold price but also at the interventions of the syndicate (see the line across Figure 4). The reversal that took place in 1964 would prove to be persistent. The main event associated with this reversal is the 1964 crisis of sterling. The British election of October 1964 leading to a Labour victory accentuated instability for sterling (Bordo, MacDonald and Oliver, 2009), but also for global markets. One month before the Labour victory, sterling had hit a three-year low. This information was relayed in the financial press and highlighted weakness in one of the two global reserve currencies.²³ At this point, the

²³ 'Sterling Rate Steadies After Fall to \$2.7847, Lowest in Three Years', *The Wall Street Journal*, 26 August 1964.

Gold Pool stopped accumulating gold and the gold price started to rise, as shown in Figure 4. The timing perfectly matched the British election which was the trigger for several years of sterling in crisis as identified by Bordo, MacDonald and Oliver (2009).

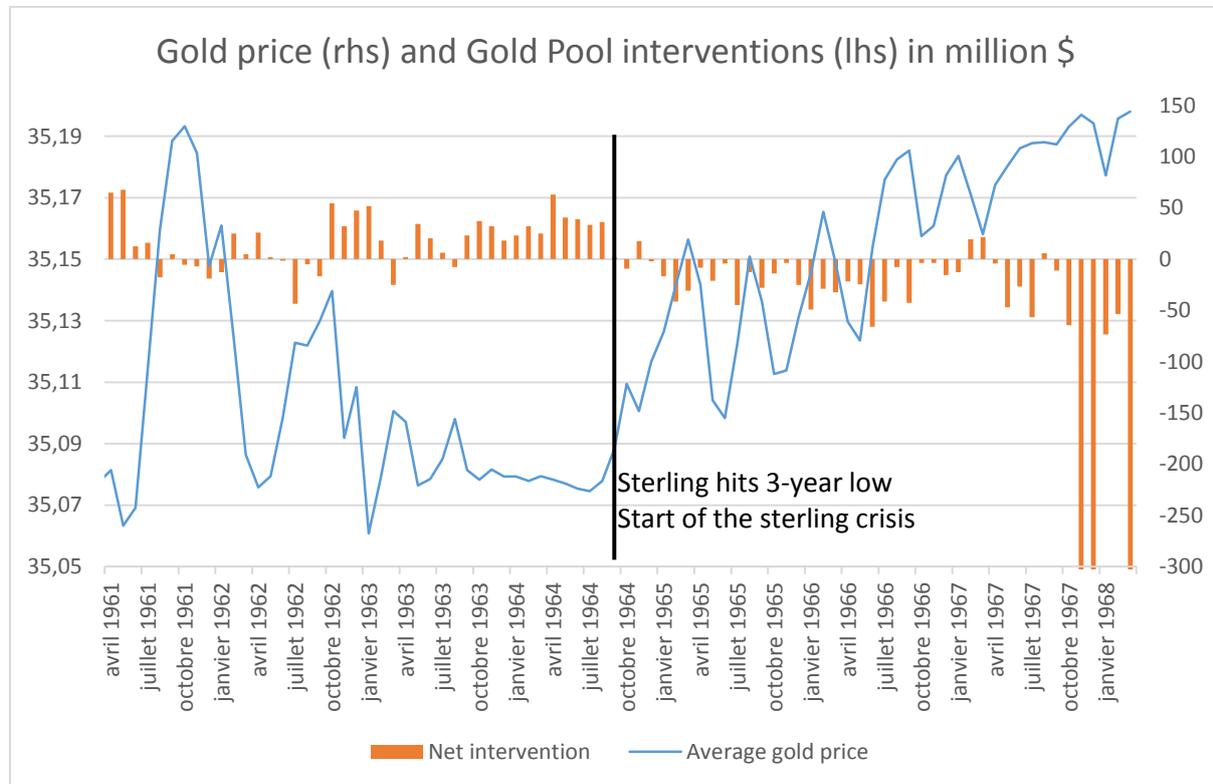


Figure 4 – Average monthly gold prices and net monthly intervention. Source: dealers' reports, authors' calculations. Source: Bank of England Dealer's reports (C8)

After the initial crisis of October 1964, sterling experienced almost continuous troubles until the 1967 devaluation. Blackaby (1979) identifies two speculative crises around May-July 1965 and July 1966 (see also Schenk, 2010, chp. 7-8). The losses of the Pool that started in the fall 1964 created fundamental disagreements amongst Gold Pool members on the goals of the syndicate. Toniolo and Clement (2005, 411) noticed that from March 1965 onward, both Belgium and France started to express doubts about the viability of the Pool at BIS meetings. On February 4, 1965, de Gaulle announced that France would start to systematically convert excess dollar reserves into gold at the Fed Window. The speech of the French president indeed triggered a massive conversion of dollars into gold at the Fed that were concentrated in early 1965 but continued until mid-1966. France however remained a

member of the Gold Pool during this period. The price of gold had suddenly started to increase with the 1964 sterling crisis and continued to follow a similar trend until September 1966 when it stabilized for few weeks around \$35.20. In a first sequence, from around September 1964 to January 1965, interventions remained limited while the price was increasing. Hence, the cumulative surplus of the Pool stabilized but was not yet starting to decrease. In the second sequence, characterized by French non-cooperative behavior and continuous sterling crisis, the price was still increasing but at a much more moderate pace than in the previous months because, at the same time, the Bank of England was also intervening to prevent a more severe rise. The cumulative surplus decreased. This third phase of the Gold Pool is also characterized by the worsening of the US balance of payments and the noted rise in US inflation (Gavin 2004, Bordo and Eichengreen 2008).

A fourth phase of the Gold Pool started in September 1966. At that time, the daily price was approaching the ceiling of \$35.20 on several consecutive days despite interventions by the Bank of England. The only possible room for maneuver was provided by increasing, for the first time, the maximum amount of gold that the Gold Pool could sell on the market, from 270 to 320 million dollars. The increase in Gold Pool interventions and an improvement of the UK balance of payments at the end of 1966 allowed the price of gold to decrease slightly, but it never went back below its July 1966 level. The closure of the Suez Canal and the Six-Day War that followed in June 1967 created political uncertainty that was associated with a new increase in the price of gold (Toniolo and Clement 2005, 413). It is difficult to state whether these events directly undermined the confidence in the US dollar or if their effect on the dollar-price of gold was mediated by their effect on sterling as English trade was more immediately affected by the Middle East events (Blackaby 1979). Other factors contributed to mounting pressures on sterling, including the announcement of the British application to join the European Common Market in May 1967 which, according to Blackaby

(1979, 40), led many to conclude that the sterling parity needed to be changed before a successful application. In June, French authorities decided that they would not accept a new increase in the resources of the Gold Pool and they, de facto, left the syndicate. The French exit would be revealed to the public only after the devaluation (Eichengreen 2010, 57). Speculation increased to unsustainable levels in early November and the government decided to devalue the currency on Saturday November 18th. On November 27th, the French president De Gaulle vetoed the application of the UK to the European Community.

4. Sterling and the Collapse of the Gold Pool

The previous chronology suggests that sterling's troubles were a key determinant of the fluctuations of the dollar price of gold and of Gold Pool interventions. In particular, the 1964 sterling crisis appears to have caused a turning point in the history of the Gold Pool and the 1967 sterling devaluation looks like the fatal blow to the gold-dollar parity. In this section, we investigate this relationship further, trying to account for confounding factors that would also be associated with an increase of speculation on the London gold market. We need to account for domestic US economic and political factors that affected the confidence in the gold-dollar parity negatively, as well as for the non-cooperative behaviors that were a threat to the Gold Pool and the gold-dollar parity (namely, French conversions of dollars into gold). An additional relevant issue is to assess whether these respective factors played a role only at the end of the Gold Pool or whether they were long-lasting features of the 1960s whose negative effects culminated in the fall of 1967.

a. The 1967 devaluation and the run on gold: what we know and do not know

We are not the first to stress the role of the sterling devaluation as a leading factor explaining the demise of the Gold Pool. However, this role has never been investigated with a quantitative approach and, most of all, the previous literature has neither assessed how this

role compared to other factors nor if the link between sterling's troubles and confidence in the dollar was a long-lasting problem whose effects were observed much before the devaluation.

Contemporaries clearly refer to the link between the fate of sterling and the fate of the London gold market. Solomon (1982), Gavin (2004) and Schenk (2010) document, that from 1961 to 1967, the US was eager to provide financial and political support to the UK to avoid a sterling devaluation which was seen as a menace to confidence in the gold-dollar parity. Gavin (2004, 168) cites a study written by the Federal Reserve in the summer of 1966 that anticipated that a sterling devaluation of 15% would produce "serious market uncertainties about the viability of other exchange rates, including those of the dollar" as well as thoughts of policymakers like Secretary of the Treasury Henry Fowler who stated a few weeks before the devaluation that "if sterling falls, there will be great monetary unrest. The dollar will be affected strongly" (ibid, 171). Coombs (1976, 118) writes that he frequently warned the FOMC of the disastrous consequences of a sterling devaluation. In 1964, he often used the fear of global collapse to convince the FOMC to lend additional funds to the Bank of England.

"the British might decide to devalue sterling. This would probably precipitate an international financial crisis of the first magnitude. He [Coombs] would expect to see a major speculative drive on the London gold market and sooner or later an even more dangerous attack on the US dollar."

Finally Coombs (1976, 161) wrote that his predictions were right as in 1967 "a tidal wave of speculation now swept through the London gold market". In its 1968 annual report, the Federal Reserve also noted that the "devaluation of the pound sterling on November 18, 1967 was a major shock to the world's financial system", and that a week after the devaluation, "the private demand for gold surged to record levels in the London and other foreign markets, as confidence in exchange parities was badly shaken". Bordo, Simard and White (1993, 16)

note that the dollar started to weaken after the sterling devaluation and so does Bordo (1993, 70) noting mounting pressure on the dollar “via the London gold market”. Schenk (2010, 182) notes that Gold Pool losses in the wake of the devaluation put the syndicate under stress even though they managed to release a joint statement on November 26 in support of the \$35 per ounce price. Eichengreen (2010, 57) also writes that, after the Middle East crisis of early 1967, “The devaluation of sterling in November then further undermined confidence in the remaining reserve currency, the dollar”. Overall, it is clear that the US authorities anticipated that the sterling devaluation would create a shock to the gold-dollar market, although it seems that they did not prepare enough to fully absorb this shock or that they were too confident in their ability to handle the situation. How did “speculation” that followed the sterling devaluation affect the Gold Pool?

b. The shock to US gold reserves: where did it come from?

As shown on Figure 5, the stress created by the sterling devaluation is not visible in the price of gold as it was already reaching the upper band set by the Bank of England, but we observe a sharp and immediate increase in interventions just after the sterling devaluation, once the London foreign exchange market reopened on November 20th.

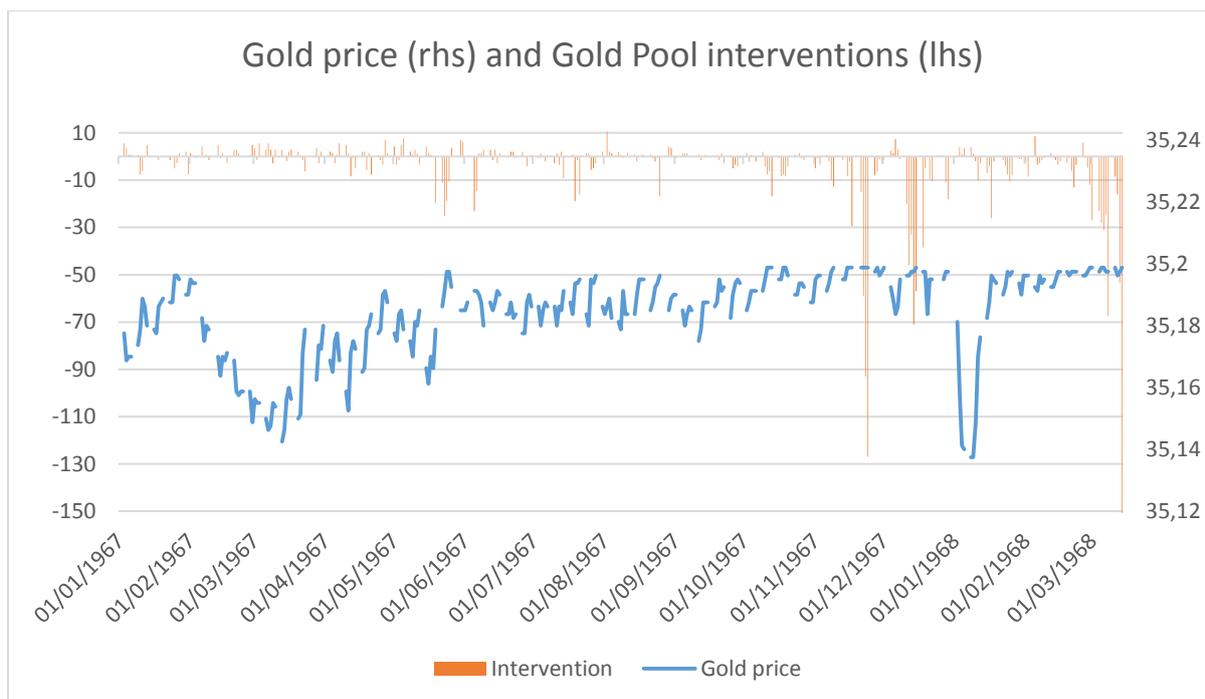


Figure 5 - Gold price and Bank of England intervention on the gold Market. Source: Bank of England Dealer's reports (C8)

The increase in Gold Pool interventions after the sterling devaluation is associated with a sharp decrease in US reserves whose magnitude was unprecedented. Using, once again, a Bai-Perron autoregressive test on monthly US monetary gold reserves, a clear break can be found in December 1967, the month following the sterling devaluation.²⁴ The results are robust whether the sample covers the whole Bretton Woods (1944-1971) period or only the 1960s.²⁵

²⁴ Using a sample from 1960-70. The break is robust to many different settings (trimming: 10-25%, significance:1%, maximum breaks: 1-5).

²⁵ The break is also found in the specification 1947-1970 (trimming 10%, maximum breaks: 2-5, and 5% significance).

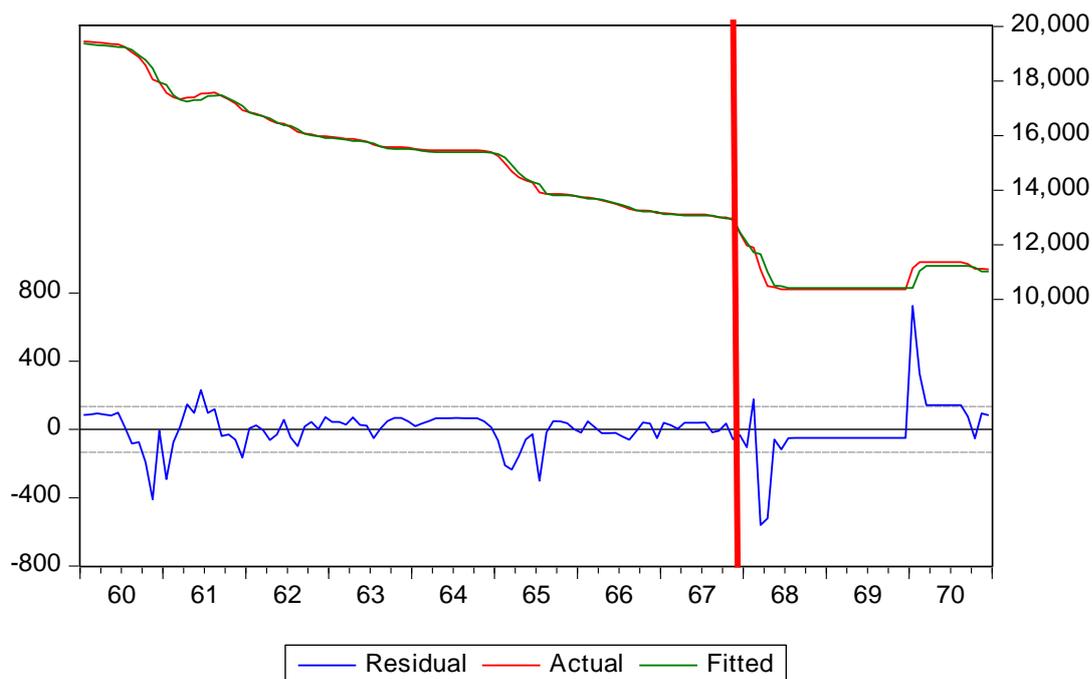


Figure 6 - Illustration of the Bai-Perron break in December 1967. The red line is the US gold reserves, the green line is the lagged US monetary gold and the blue line shows the differential between the two lines. The red vertical line shows the significant break.

What was the link between the sterling devaluation, the Gold Pool and the US gold stock? To precisely answer this question, we analyze previously unused data on the identity of buyers at the US gold window. This data was found in the archives of the Bank for International Settlements and is instrumental in understanding the collapse of the Gold Pool.²⁶ Figure 7 shows quarterly data on volumes of gold purchases at the New York Fed gold window. The data provides evidence that France played no major role in the collapse of the syndicate: by 1967, the country was no longer amassing dollars to be converted.²⁷ After the demise of the Gold Pool in the spring of 1968, France became a net contributor of gold to defend its currency. More generally, Figure 7 clearly shows that there was little pressure on the Fed's gold window in 1966 and in 1967, before the fourth quarter of 1967. This was due in part to the US coercing other governments not to use the gold window and to mutual understanding that such operations would be detrimental to the international monetary

²⁶ The New York Federal Reserve has not yet disclosed this information to the public.

²⁷ Monnet (2013) argues that France stopped converting dollars into gold in 1966 because this policy had failed to provide France with more leverage in international discussions on the international monetary system (the French proposal to create an international reserve asset linked to gold (the CRU) was turned down in 1966).

system. Note that 1968 Q1 shows more demand from Gold Pool members (in fact from Italy) but, since figures are quarterly, it is unfortunately impossible to state which part of this demand occurred between March 15 and March 31, when the Gold Pool was no longer operating. In any case, the amount is relatively minor compared to the losses of the Gold Pool and earlier French demands at the Gold window.

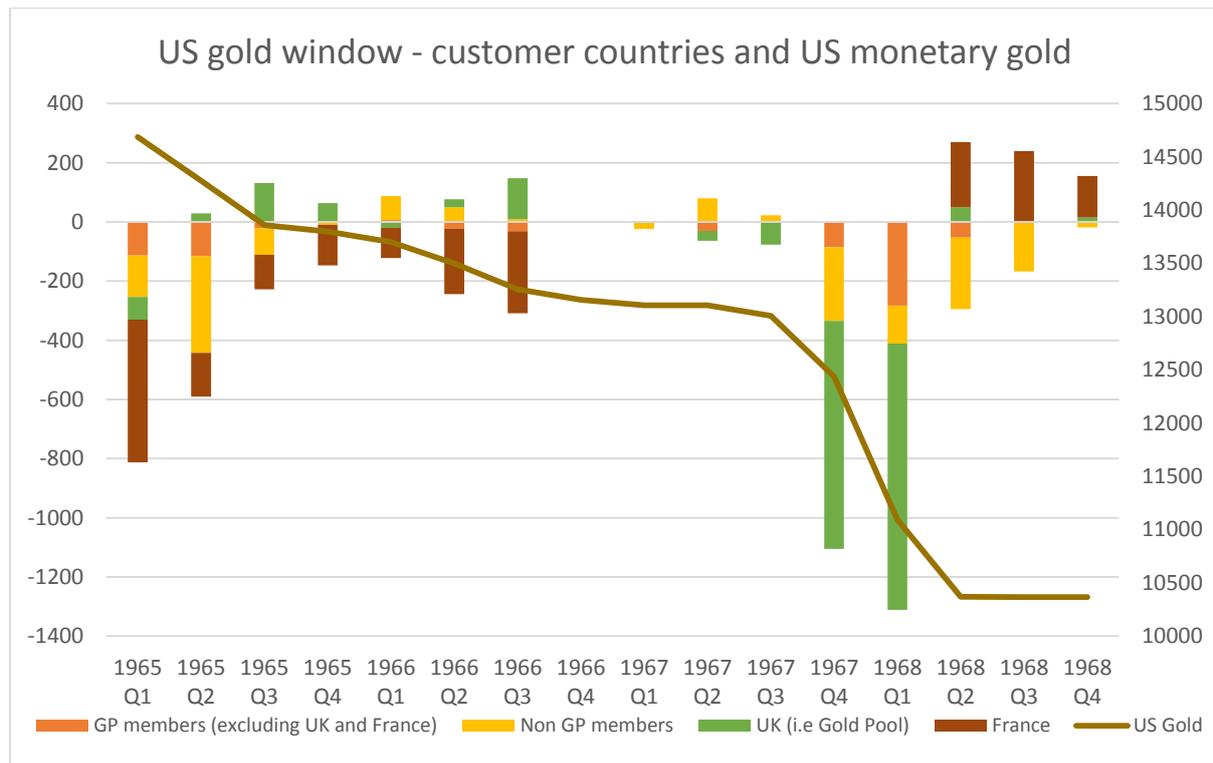


Figure 7 – US gold window customer operations (positive values represent American purchases of gold against dollars, negative values represent American sales of against dollars). Data for Q4 is missing. Sources: BISA_7.18 (12) DEA 20 gold consumption and production Q3 1966 comes from the Bank of France 467200501-74 Gold experts meeting, November 6, 1966. During the Gold Pool, sales and purchases by the UK are those of the Gold Pool.

Finally, these figures reveal that in Q4 1967 and Q1 1968, the main buyer at the US gold window was the Bank of England which was acting on behalf of the Gold Pool. There was no central bank run on the US gold window. Excluding Gold Pool losses, amounts withdrawn before October and March 1968 were much lower than in early 1965 when France had started to convert dollars into gold. Put differently, US monetary reserves fell mainly because the Gold Pool had suffered losses while defending the gold-dollar parity on the London gold market. For a few months, despite rising pressures and an unprecedented

increase of the resources of the Pool, cooperation was effective in maintaining the market dollar price of gold under \$35.20, but it was extremely costly.

During the last quarter of 1967, the highest share of gold's demand besides the Gold Pool came from Algeria. The Bank of Algeria purchased \$150 million of gold from the United States and this purchase was "presumably on French behalf" according to Eichengreen (2010, 57, quoting Solomon 1977 and Treasury Papers). However, according to the (unpublished) transcripts of the General Council of the Bank of France, French authorities were not involved in these purchases. The Bank of Algeria held French francs with French commercial banks. These French francs were both convertible in any currency and the Bank of Algeria, hearing about international instability in the wake of the sterling devaluation, decided to convert these French francs into dollars and buy gold.²⁸ The Bank of France noted that the Algerian institution could also directly have bought gold on the Paris market but gold at the Fed window was cheaper.²⁹ The Governor of the Bank of France stated to the General Council that it was "surprising and annoying that people could suspect the Bank of France of wanting to behave in an ill-intentioned manner".³⁰ Given France's past behaviour at the US gold window, rumours were hardly surprising however.

Table 2 shows how Gold Pool interventions were heaviest in March 1968 just before the fall of the syndicate. In January 1968, interventions had decreased because of announcements by the US government to implement policies to reduce the balance of payments deficit using capital controls (Gavin 2004, 177-178). Furthermore, the sterling spot and forward exchange rates had been rather stable in January and February but started to decrease sharply from February, 20th.

²⁸ ABF, Procès verbaux du Conseil Général, number 50, 14 December 1967, p.783-4.

²⁹ ABF, PV du Conseil Général, number 50, 14 December 1967 p.783-4.

³⁰ The original French reads: "il est surprenant et un peu pénible que l'on ait pu, à propos de cette opération, suspecter le comportement et les intentions de la Banque de France." ABF, PV du Conseil Général, number 50, 14 December 1967 France, p.783-4.

Million dollars	Losses intervention	from Gold Pool limit	Increase in limit
April 1967	-4.2	320	0
May 1967	-46.9	370	50
June 1967	-26.6	420	50
July 1967	-56.7	470	50
August 1967	5.6	470	0
September 1967	-11.2	470	0
October 1967	-64.4	520	50
November 1967	-386.7	1370	850
December 1967	-306.5	1370	0
January 1968	-73.5	1370	0
February 1968	-53.5	2570	1200
March 1968	-492	2570	0

Table 2 – Gold Pool limit and Bank of England intervention. Sources: Interventions come from the Bank of England’s dealers reports and the limits come from Archives of the Bank of France (ABF), 1489200803/60, “Historique sommaire du Gold Pool”. Confidential. The increase is computed.

c. Sterling and the gold price before the 1967 devaluation

We have previously provided evidence of the impact of the sterling devaluation on Gold Pool interventions and US reserves. This was not the first time that sterling troubles affected the London gold market. Before the 1967 devaluation, we observe a negative correlation between the 3-month forward sterling rate and the gold price (in \$). Forward rates show the situation of sterling and offer a better proxy than spot rates as they were less subject to intervention by the Bank of England (Naef 2017). They also show more volatility which helps interpretation. Looking at Figure 8, the relationship here seems to be that the lower is the 3-month forward sterling rate, the higher is the London gold price (N.B: we use an inverted scale in the figure, such that the negative relationship seems positive on the graph). Put more simply, troubles for sterling (with a bigger forward discount) seem to affect the gold market negatively. This becomes more apparent after the election of Labour in the UK at the end of 1964. This marked the beginning of a volatile period for sterling and sustained pressure on the London gold market. It also appeared in 1962 and 1963, although variations were more modest. Starting in June 1967, the gold price was stabilized near its maximum and reached a ceiling

(\$35.2; that is, the level at which the Pool intervened, as described previously) while the sterling forward rate kept depreciating.

Before going further into the empirical analysis, it is useful to make clear why a negative correlation between the two series can be interpreted as evidence of contagion between the two reserve currencies. Let's assume:

X = the dollar-gold price, expressed in \$ per ounce (official parity = \$35 per ounce)

Y = the sterling exchange rate, expressed in \$ per pound (official parity = \$2.8 per pound)

If the dollar depreciates relative to all currencies and gold (i.e. in terms of effective exchange rate), then X and Y are positively correlated. The gold-dollar price rises and sterling appreciates relative to the dollar. Hence, there is no reason to observe a significant negative correlation between X and Y over several years. If anything, we should observe a positive correlation. Absent common unobserved shocks that would systematically cause a joint depreciation of sterling and the dollar, a negative correlation between X and Y is interpreted as contagion between these currencies: the dollar depreciates relative to gold when sterling depreciates relative to the dollar.



Figure 8 – Gold fixing price at 3pm and London dollar/sterling 3-months forward rate. **Note:** Inverted scale right-hand scale. Forward data comes from Accominotti, Cen, Chambers and Marsh (2017)

We test whether the negative correlation between the gold price and the sterling forward rate really holds in the data. To do so, we simply regress the London price of gold on the forward sterling rate with a one period lag. Data are daily. Using a lag is a way to cope with the fact that the value of the exchange rate is determined at the end of the day whereas the fixing of the gold price takes place in the morning. The estimated equation includes a constant and we correct for auto-correlation using the Huber-White procedure. Over the full sample (from January 1961 to November 1967 or March 1968), the London price of gold is found to be stationary. Hence, it is used in levels in the estimation. We also have checked that there is no cointegration relationship between the two variables. The first estimation sample excludes the 1967 devaluation and stops on November 15th 1967. We find a coefficient of -0.58 which means that when the forward exchange rate depreciates by 1 basis point (which is the standard deviation of the variable), the gold price increases by around 0.6 basis points. Put differently, a decrease in the exchange rate from 2.8 to 2.75 is associated with an increase

in the price of gold from 35.08 to 35.11. The second column of Table 3 shows that the coefficient is smaller when the period Dec.1967-Mar.1968 is included. During this period, despite large variations in the sterling exchange rate, the gold price was kept constant because of Gold Pool interventions.

We look at different subsamples in order to discuss whether this relationship was constant overtime. This raises an econometric issue however since the price of gold is obviously not stationary over the period 1964-1966 when, as discussed previously, the Gold Pool allowed a continuous increase until it reached the upper bound of \$35.20. The Augmented Dickey-Fuller Unit root test confirms that the series is trend stationary between the October 1964 sterling crisis and the November 1967 sterling devaluation. For this subsample, we account for this linear trend in the estimation. The negative relationship holds and is still significant over 1964-1967 but not over the previous subsample (January 1961 to October 1964). The period 1961-63 is not uneventful on the sterling front but the sterling troubles of 1961 and 1963 remain minor and short-lived and, furthermore, the period was filled with international political crises which did not foster contagion between the dollar and sterling (such as during the Cuban Missile Crisis). The sterling effect on the gold-dollar price only really takes off with the 1964 sterling crisis.

As a form of robustness check (results are not reported here), we replace the forward exchange rate with the forward premium (the difference between the spot and forward exchange rate). The results are all significant and with the same signs as in Table 3, except for the period from 1961-64 which already displays a negative coefficient which suggests a contagion effect from sterling in this period.

Dependent variable: London gold price (fixing)

	<i>January 1961 – November 1967</i>	<i>January 1961 – March 1968</i>	<i>January 1961 – October 1964</i>	<i>September 1964 – November 1967</i>
Sterling forward rate (-1)	-0.58***(0.17)	-0.16***(0.02)	0.64**(0.31)	-0.89***(0.09)
Trend				0.01***(0.01)
Constant	36.75***(0.48)	35.57***(0.05)	37.10***(0.26)	37.10***(0.26)
Adjusted R-square	0.01	0.04	0.01	0.12
Nb of observations	1708	1788	790	919

Table 3: Relationship between the gold price and the sterling forward rate (daily data)

d. Sterling, Gold Pool interventions and US gold reserves before the 1967 devaluation

The previous analysis of the relationship between sterling and the gold price is necessarily incomplete because the gold price was itself determined by Gold Pool interventions. It was a manipulated price. We therefore directly study the determinants of Gold Pool interventions. Since we want to consider variables other than the sterling forward rate, we use monthly data and focus on the following potential factors:

- 1) Domestic US factors that would damage the credibility of the gold-dollar peg
- 2) French conversion of dollars into gold starting in 1965 (i.e anti-cooperative behavior against the Gold Pool)
- 3) UK exchange rate problems having contagious effects on the credibility of the dollar

Monthly data allow us to control for macroeconomic conditions (especially in the US) while having sufficient degrees of freedom. The dependent variable is the monthly operations performed by the Bank of England for the Gold Pool on the London gold market. It takes negative values when the Gold Pool is in deficit (selling gold and buying dollars). The three factors described above are proxied by the following explanatory variables:

- 1) US factors likely to affect the credibility of the dollar are proxied by the US inflation rate, the growth rate of US gold reserves and the change in the US government deficit. Since the latter variable is only available at a quarterly frequency, we interpolate the

series with a quadratic trend.³¹ At a monthly frequency, the change in US gold reserves is the best proxy for the state of the US balance of payments.

- 2) The pressure of the French central bank on US gold stock is proxied by the growth rate of French gold reserves.³²
- 3) UK exchange rate turmoil is proxied by the 3-month forward rate of the \$/£ exchange rate, as in the previous section.

Since gold interventions of the Gold Pool directly and contemporaneously affect the growth rate of French and US reserves, these explanatory variables are used with a lag in the estimations.

In order to avoid the problem that all our results are driven by the sterling devaluation of November 1967, we ran estimations on two different samples. A first sample (November 1961 to October 1967) does not include the devaluation, and a full sample includes it (November 1961 to March 1968). Raw data of Gold Pool interventions are used in the estimations since they are not seasonal and the series does not have a unit root.

Dependent variable: Gold Pool interventions

	(1) <i>Nov.1961-Oct.1967</i>	(2) <i>Nov.1961-Mar.1968</i>	(3) <i>Nov.1961-Mar.1968</i>
Growth rate of French gold (-1)	-0.11 (0.57)	-1.86 (3.56)	2.90 (4.21)
Growth rate of US monetary gold (-1)	4.58** (2.29)	-44.86*** (12.00)	23.24** (10.84)
US inflation rate (-1)	-19.21*** (6.42)	-40.05 (39.27)	
Sterling forward rate (-1)	355.01*** (129.60)	833.93*** (111.19)	
US Federal deficit (-1)	-13.74** (5.36)	-70.72** (32.77)	
Constant	-968.44*** (361.35)	-2250.18*** (309.38)	
Adjusted R-square	0.30	0.51	0.01
Nb of observations	72	77	77

Table 4: Determinants of Gold Pool interventions (monthly data)

³¹ The US government deficit is the “net operating surplus”, seasonally adjusted, available from FRED (series FGOSNTQ027S). We divide it by GDP and use a quadratic interpolation to obtain a quarterly series.

³² Data from the monthly volumes of the *International Financial Statistics*.

The main results are as follows:

- For the samples we are looking at, we do not find a significant effect of French operations on Gold Pool interventions. This does not mean that they did not matter during some periods, but they cannot be viewed as a major factor explaining the regular operations of the Gold Pool to stabilize the London price of gold. This is even true when not accounting for sterling as done in Table 4, column (3).
- The sterling forward rate has a strong effect on Gold Pool operations. The effect is much stronger after the devaluation but is nevertheless important before (comparing column 1 and 2 in Table 4) .
- US factors played a significant role. When the US inflation, deficits or US monetary gold losses increase, the Gold Pool deficit increases (the Gold Pool is forced to sell more gold). This effect for the US deficits is five times stronger when the period November 1967-March 1968 is included into the sample, which corroborates the argument that, besides depreciating sterling, US domestic policy (and especially the failed stabilization plan of January 1968, see Solomon 1986, 117; Gavin 2004, 177-180) was also key to explain the US decision to close the Gold Pool in early 1968.
- The path of US gold stocks is also influencing interventions, with the expected sign before the devaluation of sterling (when the gold stock decreases – i.e balance of payments deficit increases - , the Gold Pool has to intervene more). But the sign of the coefficient is reversed after the devaluation of sterling (conditional on the value of the other variables if you compare (2) and (3)). This means that it is mostly because of the sterling devaluation and the US inflation rate and deficit that the Gold Pool interventions increased from November 1967 to March 1968, rather than because of an independent effect of the growth of the US gold stock. This result is in line with our previous finding that has stressed that the US gold stock decreased mainly because of Gold Pool losses during this period.

To sum up, our econometric analysis has shown that Gold Pool interventions were significantly determined by both US domestic conditions and the sterling (forward) exchange rate. This was already the case before the sterling devaluation and such effects became

stronger after.³³ The sterling devaluation was a trigger and led to unprecedented interventions but the main factors influencing Gold Pool interventions were already in place long before.

e. France, a minor spoiler?

The econometric investigation concludes that the French conversion of dollars into gold had a quite minor effect on the market dollar price of gold and Gold Pool operations. This conclusion may seem surprising given that French policy has often been portrayed as a key factor undermining the confidence in the dollar during this period. Coombs (1976) mentions the “Gaullist attack on the dollar and sterling” as one of the causes of the fall of the Gold Pool. Eichengreen (2006, 52) mentions the attack by the French president as one of many contributing factors to a deteriorating situation after 1964. Meltzer (1991, 63) argues that France was the main gold buyer and presents 1967 as the peak year for French gold accumulation. The French were of course themselves eager to claim that their behavior was powerful enough to shape the destiny of the international monetary system (Monnet 2017). So, has the power of France been exaggerated?

Besides our econometric analysis, it worth looking at contemporary views from the market. The Bank of England was at the front line of the Gold Pool and documented the movement on both the foreign exchange and gold markets. On the day of the aggressive speech by President de Gaulle against the dollar, the dealers at the Bank of England were unimpressed at best. Their daily report reads: “The statement on the gold exchange standard by General de Gaulle did not create any fresh activity in the gold market; it came after effective dealing hours for Continental operators”. The next day, despite noting that “buying was rather heavy” on the gold market, the dealers also assessed that “General de Gaulle's

³³ Between 1965 and March 1968, the cumulative deficit of the Gold Pool was \$3692 million (half of this amount was covered by the US); during the same period, the US monetary gold stock diminished by roughly a quarter from \$15,258 to \$11,009 million. American Gold Pool losses account for 44% of US gold stock diminution (\$1846 out of a \$4162 million drop). US monetary gold data is from Fred. Gold Pool losses are from BISA_7.18 (14) LAR27 “Summary of Gold Pool operations” 28th June 1968. Eichengreen (2010, 54) offers similar figures.

discourse had little effect upon the exchange market although there was at first a disposition for dollars to be offered in Switzerland”.³⁴

A closer look at the London gold price and the intervention operation by the Bank of England, leads to similar conclusions. While the speech was followed by one month of general gold price increases (not unusual after September 1964), interventions during this time did not seem to show that the Bank of England was in distress. The announcement happened on an upward trend of the gold price in the aftermath of the British election. One month after the announcement, the Bank of England spent \$54.6 million on behalf of the Gold Pool when the month before they only spent \$7.7 million. But this effect was only short lived and February 1965 does not stand as a clear break in Gold Pool interventions: the net losses of the Pool were \$18.2 million during the three months before and \$19.2 million during the three months after de Gaulle’s speech.

In 1967, the Banque de France was no longer demanding gold at the US window. French anti-cooperative behavior was revived when the Banque suspended its participation to the syndicate during the summer. This behavior by the French authorities had minor consequences for the functioning of the Pool. France de facto left the Gold Pool in June 1967 because she disagreed with the decision to increase the resources of the Pool, but the French decision to cease participation remained secret until it was revealed by a leak in the Press in November 1967, three days after the devaluation of sterling.

A confidential note written at the international directorate of the Banque de France on June 8, 1967 clearly laid down the reasons why France decided to stop participating in the Pool without formally leaving it. At that time, the losses of the syndicate were not seen as a major concern since they were moderate in comparison to the previous surpluses. According to this note, the main reason for leaving the syndicate was to "no longer support without limit

³⁴ ‘Daily Dealer’s reports’, 4 February 1965, Archives of the Bank of England, reference C8/29.

a monetary system that works in a way that we consider unsatisfactory". Yet, it was recommended not to formally and publicly leave the Pool but instead to suspend participation if the limit of resources was increased again. Leaving the Pool "would not have been a surprise" to other participants "given the usual reserved attitude" of France toward the Pool. However, it would have been an overly strong attack against political cooperation with the Western allies. Exactly following this recommendation, the Banque de France suspended its participation in the Pool on June 11 at the 31st meeting of the gold experts. This was the day when it was decided to increase the limits of the resources of the Pool from 370 to 420 million of USD, the Banque announced that it would no longer take part in the allocation of the losses when the deficit of the Pool was below the maximum amount fixed in September 1966 (\$320 million). Hence, France in fact never formally left the Pool but it became clear by the end of November 1967, given the large and immediate losses that had followed the sterling devaluation, that France would never contribute again to it.

f. US inflation issues and the failure of early 1968 measures to restore the credibility of the dollar

The Triffin Dilemma dominated the thinking of policy makers in the heyday of the convertible BWS from 1959 to 1967 (James 1996). Policymakers devoted considerable effort to both protecting US monetary gold reserves and to providing alternative sources of liquidity to prevent the inevitable deflation that Triffin predicted. Triffin's analysis followed the earlier approach by Mlynarski (1929) to the breakdown of the interwar gold exchange standard (Eichengreen 1992). Like Mlynarski, Triffin's story predicted deflation. In actual fact, the BWS eventually collapsed because of inflation (Bordo and McCauley 2015).

An alternative more optimistic view of the operation of the BWS was posited by Despres, Kindleberger and Salant (1966) as well as McKinnon (1969). They argued, in contra

distinction to Triffin, that the ongoing US balance of payments deficit was not really a problem. The rest of the world voluntarily held dollar balances because of their valuable service flow meaning that the deficit was demand determined. They viewed the US as supplying financial intermediation services to the rest of the world. Europeans borrowed long-term capital from the US because the US capital markets were deeper and more efficient and interest rates were lower. In turn, Europeans maintained short-term balances in American banks because of a higher return. Maintaining this system was predicated on a stable nominal anchor i.e that the Federal Reserve as the central bank of the key currency of the system would follow stable monetary policy and keep inflation low. An historical precedent to the gold dollar standard was the policies followed by the Bank of England under the pre-1914 classical gold standard. The Bank of England which was the equivalent of the Fed at the time as key central bank in the global monetary system operated on a very thin film of gold—its gold reserve ratio was less than 5% (Sayers 1957). It was able to do this because it was credibly committed to maintain gold convertibility (Bordo and Kydland 1995).

As events turned out the BWS did not last indefinitely in fact it collapsed between 1968 and 1971. The key force that led to the breakdown of the BWS was the rise in inflation in the center country, the United States, beginning in 1965. Until that year the Federal Reserve Chairman William McChesney Martin had managed to keep low inflation. The Fed also worried about the balance of payments and the stock of US monetary gold in its policy deliberations (Bordo and Eichengreen 2013). Beginning in 1965 the Fed under Chairman Martin shifted to an inflationary policy (see Figure 9).

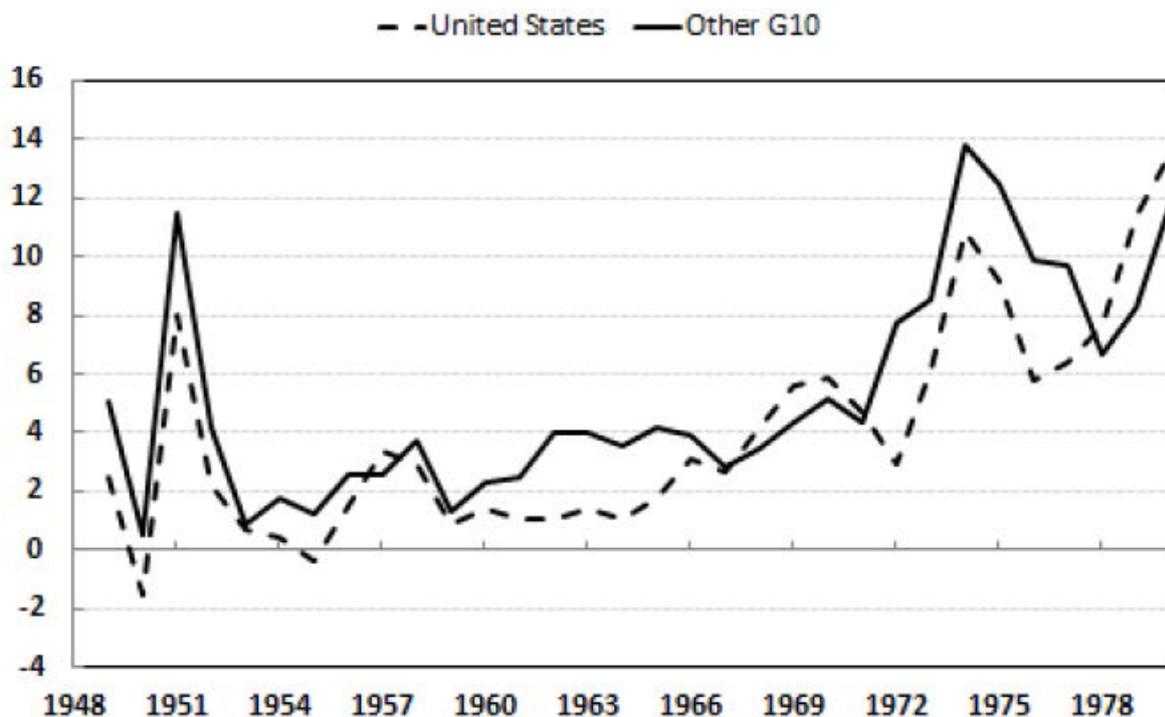


Figure 9 - Inflation Rates US and G10. Source: U.S. Bureau of Labor Statistics, IMF (various issues).

The shift in policy reflected the accommodation of fiscal deficits reflecting the increasing expense of the Vietnam war and Lyndon Baines Johnson's Great Society, and it was based on the belief that the Fed could manage the Phillips Curve tradeoff between inflation and unemployment (Meltzer 2010 vol 2 Book 1). In addition, as the inflation rate ratcheted up, fear that the tight monetary policies required to reduce it would lead to rising unemployment and a political backlash against the Fed made first Chairman Martin and then Arthur Burns, his successor, reluctant to stop it (Bordo and Orphanides 2013, Introduction). Increasing money growth led to rising inflation. Rising US inflation then spread to the rest of the world through growing US balance of payments deficits. This led to growing balance of payments surpluses in Germany and other countries. The German monetary authorities (and other surplus countries) attempted to sterilize the inflows but were eventually unsuccessful leading to growing inflationary pressure (Darby, Lothian et al 1983).

Following the devaluation of sterling in November 1967, pressure mounted against the dollar via the London gold market. European partners of the Gold Pool started to doubt

the viability of the scheme but they were brought together again in a joint statement pledging to support the gold price on 26 November (Schenk 2010, 182). American officials proposed a new gold certificate program (Gavin 2007, 172). Under this new scheme, Gold Pool members would receive a gold certificate compensating them for their losses with the gold syndicate. However, this paper gold was not welcomed by Europeans.

On February 28, 1968 Senator Jacob Javits called for a cessation of Gold Pool activities which only increased the pressure on the Pool (Coombs 1976, 165). A few days before closing the market, Walt Rostow, in a memo to President Johnson, wrote that one of the reasons to close the gold market was to “Avoid losing perhaps \$1 billion in gold tomorrow (we lost \$372 million today [March 14th])”. Therefore, the decision was not taken lightly. In the same memo, Rostow stresses that closing the market could “reduce the US bargaining position with the Europeans”.³⁵

On March 14, Johnson asked Treasury Secretary Henry Fowler to contact the British Chancellor of the Exchequer Roy Jenkins to suggest closing the gold market (Roy 2002, 52). Jenkins welcomed the news to divert the focus from sterling, which again was in crisis, to gold (Hamilton 2008, 89). He took the opportunity to declare a Bank Holiday and close the foreign exchange market at the same time, making it look like an American initiative to give sterling some breathing space. On March 15, 1968, the Gold Pool was disbanded and a two-tier arrangement put in its place. After closing the gold market, Johnson sent a telegram to German Chancellor Kurt Georg Kiesinger in Berlin. The President stressed that if the troubles from closing the gold market were not “promptly and firmly overcome”, it could “profoundly

³⁵ ‘Memorandum from the President's Special Assistant (Rostow) to President Johnson’, Walt Whitman Rostow, March 14, 1968, US State Department archives, International Monetary and Trade Policy General and Financial and Monetary Policy (Document 189), available online at <https://history.state.gov/historicaldocuments/frus1964-68v08/d189>.

damage the political relations between Europe and America and set in motion forces like those which disintegrated the Western world between 1929 and 1933”.³⁶

Following the closure of the London gold market, European partners were summoned to Washington for a meeting at the Federal Reserve Board on Saturday March 16. Meeting participants agreed to temporarily close the London gold market and to officially end operations of the Gold Pool. In the press release, the US committed to using all its gold reserves to defend the \$35 parity (the Senate had just approved removing the gold cover, which had limited US commitment – the House would follow a few days later). The counterpart of the deal was that European countries would commit to looser monetary policies to minimize capital flight from the US. What the press release did not disclose is that according to Coombs (1976, 171) “a secret commitment to counter hot money flows in the exchange markets and to consolidate, in due course, any foreign currency debts arising from such United States government exchange operations by recourse to the International Monetary Fund”. As emphasized by Toniolo and Clement (2005, 422-423), European central banks were glad to abandon the Gold Pool in March 1968 since the scheme had proved to be costly in the preceding months. Furthermore, the option of the two-tier market had been proposed as an alternative by the Italian and Belgian governors as soon as December 1967.

The monetary authorities of the Gold Pool agreed neither to sell nor to buy gold from the market and would transact amongst themselves at the official \$35 price. As a consequence, the link between gold production and other sources of gold and official reserves was cut. In the following three years, the US put considerable pressure on other monetary authorities to refrain from converting their dollar holdings into gold. The gold market reopened on April 1, and the price was kept in check. In 1969, thanks to increased supply

³⁶ ‘Telegram from the Department of State to the Embassy in Germany’, Lyndon B. Johnson to Chancellor Kurt Georg Kiesinger, March 15, 1968, US State Department archive, International Monetary and Trade Policy General and Financial and Monetary Policy (Document 252).

from South Africa along with an “overhang of private hoards” (Coombs 1976, 173) the market was able to stabilize at lower prices.

1968-69 was characterized by currency crises in France and Germany leading to devaluation in France and a temporary float and then revaluation in Germany taking the pressure temporarily off the US. In 1970 US interest rates fell in response to rapid monetary expansion and the US balance of payments mushroomed to \$9 billion. The deficit exploded to \$30 billion by August 1971. The dollar flood increased the reserves of the surplus countries auguring inflation. German money growth doubled from 6.8% to 12% in 1971 and the German inflation rate increased from 1.85 in 1969 to 5.35 in 1971 (Meltzer 1991). In April 1971, the dollar inflow to Germany reached \$3 billion. On May 5 1971 the Bundesbank suspended official operations in the foreign exchange market and allowed the Deutsche mark to float. Similar actions by Austria, Belgium, the Netherlands and Switzerland followed (Solomon 1976). In April 1971, the US balance of trade turned to deficit for the first time. The decision to suspend gold convertibility by President Richard Nixon on August 15 1971 was triggered by French and British intentions in early August to convert dollars into gold. The US decision to suspend gold convertibility ended a key aspect of the Bretton Woods system. The remaining part of the system, the adjustable peg disappeared by March 1973.

A major reason for Bretton Woods’ collapse was the inflationary monetary policy that was inappropriate for the key currency country of the system. The Bretton Woods system was based on rules, the most important of which was to follow monetary and fiscal policies consistent with the official peg. The US violated this rule after 1965 (Bordo 1993) and the 1967 sterling crisis leading to the end of the Gold Pool had not changed US policies.

Conclusion

This paper showed how the 1967 sterling devaluation was the trigger for a speculative run on gold that undermined the gold-dollar parity. This run caused unbearable losses for the Gold Pool. The role of sterling in the demise of the Gold Pool had often been hypothesized or even anticipated but this claim had never been investigated in a quantitative perspective before. The impact of the devaluation of the pound was not visible in the price of gold in 1967 since it was stabilized around an upper bound thanks to large Gold Pool interventions. This paper was able to substantiate this claim thanks to unique archival data (that were not publicly released) on Gold Pool interventions and on central banks' demand at the US gold window. We also show that contagion between the sterling exchange rate and the dollar price of gold had started much before and continued until the end of the Gold Pool in March 1968.

This paper also clarifies the position of France in the Bretton Woods system. Bordo Simard and White (1993) as well as Monnet (2013, 2017) have shown how France behaved opportunistically in the mid-1960s to benefit from Anglo-American weaknesses. French authorities liked to view themselves as a major power and troublemakers against US hegemony, while, for the US, France was a useful culprit. Evidence in this paper shows that the effects of France's actions on the gold market and the Bretton Woods system were minor at best. The strong link between sterling and the London gold market appears to be a much more salient feature of the period 1964-1967.

This paper also has broader implications for central bank cooperation. Cooperation in the Gold Pool remained technical rather than political and no effort was made to correct imbalances. The US refused to stabilize inflation, which undermined the credibility of the gold-dollar parity, and supported measures to delay the adjustment of sterling exchange rate. Europeans neither committed to implement policies to counter the inflows of US dollars (they finally did after the Gold Pool ended) nor to run domestic policies or adjust their peg in order

to avoid speculation against their currencies. In such circumstances, the contagion from the 1967 sterling devaluation to the US gold-dollar parity turned out to be a fatal blow. The Gold Pool first absorbed the shock (without France's participation) but the cost proved to be too high and central bank cooperation was deemed insufficient. Missing coordination of domestic policies or rule-based domestic policies, the interventions of the Gold Pool were not able to stop contagion between the two main reserve currencies.

Bibliography

- Accominotti, Olivier, Jason Cen, David Chambers, and Ian Marsh. 2017. 'Currency Regimes and the Carry Trade'. *Working Paper*.
- Bai, Jushan, and Pierre Perron. 1998. 'Estimating and Testing Linear Models with Multiple Structural Changes'. *Econometrica* 66 (1): 47–78.
- . 2003. 'Critical Values for Multiple Structural Change Tests'. *Econometrics Journal* 6 (1): 72–78.
- Bank for International Settlements. 1966. 'Annual Report'. *Bank for International Settlements*.
- Benati, Lucas, and Charles Goodhart. 2010. 'Monetary Policy Regimes and Economic Performance: The Historical Record 1979-2008'. In *Handbook of Monetary Economics: Vol. 3A*, edited by Benjamin Friedman and Michael Woodford. New York: North Holland Press.
- Benigno, Gianluca, and Pierpaolo Benigno. 2006. 'Designing targeting rules for international monetary policy cooperation.' *Journal of Monetary Economics* 53.3: 473-506.
- Bordo, Michael D. 1993. 'The Bretton Woods International Monetary System: A Historical Overview'. In *A Retrospective on the Bretton Woods System: Lessons for International Monetary Reform*, edited by Michael D. Bordo and Barry Eichengreen, 3–109. Chicago: University of Chicago Press.
- . 2017. 'The Operation and Demise of the Bretton Woods System; 1958 to 1971'. Working Paper 23189. National Bureau of Economic Research.
- Bordo, Michael D., and Barry J. Eichengreen. 1993. *A Retrospective on the Bretton Woods System: Lessons for International Monetary Reform*. Chicago: University of Chicago Press.
- . 2008. 'Bretton Woods and the Great Inflation'. Working Paper 14532. National Bureau of Economic Research.
- . 2013. 'Bretton Woods and the Great Inflation'. In *The Great Inflation: The Rebirth of Modern Central Banking*, edited by Michael D. Bordo and Athanasios Orphanides. Vol. Chapter 9. Chicago: University of Chicago Press.
- 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., Ronald MacDonald, and Michael J. Oliver. 2009. 'Sterling in Crisis, 1964–1967'. *European Review of Economic History* 13 (3): 437–59.
- Bordo, Michael D., and Anna J. Schwartz. 1999. 'Monetary Policy Regimes and Economic Performance; The Historical Record'. In *Handbook of Macroeconomics*, edited by John B. Taylor and Michael Woodford. Elsevier.
- Bordo, Michael D., Eugene N. White, and Dominique Simard. 1995. 'France and the Breakdown of the Bretton Woods International Monetary System'. In *International Monetary Systems in Historical Perspective*, edited by Jaime Reis, St. Martins Press. New York.
- Bordo, Michael D. and Catherine Schenk. 'Monetary policy cooperation and coordination: an historical perspective on the importance of rules'. In: Bordo, M. D. and Taylor, J. B. (eds.) *Rules for International Monetary Stability: Past, Present, And Future*. Hoover Institution Press: Stanford, CA, pp. 205-261.
- Bott, Sandra. 2013. 'South African Gold at the Heart of the Competition between the Zurich and London Gold Markets at a Time of Global Regulation, 1945–68'. In *The Global Gold Market and the International Monetary System from the Late 19th Century to the Present: Actors, Networks, Power*, edited by Sandra Bott, 109–39. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.
- Cairncross, Alec, and Barry J. Eichengreen. 1983. *Sterling in Decline*. Oxford, England: Wiley-Blackwell.

- Capie, Forrest. 2010. *The Bank of England: 1950s to 1979*. Cambridge: Cambridge University Press.
- Chițu, Livia, Barry Eichengreen, and Arnaud Mehl. 2014. 'When Did the Dollar Overtake Sterling as the Leading International Currency? Evidence from the Bond Markets'. *Journal of Development Economics*, Special Issue: Imbalances in Economic Development, 111 (November): 225–45.
- Coombs, Charles A. 1976. *The Arena of International Finance*. New York: Wiley.
- Darby, Michael R., James R. Lothian, Anna J. Schwartz, and Alan C. Stockman. 1983. *The International Transmission of Inflation*. University of Chicago Press. Chicago.
- Despres, Emile, Charles Poor Kindleberger, and Walter S. Salant. 1966. *The Dollar and World Liquidity: A Minority View*. *Economist* 5 (February).
- Eichengreen, Barry J. 1993. 'Epilogue: Three Perspectives on the Bretton Woods System'. In *A Retrospective on the Bretton Woods System: Lessons for International Monetary Reform*, edited by Michael D. Bordo and Barry J. Eichengreen, 621–59. Chicago: University of Chicago Press.
- . 1996. *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939: Gold Standard and the Great Depression, 1919-39*. New Ed edition. OUP USA.
- . 2008. *Globalizing Capital: A History of the International Monetary System*. Second edition. Princeton: Princeton University Press.
- . 2010. *Global Imbalances and the Lessons of Bretton Woods*. MIT Press.
- . 2012. *Exorbitant Privilege: The Rise and Fall of the Dollar*. OUP Oxford.
- Eichengreen, Barry, Livia Chițu, and Arnaud Mehl. 2016. "Stability or upheaval? The currency composition of international reserves in the long run." *IMF Economic Review* 64.2: 354-380.
- Eichengreen, Barry J., and Marc Flandreau. 1997. *The Gold Standard in Theory and History*. Psychology Press.
- Emminger, Otmar. 1967. 'Practical Aspects of the Problem of Balance-of-Payments Adjustment'. *Journal of Political Economy* Vol 75 (No 4).
- Engel, Charles. 2016. 'International coordination of central bank policy'. *Journal of International Money and Finance*, 67, 13-24.
- Farhi, Emmanuel, and Matteo Maggiori. 2016. 'A Model of the International Monetary System'. Working Paper 22295. National Bureau of Economic Research.
- Gavin, Francis J. 2007. *Gold, Dollars, and Power: The Politics of International Monetary Relations, 1958-1971*. 1 edition. Chapel Hill etc.: The University of North Carolina Press.
- Gilbert, Milton. 1968. *The Gold-Dollar System: Conditions of Equilibrium and the Price of Gold*. International Finance Section, Princeton University.
- Graber, Peter M. 1993. 'The Collapse of the Bretton Woods Fixed Exchange Rate System'. In *A Retrospective on the Bretton Woods System: Lessons for International Monetary Reform*, edited by Michael D. Bordo and Barry J. Eichengreen, 461–95. Chicago: University of Chicago Press.
- James, Harold. 1996. *International Monetary Cooperation Since Bretton Woods*. Washington, D.C. : New York: Oxford University Press Inc.
- Hamilton, Arran. 'Beyond the Sterling Devaluation: The Gold Crisis of March 1968'. *Contemporary European History* 17, no. 1 (2008): 73–95.
- Keynes, John Maynard. 1943. 'Proposals for an International Clearing Union'. In *The International Monetary Fund 1945-1965: Twenty Years of International Monetary Cooperation*, edited by J. K. Horsefield. International Monetary Fund.
- Kriz, Miroslav A. 1959. 'Gold in World Monetary Affairs Today'. *Princeton Essays in International Finance*, no. No. 34.

- McCauley, Robert N., and Catherine R. Schenk. 2015. 'Reforming the International Monetary System in the 1970s and 2000s: Would a Special Drawing Right Substitution Account Have Worked?' *International Finance* 18 (2): 187–206.
- McKinnon, Ronald I. 1969. *Private and Official International Money: The Case for the Dollar*. International Finance Section, Dept. of Economics, Princeton University.
- Meltzer, Allan H. 1991. 'U.S. Policy in the Bretton Woods Era - Review - St. Louis Fed'. *Federal Reserve Bank of St. Louis Review*, no. 73 (May/June): 54–83.
- . 2010. *A History of the Federal Reserve, Volume 2, Book 1, 1951-1969*. 1 edition. Chicago: University of Chicago Press.
- Mlynarski, Feliks. 1929. *Gold and Central Banks*. The Macmillan Co. New York.
- Monnet, Eric. 2013. 'Une Coopération À La Française. La France, Le Dollar et Le Système de Bretton Woods, 1960-1965'. *Histoire@Politique. Politique, Culture, Société* 19.
- . 2017. 'French Monetary Policy and the Bretton Woods System: Criticisms, Proposals and Conflicts'. In *Bretton Woods: Global Perspective on the Conference and the Post-War World Order*, Palgrave MacMillan, forthcoming. G.Scott-Smith and J.Simon Rofe.
- Monnet, Eric, and Damien Puy. 2016a. 'Foreign Reserves and International Adjustment under the Bretton Woods System: A Reappraisal'.
- . 2016b. 'Has Globalization Really Increased Business Cycle Synchronization?' IMF Working Paper 16/54. International Monetary Fund.
- Mundell, Robert A. 1969a. 'The International Monetary Fund'. *Journal of World Trade Law* 3: 455–97.
- . 1969b. 'Problems of the International Monetary System'. In *Monetary Problems of the International Economy*, edited by Robert A. Mundell and Alexander K. Swoboda. Chicago: University of Chicago Press.
- Naef, Alain. 2017. 'Dirty float or clean intervention? The Bank of England on the foreign exchange market, 1952-72'. *University of Cambridge Mimeo*.
- Nurkse, Ragnar. 1944. *International Currency Experience*. League of Nations. Geneva.
- Oudiz, Gilles, and Jeffrey Sachs. 1984. 'Macroeconomic Policy Coordination among the Industrial Economies'. *Brookings Papers on Economic Activity* 1984 (1): 1–75.
- Rogoff, Kenneth. 1985. 'Can International Monetary Policy Cooperation Be Counterproductive?' *Journal of International Economics* 18 (3): 199–217.
- Roy, Raj. 'The Battle for Bretton Woods: America, Britain and the International Financial Crisis of October 1967-March 1968'. *Cold War History* 2, no. 2 (1 January 2002): 33–60.
- Rueff, Jacques. 1969. 'Increase the Price of Gold'. In *The International Monetary System: Problems and Proposals*, edited by Lawrence H. Officer and Thomas D. Willett, 179–90. Englewood Cliffs NJ: Prentice-Hall.
- Sayers, Richard S. 1957. *Central Banking after Bagehot*. Oxford: Clarendon Press.
- Schenk, Catherine R. 2010. *The Decline of Sterling: Managing the Retreat of an International Currency, 1945–1992*. Cambridge University Press.
- Solomon, Robert. 1982. *The International Monetary System, 1945-1981*. Second edition [first edition 1976]. New York: Harper & Row.
- Taylor, John B. 1985. 'International Coordination in the Design of Macroeconomic Policy Rules'. *European Economic Review* 28 (1): 53–81.
- Taylor, John B. 2013. 'International monetary coordination and the great deviation.' *Journal of Policy Modeling* 35.3, 463-472.
- Toniolo, Gianni, and Piet Clement. 2005. *Central Bank Cooperation at the Bank for International Settlements, 1930-1973*. Cambridge University Press.
- Triffin, Robert. 1964. *The Evolution of the International Monetary System: Historical Reappraisal and Future Perspectives*. International Finance Section, Department of Economics, Princeton University.

Van Hoang, Thi Hong. 2010. 'The Gold Market at the Paris Stock Exchange: A Risk-Return Analysis 1950-2003 / Der Goldmarkt an Der Pariser Börse: Eine Rendite-Risiko-Analyse 1950-2003'. *Historical Social Research / Historische Sozialforschung* 35 (3 (133)): 389–411.