Where It All Begins: Eurodollars and International Monetary Policy Transmission under Bretton Woods

Guillaume Bazot *Eric Monnet †Matthias Morys ‡

November 11, 2025

Abstract

The origins of modern financial globalization are often traced to the rise of the Eurodollar market in the 1960s. Yet we know little about whether this early globalization actually constrained national monetary policies when capital controls and fixed exchange rates were still in place. Are moderate financial openness and offshore markets enough to generate international spillovers? To shed light on this issue, this paper revisits international monetary transmission under the Bretton Woods system (1947–1971). We construct a new monthly series of exogenous U.S. monetary policy shocks based on daily surprises in the Federal Reserve discount rate. Unlike simple changes in the discount rate or the federal funds rate, our measure shows that U.S. monetary policy was active during Bretton Woods and produced domestic effects on inflation, output, and unemployment similar to those observed after 1971. Moreover, following the restoration of current account convertibility in 1958, U.S. tightening raised Eurodollar and foreign money market rates, inducing temporary capital inflows and a medium-term decline in private bank credit, but no significant impact on output or prices abroad. These findings reveal that even limited financial integration can transmit monetary shocks globally, while domestic financial regulation shape their real consequences.

Keywords: International monetary transmission; U.S. monetary policy shocks; Bretton Woods system; Eurodollar market; Capital controls; Financial globalization; Trilemma.
JEL Codes: E52, F42, F33, F36, E44, N20, N10.

Disclosure statement The authors declare that they have no relevant or material financial interests that relate to the research described in this paper. Research funds were provided by Labex OSE - EUR grant ANR-17-EURE-0001 (French National Research Agency).

*Aix-Marseile School of Economics (AMSE)
†Paris School of Economics (PSE), EHESS, CEPR, CEPII.
‡University of York

1 Introduction

International monetary policy spillovers have become a central theme in modern macroeconomics. A large body of evidence shows that policy rate changes in major financial centers transmit across borders through financial arbitrage, affecting domestic interest rates, asset prices, and macroeconomic conditions.[1] In financially open economies, such spillovers arise either because fixed exchange rates impose the classical trilemma constraint, or—under flexible regimes—because common risk-premia movements propagate a global financial cycle, turning the trilemma into a "dilemma."

Despite this progress, a key question remains unresolved: *how much financial openness is required for monetary spillovers to operate?* The empirical literature rarely addresses this issue explicitly, in part because it almost exclusively studies the post-1990 period of deep financial globalization (or 'hyper-globalization'). Existing evidence therefore leaves open whether international monetary transmission is a phenomenon specific to the hyper-globalization era, or a more general feature of the international monetary system.

This question is particularly relevant when revisiting the Bretton Woods system (1944–1971). While this period is still commonly characterized as one of monetary autonomy under fixed exchange rates ensured by extensive capital controls, historical scholarship paints a more nuanced picture. Capital controls and foreign exchange restrictions initially insulated national policies, but the restoration of current account convertibility after 1958 and the rapid emergence of the Eurodollar market progressively reopened channels for cross-border arbitrage [Bordo, 1993]. Thus, there is a tension in the literature—acknowledged by many scholars [Schenk, 2013, Eichengreen, 2016, Obstfeld and Taylor, 2017] yet unresolved by quantitative evidence—regarding whether Bretton Woods constituted a temporary episode of genuine monetary autonomy enabled by financial restrictions, or whether even limited financial openness already made fixed exchange rates increasingly incompatible with domestic policy independence.[2]

[1] See, among others, Kim [2001], Uribe and Yue [2006], Bruno and Shin [2015], Rey [2015], Dedola et al. [2017], Kalemli-Özcan [2019], Degasperi et al. [2023].

[2] "During the 1960s the Bretton Woods system was further undermined by innovations in international banking and capital markets, first with the expansion of the Eurodollar market and then its translation into the Eurobond market. These markets operated outside the capital controls and prudential supervisory systems of national central banks and allowed greater convertibility to stretch the post-war solution to the Mundell-Fleming policy trilemma, which relied on closed capital markets to facilitate pegged exchange rates while preserving national monetary policy sovereignty" [Schenk, 2013, 186]. "Bretton Woods was then an experiment with an alternative trilemma configuration: stable exchange rates, greater monetary autonomy, and limits on capital flows. In practice, however, monetary policy was acyclic. Capital controls provided only partial insulation (more partial as the period progressed)." [Eichengreen, 2016, 8] "In sum, by eliminating capital mobility, the Bretton Woods system set up a resolution of the monetary trilemma based on exchange-rate stability and a degree of autonomy of monetary policy" [...] "However, one result of the

Did Bretton Woods effectively insulate national monetary policy? When did spillovers re-emerge? And through which channels did they operate? To answer these questions, we construct a new monthly series of exogeneous U.S. monetary policy shocks for 1946–1971 by extracting unanticipated movements in the Federal Reserve discount rate—the key central bank instrument observed by domestic and foreign policymakers at that time—purged of contemporaneous market movements and predictable macroeconomic information.[3] In order to study the international impact of U.S. shocks and their mechanisms, we assemble newly digitized monthly macro-financial data for a panel of countries and augment these with novel data on Eurodollar interest rates and U.S. capital flows.

Our analysis yields four main findings. First, contrary to frequent claims, U.S. monetary policy was active during Bretton Woods. An exogenous increase in the discount rate leads to conventional macroeconomic responses: industrial production and inflation decline, while unemployment rises.

Second, we document a clear financial channel of international monetary policy transmission: U.S. monetary tightening raises Eurodollar rates and induces private capital inflows into the United States. A 100-basis-point discount rate shock increases the Eurodollar rate by roughly 50 basis points— similar to the onshore response of the Fed Funds rate —and triggers significant capital inflows. This provides the first quantitative evidence that the Eurodollar market indeed constrained U.S. monetary policy and re-opened cross-border arbitrage well before deeper financial liberalization and complete abolishment of capital control in US and Europe.

Third, the transmission of U.S. policy abroad changes sharply over time. Prior to the restoration of convertibility in 1958, foreign interest rates, capital flows, macroeconomic outcomes and exchange market conditions remain unresponsive to U.S. policy shocks. In this initial phase, stringent foreign-exchange controls deliver the textbook trilemma corner. After convertibility is restored in advanced economies by 1959, spillovers emerge despite continued capital controls.

Fourth, the international transmission of U.S. monetary policy began to operate during the post-1959 phase of the Bretton Woods system, but it primarily affected financial

Bretton Woods system's successes was that the opportunity for capital flows inevitably grew and unwanted leakages increasingly seeped through." [Obstfeld and Taylor, 2017, 10-11]

[3]Following recent attempts to apply high-frequency identification to historical data [Cloyne et al., 2022, Bouscasse, 2022, Bazot et al., 2024], we build our shock (monetary policy surprises) in two steps. We first purge the discount rate from daily fluctuations in the money market rate, the stock market and the exchange rate occurring before the monetary policy decision. We then regress this residual on vintage monthly economic variables to be sure that the shock could not be predicted by information available to contemporary economists. This second step is similar to the one applied by Bauer and Swanson [2023b] to more recent data in order to isolate surprises not predictable by macroeconomic outcomes.

variables—most notably money market rates. In contrast, we find no robust or significant response of output or inflation to these shocks. Following the interpretations of Monnet [2014], Aikman et al. [2016], Monnet [2018b] and contemporary accounts such as Shonfield [1965], Thurow [1971], Hodgman [1973], we interpret this result as evidence that interest rate shocks—whether originating abroad or domestically—had limited transmission to the real economy outside the United States during this period. The disconnect between interest rates and macroeconomic activity was made possible by extensive banking regulation and government intervention in credit markets. Specifically, changes in money market rates affected commercial bank funding costs (and potentially arbitrage in equity markets) but had little impact on the broader economy because (i) many lending and deposit rates remained regulated and legally fixed, and (ii) a large share of credit was issued by government-backed special credit institutions at subsidized rates. Against this backdrop, central banks outside the United States generally relied more heavily on quantitative credit controls to restrict lending and combat inflation, which often generated a disconnect between changes in interest rates and the actual monetary policy stance Monnet [2018b].

An important implication of this finding is that, once current account convertibility was restored, domestic economies were shielded from U.S. monetary shocks less by capital controls than by their own systems of credit regulation—what would later be termed "financial repression" [Reinhart and Sbrancia, 2015]. This situation changed after the Bretton Woods era. Financial liberalization, which began in the early 1970s and was fully achieved only in the 1980s, sought to give market-determined interest rates a greater role in both credit allocation and monetary policy. Notable examples include the 1971 *Competition and Credit Control* reform package in the United Kingdom Hodgman [1973]. Our results clearly show that money market rates—and, to a lesser extent, central bank policy rates—became increasingly interconnected internationally during the latter half of the Bretton Woods period. Although these linkages did not yet translate into significant macroeconomic effects, given pervasive government intervention in credit markets, they implied that the domestic financial liberalizations of the 1970s–1980s would make national economies far more sensitive to international interest rate movements, had fixed exchange rates been maintained.

Taken together, our results indicate that the restoration of currency convertibility alone was sufficient to reintroduce monetary interdependence under Bretton Woods. Only the pre-1958 phase provided full monetary autonomy; once convertibility returned, even moderate financial openness compromised independence under fixed exchange rates by transmitting U.S. shocks to foreign money markets. At the same time, limited domestic financial liberalization prevented these shocks from propagating to output and inflation, highlighting that strong government regulation and credit policies can insulate the real economy even

when international interest rate arbitrage is active. This configuration bears resemblance to contemporary China, where short-term interest rates, exchange rates, and capital flows respond to U.S. monetary policy, while production and inflation remain partly insulated by domestic credit policies and the central bank's reliance on quantitative instruments, such as reserve requirements [Ho et al., 2018].[4]

This paper contributes to several literatures. By providing causal evidence that limited financial openness can transmit monetary shocks under fixed exchange rates, we clarify the conditions under which the trilemma operates [Obstfeld and Taylor, 2004, Obstfeld et al., 2019]. We also show that partial controls suppress spillovers in asset markets more effectively than in money markets, thus contributing to the literature on the global financial cycle and the autonomy of monetary policy [Miranda-Agrippino and Rey, 2020]. Consistent with Klein and Shambaugh [2015] and related work, capital controls only imperfectly insulate money markets.

However, we document that limited financial liberalization—i.e., strong credit regulation or what is often termed "financial repression"—was associated with an absence of monetary spillovers to the real economy. In such a heavily regulated environment with segmented credit markets, freely determined money market rates affected only a narrow portion of economic activity. This interpretation was already emphasized by contemporaries [e.g., Kaldor, 1960, Hodgman, 1973]. As a result, monetary policy outside the United States was largely implemented through quantitative credit controls—such as credit ceilings, reserve requirements, and liquidity ratios—and could therefore be disconnected from movements in market interest rates. In recent years, a small strand of literature has examined how this form of "monetary policy without interest rates" operated under Bretton Woods and what its macroeconomic consequences were [Monnet, 2014, Aikman et al., 2016, Galati et al., 2021]. Monnet [2018b] highlights the role of domestic credit controls, alongside capital controls, in preserving monetary policy autonomy. However, this paper does not analyze how financial liberalization gradually strengthened the interest rate transmission channel. Also relevant to our work is Degorce [2023], who shows that a substantial share of credit—often close to or exceeding 50% in many Asian and European countries during this period—consisted of "public credit," that is, subsidized loans granted below market rates by government-backed specialized credit institutions. For a limited number of countries (not fully overlapping with

[4]Miranda-Agrippino et al. [2023], Lodge et al. [2024] compare the international transmission of U.S. and Chinese monetary policies but do not examine the impact of U.S. policy on China specifically. **?** show that capital flows to and from China respond to U.S. shocks but do not analyze the effects on Chinese output and inflation. We are not aware of more recent studies studying the impact of U.S monetary shocks on China. Degasperi et al. [2023] document that industrial production and inflation in emerging markets react as strongly to U.S. monetary shocks as in OECD economies, but they do not explore how these reactions depend on government credit policies and domestic financial regulation.

our sample), he further shows that public credit was strongly countercyclical and could shield domestic macroeconomic variables from international shocks. We are, however, the first to conduct a systematic analysis of U.S. monetary policy transmission during this period and to compare the respective responses of interest rates and other financial variables with those of output growth and inflation. For today's emerging markets, De Leo et al. [2022] document—just as we do for advanced economies under Bretton Woods—a disconnect between the central bank policy rate and the money market rate, with the latter responding more strongly than the former.

We also contribute to the literature on Bretton Woods, Eurodollars, and financial openness. While the Bretton Woods system remains a central reference point for both policy and academic debates on the international monetary system [Farhi and Maggiori, 2018, Gourinchas et al., 2019, Obstfeld, 2024, Lagarde, 2025, McCauley, 2026], very few studies have used modern econometric tools to investigate how the system worked. Although it is well known that the Eurodollar market expanded sharply in the 1960s [Schenk, 1998, McCauley and Schenk, 2020], the extent to which it really altered the autonomy of U.S. monetary policy—or the exposure of other countries—remains uncertain. Obstfeld et al. [2005] show that average interest rate differentials were larger during Bretton Woods than in other periods, suggesting some insulation, yet their analysis does not identify the effects of exogenous monetary shocks, not do they look at the evolution over the 25 years of the Bretton Wood system. Monnet and Puy [2020] examine the management of gold and FX reserves but without making the link with international monetary policy transmission.

Last but not least, we build the first series of exogenous monetary policy shock for the United States before the 1970s. The influential Romer and Romer [2004] series of policy shocks begins only in 1969, excluding most of the Bretton Woods years. [Romer and Romer, 2002] show earlier evidence of Federal Reserve responsiveness to inflation and output in the 1950s, but they do not estimate its effect. Bordo [2010], Hetzel [2023] also provide qualitative evidence the Fed policy was active and influenced inflation and the business cycle (often contractionary, until it turned mostly expansionary after 1965) but they did not compute a series of policy shocks. In a recent paper, Romer and Romer [2024] confirm, based on narrative evidence, that the Fed policy could be very (September 1958) or mildly (October 1947, August 1955, and December 1968) contractionary during this period. But they only identify dates of contractionary policy rather than a continuous series of the monetary policy stance. Nor do they study the international impact of Fed decisions.

2 Historical background

This section first provides a brief summary of the history of the Bretton Woods system, from its establishment to its dissolution. It then describes the progressive financial openness that occurred during this period, marked by the return to currency convertibility and the development of the Eurodollar market.

2.1 The Bretton Woods system

The Bretton Woods system was created by the 1944 Articles of Agreement to design a new international monetary order at a multilateral conference held in Bretton Woods (New Hampshire, USA) from 1 to 22 July 1944. It was the first time in history that countries officially agreed on the rules of the international monetary system and signed a legally binding agreement that constrained their choice of exchange rate regime and capital openness. It was also the first time that gold was granted a status in international law, rather than solely in domestic law. This differed strikingly from previous gold standard regimes, which had operated in a decentralized manner and resulted from sequential national decisions to peg domestic currencies to gold (although temporary mechanisms of central bank cooperation had existed before World War II). Put differently, it was the first instance in which the organization of the international monetary system was the product of coordinated decisions and entrenched in international law.

As documented by many scholars (e.g., Bordo [1993], Eichengreen et al. [2018], Monnet and Puy [2020]), the main objectives of the Bretton Woods Conference were twofold: to avoid the succession of competitive devaluations that had occurred in the 1930s, and to combine domestic policy autonomy with financial and trade openness. The new system thus departed from the pre-war gold standard in several important ways. First, capital controls were officially allowed to prevent destabilizing international financial flows. Second, the International Monetary Fund (IMF) was created to provide short-term liquidity to domestic monetary authorities when needed. Third, pegged exchange rates could be adjusted with IMF approval in the event of a fundamental disequilibrium. Fixed exchange rates were no longer defined solely in terms of gold parity, but also in terms of the U.S. dollar (Articles of Agreement of the IMF, 22 July 1944, Article IV.1). Only the U.S. dollar was defined as convertible into gold at $35 per ounce. Fourth, gold retained a monetary role but only for exchanges between central banks.

Since it was the product of a conference held during wartime, the postwar functioning of the Bretton Woods system differed significantly from the design envisioned by its founders and developed gradually. The core foundation of the system was the Articles of Agreement

of the IMF. Signing this agreement made a country a member of the IMF and a participant in the rules of the international monetary system. The IMF came into official existence on 27 December 1945, when 29 countries signed its Articles of Agreement. The declaration of official par values by 32 nations first occurred in December 1946. The IMF began its operations (first loan to France) on 1 March 1947. For these reasons, the Bretton Woods system is said to have begun in 1947. Although the USSR had been a major actor at Bretton Woods, it eventually remained outside the IMF. The Bretton Woods system thus involved only capitalist countries.

As discussed below, it took more than a decade for major economies to restore currency convertibility, one of the system's objectives and considered essential for the restoration of global trade. For this reason, some scholars argue that the Bretton Woods system only truly began in 1959 [Bordo, 1993, Bordo et al., 2019]. Yet soon after this date, the gold parity of the U.S. dollar came under attack in the private gold market, which had reopened in London in 1954. The U.S. monetary authorities intervened in late 1960 to stabilize the dollar price of gold before seeking assistance from allies. From 1961 to 1968, the major economic powers coordinated to intervene in the London gold market to keep the dollar price of gold aligned with its official parity. This arrangement, known as the London Gold Pool, demonstrated that the exchange rate at the heart of the system (the gold–USD parity) was a managed price [Bordo et al., 2019]. This cooperation was not without friction, as some countries, notably France, occasionally used the situation to threaten the United States by converting dollar reserves into gold.

In early 1968, interventions became too costly, leading members of the Gold Pool to withdraw, and the United States created a two-tier system: the official price of gold (at which only central banks could exchange dollars for gold) was disconnected from the market price of gold in USD. As the free dollar price of gold rose sharply, pressure on the United States intensified, and the possibility of a dollar devaluation gained traction among policymakers and financial actors. At the same time, countries with trade surpluses and strong currencies, particularly Japan and Germany, criticized U.S. monetary and fiscal policy for being excessively expansionary, fueling inflation and jeopardizing the gold–dollar parity while exporting inflation abroad through the fixed exchange rate system [Bordo, 1993]. Amid mounting criticism on "imported inflation", Germany adopted a floating exchange rate on 29 September 1969 [Emminger, 1977, Gray, 2007]. Foreign central banks increasingly feared the real value of their dollar reserves, and demand for gold convertibility at the Federal Reserve rose further. On 15 August 1971, the United States suspended gold convertibility.

With one of its pillars removed, the Bretton Woods system effectively ended. The IMF, however, continued to operate, and major economies made attempts for some time to preserve

fixed exchange rates. In December 1971 (Smithsonian Agreement) and again in February 1973, the U.S. dollar was devalued against major currencies, particularly the Deutsche Mark and the yen. Gradually, many major countries abandoned their pegs to the dollar, although some shifted to managed floats or regional arrangements, such as the European Monetary System [Ilzetzki et al., 2019]. According to O'Rourke and Vicquéry [2025], half of the countries previously pegged to the USD had abandoned their peg by the mid-1970s.

2.2 Current Account (Foreign Exchange) Control vs. Capital Control

The purpose of the Bretton Woods system was to restore global trade and financial transactions while preserving domestic policy autonomy. In addition to granting countries the right to devalue, these dual objectives were reflected in the differentiated treatment of current account control and capital control. *Current account controls*—also known as foreign exchange controls—applied to payments and financial transactions related to current account items (trade, remittances). They included limits on buying foreign currency for imports, restrictions on profit remittances abroad, and limits on travel allowances. In practice, it meant that it was almost impossible to held an account in foreign currency and all exchange between currencies needed to go through the central bank. *Capital controls* applied to other investment and financial transactions, including administrative authorization on foreign investment (securities, land ownership) or banking regulation limiting the use of foreign assets by domestic banks (e.g., reserve requirements on foreign liabilities).

The IMF Articles of Agreement made clear in Section VIII that the objective was to eliminate current account controls to restore international trade, i.e., to return to currency convertibility. They required the "avoidance of restrictions on current payments" (VIII.2), the "avoidance of discriminatory currency practices" (VIII.3), and the "convertibility of foreign-held balances" (VIII.4). By contrast, they allowed capital controls under Section VI.3:

> Members may exercise such controls as are necessary to regulate international capital movements, but no member may exercise these controls in a manner which will restrict payments for current transactions or unduly delay transfers of funds in settlement of commitments

In 1945, members were granted a three-year transition period to eliminate current account controls. In practice, this took much longer. The restoration of currency convertibility—and thus the true beginning of the Bretton Woods system—is usually dated to 27 December

1958, when eight Western European countries (including the United Kingdom) declared their currencies convertible for current account transactions [Bordo, 1993, 42 et al.]. Japan followed in 1964, although most current account controls had been lifted in 1960 [Iwami, 1995]. By comparing exchange rates quoted in different global financial centers, Degorce [2025] confirms that the pre-1958 period showed extreme deviations from the law of one price, and that currency arbitrage for trade transactions was impossible. Consistent with Bordo [1993], Degorce also finds that current account controls did not apply uniformly across currencies. Importantly, all countries—except Canada—maintained foreign exchange controls against the U.S. dollar.

Capital account liberalization was not a Bretton Woods objective. It nonetheless became an international objective for a set of countries with the creation of the OECD in 1961, which introduced a "Code of Liberalization of Capital Movements." But the OECD permitted exceptions, and full liberalization did not occur before the end of the Bretton Woods system. In Europe, only Germany and Switzerland abolished controls on outflows (France briefly in 1966–1968), while retaining controls to limit capital inflows that appreciated their currencies [Bakker and Chapple, 2003, Bakker, 2012]. With the return to currency convertibility, some countries introduced capital controls to prevent arbitrage across markets. A prominent example is the Interest Equalization Tax introduced in the United States in 1963, designed to reduce purchases of foreign securities by U.S. residents without raising interest rates. It was extended to offshore lending by U.S. banks in 1965 [Bakker and Chapple, 2003]. In advanced economies, capital controls remained in place until the 1980s–1990s. Although sometimes used temporarily to manage capital inflows (e.g., reserve requirements on foreign liabilities in Switzerland and Germany in the 1960s and 1970s; Dorrance and Brehmer [1961], Emminger [1977]), they often remained in place for decades and complemented policies regulating the financial system and directing credit to specific sectors [Eichengreen and Rose, 2014, Monnet, 2018b]. Put differently, capital controls were rarely used as macroprudential tools switched on and off in response to financial conditions. As a result, whether capital controls were effective in limiting short-term international monetary spillovers remains debated and has been little tested empirically [Erten et al., 2021]. This debate is reinforced by evidence that capital controls could be at least partly circumvented—as illustrated by the development of the Eurodollar market (see below).

2.3 Credit Regulation and Interest Rate Disconnect

If capital controls limited cross-border movements, financial systems during the Bretton Woods era were primarily characterized by pervasive state control over the allocation of

domestic credit. One consequence of such heavy domestic financial regulation was that interest rates played a relatively minor role in directing credit and financial flows. Although money and stock markets existed and could function freely, the overall financial system remained heavily segmented, so that there was no single interest rate representative of general financial conditions. This situation began to change in the early 1970s—at different paces across countries—but domestic financial liberalization was fully achieved only in the 1980s in most OECD economies.

Some scholars have referred to this period as one of "financial repression" [Reinhart and Sbrancia, 2015], characterized by extensive state intervention in credit markets. However, this expression primarily evokes policies aimed at keeping interest rates low to ease the financing of government debt. It does not fully capture the broader range of instruments used by governments to steer credit allocation, economic development, and the business cycle. Within this global landscape, the United States stood as an exception. Although deposit rates were regulated under Regulation Q and banking rules were more restrictive than before the 1980s, U.S. financial markets were much deeper than elsewhere: the money market was more liquid, the stock market considerably larger, and—most importantly—the country lacked public credit institutions providing subsidized loans for industrial policy [Hodgman, 1973].[5]

Most European and Asian countries experiencing rapid economic growth during Bretton Woods continued to regulate commercial banks' deposit and lending rates. In addition, a large share of total credit—often close to 50%, according to Degorce [2023]—consisted of subsidized loans provided by government-backed specialized credit institutions. Monnet [2018a] even shows that this share was much higher for medium- and long-term investment credit. Government intervention in credit markets thus operated primarily through credit rationing, and fluctuations in money market rates had little effect on most firms' cost of financing.

As a consequence—and unlike in the United States—the central bank policy rate in Europe and Asia was often not representative of the overall monetary policy stance. To manage the output–inflation trade-off, central banks instead relied on quantitative credit controls, including credit ceilings, reserve requirements, and various liquidity ratios. The less financially liberalized an economy was, the less its central bank depended on interest rate adjustments

[5]At a time when some U.S. policymakers and economists suggested emulating the European model [Thurow, 1971], Hodgman [1973] argued that the U.S. and European credit systems had diverged too far because of differences in state credit policies: "European experience suggests that selective controls to influence credit allocation in the United States are unlikely to succeed in view of the low degree of concentration in commercial banking, the variety of alternative institutional lenders, the openness of the money market, the absence of key public and semipublic financial intermediaries, the lack of control over new issues in the capital market, and the limited nature of controls over international capital movements" (p. 161).

for domestic monetary management. This disconnect became sufficiently pronounced that, as OECD economies began to open financially in the 1960s, central bankers discussed the possibility of allowing domestic interest rates to respond to international rates (or to use them to influence capital flows) while continuing to manage domestic macroeconomic conditions through alternative policy instruments [Argy, 1971, Hodgman, 1973, Monnet, 2018b].[6]

Against this background, the subsequent liberalization of financial systems—initiated during or shortly after the end of Bretton Woods—sought to give interest rates a central role in credit allocation. This entailed deregulating deposit and lending rates, drastically reducing the share of subsidized loans and the role of national development banks, fostering the development of securities markets, and encouraging financial institutions to borrow from the money market rather than from the central bank. In many European countries and in Japan, such reforms began around 1970–1971, though the 1973 oil and economic crisis temporarily interrupted them [Hodgman, 1973, Abiad et al., 2010, Monnet, 2018a, Degorce, 2023]. Financial liberalization was ultimately completed only in the 1980s and 1990s .

2.4 The Eurodollar Market and its Consequences for Monetary Policy

Eurodollar deposits are U.S. dollar deposits held outside the United States. In the 1960s, transfers between these deposits became the primary international interbank market [Schenk, 1998, Altamura, 2017, McCauley and Schenk, 2020]. The Eurodollar market arose in the late 1950s in London as large pools of dollars accumulated abroad, particularly in Europe, due to European investment, growing multinational activity, Soviet concerns about U.S. asset seizure, and, most importantly, U.S. deposit-rate ceilings (Regulation Q). London banks—soon joined by foreign and especially U.S. banks—accepted dollar deposits and offered higher interest rates than regulated U.S. banks, creating a rapidly expanding offshore dollar market [Schenk, 1998]. The market remained unregulated in a jurisdictional grey zone: the United States could not regulate dollar deposits held in foreign banks, and the United Kingdom, eager to bolster London's financial status during balance-of-payments difficulties, declined to impose controls [Schenk, 2016]. Any attempt to shut the market risked driving it to other offshore centers. As a result, no authority claimed responsibility, allowing the Eurodollar market to grow into an unregulated pillar of postwar international finance despite the global system's reliance on tight capital controls. While Eurodollars emerged as a means to circum-

[6] In some countries—most notably the United Kingdom, as articulated in the influential 1959 Radcliffe Report—interest rate policy was also explicitly used for public debt management, while fiscal policy and quantitative monetary tools were employed to influence the business cycle [Kaldor, 1960, Aikman et al., 2016].

vent U.S. banking regulations, especially Regulation Q, U.S. authorities eventually refrained from opposing their development, believing that a stronger demand for dollars would help sustain the gold–dollar parity.Altamura [2017], Braun et al. [2021], McCauley [2024]. Other countries, especially in Europe, followed the path open by London and welcomed Eurodollar deposits despite growing concerns about their detrimental impact of monetary policy autonomy. Only Germany attempted to push for global regulation, but it failed [Altamura, 2017]. According to BIS statistics, the gross total of liabilities and assets in US dollars outside of the US vis-à-vis non-residents grew from USD 12.5 billion in 1963 to USD 151 billion at the end of 1970 (by comparison, the US gold stock was USD 11 billion in 1970). About half od these bank assets and liabilities were located in the United Kingdom.[7]

Although holding foreign currency abroad was not new, the Eurodollar market's scale and ability to evade domestic regulation made it transformative. To economists and policymakers in the 1960s, it represented the beginning of a new form of financial globalization that imposed significant constraints on domestic monetary policy, especially in the United States [Klopstock, 1968]. Banks could easily arbitrage between U.S. money market rates and Eurodollar deposit rates abroad. Robert Solomon, then chief international economist at the Federal Reserve Board, described precisely how the existence of the Eurodollar market increased the likelihood of a response of short-term capital flows to changes in the US interest rate:

> Finally, capital flows reacted to U.S. monetary policy, which was tight during most of 1968 except for a short period in the summer after the tax increase became effective. American banks stepped up their borrowings from abroad, notably from their own branches in the Eurodollar market in London. This accounted for an inflow of almost $2 billion in 1968. [Solomon, 105]

On the other side of the Atlantic, an influential 1969 report authored by three French economists—one a former European Commissioner for the Economy and another a future governor of the Banque de France—contained the following statements. They reflected the prevailing consensus of the time on the link between Eurodollars and monetary policy and were explicitly invoked to advocate for the liberalization of the financial system.

> This has resulted in the creation of a kind of vast international money market [Eurodollar market], in which more than three- quarters of all operations are denominated in dollar. This extraterritorial market of "Eurocurrencies," which

[7]These statistics are compiled from tables published in the 1965 and 1971 issues of the Annual Report of the Bank of International Settlements, respectively on pages 134 and 161.

> functions outside the control of national monetary authorities and along the margins of tax regimes, has as one effect to facilitate the international movement of short- term capital and making an independent monetary policy more difficult for any given country.

Cited in [Monnet, 2018a, 102]

3 A new series of US monetary policy shocks (1947-1971)

In this section, we first explain why we use the discount rate as the policy rate indicating changes in the Federal Reserve monetary policy stance under Bretton Woods. We then present our 2-step methodology to build monetary policy surprises based on the unanticipated changes in the Fed discount rate. Last we show the estimations using our new exogenous monetary policy shock display conventional reactions of macroeconomic variables to an unanticipated increase in the discount rate. These results are not obtained when using the changes in the actual discount rate or Fed Funds rate, or when our procedure is applied to the Fed Funds rate.

3.1 The Fed discount rate

The Federal Reserve's key policy rate during most of the Bretton Woods period was the discount rate, not the federal funds rate (hitherto the fed funds rate). In fact, the FOMC did not begin to systematically and explicitely target the fed funds rate until 1982 [Thornton, 2006]. While this fact was clear in contemporary Fed publications and in economists' accounts (see below), it has been surprisingly overlooked in recent studies. Clarida et al. [2000] and Romer and Romer [2002], for example, focus exclusively on the fed funds rate. Exceptions are the seminal narrative approach of Romer and Romer [1989] and a chapter on the history of Fed monetary policy from the 1930s to 1959 of Carlson and Wheelock [2016]. For all dates of exogenous contraction of the monetary policy identified until 1979, Romer and Romer [1989] systematically indicates that the discount rate was raised in addition to tightening of reserve requirement. It is telling that their paper does not mention the fed funds rate any single time (although they are explicit that the objectives of changes in the discount rate was to move "other short-term interest rates"). Carlson and Wheelock [2016] also clearly show that the discount rate was the key policy rate throughout the period 1935-1959, used alongside open market operations and reserve requirements to influence credit conditions and monetary aggregates.

As does the contemporary literature and the Federal Reserve publications summarized below, these papers make clear that the discount rate was not the only instrument of the Fed during Bretton Woods (it was complemented by open market operations and reserve requirements), but that it was the leading policy rate indicating changes in the monetary policy stance. In this role, it conveyed an "announcement effect" [Waud, 1970]. This was true despite the fact that discount loans were negligible in the Federal Reserve's balance sheet during the period. The reason is that the discount rate acted as a ceiling for other rates, and that, at least until the late 1960s, the Fed would conduct open market operations to prevent other short-term rates from exceeding the discount rate [Waud, 1970, Poole, 1975, **?**]. The Federal Reserve's discount rate thus steered other policy rates.

Contemporary observers noted that the Fed stopped relying exclusively on the discount rate as the policy rate around 1966–1968 [Poole, 1975, Lombra and Torto, 1977]. This view of contemporaries is supported by our own extensive reading of the relevant documents in the context of constructing our new series on US monetary policy shocks. The *Record of Policy Actions* published after each FOMC meetings unequivocally shows that the discount rate remained the leading rate until the end of Bretton Woods. The federal funds rate, by contrast, started to be mentioned systematically only in 1966. In 1969, the Fed began referring to an intended fed funds rate, but only in internal documents [Romer and Romer, 2004]. This shift did not imply that the discount rate ceased to signal changes in the Fed's policy stance. Rather, what changed gradually between 1966 and 1969 was that the Fed began to follow the fed funds rate in addition to the discount rate.

This institutional evolution occurred because, after 1965, the fed funds rate occasionally rose above the discount rate. But this did not become systematic before 1969. The shift reflected changes in bank liability management: whereas banks had previously responded to monetary tightening primarily by adjusting lending terms, they increasingly did so by altering interest rates on short-term borrowing, including in the fed funds market [Lombra and Torto, 1977].[8] The Fed therefore had to pay close attention to developments in the fed funds market. In parallel, it also began to monitor monetary aggregates more closely [Poole, 1975, Lombra and Torto, 1977]. Contemporary U.S. economists overwhelmingly viewed the discount rate as the Fed's policy rate until the late 1960s. A substantial literature developed around whether changes in the discount rate convey an "announcement effect" that was not anticipated by the stock market [Waud, 1970, Thornton, 1998]. The main disagreement

[8]Carlson and Wheelock [2018] recently showed that gradual banking deregulation in the 1960s reduced money market segmentation and increased the ability of banks to raise funds using a greater variety of substitutable instruments. In turn, this implied that larger open market operations were required to produce a given change in the federal funds rate, but that the Fed progressively improved its ability to manage the fed funds market through these open market operations.

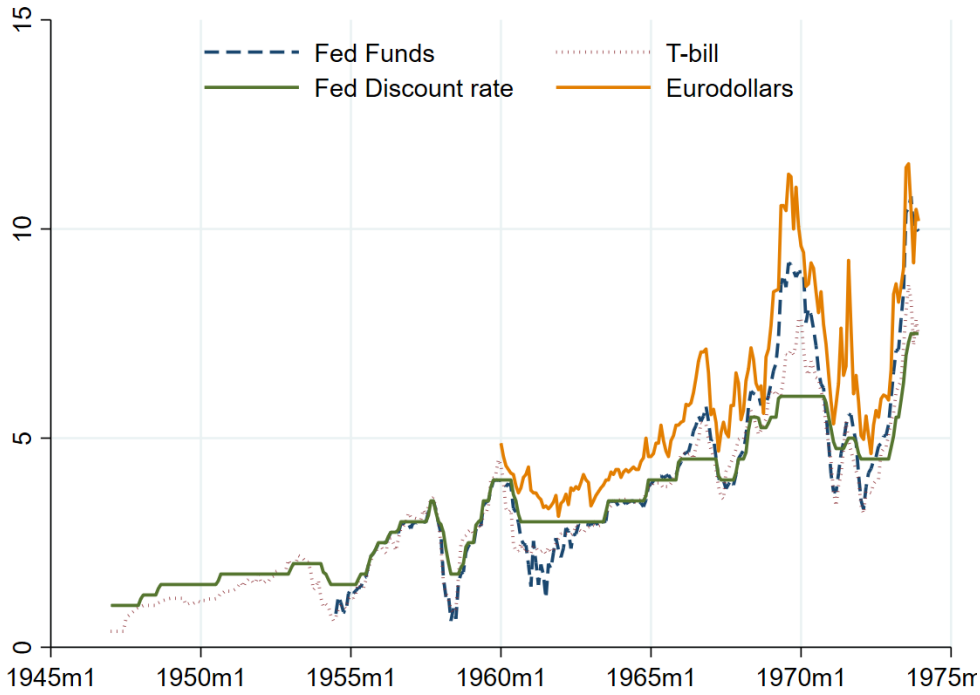


Figure 1: Discount rate of the Federal reserve and main short-term US interest rates, 1947-1973

concerned whether this announcement effect disappeared starting 1969 [Lombra and Torto, 1977], or whether discount rate changes continued to signal unannounced changes in the Fed's target for the fed funds rate [Cook and Hahn, 1988].

During the period under study, and prior to the end of Bretton Woods, the direction of the discount rate and the fed funds rate diverged only in 1966 and 1970. As far as 1966 is concerned, the fact that the discount rate did not follow the increase in the fed funds rate is consistent with Romer and Romer [1989]'s claim that this period does not "belong on a list of episodes in which the Federal Reserve was actively attempting to induce a downturn". Few years later, the fed funds rate began to decline in January 1970, whereas the discount rate was lowered only in November 1970. Whether the early decline in the fed funds rate reflected an exogenous policy decision is uncertain. The economy entered recession and interest rates began to fall, and the intended fed funds rate reported in FOMC meetings in 1970 largely followed, rather than led, the observed decline in the market rate [Romer and Romer, 2004]. 1970 is not considered to be a contractionary monetary policy episode by Romer and Romer [1989, 2024].

Thus, although it is debatable whether the discount rate should be treated as the primary policy rate after 1969, we argue that using it for 1970–1971 does not materially misrepresent the stance of monetary policy during these years. For consistency, we therefore continue to

use the discount rate during the final two years of the Bretton Woods system. As shown below, our main results are unaffected by this choice.

One may also question the starting date of our analysis. Since the focus of this paper is on the international monetary system, and in order to ensure consistency and cover the entire Bretton Woods period, we begin in 1947. However, it is well known that the Federal Reserve did not regain full independence over its discount rate policy until the Fed–Treasury Accord of March 1951 [Bordo, 2010, Carlson and Wheelock, 2016]. Despite this important institutional breakpoint, we start our baseline specification in 1947 for two reasons. First, if monetary policy was indeed largely inactive before 1951, this will be captured by our identification strategy and therefore will not bias our results. Second, in their narrative approach, Romer and Romer [1989, 2024] identify a deliberate contractionary monetary policy episode beginning in October 1947 and continuing into 1948, and note that it was implemented through increases in the discount rate and reserve requirements. As discussed earlier, we do not claim that the discount rate was the Fed's only policy instrument, but rather that its exogenous changes served as a clear signal of shifts in the monetary policy stance.

Finally, an additional remark is in order. During the Bretton Woods period, the discount rate remained the policy rate for all major central banks, as it had been since the nineteenth century (although postwar central banks could use a variety of quantitative tools to steer the economy; see Monnet [2018a]). There is no doubt that the Federal Reserve's discount rate was viewed abroad as its policy rate. It appears as such in all monthly bulletins and annual reports of the foreign central banks we have consulted, as well as in publications of international organizations. As an illustration, Figure 2 reproduces the table published annually in the BIS Annual Report throughout the Bretton Woods era, summarizing the policy rates of major central banks. Notably, even after 1969, the U.S. discount rate continued to be listed and compared with those of other countries.

3.2 Construction of exogenous shocks

3.2.1 Methodology

Building an exogenous policy rate shock requires identifying changes in the central bank's policy rate that are orthogonal to the set of macroeconomic and financial variables influencing the policy decision, as well as to the information set available to policymakers at the time of the decision. In other words, we aim to isolate the unexpected, discretionary component of monetary policy—the portion of policy rate movements that cannot be explained by contemporaneous economic conditions or systematic policy responses. This step is crucial

Changes in official discount rates since 1969.

Country and date of change	Official discount rate in %
Austria	
26th October 1967	3¾
11th September 1969	4¾
22nd January 1970	5
Belgium	
19th December 1968	4½
6th March 1969	5
10th April 1969	5½
29th May 1969	6
3rd July 1969	7
18th September 1969	7½
22nd October 1970	7
10th December 1970	6½
25th March 1971	6
Canada	
18th December 1968	6½
3rd March 1969	7
11th June 1969	7½
16th July 1969	8
12th May 1970	7½
1st June 1970	7
1st September 1970	6½
12th November 1970	6
15th February 1971	5¾
24th February 1971	5¼
Denmark	
29th August 1968	6
31st March 1969	7
12th May 1969	9
20th January 1971	8
15th April 1971	7½
Finland	
28th April 1962	7
1st June 1971	8½
France	
13th November 1968	6
14th June 1969	7
9th October 1969	8
27th August 1970	7½
20th October 1970	7
8th January 1971	6½
13th May 1971	6¾

Country and date of change	Official discount rate in %
Germany	
12th May 1967	3
18th April 1969	4
20th June 1969	5
11th September 1969	6
9th March 1970	7½
16th July 1970	7
18th November 1970	6¼
3rd December 1970	6
1st April 1971	5
Greece	
25th June 1968	6
1st February 1969	5¼
1st July 1969	6
15th September 1969	6½
Italy	
7th June 1968	3½
14th August 1969	4
9th March 1970	5¼
5th April 1971	5
Japan	
7th August 1968	5.84
1st September 1969	6.25
28th October 1970	6
20th January 1971	5¾
8th May 1971	5¼
Netherlands	
20th December 1968	5
9th April 1969	5¼
4th August 1969	6
5th April 1971	5¼
Norway	
14th February 1955	3½
27th September 1969	4½

Country and date of change	Official discount rate in %
Portugal	
1st September 1965	3
25th April 1970	3½
6th February 1971	3¾
Spain	
27th November 1967	4¼
22nd July 1969	5¼
23rd March 1970	6½
22nd January 1971	6¼
5th April 1971	6
Sweden	
11th October 1968	5
28th February 1969	6
11th July 1969	7
19th March 1971	6¼
23rd April 1971	6
Switzerland	
10th July 1967	3
15th September 1969	3¾
United Kingdom	
19th September 1968	7
27th February 1969	8
5th March 1970	7½
15th April 1970	7
1st April 1971	6
United States	
18th December 1968	5½
4th April 1969	6
13th November 1970	5¾
4th December 1970	5½
8th January 1971	5¼
22nd January 1971	5
19th February 1971	4¾

Figure 2: Annual report of the Bank of International Settlements, 1971, p. 49.

to avoid endogeneity bias: if the same factors that determine the policy rate also affect the variables of interest, failing to purge these confounding influences would distort the estimated effects of monetary policy.

Our identification strategy therefore seeks to "purge" the observed FED discount rate changes from their endogenous component. In doing so, we follow the spirit of the "narrative approach", which reconstructs monetary policy shocks by discarding the predictable and systematic elements of central bank behavior [Romer and Romer, 2004].

Besides, unlike more recent studies that exploit high-frequency data on futures rates to measure monetary policy surprises (Gertler and Karadi [2015]; Jarociński and Karadi [2020]; Miranda-Agrippino and Ricco [2021]; Bauer and Swanson [2023a,b]), such data are not available for our historical period. We therefore adopt a "second-best" strategy. We use daily data on short-term interest rates and exchange rates to approximate the information set of financial markets immediately before the monetary policy decision. This approach allows us to control for rapidly evolving market expectations and to capture the genuinely unanticipated component of central bank rate changes.

As such, our approach is conceptually related to that of Cloyne et al. [2022], who construct a new series of exogenous German monetary policy shocks based on Bundesbank Council meetings between 1974 and 1998. Their identification also combines the narrative framework of Romer and Romer [2004]—finding evidence on the main variables screened by policymakers—with the insights from high-frequency identification, exploiting daily market data available up to the day of each meeting. In both approaches, a "cleaning" regression is used to orthogonalize policy rate changes with respect to the policymakers' contemporaneous information set.

3.2.2 Two-step procedure

Our exogenous monetary policy shock is defined as a change in the FED discount rate that is not predicted by contemporaneous movements in financial markets (interbank, exchange rate, and stock markets) or by the state of the macroeconomy as reflected in monthly indicators. Identifying such shocks requires disentangling the discretionary, unexpected component of policy from systematic reactions to observable information. To achieve this, we identify the date of policy meeting, i.e. the day on which the decision to change the target rate was taken. When possible, we also rely on "real-time" (vintage) data—that is, statistics available to policymakers at the time of their decision, rather than revised figures published ex post. This ensures that our measure captures the genuine information set of policymakers and not hindsight-corrected data.

We proceed in two steps. First, we draw insights from the high-frequency identification

literature, which isolates monetary policy surprises by conditioning on market expectations formed immediately before the policy announcement. In our historical setting, we cannot use futures contracts or event-window data as in Gertler and Karadi [2015], Jarociński and Karadi [2020], or Bauer and Swanson [2023b], due to data availability. Instead, we rely on daily-frequency variables—primarily exchange rates, short-term market interest rates, and, when available, stock prices—to capture the financial market information set relevant for expectations about the Fed's imminent decision. In this first step, we regress the daily change in the policy rate of the reference country on lagged values of these financial variables, effectively "purging" the predictable component of monetary policy. The residuals from this regression represent innovations in the policy rate orthogonal to contemporaneous financial conditions.

In a second step, we follow the narrative approach to remove the remaining endogenous variation associated with systematic responses to macroeconomic conditions. Specifically, we consult primary and secondary historical sources to identify the central bank's policy objectives and the key variables that guided its decisions. Although we lack data on real-time forecasts produced and circulated internally before each meeting—as in Romer and Romer [2024]—we have access to historical macroeconomic data (industrial production, price indices, reserves, money supply, exchange rates, etc.) that were available to policymakers at the time of their decision. We first aggregate the residuals from the daily "first-step" regression to obtain a monthly index of unanticipated policy changes. We then regress this monthly index on the set of macroeconomic indicators that influenced policy decisions at the time. The residual from this second regression constitutes our final measure of the exogenous monetary policy shock, which will serve as the key variable in our subsequent analysis.

We note r_d^{ref} the discount rate, y^j the set j daily variables influencing the policy rate the day before each meeting day d, τ the time between two meetings, and x^k the set of k monthly variables influencing the policy rate over the P previous months $m-p$. Explanatory variables appear both in level and in growth rate (or first-difference). [9] The shock calculation is then obtained from a two stages regression as follow:

$$\Delta r_d^{\text{ref}} = \beta_0 + \beta_1 r_{d-1}^{\text{ref}} + \sum_j \gamma_{j,p} y_{d-1}^j + \sum_j \phi_j \Delta_{d-1 \to d-\tau} y^j + \epsilon_d \tag{1}$$

$$\Delta r_m^{\text{ref}} = \sum_k \sum_{p=1}^{p=P} \theta_{k,p} x_{m-p}^k + \sum_k \sum_{p=1}^{p=P} \mu_{k,p} \Delta x_{m-p}^k + \epsilon_m \tag{2}$$

With d the meeting date and m the month index. $\Delta r_m^{\text{ref}} = \sum_{d \in m} \epsilon_d$, that is the sum of ϵ_d

[9] P has been set according to information criteria.

within each month. The monetary policy shock is thus equal to ϵ_m.

Bretton Woods (1946–1971)	
Variables	**Frequency**
Daily frequency (first-step regression)	
Federal Reserve discount rate (decision of the Discount Committee)	daily
Exchange rates vis-à-vis London, Paris, Berlin (after 1954), and Tokyo (after 1954)	daily
Federal Funds rate (after 1954)	daily
U.S. Treasury bill yields (after 1954)	daily
Dow Jones Industrial Average index	daily
Monthly frequency (second-step regression)	
Monthly sum of residuals from the daily regression (preliminary monetary policy innovation)	monthly
Industrial production index (vintage data)	monthly
Annual inflation rate (vintage data)	monthly
Unemployment rate	monthly
Federal Reserve international reserves	monthly
Bond yields	monthly
Stock market index	monthly
Set of variables unavailable at daily frequency (for the pre-1955 period only)	monthly

Table 1: Variables and frequency used to identify exogenous U.S. monetary policy shocks under the Bretton Woods regime

Although we consistently use the discount rate as the targeted rate until 1971, we include the daily Fed Funds rate in the first step regression starting 1954 when it is recognized that it reflects well the conditions of the money market. For that reason, the estimation is divided into two sub-periods with 1954 as the changing year.

At daily frequency: the dependent variable is the daily rate change of the Fed discount rate agreed upon during discount committee meeting. Explaining variables are: the exchange rate vis-à-vis London, Paris, Berlin (after 1954), and Tokyo (after 1954), the Fed Fund rate (after 1954), Treasury bill yields (after 1954) and the Dow-jones index. The time between two meetings is 14 days ($\tau = 14$).

At monthly frequency: the dependent variable is the residual of the daily frequency regression, summed for each month. The explaining variables are: the production index, the annual inflation rate, the unemployment rate, the Fed international reserves, the market index, the bonds yield, and, before 1955, the set of variables unavailable at daily frequency. It is finally worth noting that we used vintage data for inflation and production in the

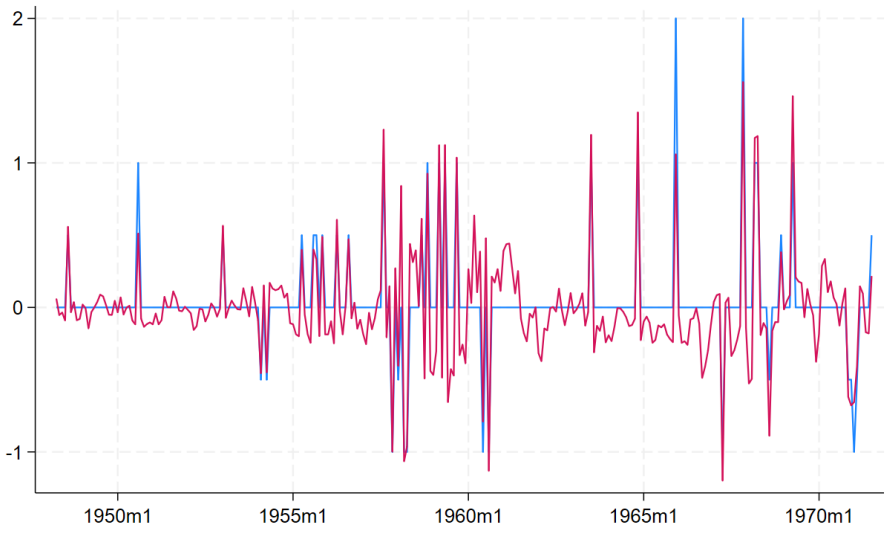


Figure 3: Monetary policy shock vs discount rate change

estimation. This allows to account for the information available to the central bank in the moment of its choice. We used 4 lags in the monthly calculation ($p = 4$).

4 Impact of US monetary policy shocks on the US macroeconomy

Having constructed exogenous monetary policy shocks, we now look at the effects of monetary policy shocks on the U.S. macroeconomy (section 4), on Eurodollar rates (section 5) and on the macroeconomy of other countries (section 6). We begin with the impact of US monetary policy shocks on the U.S. To estimate the effect of the monetary policy shock we use local projection:

$$y_{t+h}^{k} = \alpha + \Phi_h(L)Y_{t-1} + \beta_h \Delta r_t^* + month + trend + \epsilon_{h,t} \tag{3}$$

For $h = 0, 1, 2, ..., H$, with H the time horizon for which we want to measure the response to a shock. y_{t+h}^{k} is the value of variable $k = 1, ..., K$ at horizon h. α_i is a constant $\Phi_h(L)$ is the polynomial set of lag operator for endogenous variables, Δr_t^* is the monetary policy shock, and β_h is the estimated parameter which we focus on to see the effect of the shock on the endogenous variables. Our equation also includes monthly dummies and a trend. The number of lags depends on information criteria and is set to three. Newey and West standard errors are used in each estimation to account for serial correlation and heteroscedasticity.

The estimates indicate that an unanticipated 1 percentage point increase in the U.S. discount rate during the Bretton Woods period is followed by a gradual and significant decline

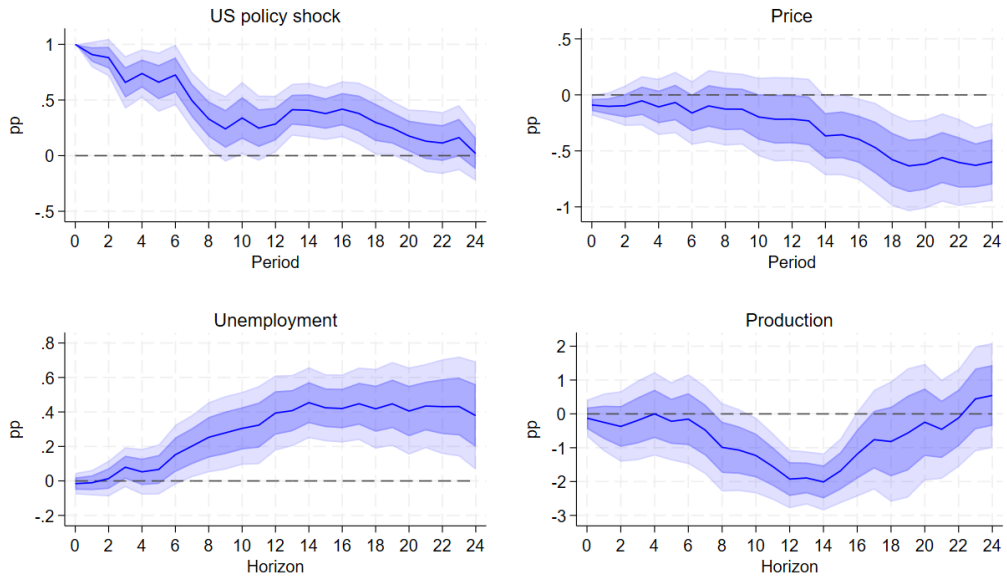


Figure 4: Responses of prices, production and unemployment to an exogenous monetary policy shock (discount rate surprises; 1pp increase)



Figure 5: Responses of prices, production and unemployment to a 1pp increase in the discount rate and Fed fund rate (without causal identification)

in inflation, industrial production growth, and a rise in unemployment. Specifically, inflation starts decrease progressively to become significant 14 months after the shock, reaching approximately -0.6 percentage points after 18 months. There is no price puzzle here. The twelve-month growth rate of industrial production declines significantly after 10 months, falling by about 2 percentage points after 14 months. In parallel, the unemployment rate rises gradually from 6 months onward, peaking around +0.4 percentage points. Overall, the results suggest that monetary tightening had strong and persistent real effects during the Bretton Woods era.

By contrast, when monetary policy shocks are identified using simple changes in the discount rate or in the federal funds rate, the estimated responses are much less consistent with standard monetary transmission mechanisms. In these cases, we observe a pronounced "price puzzle", as inflation either fails to respond at all (in the case of the federal funds rate) or even rises temporarily following a tightening in the discount rate. Similarly, an "unemployment puzzle" emerges, with the unemployment rate decreasing rather than increasing after a policy tightening, and a "production puzzle", as industrial production growth initially accelerates. Such anomalies are typical symptoms of endogeneity and anticipation effects in monetary policy identification, as emphasized in the literature (e.g., Romer and Romer [2004]). When policy rates adjust in response to expected future inflation or output developments, conventional VAR-based shocks confound policy reactions with systematic responses to anticipated conditions. Our identification strategy, which isolates unanticipated movements in the discount rate purged of such anticipatory behavior, eliminates these puzzles entirely. This represents, to our knowledge, the first clean evidence for the Bretton Woods period of a monetary tightening that produces the expected disinflationary and contractionary effects without generating the price puzzle.

To place our results in perspective, it is useful to compare them with those of Bauer and Swanson [2023b] for the post-1973 period. In their baseline specification, which corresponds to Gertler and Karadi [2015]-style estimation, a 25 basis point monetary tightening identified from high-frequency surprises around FOMC announcements leads to a decline in industrial production of about 0.35 percent after one year and a gradual fall in consumer prices of roughly 0.05 percent. This is lower than the effect we measured here.

When the monetary policy instrument is orthogonalized with respect to contemporaneous macroeconomic and financial news, the real effects measured by Bauer and Swanson [2023b] become roughly four times larger, with industrial production falling by about 1.4 percent after one year, and inflation declining more visibly. Scaling their 25 bp shock to our 100 bp benchmark, the magnitudes of the Bauer–Swanson responses are larger and more immediate, suggesting that the transmission of monetary policy to the real economy was

slower and less pronounced during the Bretton Woods era. This difference likely reflects the greater rigidity of financial markets and banking regulation (in particular Regulation Q) that limited the responsiveness of the real economy to policy changes. In addition, the credibility and coordination of monetary and fiscal policy under the Bretton Woods framework may have dampened the sensitivity of inflation expectations and aggregate demand to short-term interest rate movements.

We can also compare our results with those obtained by Romer and Romer [2004] focusing on the 1969-1996 period. Regarding prices, their estimates show a much more delayed response, with inflation starting to decline significantly only after about 18 months. In contrast, the output response emerges after a similar lag but is roughly twice as large, suggesting that the real effects of monetary tightening were more limited during the Bretton Woods period.

5 The impact of US monetary policy and Eurodollar rates and capital flows

We now test whether U.S. monetary policy had an immediate impact on Eurodollar deposit rates. Such an effect is expected if the Eurodollar market indeed emerged as a response to capital controls and domestic banking regulations. Moreover, if U.S. or foreign banks indeed borrowed in the Eurodollar market to reinvest in the United States following an increase in U.S. interest rates [as explained by Solomon], we should observe corresponding capital inflows into the U.S.

5.1 Data

The longer available monthly series of interest rate on Eurodollar deposits in the rate on 3-month deposits in London. It was compiled and published by the Bank of International Settlements as well as by the OECD starting in 1960.[10] There is no detailed monthly series of gross or net capital flows for the United States covering this period. Instead, we hand-collected data published by the Federal Reserve in its *Monthly Bulletin* over the entire Bretton Woods era, corresponding to the category "Short-Term Liabilities to Foreigners Reported by Banks in the United States." Crucially, this series distinguishes between private entities (banks, other private financial institutions, and individuals) and official entities,

[10]Organization for Economic Co-operation and Development, Interest Rates: 3-Month or 90-Day Rates and Yields: Eurodollar Deposits: Total for United States [IR3TED01USM156N], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/IR3TED01USM156N

that is, foreign monetary authorities. It is important to note that the series excludes U.S. banks and therefore captures only the arbitrage activity of foreign banks, which, according to contemporary accounts, were less active than U.S. banks in such operations during the 1960s.

5.2 Results and implications

The response of the Eurodollar rate to an unanticipated increase in the Federal Reserve discount rate (Figure 6) is immediate, significant, and strong. It closely mirrors the reaction of the federal funds rate, the main interbank rate in the United States. On impact, the Eurodollar rate rises slightly less than the federal funds rate (35 bp vs. 45 bp), but after one month both responses converge to around 50 bp.(See Carlson and Wheelock [2018] and the discussion in the previous section on why the federal funds rate did not rise by 100 basis points following a 100 basis-point increase in the discount rate.) The response of the Treasury bill rate is also significant but smaller, consistent with the fact that the T-bill market was not the main interbank market in the U.S. These results indicate that banks actively arbitraged between the U.S. interbank market and the Eurodollar market. The rapid convergence between the two rates suggests that banks could easily circumvent capital controls through Eurodollar deposits.

Figure 7 shows that private capital flows are consistent with these interest rate reactions. Before 1959, when currency convertibility was limited and the Eurodollar market still shallow, we observe no response of foreign private institutions' assets in U.S. banks to monetary shocks. Nor do we find any reaction in the assets of official authorities ("public" institutions). By contrast, after 1959, an increase in the Federal Reserve discount rate triggered an immediate but short-lived rise in the assets of foreign private banks held in U.S. banks. Although modest, this effect was significant (at the 95% level) and non-negligible: within a single month, U.S. banks' short-term liabilities to foreign private entities increased by about 1%. It should be remembered that our data do not capture capital inflows arising from U.S. banks, which are expected to have been larger than those generated by foreign banks.

Consistent with the reactions of the Eurodollar and federal funds rates, the effect on capital inflows was transitory. Because the Eurodollar rate adjusted quickly and matched the U.S. interbank rate within a month, the arbitrage opportunity disappeared rapidly. This swift arbitrage on the Eurodollar market constrained the Federal Reserve's ability to use interest rate hikes to attract capital inflows and address balance-of-payments disequilibria—the strategy described by Solomon. Whether the Fed's objectives were domestic or international, the Eurodollar market effectively curtailed its monetary autonomy.

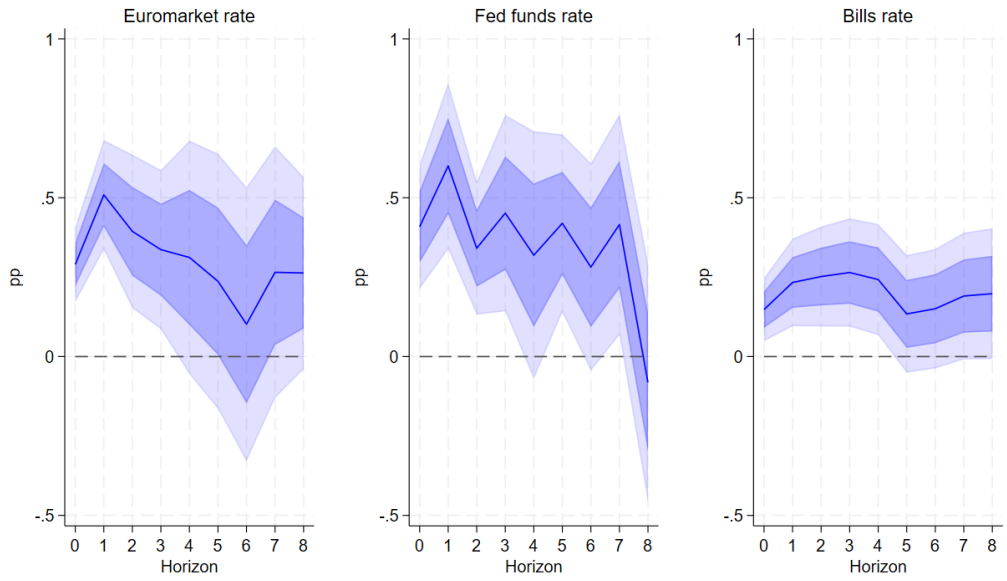


Figure 6: Responses of the Eurodollar rate, the fed funds rate, and the T-bill rate to a 100bp shock on the Fed discount rate. 1960-1971

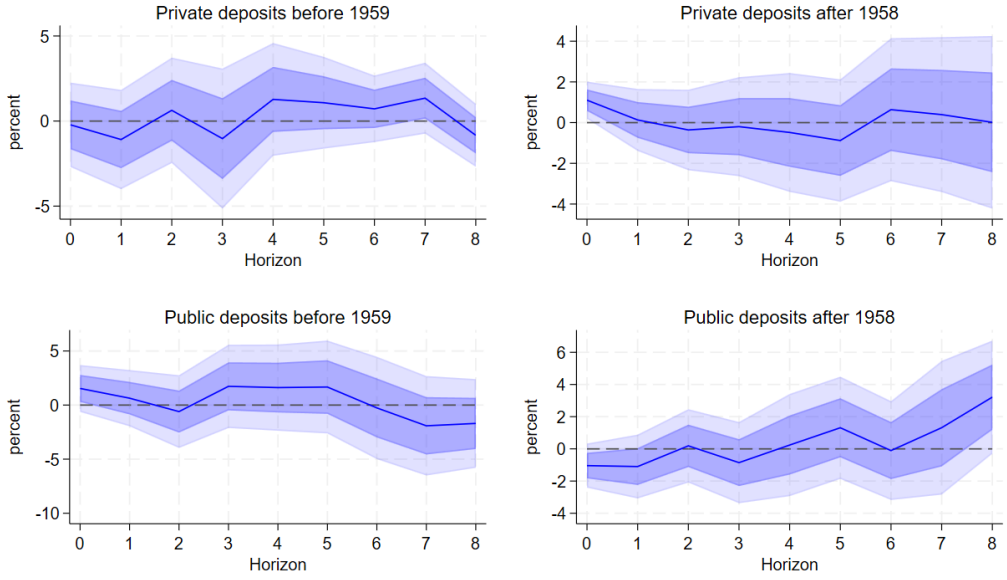


Figure 7: Response of Short-Term Liabilities to Foreigners Reported by Banks in the United States. Private vs. Public (i.e. "official") foreign institutions. Pre and post 1958.

6 The impact of US monetary policy on other countries

After examining the international impact of U.S. monetary policy on Eurodollar rates and a subset of U.S. capital flows, we now investigate how interest rates, as well as macroeconomic and financial variables, responded in foreign countries. Unfortunately, our sample is limited to Japan, Canada, and the most economically advanced European countries of the period due to two - interrelated - reasons. First, our choice reflects data limitations: financial series—and money market rates and stock market indices in particular—are rarely available for other countries during this period (the two markets did not exist or were not sufficiently liquid in other countries). Second, we focus on countries that were financially relatively well integrated during the second half of the Bretton Woods era, that is, those that had abolished foreign exchange controls while maintaining only limited forms of capital controls. These two characteristics are strongly correlated with overall financial and economic development, which explains why we restrict our analysis to this subset of countries.

6.1 Data

We use monthly data on exchange rates, central bank policy rates, money market rates, equity prices, industrial production, and consumer prices. These data were collected from various primary and secondary sources and were first presented and used in Bazot et al. [2024]. Examining the response of money market rates is central to our analysis, but it limits the number of countries for which data are available. Owing to strict financial regulation and market segmentation, several countries lacked a liquid interbank market during the 1950s and 1960s, even when they had well-developed credit institutions (such as Italy or Sweden). In these cases, the published interbank rate—when available—did not vary monthly or according to market mechanisms, but was instead determined by the central bank's discount rate or the regulated rate on Treasury bills. Our sample thus includes 11 countries: Belgium, Canada, France, Germany, Japan, the Netherlands, Norway, South-Africa, Sweden (from 1966), Switzerland, and the United Kingdom.

Data on bank credit were compiled by Monnet and Puy [2019] from the IMF's printed volumes of the *International Financial Statistics*. These series cover only credit from commercial banks, which in some countries represented only a small share of total credit [Degorce, 2023]. They therefore capture the segment of the credit market least affected by direct state intervention, although many countries continued to regulate commercial bank deposit and lending rates. Because the data from Monnet and Puy [2019] are quarterly, we construct

monthly series using quadratic interpolation. This is the only series in our analysis whose original frequency was not monthly.

6.2 Before and after the return to convertibility

We now test whether the return to currency convertibility in advanced economies (Europe and Japan) unleashed international monetary policy spillovers. We estimate standard local projections in which variables respond contemporaneously and at several horizons to an exogenous U.S. monetary policy shock. The sample is divided into two subperiods: the pre-convertibility phase (1947–1958) and the convertibility phase (1959–1971). For both subperiods, we have sufficient observations to estimate the responses of the exchange rate, the central bank policy rate (discount rate), industrial production, credit, and inflation. We compute the responses of money market rates and equity prices only for the post-1958 period in order to retain a balanced and sufficiently large panel of countries in the first phase.

As expected, Figure 8 shows no significant response of any variable during the pre-convertibility period. With current account controls in place, financial arbitrage was impossible and central banks had no need to adjust their policy rates.[11]

The situation was markedly different after the return to convertibility, as shown in Figure 9. The official exchange rate remained fixed, indicating that an increase in the U.S. interest rate did not undermine the credibility of the peg to the U.S. dollar in other economies. However, foreign interest rates rose significantly, albeit with a lag: the money market rate increased by roughly 20 basis points after four months, while the central bank discount rate rose by about 10 basis points after six months. This pattern suggests that the rise in money market rates put pressure on central banks, which were compelled to adjust their policy rates, even if only partially.

The magnitude of these responses should be assessed in light of two benchmarks. First, as shown in the previous section, U.S. money market and Eurodollar rates reacted by about 50 basis points to a 100 basis-point shock to the U.S. discount rate. Second, as shown in Bazot et al. [2022], interest rates in advanced economies responded by about 20 basis points to Bank of England rate increases under the pre-World War I gold standard, often viewed as the paradigmatic case of a fixed exchange rate regime with financial openness. Thus, while the standard trilemma or Mundell–Fleming framework [Mundell, 1963, Obstfeld and Taylor, 2004] would predict a one-for-one (100 basis-point) response, historical fixed-exchange-rate regimes with financial openness consistently have consistently produced smaller reactions.

[11] To maintain a four-panel figure, we do not display the response of credit during the pre-convertibility period, which is also insignificant.

Within this set of empirical results, our own findings presented here are at the lower margin (10 percent) and involve a substantial lag.

Taken together, these results and comparisons indicate that although capital controls and other financial frictions dampened the response of foreign money market rates relative to the Eurodollar rate, there were nonetheless significant financial spillovers from U.S. monetary tightening during the second half of the Bretton Woods era. Contemporary observers were therefore correct in arguing that the return to convertibility and the rise of Eurodollar markets had constrained the autonomy of national monetary policies.

Interestingly, interest rates were not the only financial variables to respond. As shown in Figure 10, both credit and equity prices reacted with a delay of about six months—that is, after the increase in money market and policy rates had peaked. We interpret this lagged reaction as evidence that commercial banks, facing higher funding costs from money or central bank borrowing, subsequently reduced both their lending and their investment in securities. Note that the sample underlying Figure 10, which includes equity prices, contains slightly fewer observations than that in Figure 9, although the responses of other variables remain consistent across samples.

By contrast, neither Figure 9 nor Figure 10 shows any significant response of industrial production or inflation. This absence of real effects is consistent with the mechanisms discussed in Section 2: credit markets remained heavily segmented by regulated lending and deposit rates and by subsidized loans granted through specialized credit institutions. Unfortunately, reliable monthly data on subsidized ("public") credit [see Degorce, 2023] are available for too few countries to test directly, in a panel framework, whether public credit offset the decline in commercial bank lending. In the French case, Monnet [2018a] documents that fluctuations in the two were largely disconnected, as flows of public credit were directed toward industrial policy priority sectors. Moreover, stock markets financed only a small fraction of investment in economies outside the United States prior to the financial reforms of the 1980s.

Overall, these results depict a partial decoupling: on one hand, certain financial variables—money market rates, equity prices, and bank credit—became increasingly sensitive to international conditions in the 1960s amid growing financial openness; on the other hand, other sources of financing remained under state control and, ultimately, macroeconomic outcomes were insulated. A clear implication is that domestic financial liberalization, by enhancing the role of market finance and interest rates, would eliminate this decoupling. Such reforms were fully implemented only after the Bretton Woods era but were already being debated in the late 1960s and initiated in several countries around 1970–1971 [Hodgman, 1973, Monnet, 2018a]. Given the growing international integration of money and equity

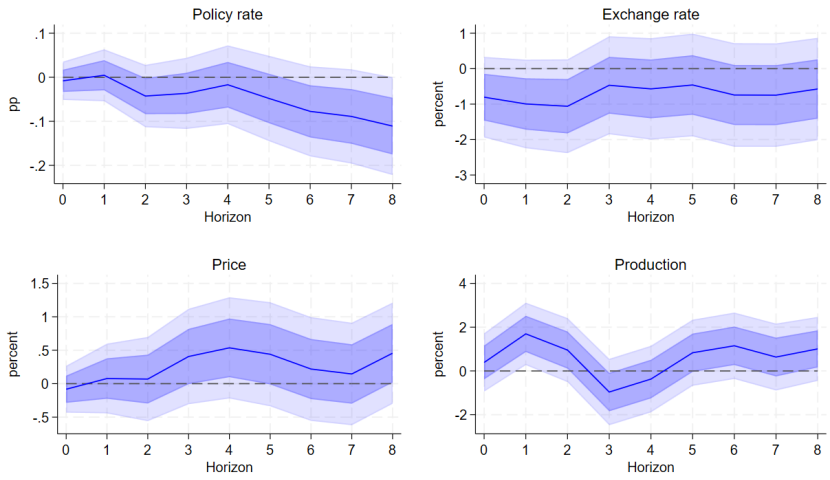


Figure 8: Responses of macro variables and interest rates to a 100bp shock on the Fed discount rate. 1947-1958

markets, it was evident that domestic financial liberalization would undermine monetary policy autonomy if exchange rates remained fixed.

Our results provide no evidence that U.S. monetary policy shocks directly drove inflation in other countries. While this may appear inconsistent with contemporary claims that inflation was "imported" from the United States through fixed exchange rates [e.g., Emminger, 1977], it is important to note that U.S. inflation was likely influenced by many other factors beyond monetary policy. Our findings should therefore not be interpreted as a refutation of that argument, but rather as a qualification of it.

6.3 Financial Repression? The Impact of Sovereign Bond Yields

Last, we examine the response of long-term sovereign bond yields (with maturities of ten years or more) to U.S. monetary policy shocks. The literature has emphasized that a defining feature of strong state intervention in credit markets during this era was the objective of influencing government borrowing costs—or, in other words, of conducting "financial repression" [Reinhart and Sbrancia, 2015]. Governments pursued this objective primarily through two mechanisms: (i) by requiring banks to hold government securities through mandatory "liquidity ratios," which obligated them to invest a fixed share of their assets in domestic public debt [Monnet and Vari, 2023]; and (ii) by maintaining a large portion of public debt as non-marketable—typically about half of total debt outside the United States during this period—through direct loans from either central banks or specialized credit institutions [Abbas et al., 2014].

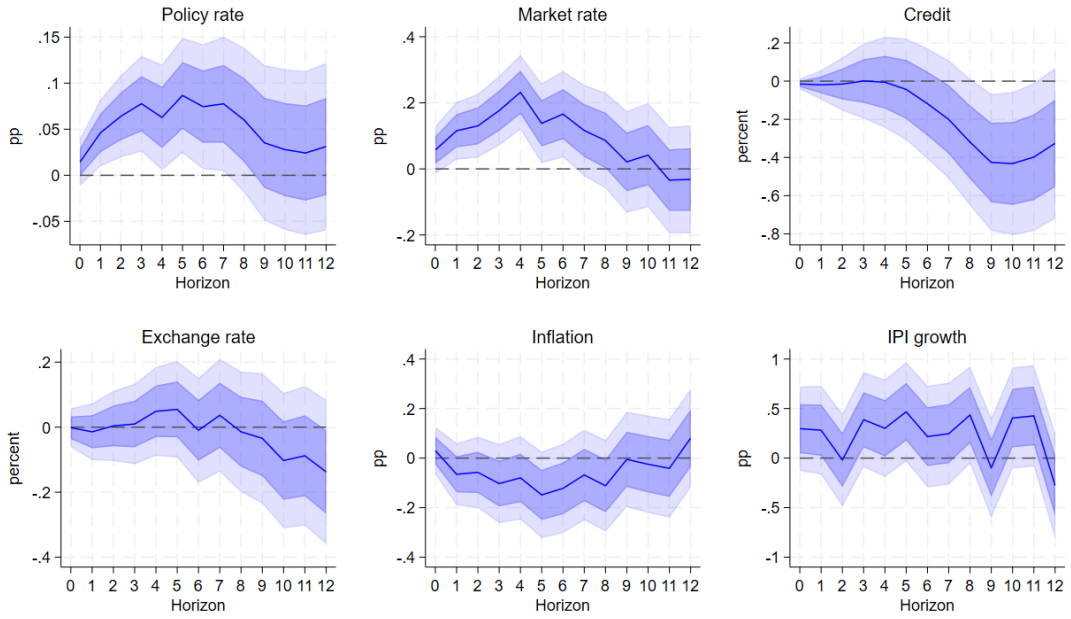


Figure 9: Responses of macro variables and interest rates to a 100bp shock on the Fed discount rate. 1959-1971

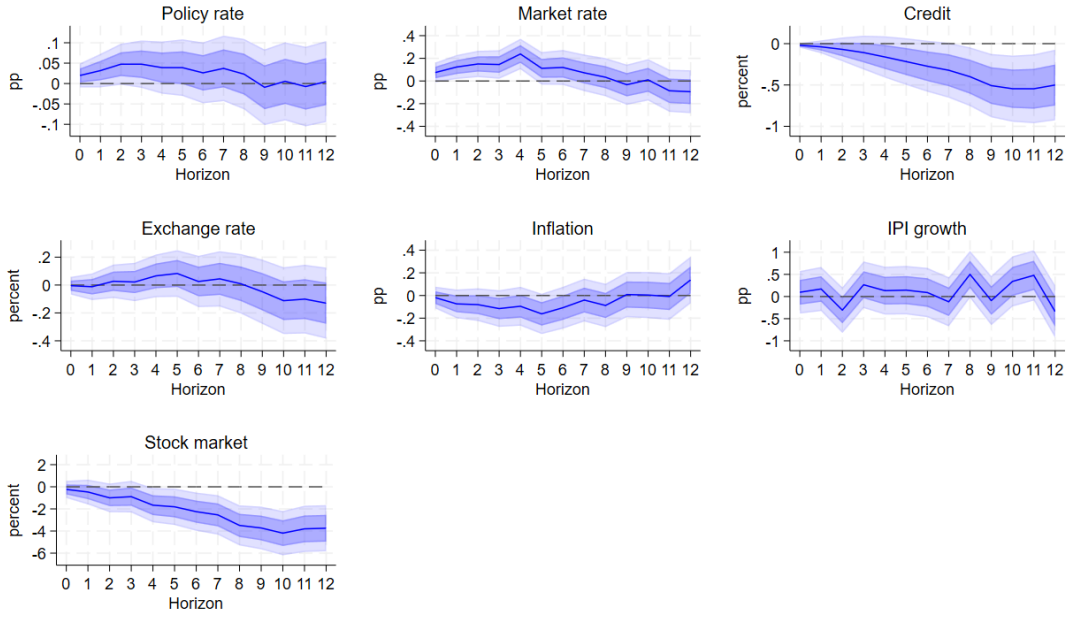


Figure 10: Responses of macro variables, interest rates and equity prices to a 100bp shock on the Fed discount rate. 1959-1971.

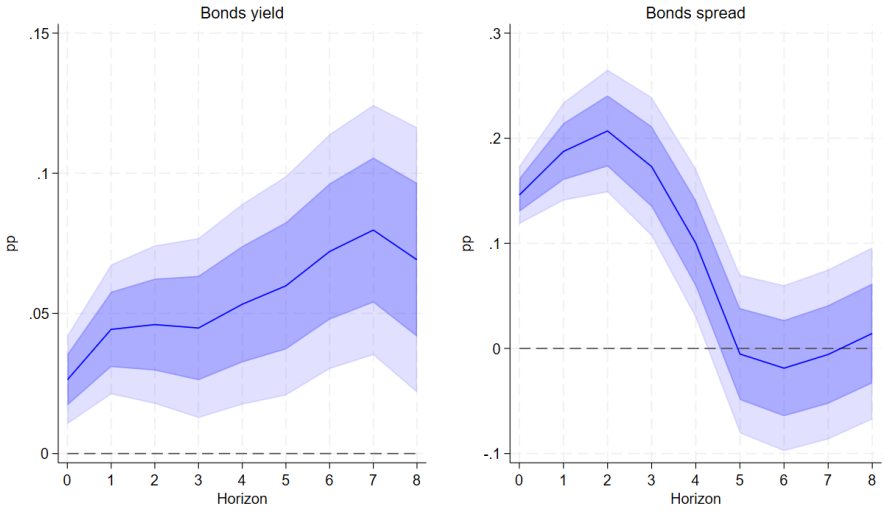


Figure 11: Responses of foreign long-term sovereign bond yield [left panel] and the spread with the US yield (= "US yield - foreign yield") [right panel]. 1959-1971

By contrast, in the era of post-1990 globalization, research has shown that under floating exchange rates and with central banks providing abundant liquidity, short-term money market rates respond much less than long-term yields to U.S. monetary policy shocks [Degasperi et al., 2023, Bazot et al., 2024]. Moreover, because U.S. government debt enjoys a privileged status in global financial markets, an increase in the U.S. policy rate raises the risk premium on other countries' sovereign debt.

We find the opposite pattern during the Bretton Woods period, as shown in Figure 11. Focusing on the post-1958 phase—since, as with other variables, no significant reactions are observed before then—we find that the response of foreign long-term bond yields (left panel) is markedly smaller than that of short-term money market rates (Figure 9). In contrast, the U.S. sovereign bond yield rises much more sharply, by up to 20 basis points after two months. Compared with the immediate and stronger response of short-term rates, this provides additional evidence that domestic financial regulation—rather than capital controls alone—played a central role in dampening the transmission of U.S. monetary policy shocks under Bretton Woods.

7 Conclusion

This paper has revisited international monetary policy transmission under the Bretton Woods system by constructing the first monthly series of exogenous U.S. monetary policy shocks for 1947–1971, derived from daily surprises in the Federal Reserve discount rate.

Combined with newly digitized macro-financial data, this approach provides the first causal evidence that U.S. monetary policy was active during the Bretton Woods era and generated conventional domestic effects on output, inflation, and unemployment. It further shows that, once current account convertibility was restored after 1958, U.S. tightening shocks propagated across borders through money market rates and equity prices.

The results suggest that Bretton Woods offered only temporary monetary autonomy. Contrary to the conventional view that capital controls fully insulated national policies, we find that even limited financial openness—through the Eurodollar market—was sufficient to re-establish cross-border interest-rate arbitrage and to constrain domestic monetary independence. At the same time, the absence of real-economy responses abroad indicates that domestic financial regulation was the main insulating mechanism: extensive credit controls and subsidized public lending muted the transmission of interest rate changes to aggregate demand. These findings challenge the traditional interpretation of the Bretton Woods trilemma by showing that the effectiveness of capital controls depended also on domestic financial regulation.

More broadly, our evidence challenges the standard narrative about the transition from Bretton Woods to financial globalization. By documenting that monetary spillovers reappeared well before the 1970s—although confined to financial variables—the paper emphasizes that the liberalization of domestic credit markets, rather than the dismantling of capital controls, was the decisive change that eventually restored full international monetary transmission. This reinterpretation portrays Bretton Woods not as a unique era of stability, but as a transitional regime in which partial openness, offshore markets, and domestic regulation jointly determined the limits of monetary sovereignty.

A broader question raised by this research concerns the extent to which an economy can combine a certain degree of financial openness—with tolerance for offshore markets and the integration of domestic money markets into global financial circuits—while maintaining firm control over internal macroeconomic variables through restrictive banking regulations and sustained state intervention in credit allocation and development. This challenge is particularly acute because, as the development of the Eurodollar market in the 1960s illustrates, the coexistence of current account convertibility with tight domestic banking regulation tends to foster the emergence of offshore financial markets. As several observers have noted, contemporary China finds itself in a comparable situation [Frankel, 2012, McCauley et al., 2021, Eichengreen et al., 2024]: it has considerably relaxed capital controls and permitted the flourishing of an offshore market in Hong Kong, while simultaneously seeking to preserve extensive state involvement in the financial system, the allocation of credit, and the conduct of monetary policy.

The experience of the Bretton Woods era does not imply any historical inevitability. Rather, it demonstrates both that it is possible to sustain, for a time, a degree of separation between the international integration of monetary and offshore markets and the domestic control of credit and macroeconomic management—and that such an arrangement inevitably generates tensions that are difficult to reconcile over the long run. As we have shown, the issue is more complex than one of capital controls alone, and involves considering how domestic banking regulation and credit policies—including what is now referred to as macroprudential policy—can provide some room for manoeuvre in an environment of financial openness.

References

Mr SM Ali Abbas, Laura Blattner, Mark De Broeck, Ms Asmaa A ElGanainy, and Malin Hu. Sovereign debt composition in advanced economies: A historical perspective. Technical report, International Monetary Fund, 2014.

Abdul Abiad, Enrica Detragiache, and Thierry Tressel. A new database of financial reforms. *IMF Staff Papers*, 57(2), 2010.

David Aikman, Oliver Bush, and Alan M. Taylor. Monetary versus macroprudential policies: causal impacts of interest rates and credit controls in the era of the uk radcliffe report. Working Paper 22380, National Bureau of Economic Research, 2016. Also: Bank of England Working Paper No. 610.

Carlo Edoardo Altamura. The paradox of the 1970s: The renaissance of international banking and the rise of public debt. *Journal of Modern European History*, 15(4):529–553, 2017.

Victor Argy. Monetary policy and internal and external balance (politique monétaire et équilibre intérieur et extérieur)(la política monetaria y el equilibrio interno y externo). *Staff Papers-International Monetary Fund*, pages 508–527, 1971.

Age Bakker and Bryan Chapple. Advanced country experiences with capital account liberalization. In *Capital Liberalization in Transition Countries*, pages 23–42. Edward Elgar Publishing, 2003.

Age FP Bakker. *The liberalization of capital movements in Europe: the monetary committee and financial integration 1958–1994*, volume 29. Springer Science & Business Media, 2012.

Michael Bauer and Eric Swanson. A reassessment of monetary policy surprises and high-frequency identification. *NBER Macroeconomics Annual*, 37, 2023b.

Michael D. Bauer and Eric T. Swanson. An alternative explanation for the fed information effect.'. *American Economic Review*, 113(3):664–700, 2023a.

Guillaume Bazot, Eric Monnet, and Matthias Morys. Taming the global financial cycle: Central banks as shock absorbers in the first era of globalization. *The Journal of Economic History*, 82(3):801–839, 2022.

Guillaume Bazot, Eric Monnet, and Matthias Morys. Central banks and the absorption of international shocks (1891-2019). 2024.

M. Bordo, E. Monnet, and A. Naef. The gold pool (1961–1968) and the fall of the bretton woods system: Lessons for central bank cooperation. *The Journal of Economic History*, 79(4):1027–1059, 2019.

M. D. Bordo. *The Federal Reserve: Independence Gained, Independence Lost*. Shadow Open Market Committee, 2010. URL `https://media4.manhattan-institute.org/pdf/somc/03262010_bordo.pdf`.

Michael D Bordo. The bretton woods international monetary system: a historical overview. In *A retrospective on the Bretton Woods system: Lessons for international monetary reform*, pages 3–108. University of Chicago Press, 1993.

Paul Bouscasse. Canst thou beggar thy neighbour? evidence from the 1930s. *Work. Pap. Columbia Univ. New York, NY*, 2022.

Benjamin Braun, Arie Krampf, and Steffen Murau. Financial globalization as positive integration: monetary technocrats and the eurodollar market in the 1970s. *Review of international political economy*, 28(4):794–819, 2021.

Valentina Bruno and Hyun Song Shin. Capital flows and the risk-taking channel of monetary policy. *Journal of Monetary Economics*, 71:119–132, 2015.

M. Carlson and D. C. Wheelock. Near-money premiums, monetary policy, and the integration of money markets: Lessons from deregulation. *Journal of Financial Intermediation*, 33: 16–32, 2018.

Mark A. Carlson and David C. Wheelock. *Navigating Constraints: The Evolution of Federal Reserve Monetary Policy, 1935–1959*, page 50–88. Studies in Macroeconomic History. Cambridge University Press, 2016.

R. Clarida, J. Gali, and M. Gertler. Monetary policy rules and macroeconomic stability: evidence and some theory. *The Quarterly Journal of Economics*, 115(1):147–180, 2000.

James Cloyne, Patrick Hürtgen, and Alan M Taylor. Global monetary and financial spillovers: Evidence from a new measure of bundesbank policy shocks. Technical report, National Bureau of Economic Research, 2022.

Timothy Cook and Thomas Hahn. The information content of discount rate announcements and their effect on market interest rates. *Journal of Money, Credit and Banking*, 20(2): 167–180, 1988.

Pierre De Leo, Gita Gopinath, and ebnem Kalemli-Özcan. Monetary policy and the short-rate disconnect in emerging economies. Working Paper 30458, National Bureau of Economic Research, September 2022. URL `http://www.nber.org/papers/w30458`.

Luca Dedola, Giulia Rivolta, and Livio Stracca. If the fed sneezes, who catches a cold? *Journal of International Economics*, 108:S23–S41, 2017.

Riccardo Degasperi, Seokki Simon Hong, and Giovanni Ricco. The Global Transmission of U.S. Monetary Policy. Working Papers 2023-02, Center for Research in Economics and Statistics, January 2023. URL `https://ideas.repec.org/p/crs/wpaper/2023-02.html`.

Victor Degorce. Public credit and the financial cycle. Technical report, mimeo, 2023.

Victor Degorce. Exchange controls and the segmentation of international currency markets. 2025.

Graeme S Dorrance and Ekhard Brehmer. Controls on capital inflow: Recent experience of germany and switzerland. *Staff Papers (International Monetary Fund)*, 8(3):427–438, 1961.

Barry Eichengreen. Global monetary order. In *ECB Forum on Central Banking 2016: The Future of the International Monetary and Financial Architecture*, Sintra, Portugal, June 2016. European Central Bank. URL `https://www.ecb.europa.eu/press/conferences/ecbforum/shared/pdf/2016/eichengreen_paper.pdf`. Quote on p. 8: "Bretton Woods was... stable exchange rates, greater monetary autonomy, and limits on capital flows... Capital controls provided only partial insulation.".

Barry Eichengreen and Andrew Rose. Capital controls in the 21st century. *Journal of International Money and Finance*, 48:1–16, 2014.

Barry Eichengreen, Arnaud Mehl, and Livia Chitu. *How global currencies work: past, present, and future*. Princeton University Press, 2018.

Barry Eichengreen, Camille Macaire, Arnaud Mehl, Eric Monnet, and Alain Naef. Currency internationalization with chinese characteristics: Is capital-account convertibility required for the renminbi to acquire reserve-currency status? *International Finance*, 27(2):102–128, 2024.

Otmar Emminger. *The D-Mark in the conflict between internal and external equilibrium, 1948-75*. Number 122. Princeton, NJ: International Finance Section, Department of Economics ..., 1977.

Bilge Erten, Anton Korinek, and José Antonio Ocampo. Capital controls: Theory and evidence. *Journal of Economic Literature*, 59(1):45–89, 2021.

Emmanuel Farhi and Matteo Maggiori. A model of the international monetary system. *The Quarterly Journal of Economics*, 133(1):295–355, 2018.

Jeffrey Frankel. Internationalization of the rmb and historical precedents. *Journal of Economic Integration*, 27(3):329–365, 2012.

Gabriele Galati, Jan Kakes, and Richhild Moessner. Effects of credit restrictions in the netherlands on credit growth and inflation. *Financial History Review*, 28(2):237–258, 2021.

Mark Gertler and Peter Karadi. Monetary policy surprises, credit costs, and economic activity. *American Economic Journal: Macroeconomics*, 7(1):44–76, 2015.

Pierre-Olivier Gourinchas, Hélene Rey, and Maxime Sauzet. The international monetary and financial system. *Annual Review of Economics*, 11(1):859–893, 2019.

William Glenn Gray. Floating the system: Germany, the united states, and the breakdown of bretton woods, 1969–1973. *Diplomatic History*, 31(2):295–323, 2007.

R. L. Hetzel. *The Federal Reserve: A New History*. University of Chicago Press, 2023.

Steven Wei Ho, Ji Zhang, and Hao Zhou. Hot money and quantitative easing: The spillover effects of us monetary policy on the chinese economy. *Journal of Money, Credit and Banking*, 50(7):1543–1569, 2018.

Donald R Hodgman. Credit controls in western europe: An evaluative review. *The Federal Reserve Bank of Boston, Credit Allocation Techniques and Monetary Policy*, pages 137–161, 1973.

Ethan Ilzetzki, Carmen M Reinhart, and Kenneth S Rogoff. Exchange arrangements entering the twenty-first century: Which anchor will hold? *The Quarterly Journal of Economics*, 134(2):599–646, 2019.

Toru Iwami. Japan's experiences under the bretton woods system. *Japan in the International Financial System*, pages 36–61, 1995.

Marek Jarociński and Peter Karadi. Deconstructing monetary policy surprisesthe role of information shocks. *American Economic Journal: Macroeconomics*, 12(2):1–43, 2020.

Nicholas Kaldor. The radcliffe report. *The Review of Economics and Statistics*, pages 14–19, 1960.

ebnem Kalemli-Özcan. U.s. monetary policy and international risk spillovers. Working Paper 26297, National Bureau of Economic Research, September 2019. URL `http://www.nber.org/papers/w26297`.

Soyoung Kim. International transmission of us monetary policy shocks: Evidence from var's. *Journal of monetary Economics*, 48(2):339–372, 2001.

Michael W. Klein and Jay C. Shambaugh. Rounding the corners of the policy trilemma: sources of monetary policy autonomy. *American Economic Journal: Macroeconomics*, 7 (4):33–66, 2015.

Fred H Klopstock. *The Euro-dollar market: some unresolved issues*. Number 65. International Finance Section, Princeton University Princeton, 1968.

Christine Lagarde. Drawing a common map: sustaining global cooperation in a fragmenting world. Speech at the People's Bank of China, June 2025. URL `https://www.ecb.europa.eu/press/key/date/2025/html/ecb.sp250611~8936f0665d.en.html`. President of the ECB.

David Lodge, Ana-Simona Manu, and Ine Van Robays. China's footprint in global financial markets. Technical report, Bank of Finland Institute for Emerging Economies (BOFIT), 2024.

Raymond E Lombra and Raymond G Torto. Discount rate changes and announcement effects. *The Quarterly Journal of Economics*, 91(1):171–176, 1977.

Robert McCauley. *The Global Domain of the Dollar: Markets, Myths, and Policies*. Cambridge University Press, 2026.

Robert McCauley, Patrick McGuire, and Philip Wooldridge. Seven decades of international banking. *BIS Quarterly Review*, (20), 2021.

Robert N McCauley. The offshore dollar and us policy. *FRB Atlanta Policy Hub Paper*, (2024-02), 2024.

Robert N McCauley and Catherine R Schenk. Central bank swaps then and now: swaps and dollar liquidity in the 1960s. Technical report, Bank for International Settlements, 2020.

Silvia Miranda-Agrippino and Hélène Rey. Us monetary policy and the global financial cycle. *The Review of Economic Studies*, 87(6):2754–2776, 2020.

Silvia Miranda-Agrippino and Giovanni Ricco. The transmission of monetary policy shocks. *American Economic Journal: Macroeconomics*, 13(3):74–107, 2021.

Silvia Miranda-Agrippino, Tsvetelina Nenova, and Hélene Rey. Global footprints of monetary policies. 2023.

Eric Monnet. Monetary policy without interest rates: Evidence from france's golden age (1948 to 1973) using a narrative approach. *American Economic Journal: Macroeconomics*, 6(4):137–169, 2014.

Eric Monnet. *Controlling Credit: Central Banking and the Planned Economy in Postwar France, 1948 1973*. Cambridge University Press, 2018a.

Eric Monnet. Credit controls as an escape from the trilemma. the bretton woods experience. *European Review of Economic History*, 22(3):349–360, 2018b.

Eric Monnet and Damien Puy. One ring to rule them all? new evidence on world cycles. 2019. International Monetary Fund.

Eric Monnet and Damien Puy. Do old habits die hard? central banks and the bretton woods gold puzzle. *Journal of International Economics*, 127:103394, 2020.

Eric Monnet and Miklos Vari. A dilemma between liquidity regulation and monetary policy: some history and theory. *Journal of Money, Credit and Banking*, 55(4):915–944, 2023.

Robert A. Mundell. Capital mobility and stabilization policy under fixed and flexible exchange rates. *Canadian Journal of Economics and Political Science*, 29(4):475–485, 1963.

Maurice Obstfeld. Economic multilateralism: 80 years after bretton woods. *Oxford Review of Economic Policy*, 40(2):307–328, 2024. doi: 10.1093/oxrep/grae009. URL `https://academic.oup.com/oxrep/article/40/2/307/7644420`.

Maurice Obstfeld and Alan M. Taylor. *Global Capital Markets: Integration, Crisis, and Growth*. Cambridge University Press, 2004.

Maurice Obstfeld and Alan M Taylor. International monetary relations: Taking finance seriously. *Journal of Economic Perspectives*, 31(3):3–28, 2017.

Maurice Obstfeld, Jay C. Shambaugh, and Alan M. Taylor. The trilemma in history: tradeoffs among exchange rates, monetary policies, and capital mobility. *Review of economics and statistics*, 87(3):423–438, 2005.

Maurice Obstfeld, Jonathan D Ostry, and Mahvash S Qureshi. A tie that binds: Revisiting the trilemma in emerging market economies. *Review of Economics and Statistics*, 101(2): 279–293, 2019.

Kevin Hjortshøj O'Rourke and Roger H Vicquéry. *How Fixed are Global Exchange Rates?* SciencesPo, Department of Economics, 2025.

W. Poole. Monetary policies in the united states, 1965-74. *Proceedings of the Academy of Political Science*, 31(4):91–104, 1975.

Carmen M Reinhart and M Belen Sbrancia. The liquidation of government debt. *Economic Policy*, 30(82):291–333, 2015.

Hélène Rey. Dilemma not trilemma: the global financial cycle and monetary policy independence. 2015. NBER Working Paper No. 21162.

C. D. Romer and D. H. Romer. A rehabilitation of monetary policy in the 1950's. *American Economic Review*, 92(2):121–127, 2002.

C. D. Romer and D. H. Romer. Lessons from history for successful disinflation. *Journal of Monetary Economics*, 148:103654, 2024.

Christina D Romer and David H Romer. Does monetary policy matter? a new test in the spirit of friedman and schwartz. *NBER macroeconomics annual*, 4:121–170, 1989.

Christina D Romer and David H Romer. A new measure of monetary shocks: Derivation and implications. *American economic review*, 94(4):1055–1084, 2004.

Catherine R Schenk. The origins of the eurodollar market in london: 1955–1963. *Explorations in economic history*, 35(2):221–238, 1998.

Catherine R. Schenk. The sterling area and economic disintegration. *Geschichte und Gesellschaft*, 39(2):177–196, 2013. ISSN 0340-613X. URL `https://eprints.gla.ac.uk/79977/1/79977.pdf`. Quote on p. 12 (PDF): "The Bretton Woods system was further undermined by innovations in international banking and capital markets, first with the expansion of the Eurodollar market and then its translation into the Eurobond market.".

Catherine R Schenk. The regulation of international financial markets from the 1950s to the 1990s. In *State and financial systems in Europe and the USA*, pages 149–166. Routledge, 2016.

Andrew Shonfield. *Modern Capitalism: The Changing Balance of Public and Private Power*. Oxford University Press, Oxford, 1965.

Robert Solomon. *The international monetary system, 1945-1981*. Harper and Row.

D. L. Thornton. When did the fomc begin targeting the federal funds rate? what the verbatim transcripts tell us. *Journal of Money, Credit and Banking*, pages 2039–2071, 2006.

Daniel L Thornton. The information content of discount rate announcements: What is behind the announcement effect? *Journal of Banking & Finance*, 22(1):83–108, 1998.

Lester C Thurow. *Activities by Various Central Banks to Promote Economic and Social Welfare Programs*. US Government Printing Office, 1971.

Martin Uribe and Vivian Z Yue. Country spreads and emerging countries: Who drives whom? *Journal of international Economics*, 69(1):6–36, 2006.

R. N. Waud. Public interpretation of federal reserve discount rate changes: Evidence on the "announcement effect". *Econometrica: Journal of the Econometric Society*, pages 231–250, 1970.