HOOVER INSTITUTION
ECONOMICS WORKING PAPERS

The Case for Flexible Exchange Rates in 1953 and 1969: Friedman versus Johnson

George S. Tavlas*

Economics Working Paper 23108

HOOVER INSTITUTION
434 GALVEZ MALL
STANFORD UNIVERSITY
STANFORD, CA 94305-6010

April 2023

During the years of the Bretton Woods system, two of the most – if not *the* most -- influential articles on exchange-rate systems were written by Milton Friedman and Harry Johnson, respectively. Friedman's article, "The Case for Flexible Exchange Rates," was published in 1953. Johnson's article, published sixteen years later, carried the almost identical title—"The Case for Flexible Exchange Rates, 1969." While both articles achieved classic status, in the 1970s and 1980s Johnson's essay appears to have surpassed Friedman's essay in stature in the view of some economists. This paper provides a comparison of the arguments in favour of flexible rates and against fixed rates presented in the respective articles by Friedman and Johnson. I conclude that Friedman's essay presaged all of the major arguments made in Johnson's essay while excluding several major misses made by Johnson. Nevertheless, there were pragmatic reasons why Johnson's essay became more influential.

Keywords: Flexible exchange rates, fixed exchange rates, Bretton Woods system, Milton Friedman, Harry Johnson

JEL Codes: B31, F33

* I have benefitted from valuable comments by Harris Dellas, Ed Nelson, Maurice Obstfeld, and Mike Ulan. I am grateful to Maria Monopoli for excellent research assistance. Correspondence may be addressed to George Tavlas, Bank of Greece, 21 E Venizelos Ave, Athens, 10250, Greece, Tel. no. +30 210 320 2370; Fax. no. +30 210 320 2432; Email address: gtavlas@bankofgreece.gr.

1. Introduction

During the years in which the Bretton Woods fixed-but-adjustable exchange-rate regime operated, two of the most – if not *the* most – influential works on exchange-rate systems were authored by University of Chicago economists, Milton Friedman and Harry Johnson.[1] Friedman, who taught at Chicago from 1946 to 1977, published an essay under the title "The Case for Flexible Exchange Rates" as a chapter in his 1953 book, *Essays in Positive Economics*. The essay was a revision of a 1950 memorandum that Friedman wrote for a U.S. government agency in Paris.[2] Johnson, who taught at Chicago from 1959 to 1977, published his essay sixteen years later. Johnson titled the essay "The Case for Flexible Exchange Rates, 1969" and brought it out in two publishing outlets -- as a Hobart Paper in May 1969, and in the Federal Reserve Bank of St. Louis *Review*, in June 1969.[3] In an introductory footnote, Johnson (1969, 12) wrote: "The title acknowledges the indebtedness of all serious writers on this subject to Milton Friedman's modern classic essay, 'The Case for Flexible Exchange Rates'." Johnson did not mention whether Friedman had provided comments on – or even read – his paper prior to its publication. Moreover, in his paper Johnson did not provide any specific citations to the arguments made earlier by Friedman.[4] Friedman's essay was reprinted in 1968 in abridged form in the American Economic Association's *Readings in International Economics*, which Johnson co-edited with Richard Caves.

The aim of both the Friedman and Johnson essays was to assess the advantages and disadvantages of flexible- and fixed-exchange-rate systems. As their respective titles

[1] In a comprehensive study of the Bretton Woods system, Bordo (1993) dated that system's existence from 16 December 1946, on which date thirty-two countries declared par values for their currencies, to 15 August 1971, on which date the United States closed the gold window. Solomon (1977, 213), Eichengreen (2007, 245), and Bailey, Tavlas, and Ulan (1986; 1987) opined that the end of the system came in March 1973 when major European countries and Japan decided to let their currencies float. Martin Bailey, a co-author of the latter two papers, was an Assistant Secretary at the U.S. Treasury in 1972-73.

[2] Friedman wrote the memorandum while he was a consultant to the Finance and Trade Division of the Office of Special Representative for Europe, United States Economic Cooperation Administration. Friedman had experienced difficulty in finding a publication outlet for the paper before publishing a revised version in his 1953 book.

[3] The Hobart Paper was titled *UK and Floating Exchanges*. It consisted of two parts, Johnson's essay and one by John E. Nash. The Hobart Paper series was published by London's Institute of Economic Affairs, which, like the Federal Reserve Bank of St. Louis, became associated with the growing influence of monetarism in the late-1960s. Ed Nelson informed me that Johnson presented his paper as a lecture at the St. Louis Fed on May 1, 1969. Page citations are from the St. Louis Fed reference.

[4] Friedman certainly had read Johnson's essay *after* it was published. See Friedman (1969, 109, 111). During the late-1960s and early-1970s, Friedman and Johnson had strained personal relations. Nelson (2009, 67) reported that "they disliked each other." See, also, Leeson (2000) and Tavlas (2023, chapter 1).

made clear, both authors favored flexible exchange rates. Friedman's article appeared at a time when the economics profession overwhelmingly supported fixed exchange rates.[5] Friedman's advocacy of flexible-exchange rates first appeared in print in a 1948 article, "A Monetary and Fiscal Framework for Economic Stability" (1948, 142). Johnson's article was published after a series of balance-of-payments crises had persuaded much of the profession that the Bretton Woods system needed to be reformed toward increased flexibility. Johnson, whose major field of interest had switched from trade theory in the 1950s to monetary economics in the 1960s (Nelson, 2009, 67), first began publicly favoring flexible exchange rates in the early-1960s, but he did not consider that they would be adopted (at that time) because of opposition from monetary institutions, including central banks (Moggridge, 2008, 255-56).[6] In 1961 testimony before the U.S. Congress's Subcommittee on International Exchange and Payments of the Joint Economic Committee, Johnson remarked: "I would be in favor of flexible exchange rates, but my feeling is that the monetary institutions and banks and traders, and so on, prefer fixed rates. And that being so, I would rather spend my time on how to make the system work, than on advocating a system which doesn't seem to have much chance of being accepted" (quoted from Moggridge, 2008, 255-56). Both essays were extremely influential in the debates on international monetary reform that took place in the 1970s and 1980s.[7] Both essays have been the focus of recent studies. For example, arguments put forward in Friedman's essay motivated studies by Dellas and Tavlas (2005; 2009; 2018), Boyer (2009), and Nelson (2020a).[8] Johnson's article was the focus of a recent paper by Obstfeld (2020) – aptly titled "Harry Johnson's 'Case for Flexible Exchange Rates' – 50 Years Later."

While both the Friedman and the Johnson essays were treated as classics in the post-Bretton Woods literature on exchange-rate systems, Johnson's essay surpassed Friedman's essay in stature in the view of some economists especially during the first

[5] In a 1969 debate with Friedman, Samuelson stated: "I would like to pay a personal tribute to Milton Friedman. He was a lone voice crying in the wilderness 10 or 15 years ago in favor of flexibility in exchange rates" (quoted from Nelson, 2020b, vol. 2, 293). Apart from flexible exchange rates, other proposals for reform discussed in the 1960s included crawling pegs and target zones.

[6] Although Johnson had not made monetary economics his primary field of interest in the 1950s, as Laidler (1984) discussed, Johnson wrote on monetary issues throughout the 1950s. Laidler (1984, 599) pointed-out, however, that: "The years 1959-66 ... saw the writing of [Johnson's] best-known and most highly-regarded contributions to the macroeconomics literature.'

[7] See, for example, Artus and Young (1979) and Goldstein (1980; 1984).

[8] Indeed, the title of Dellas and Tavlas (2018) was "Milton Friedman and the Case for Flexible Exchange Rates and Monetary Rules."

25 years of floating rates.[9] Moreover, Johnson – and not Friedman – came to be viewed by some economists as the leading advocate of flexible exchange rates. For example, in a 1976 paper, in which he claimed that proponents of flexible-exchange-rate systems viewed those systems as synonymous with "God," Kindleberger called Johnson the "Archbishop of Canterbury" of flexible exchange rates (Kindleberger, 1976, 29); Kindleberger did not refer to Friedman in his paper.[10] In a 1981 article, "The Exchange Rate and Macroeconomic Policy: Changing Postwar Perceptions," McKinnon wrote that Johnson's essay "is unusually pungent and more contemporary that the earlier [1953 article] of Friedman" (1981, 536). In a comprehensive (eighty-two page) review article, "Floating Exchange Rates: Experience and Prospects," covering the debates of the 1960s and after, Obstfeld (1985, fn. 13, 386) wrote: "The classic academic case for flexible exchange rates during this period [the 1960s] was made by Harry Johnson in "The Case for Flexible Exchange Rates, 1969." Since Obstfeld's review focused on the debates from the 1960s and after, the review did not cite Friedman's paper. In a paper, "The New Exchange Rate Regime and the Developing Countries," Black (1978, 814) wrote the following about balance-of-payments adjustment under floating exchange rates: "Harry Johnson ... put this question in proper perspective ... in his classic 'The Case for Flexible Exchange Rates, 1969.'" Black did not cite Friedman's paper. Likewise, Williamson's influential 1983 study, *The Exchange Rate System*, cited Johnson's essay but not Friedman's. In an article, "Exchange Rate Choices," published in the aftermath of the 1997-98 Asian financial crisis, Cooper referred to both the Friedman and Johnson essays, but expressed the view that the latter essay had been the more influential. In this regard, Cooper (1999, 104) maintained that the debate about exchange-rate regimes had been "summarized tendentiously" by Johnson in his "widely read paper." Cooper continued: "In contrast to Friedman, from whom he drew his title ... [Johnson] was writing after 20 years' experience under the Bretton Woods system.

---

[9] In the view of some members of the profession, Johnson's stature in the field of monetary economics rivaled Friedman's in the 1970s. Thus, a 1977 article by Ferd Hirsch opened with the sentence: "Under the lead of Friedman and Johnson, monetary analysis in the past two decades has been largely transformed" (Hirsch, 1977, 241).

[10] In a conference paper, "The Case for Fixed Exchange Rates, 1969," Kindleberger singled out both Friedman and Johnson as the leading proponents of flexible exchange rates, but, as the title previewed, he gave more prominence to Johnson's views – despite the fact that Friedman was the discussant of Kindleberger's paper. Friedman's (1969, 109) opening remarks set the tone for his appraisal of Kindleberger's paper: "I should say in advance that I have one great advantage over you people. I had a text of Charlie's paper beforehand and, since he only read part of it, I have a larger collection of fallacies from which to choose than you do."

He both reflected and helped shape the prevalent view among academic economists, if not bankers and government officials."

In view of the common objectives cited in the Friedman and Johnson essays and their almost identical titles, how did these essays compare with each other? What were the similarities and the differences in the arguments put forward by the respective authors? What made Johnson's essay "unusually pungent and more contemporary" than Friedman's? With sixteen years having passed from the time of publication of Friedman's essay to that of Johnson's, the latter essay can shed light on the way the case for flexible-exchange rates, and against fixed rates, progressed in the 1950s and 1960s. Remarkably, a comparison of the arguments presented in the two essays has never been made. In his biography of Johnson, Moggridge (2008, 366-68) covered arguments made in Johnson's 1969 essay in some detail without mentioning Friedman's 1953 essay. Likewise, in a review of Johnson's contributions to international macroeconomics, Helliwell (1978) assessed the contributions in Johnson's 1969 article without mentioning Friedman's essay.[11] In his retrospective on Johnson's essay, Obstfeld (2020, 87) noted that Johnson "drew inspiration from Friedman's (1953) classic argument for exchange-rate flexibility," and Obstfeld reproduced Johnson's introductory footnote (quoted above) in which Johnson expressed his indebtedness to Friedman's essay. The objective of Obstfeld's paper, however, was to assess the endurance of Johnson's arguments in light of the experience of the past fifty years. Consequently, Obstfeld did not attempt to compare the arguments made by Johnson with those made earlier by Friedman.

The purpose of this paper is to provide a comparison of the arguments in favor of flexible exchange rates and against fixed rates presented in the respective papers by Friedman and Johnson. In doing so, my point of departure is to refer to a series of arguments about exchange-rate systems which Obstfeld (2020) attributed to Johnson's paper.[12] I describe Johnson's arguments and compare them with what Friedman wrote on the same issue – if it was indeed discussed by Friedman. I show that all of Johnson's arguments in favor of flexible rates and against fixed rates had been made earlier by Friedman. Moreover, Friedman avoided making several errors made by Johnson, a fact

[11] Helliwell 1978, 577) referred to the 1969 essay as Johnson's "best known contribution" to the exchange-rate literature.

[12] In addition to examining the way Johnson's main arguments have stood up during the period of floating rates, Obstfeld (2020) provided insightful discussions of (1) the historical context in which Johnson's paper was written and (2) recent academic critiques of exchange-rate flexibility.

that raises the issue of the reasons that Johnson's essay was considered to have been more influential than Friedman's. I deal with this issue in the concluding section.

Two remarks about the following discussion are warranted at the outset. First, my focus is exclusively on what Friedman and Johnson wrote in their 1953 and 1969 essays, respectively. I do not cover what those economists wrote on exchange-rate regimes in their other works. Second, the interpretation that Johnson's essay superseded Friedman's in influence reflected the views of some -- but certainly not all – international economists, and occurred during and shortly-after Johnson's lifetime. It seems fair to say that references to Johnson's essay have diminished since the 1980s while more-recent references to Friedman's essay have continued to characterize it as a classic.[13]

2. Friedman 1953 and Johnson 1969

2.1 *The Basic Case for Flexible Rates*

What is the ultimate objective of any exchange-rate system? The earlier literature (*circa* the 1960s to the 1980s) on exchange-rate regimes evaluated the merits of flexible- versus fixed-exchange-rate systems on the basis of three broad criteria: (1) Does the system help or hinder macroeconomic policies in pursuit of domestic economic objectives (price stability, real growth, full employment)? (2) How effective is the system in promoting external payments adjustment?[14] (3) How does the system affect the volume and efficiency of world trade and capital flows and, thereby, resource allocation in the international economy at large? (Goldstein, 1984, 13).[15]

Both Friedman and Johnson presented general statements about the efficacy of flexible rates in satisfying these criteria for larger industrial countries; Johnson briefly referred to exchange-rate regimes for smaller countries as well.[16] Both economists

---

[13] For example, Krugman (1993, 519) called Friedman's essay "a seminal paper," while McCallum (1996, 213) stated that Friedman's essay was "the most famous and influential single piece of writing on exchange-rate arrangements." I am grateful to Ed Nelson for bringing these references to my attention.

[14] In particular, an effective system was considered to be one that eliminated balance-of-payments disequilibria over a reasonable period. The concept of balance-of-payments equilibrium was never precisely defined.

[15] Goldstein (1984, 13) included a fourth criterion -- the adaptability of the system to significant changes in the global economic environment. The meaning of this criterion is difficult to pin down precisely and it is omitted here. For a review of the recent literature on the properties of alternative exchange-rate regimes, see Tavlas, Dellas, and Stockman (2008).

[16] The closest that Friedman came to dealing with emerging countries in his 1953 essay was in his discussion of the sterling area, to which I refer below. In subsequent papers, Friedman dealt with exchange-rate regimes for emerging nations. Edwards (2023) provides an analysis of Friedman's views on this subject.

supported their general statements with a series of specific arguments -- what Cooper (1999, 104), referring specifically to Johnson's paper, called "a series of unfounded assertions and allegations, an idealization of the world of financial markets without serious reference to their actual behavior" -- in presenting their respective cases. In particular, neither Friedman nor Johnson provided *any* empirical evidence, whether original or via the citation of previous studies, to support their arguments. Indeed, apart from his citation of Friedman 1953 essay, Johnson provided no other references to the prior literature on exchange-rate systems. Friedman referred to only two previous works – a study by Nurkse (1944) and a study by Meade (1951).

Friedman and Johnson rested their cases for flexible exchange rates on their belief that flexible rates remove the balance-of-payments constraint on policymakers and, thus, provide autonomy for national monetary and fiscal policies. By doing so, they promote an efficient use of resources internationally. Friedman (1953, 200) argued that a system of flexible exchange rates "are a means of combining interdependence among countries through trade with a maximum of internal monetary independence." Furthermore, flexible rates give rise to "unrestricted multilateral trade [that is] ... a system in which there are no direct quantitative controls over imports or exports, in which any tariffs or export bounties are reasonably stable and nondiscriminatory and are not subject to manipulation to affect the balance of payments, and in which a substantial fraction of international trade is in private (nongovernmental) hands" (1953, 158). Friedman also argued that such a system promotes "the efficient use of resources through an appropriate international division of labor and increases consumer welfare by maximizing the range of alternatives on which consumers can spend their incomes" (1953, fn. 3, 158). Johnson argued similarly:

> Since, in the absence of balance-of-payments reasons for interfering in international trade and payments, and given autonomy of domestic policy, there is an overwhelmingly strong case for the maximum possible freedom of international transactions to permit exploitation of the economies of international specialization and division of labour, the argument for flexible exchange rates can be put more strongly still: flexible exchange rates are essential to the preservation of national autonomy and independence consistent with efficient organization and development of the world economy (1969, 12-13).

In arguing that flexible rates are the most effective way to achieve external adjustment, both economists criticized three other methods of dealing with external imbalances: (1) changes in domestic wages and prices; (2) direct controls over imports and exports; and (3) changes in the stock of a country's international reserves (Friedman, 1953, 164-73; Johnson, 1969, 17). Each of these methods, Friedman and Johnson believed, had deficiencies. For example, in the absence of an exchange-rate adjustment, a reduction in wages needed to restore competitiveness would entail an increase in unemployment (Friedman, 1953, 173; Johnson, 1969, 17).[17] The most effective way to promote balance-of-payments adjustment was through nominal-exchange-rate adjustment, but this method raised the issue of whether such adjustment is best achieved through flexible exchange rates or through fixed-but-adjustable exchange rates (as under the Bretton Woods system). In their comparisons of flexible exchange rates with fixed exchange rates, both Friedman and Johnson used the fixed-but-adjustable system as the prototype of a fixed-rate regime. Both economists pointed-out that these three alternative methods of achieving adjustment – changes in domestic wages and prices, changes in reserves, and direct controls on trade – are characteristics of the fixed-but-adjustable system.

2.2 *Where Johnson "Overpromised"*

As mentioned, both Friedman and Johnson supported their general statements in favor of flexible rates with a series of specific arguments and/or assertions. In his evaluation of Johnson's essay, Obstfeld (2020) assessed whether the specific arguments made by Johnson have stood the test of time. In hindsight, Obstfeld found that Johnson's case for flexible exchange rates "over-promised" in a number of (sometimes overlapping) areas. These areas included the following: (1) exchange rates would change only if the economic fundamentals change; (2) exchange rates would change smoothly and predictably in response to changes in the fundamentals; (3) floating would remove the rationale for trade and capital restrictions; (4) over the long run, exchange rates would be determined by relative inflation rates; (5) floating rates would allow each country to select its preferred combination of unemployment and inflation; and (6) central bankers would undergo a loss of prestige under a flexible-rate system. I present

[17] In making the case that exchange-rate adjustments avoid the costs associated with the adjustment of individual wages and prices, Friedman (1953, 173) introduced the "daylight saving time" argument into the exchange-rate literature. The argument is based on the idea that it is far simpler to allow one price to change – the exchange rate – than to coordinate the multitude of prices that constitute the internal price structure.

Johnson's arguments and I compare them with those made by Friedman on the same issue.[18]

Exchange rates and fundamentals. According to Obstfeld (2020, 92): "Johnson argued that [under a floating regime], exchange rates would not move unless the economic fundamentals did. Moreover, he claimed that they would adjust smoothly and 'predictably' to fundamentals, speeded by stabilizing support from speculators." Here is the way Johnson (1969, 17) expressed the view that exchange rates would be determined by the fundamentals:

> A freely flexible exchange rate would tend to remain constant so long as underlying economic conditions (including government policies) remained constant; random deviations from the equilibrium level would be limited by the activities of private speculators, who would step in to buy foreign exchange when its price fell (the currency appreciated in terms of foreign currencies) and to sell it when its price rose (the currency depreciated in terms of foreign currencies).

Regarding changes in exchange rates in response to changes in the underlying economic structure, Johnson (1969, 20) argued that "trends in exchange rates should normally be fairly slow and predictable."

Similarly, Friedman argued that under a floating regime, exchange rates would be determined by the economic fundamentals, but he also maintained that there would be large deviations from equilibrium rates.[19] Much like Johnson, Friedman contended that "Instability of exchange rates is a symptom of instability in the underlying economic structure" (1953, 158). Friedman also contended, however, that, if the fundamentals changed, exchange rates would overshoot and undershoot the fundamentals before reaching their final positions. Discussing an exchange rate change following an external shock, he argued:

> It is clear that the initial change in exchange rates will be greater than the ultimate change required, for, to begin with, all the adjustment will have to be borne in those directions in which prompt adjustment is possible and relatively easy. As time passes, the slower-moving adjustments will take over part of the burden, permitting exchange rates to rebound toward a final position which is between the position prior to the external change and the position shortly thereafter. This is, of course, a highly oversimplified picture: the actual path of adjustment may involve repeated overshooting and undershooting of the final position (1953, 183).[20]

[18] Johnson also predicted that smaller countries would continue to peg their currencies to currencies of larger countries– a prediction which Obstfeld identified as an "overpromise." Since Friedman dealt with only larger countries, I do not discuss Johnson's argument.

[19] Friedman, unlike Johnson, did not use the term "equilibrium level" of an exchange rate. What Friedman used was the term "final position" of an exchange rate.

[20] This argument is clearly an anticipation of Dornbusch's (1976) overshooting model.

Thus, both Friedman and Johnson argued that exchange rates under a floating regime would be determined by the economic fundamentals. Johnson thought that changes in the fundamentals would produce smooth and predictable adjustments in exchange rates. Friedman thought that adjustments would be subject to repeated overshooting and undershooting before rates reached their final positions.

Exchange rates and trade and capital account restrictions. As Obstfeld (2020, 93) pointed-out, Johnson predicted that the balance of payments rationale for intervention in trade and capital movements would be eliminated under floating rates. Johnson (1969, 18) wrote: "The removal of the balance-of-payments motive for restrictions on international trade and payments is an important positive contribution that the adoption of flexible exchange rates could make to the achievement of the liberal objective of an integrated international economy."

Friedman (1953, 202) attributed the extensive and complex restrictions on international trade that proliferated immediately after World War II to the Bretton Woods fixed-rate system. He argued that controls on "imports, exports and capital transactions" result in extensions of "such control to many internal matters and interfering with the efficiency and the distribution and production of goods -- some means must be found for rationing imports that are being held down in amount or disposing of increased imports and for allocating reduced exports or getting increased exports" (1953, 167-68). Friedman also argued that controls would be difficult to enforce: "Ways will be found to evade the controls" (1953, 169) -- an argument not made by Johnson. As Johnson would argue, Friedman (1953, 167-68) maintained that floating rates would support the removal of both trade and capital-account restrictions.

Referring to the recent experience of the United States, Obstfeld (2020, 93) pointed-out, that floating rates have eliminated neither political pressures for trade protection nor calls for capital controls. Thus, the case that both Johnson and Friedman "overpromised" in arguing that flexible-exchange rates would eliminate pressures for trade and capital controls can be made. Floating rates, however, appear to have facilitated a significant reduction of the trade barriers and capital account restrictions that had been in place in the 1960s.

Phillips curve trade-off and PPP. Obstfeld (2020, 93) took Johnson to task for "somewhat quaintly" believing that flexible rates provide the opportunity for each country's policymakers to pursue their desired combination of unemployment and inflation, consistent with the view that there is a long-run trade-off between unemployment and inflation along a stable Phillips curve. In this connection. Johnson (1969, 18) wrote: "Flexible rates would allow each country to pursue the mixture of unemployment and price trend objectives it prefers." Once each country's inflation rate had been determined, Johnson argued that, in the long run, exchange rates would be determined by the purchasing power parity (PPP) condition: "long-run trends toward appreciation or depreciation of a currency are likely to be dominated by divergence of the trend of prices" (1969, 18). As Obstfeld stated: "These beliefs [in the Phillips curve trade-off and PPP] were far off the mark."

What makes Johnson's misconception about a long-run Phillips curve trade-off striking is the fact that Friedman had delivered his famous Presidential Address before the American Economic Association, in which he showed that there is no long-run trade-off between the inflation rate and the unemployment rate when inflation is fully anticipated, in December 1967, and published it in the *American Economic Review* in March 1968 (Friedman, 1968c). Johnson apparently did not come over to Friedman's view until the mid-1970s.[21]

Friedman never postulated a stable short-term trade-off between inflation and output (see Nelson, 2020b, vol. 1; Tavlas, 2023, chap. 8). In his 1953 essay, he wrote that to achieve internal stability – that is, full employment -- the "internal price level is to be maintained constant" (1953, 170).[22] He did not discuss the possibility that exchange rates might be determined in the long run by the PPP condition.[23]

As Obstfeld (2020, 94) pointed-out, Johnson, in arguing that exchange rates would be determined by the underlying fundamentals, viewed changes in exchange rates as a shock absorber for real shocks. But Johnson did not foresee that exchange-rate changes

[21] See Moggridge (2008, 340) and Nelson (2020b, vol. 2, 158).

[22] Friedman (1948; 1951) argued that full employment would best be achieved through price level stability.

[23] Dunn (1983, 2) stated that "Proponents of flexible exchange rates have almost always assumed that long-run trends in exchange markets would be dominated by relative rates of inflation, that is, that exchange rates would follow purchasing power parity. Friedman's (1968, pp. 419-420) classic defense of floating rates made this argument strongly, suggesting that it was far easier to allow exchange rates to adjust to differing rates of inflation than to compel price levels to adjust to a fixed parity." The second part of the latter sentence is a correct interpretation of what Friedman argued; the first part is mistaken. The page numbers to which Dunn referred are from the 1968 reprint of Friedman's 1953 essay in the book edited by Caves and Johnson (1968). What Friedman (1968a) argued in the pages to which Dunn referred was that it was far better to allow the nominal exchange rate to adjust to shocks, including "monetary phenomena," than to undergo the costly reallocation of resources needed to change internal prices. Purchasing power parity (in its absolute version) states that the equilibrium values of a pair of currencies should, in the long run, be equal to the ratio of the countries' price levels. Friedman did not present such an argument in his essay.

could be a *source* of shocks. Obstfeld stated: "Johnson did not weigh the possibility of shocks originating in capital markets, *e.g.*, shocks to risk premia and global portfolio preferences" (2020, 94). Likewise, Friedman did not foresee that floating rates could transmit, as well as absorb, some (especially financial) shocks.

Reduced prestige of central bankers. As mentioned in the previous section, in the early-1960s, while favoring flexible exchange rates in theory, Johnson did not believe that they would be adopted in light of opposition from central bankers and other special interest groups. By the late-1960s, however, Johnson had come to believe that flexible exchange rates had a reasonable chance of being adopted. Consistent with his early-1960s view that central bankers had a special interest in maintaining fixed rates, in his 1969 essay he predicted that central bankers would suffer a loss of prestige should flexible rates be adopted:

> [T]he fixed exchange rate system gives considerable prestige and, more important, political power over national governments to the central bankers entrusted with managing the system, power which they naturally credit themselves with exercising more 'responsibly' than the politicians would do, and which they naturally resist surrendering (1969, 13).

Obstfeld (2020, 96) pointed-out that Johnson missed the mark in predicting a loss of prestige of central bankers: "nearly 50 years of floating have done nothing to diminish the prestige of central bankers – quite the opposite, especially after Paul Volcker's demonstration of how a determined central banker with a free hand could fight inflation."

Two comments are in order. First, in his 1953 essay, Friedman wrote the following about the reason that flexible-exchange rates had not been given serious consideration:

> a thoroughgoing system of flexible rates – has been ruled out in recent years without extensive explicit consideration, partly because of a questionable interpretation of limited historical evidence; partly, I believe, because it was condemned alike by traditionalists, whose ideal was a gold standard that either ran itself or was run by international central bankers but in either case determined internal policy, and by the dominant strain of reformers, who distrusted the price system in all its manifestations – a curious coalition of the most unreconstructed believers in the price system, in all its other roles, and its most extreme opponents (1953, 202-03).

Thus, Friedman argued that the fixed-rate system was supported by those who (1) misinterpreted the historical evidence, (2) gold-standard adherents, and (3) reformers who distrusted the price system. While noting that central bankers played a role in administrating the gold standard, Friedman did not state that they would suffer a loss of prestige under floating rates. There was a reason for this circumstance, which leads to the second comment. While Volcker's "determined" policy to eradicate inflation in the early-1980s did much to demonstrate the power of monetary policy, so did Friedman's contributions over several decades through which that economist provided empirical evidence showing that monetary policy, and, the central bankers who made monetary policy, had an essential role to play in a regime of flexible exchange rates.[24]

2.3 *What Johnson Got Right*

Obstfeld (2020, 96) considered that Johnson made many "good calls": (1) flexible exchange rates provide autonomy for domestic economic policies thus reconciling different governments' diverse policy preferences; (2) flexible rates impose discipline on macroeconomic policies; (3) fixed-rate intra-regional arrangements require fiscal federalism; (4) the interwar experience did not provide evidence in favor of fixed rates; (5) floating rates would not hamper global trade; (6) currency depreciation need not be inflationary; (7) floating rates can buffer an economy from internal and external demand shocks; (8) domestic monetary policy alone determines inflation; and (9) the IMF would continue to play an important role in a flexible-rate global system. In what follows, I compare Johnson's "good calls" with Friedman's arguments on the identical issue.

Domestic-policy autonomy. This issue is related to the discussion at the beginning of this section: both Johnson and Friedman thought that the international monetary system should be reformed in such a way that it removed the balance-of-payments constraint on domestic economic policies. Thus, Johnson (1969, 12) argued that: "The fundamental argument for flexible exchange rates is that they would allow countries autonomy with respect to their use of monetary, fiscal and other policy instruments, consistent with the maintenance of whatever degree of freedom in international transactions they chose to allow their citizens by automatically ensuring the preservation of external equilibrium." Friedman argued similarly with respect to policy autonomy. Flexible-exchange rates, he maintained, would allow "each country to pursue internal stability after its own lights" (1953, 202).

[24] Friedman's empirical evidence was, of course, sometimes produced with collaborators, especially Anna Schwartz. Friedman did not aim to give central bankers an important role under flexible rates. Instead, he favored binding central bankers to a policy rule under a flexible-rate regime. Another important factor that played a role in helping convert much of the profession about the role of monetary policy was the fact that the countries whose central banks, such as the Bundesbank and the Swiss National Bank, maintained tight monetary policies in the 1970s experienced less inflation than the countries whose central banks did not do so during that decade.

Both Johnson and Friedman argued that, under fixed rates, the policy stances of other countries would determine the domestic inflation rate. Johnson expressed this view as follows: "the fixed rate system imposes, not the need to maintain domestic price stability, but the obligation to conform to the average world trend of prices, which may be either inflationary or deflationary rather than stable" (1969, 21). Friedman argued similarly: "with a system of rigid exchange rates ... not only do the laggards [the less-disciplined countries] call the tune ... by infecting the other countries with which they are linked but also the very existence of this link gives each country an incentive to engage in inflationary action.... For, at least in the initial stages, inflationary currency issue enables the issuers to acquire resources not only from within the country but also from without" (1953, 200).

Discipline hypothesis. A key argument made by proponents of fixed-exchange-rate systems in the 1960s and 1970s is that such systems impose discipline on macroeconomic policies for two primary reasons. First, a country's reserves are put on the line but the quantity of reserves that can be used to defend the exchange rate is limited. Consequently, countries need to maintain policies that would not jeopardize their reserves. Second, the authorities who are forced to devalue their currency are often considered to have failed in their macroeconomic management. Hence, those authorities pay a political cost if their policies result in a devaluation of their currency.[25] The authorities will, therefore, follow disciplined policies to avoid that cost.

As Obstfeld (2020, 97) pointed-out, Johnson dismissed the idea that fixed-rate systems alone can discipline macroeconomic policies. Johnson thought that the discipline hypothesis might have been applicable under the gold standard, "under which nations were permanently committed to maintaining their exchange rates and had not yet developed the battery of interventions in trade and payments that are now commonly employed. But it is a myth when nations have the option of evading discipline by using interventions or devaluation" (1969, 15). Regarding the part of the discipline argument, dealing with the loss of reserves, Johnson considered that the experience with fixed rates under the Bretton Woods system did not provide support for the discipline argument:

> The reason is that the signal to governments of the need for anti-inflationary discipline comes through a loss of exchange reserves, the implications of which are understood by only a few and can be disregarded or temporized with until a crisis descends — and the crisis justifies all sorts of policy expedients other than the

[25] See Goldstein (1984, 15-16).

domestic deflation which the logic of adjustment under the fixed rate system demands (1969, 21).

Correspondingly, a flexible rate system was thought to provide discipline of its own through movements in the exchange rate. Johnson argued:

> Under a flexible rate system, the consequences of inflationary governmental policies would be much more readily apparent to the general population, in the form of a declining foreign value of the currency and an upward trend in domestic prices; and proper policies to correct the situation, if it were desired to correct it, could be argued about in freedom from an atmosphere of crisis (1969, 21).

Regarding the second part of the discipline argument, dealing with loss of political prestige, Johnson maintained that it had operated but in a perverse way. He stated that, as posited by the discipline view, under the Bretton Woods system, "a devaluation has become a symbol of political defeat ... which the government in power will resist to the last ditch." That resistance had an unintended consequence: "this political symbolism, prevents adjustments of exchange rates that otherwise would or should be accepted as necessary to the proper functioning of the international monetary system" (1969, 22).[26]

Additionally, because exchange-rate changes under fixed-but-adjustable rates come late in the day, Johnson thought that adjustable-peg systems provide speculators with the opportunity for a one-way bet:

> the adjustable peg system gives the speculator a 'one-way option': in circumstances giving rise to speculation on a change in the rate, the rate can only move one way if it moves at all, and if it moves it is certain to be changed by a significant amount — and possibly by more, the stronger is the speculation on a change. The fixed exchange rate system courts 'destabilizing speculation,' in the economically incorrect sense of speculation against the permanence of the official parity, by providing this one-way option (1969, 20).

Friedman's arguments against the first part of the discipline hypothesis of fixed exchange rates were similar to Johnson's. Like Johnson, Friedman considered that the gold standard was the prototype fixed-rate system that provided discipline. Like Johnson, Friedman argued that the gold standard had been overtaken by changes in the political and economic milieu in which governments operated. He wrote: "Governments of 'advanced' nations are no longer willing to submit themselves to the harsh discipline of the gold standard or any other standard involving rigid exchange rates. They will

[26] Johnson's argument that the Bretton Woods system had developed into a system that discouraged necessary exchange-rate adjustments seems inconsistent with his argument (cited above) that the gold standard was not viable in the mid-twentieth century because of the availability of the devaluation option.

evade its discipline by direct controls over trade if that will suffice and will change exchange rates before they will surrender control over domestic monetary policy" (1953, 179-80). What about the discipline of an adjustable peg? Again, as Johnson maintained, Friedman argued that it encourages destabilizing speculation and provides the opportunity for a one-way bet. Thus, Friedman (1953, 164) wrote that:

> this system practically insures a maximum of destabilizing speculation. Because the exchange rate is changed infrequently and only to meet substantial difficulties, a change tends to come well after the onset of difficulty, to be postponed as long as possible, and to be made only after substantial pressure on the exchange rate has accumulated. In consequence, there is seldom any doubt about the direction in which an exchange rate will be changed, if it is changed ... With rigid rates, if the exchange rate is not changed, the only cost to the speculators is a possible loss of interest earnings from an interest-rate differential.

In addition to making a case against the discipline argument under fixed rates, Friedman, like Johnson, made a positive case that flexible rates impose discipline and, in doing so, provide a setting that is free of crises. In this connection, Friedman argued that, while changes in reserves show up late in the day under the fixed-rate system, "with flexible exchange rates, at least the deterioration in the foreign-payments position shows up promptly in the more readily understandable and simpler form of a decline in the exchange rates, and there is no emergency, no suddenly discovered decline in monetary reserves to dangerous levels, to force the imposition of supposedly unavoidable direct controls" (1953, 179).

Unlike Johnson's essay, Friedman's essay did not address the second part of the discipline argument – that dealing with loss of political prestige. There was a good reason for this circumstance. Johnson had the occasion to witness the British economy undergo a series of balance-of-payments crises during the period from 1947 to 1967, in which an assortment of ineffective policies had been instituted to avoid a depreciation of the pound sterling.[27] Johnson wrote: "The British economy is at present riddled with inefficiencies consequential on, and politically justified by, decisions based on the aim of improving the balance of payments." After listing a number of examples, including the "disruptive cycle of 'stop-go' aggregate demand policies," incomes policy, and protectionist measures, Johnson (1969, 23) argued that "the adoption of flexible exchange rates would ... make [these measures] unnecessary, or at least less harmful."

[27] See Bordo (1993, 52-54), Eichengreen (2007, 229-38), and Obstfeld (2020, 89-90).

Although Friedman did not have the experience of the British economy during the entire period of 1947 to 1967 to draw from, he did have the experience of that economy in the late-1940s and early-1950s from which to draw. That experience led to an assessment which presaged the analysis made by Johnson sixteen years later. Thus, after discussing the German economic crisis of 1950, Friedman turned to the crises in the United Kingdom during the initial years of the Bretton Woods system. He wrote: "The recurrent foreign-exchange crises of the United Kingdom in the postwar period are perhaps an even more dramatic example of the kind of crises that could not develop under a system of flexible exchange rates" (1953, 163).

To summarize the above discussion pertaining to the discipline argument, both Johnson and Friedman: (1) considered the gold standard to be the prototype fixed-rate system but also considered that, in the mid-twentieth century, policymakers would use controls on trade and capital flows to evade the discipline imposed by the gold standard or any other fixed-rate regime; (2) argued that fixed-rate systems are prone to crises and they give speculators the opportunity to make one-way bets, and (3) asserted that flexible-rate systems provide a transparent way of perceiving potential difficulties in a country's external position early-on, thereby encouraging the imposition of policy discipline and avoiding crises. Based on Britain's experience under the Bretton Woods system, Johnson, unlike Friedman, argued that the adjustable-peg system worked to forestall necessary changes in the exchange rate, thus prolonging periods of economic dislocation.

Fiscal federalism. Obstfeld (2020, 97) wrote that "Johnson set a masterful exposition of the role of fiscal federalism in supporting [fixed rates] arrangements." In this regard, Johnson recognized that regions that participate in a fixed-rate arrangement with separate currencies differ from the regions in a country with a single currency. In a country with a single currency, fiscal federalism is able to smooth the effects of asymmetric shocks to the country's regions. Under a fixed-exchange-rate system with different countries, a centralized mechanism for compensating distressed regions does not exist. Johnson (1969, 15) argued that fixed-rate systems require an "international mechanism for compensating excessively distressed regions." Thus, Johnson noted that "the present international monetary system of fixed exchange rates fails to conform to the analogy with a single national currency." Under a fixed-rate system with separate fiscal policies, asymmetric shocks would have to be dealt with by varying trade barriers (1969, 15). As Obstfeld (2020, 97) noted, in making the case for fiscal federalism, Johnson benefitted from having been exposed to Peter Kenen's classic paper (1969) on optimum currency areas. In that paper, Kenen argued that a single currency area, or a region with fixed exchange rates between or among participating countries, requires a single fiscal authority to smooth asymmetric shocks through fiscal transfers from low unemployment regions to high unemployment regions.[28]

In his 1953 essay, Friedman also recognized the importance of a central fiscal – and monetary – policy for the successful operation of a fixed-rate system. In so doing, he presaged the subsequent literature on optimum currency areas.[29] Specifically, in a discussion of the sterling area, Friedman considered the possibility of fixed exchange rates among the members of that area and freely flexible exchange rates between sterling and other currencies. As Mundell (1961) would do in his classic paper on optimum currency areas, Friedman delineated the domain of a fixed-exchange-rate area (or a single currency) among countries or regions on the basis of factor mobility. As Kenen (1969) would do, Friedman identified fiscal (and monetary) centrality as a necessary attribute of a single currency area. Friedman wrote:

> In a sense, any flexible exchange system is such a mixed system, since there are rigid rates between the different sections of one nation -- between, say, the different states of the United States. The key difference for present purposes between the different states of the United States, on the one hand, and the different members of the sterling area, on the other, is that the former are, while the latter are not, all effectively subject to a *single central fiscal* and monetary authority -- the federal government -- having ultimate fiscal and monetary powers. In addition, the former have, while the latter have not, effectively surrendered the right to impose restrictions on the movement of goods, people, or capital between one another. This is a major factor explaining why a central monetary authority is able to operate without producing serious sectional strains. Of course, these are questions of economic fact, not of political form, and of degree, not of kind. A group of politically independent nations all of which firmly adhered to, say, the gold standard would thereby in effect submit themselves to a central monetary authority, albeit an impersonal one. If, in addition, they firmly adhered to the free movement of goods, people, and capital without restrictions, and economic conditions rendered such movement easy, they would, in effect, be an economic unit for which a single currency -- which is the equivalent of rigid exchange rates -- would be appropriate (1953, italics added, 193, fn.16).

[28] In 1966, Johnson and Robert Mundell co-organized a conference at which Kenen presented his paper. The notion that the fiscal instrument can be used to smooth shocks proved to be overly simplistic. Fiscal transfers in the face of permanent shocks can have the perverse effect of locking resources in place, preventing necessary adjustment.

[29] See Mundell (1961) and McKinnon (1963). For reviews of the optimum currency area literature, see Tavlas (1993) and Dellas and Tavlas (2009).

Moreover, after describing that key difference between the United States and the sterling area, Friedman continued his appraisal of the potential for fixed exchange rates in the sterling area in a way that stressed fiscal integration:

> The problem of maintaining fixed exchange rates within the sterling area without restrictions on trade differs only in degree from the corresponding problem for the world as a whole. In both cases the area includes a number of sovereign political units with independent final monetary and fiscal authority. In consequence, in both cases, the permanent maintenance of a system of fixed rates without trade restrictions requires the harmonization of internal monetary and fiscal policies and a willingness and ability to meet at least substantial changes in external conditions by adjustments in the internal price and wage structure (1953, 193-94).

Thus, both Johnson and Friedman put forward the view that a central fiscal authority was essential for fixed-rate regimes. Unlike Friedman, however, Johnson spelled out the implication of fiscal federalism: it entailed the ability to smooth diverse shocks through endogenous fiscal transfers from a low unemployment region to a high unemployment region.

The interwar experience. In an influential study, Nurske (1944) argued that freely floating exchange rates inevitably give rise to destabilizing speculation.[30] Basing his view mainly on the French experience with floating exchange rates from 1922 to 1926, Nurske (1944, 137-38) wrote: "if there is anything that inter-war experience has clearly demonstrated, it is that paper currency exchanges cannot be left free to fluctuate from day to day under the influence of market supply and demand.... if currencies are left free to fluctuate, speculation in the widest sense is likely to play havoc with exchange rates -- speculation not only in foreign exchanges but, also as a result, in commodities entering into foreign trade."

Johnson took issue with the above argument. He expressed the view that the interwar experience in Europe demonstrated that neither flexible rates nor fixed rates could survive if national economic policies were unstable: "instead of being credited with their capacity to function when the fixed rate system could not, [flexible exchange rates] are debited with the disorders of national economic policies that made the fixed exchange rate system unworkable or led to its collapse" (1969, 19). Johnson (1969, 19) maintained that the European interwar experienced was a key component of the case against flexible rates used by proponents of fixed rates. He remarked, however, that the "European

[30] Bordo (1993, fn. 15, 30) stated that "Nurske's interpretation of the lessons of the interwar experience should be viewed as largely reflecting the views of [John Maynard] Keynes, [Harry Dexter] White, and others" – that is, of the architects of the Bretton Woods system.

interwar experience does not constitute the whole of the historical record," noting that both the United States and Canada had successfully floated their currencies in specific episodes (1969, 19).[31]

Friedman's essay provided a similar assessment of the interwar experience. Like Johnson, Friedman maintained that a key component of the case against flexible exchange rates rested "primarily on an oversimplified interpretation of the movements of so-called 'hot' money during the 1930s" (1953, 176). Friedman argued that, in retrospect, "it is clear that the speculators were 'right'." In particular, speculators anticipated changes in the fundamentals that "were at work making for depreciation in the value of most European currencies relative to the dollar independently of speculative activity" (1953, 176). Friedman singled out Nurske's study as have underpinned the profession's view that the European interwar experience demonstrated that speculation in foreign exchange markets is destabilizing. Friedman expressed the view that "Nurkse's discussion of the effects of speculation is thoroughly unsatisfactory." Friedman noted that Nurske's thesis that speculation is destabilizing rested on the experience with the French franc from 1922-1926: "For the rest, [Nurske] simply lists episodes during which exchange rates were flexible and asserts that in each case speculation was destabilizing" (1953, 176). Friedman concluded his assessment of Nurske's study with the following: "It is a sorry reflection on the scientific basis for generally held economic beliefs that Nurkse's analysis is so often cited as 'the' basis or 'proof' of the belief in destabilizing speculation" (1953, 176).[32]

As mentioned, Nurske (1944) interpreted the interwar experience a having demonstrated that flexible exchange rates promote destabilizing speculation whereas Johnson and Friedman disagreed with that argument. In taking issue with Nurske's view, both Johnson and Friedman maintained that speculation in the foreign-exchange market would be stabilizing and they put forward essentially identical arguments to support their positions – namely, speculators who engage in destabilizing speculation will lose money. Johnson presented that argument as follows: "speculators who engage in genuinely destabilizing speculation — that is, whose speculations move the exchange

[31] In the case of the United State, Johnson (1969, 19) argued that the U.S. dollar floated successfully from 1862 to 1879; the Canadian dollar, he argued, floated successfully from 1952 to 1960. Obstfeld (2020, 97) wrote: "I would also agree with [Johnson's] inclination to downplay critiques of floating based on the interwar experience."

[32] Eichengreen (2008, 49-55) assessed the experience of the French franc in the 1920s. Eichengreen (2008, 55) concluded that "both proponents and critics of floating exchange rates could draw support from the first half of the 1920s."

rate away from rather than towards its equilibrium level — will consistently lose money, because they will consistently be buying when the rate is 'high' and selling when it is "low" by comparison with its equilibrium value" (1969, 20). Friedman provided the following argument: "People who argue that speculation is generally destabilizing seldom realize that this is largely equivalent to saying that speculators lose money, since speculation can be destabilizing in general only if speculators on the average sell when the currency is low in price and buy when it is high" (1953, 175).

Johnson recognized that exceptions could arise. Specifically, he pointed to "the possibility that clever professional speculators may be able to profit by leading amateur speculators into destabilizing speculation, buying near the trough and selling near the peak" (1969, 20). Friedman (1953, 175) argued similarly: "professional speculators might on the average make money while a changing body of amateurs regularly lost large sums." Friedman, however, thought that such a situation was unlikely to arise. He wrote: "if speculation were persistently destabilizing, a government body like the Exchange Equalization Fund in England in the 1930's could make a good deal of money by speculating in exchange and in the process almost certainly eliminate the destabilizing speculation. But to suppose that speculation by governments would generally be profitable is in most cases equivalent to supposing that government officials risking funds that they do not themselves own are better judges of the likely movements in foreign-exchange markets than private individuals risking their own funds" (1953, 175-76).

Floating rates and trade. A key argument of proponents of fixed-exchange-rate systems in the 1960s and 1970s was that flexible-exchange rates lead to highly volatile exchange rates. In turn, volatile exchange rates were said to increase uncertainty, which is like a cost, and, thus, the cost hampers international trade.[33] Johnson dismissed this argument. As mentioned, he believed that changes in the trends of exchange rates would be fairly slow and predictable and "their causes such as to provide more or less automatic compensation to traders and investors" (1969, 20). Additionally, he asserted that if traders wished to avoid uncertainty, they would be able to hedge their foreign-exchange receipts or payments through forward exchange markets: "if there were a demand for more extensive forward market and hedging facilities than now exist, the competitive

[33] For discussions of the theoretical aspects underlying this view and the empirical evidence for the more-advanced countries through the mid-1980s, see Bailey, Tavlas, and Ulan (1986; 1987).

profit motive would bring them into existence" (1969, 18).[34] Consequently, Johnson predicted that flexible-exchange rates would not impede trade. Obstfeld's judgement of Johnson position was the following: "Johnson's prediction that flexible rates would not hamper growth in world trade seems to have been borne out by experience" (2020, 97).

Friedman set down a similar argument to that of Johnson. Friedman (1953, 174) wrote:

> Under flexible exchange rates traders can almost always protect themselves against changes in the rate by hedging in a futures market. Such futures markets in foreign currency readily develop when exchange rates are flexible. Any uncertainty about returns will then be borne by speculators. The most that can be said for this argument [that flexible rates hamper trade], therefore, is that flexible exchange rates impose a cost of hedging on traders, namely, the price that must be paid to speculators for assuming the risk of future changes in exchange rates. But this is saying too much. The substitution of flexible for rigid exchange rates changes the form in which uncertainty in the foreign-exchange market is manifested; it may not change the extent of uncertainty at all and, indeed, may even decrease uncertainty.

In sum, both Johnson and Friedman expressed the view that futures markets would develop under flexible-exchange rates in which market participants could hedge exchange-rate risk. In addition, Johnson argued that exchange-rate changes under flexible rates would be slow and predictable, an argument that Friedman did not make. Both economists argued that flexible exchange rates would not hamper trade. The arguments that (1) flexible rates would encourage the development of forward markets and (2) international trade would not be hampered under flexible rates have been borne out by experience. As mentioned earlier, Johnson's argument that exchange-rate changes under flexible rates would be slow and predictable has not been borne out.

Currency depreciation and inflation. A recurrent theme of the exchange-rate-regime literature of the 1960s and 1970s was that flexible-rate regimes contain an inflationary bias for both individual countries and the global economy. According to this view, which was known as the "ratchet hypothesis," in a world of downward wage and price inflexibility, currency depreciations lead to wage and price increases in the country experiencing the deprecation but produce no (or smaller) offsetting wage and price decreases in the country experiencing an appreciating currency.[35]

The ratchet hypothesis rested on a cost-push view of inflation, which Johnson considered to be fallacious. Proponents of the cost-push view put forward a non-

[34] See, also, Johnson (1969, 20).
[35] Goldstein (1977) conducted empirical tests of the ratchet hypothesis for five large countries. The results were not supportive of the hypothesis.

monetary interpretation of inflation. Johnson maintained that accommodative policies provide conditions under which what looks like a cost-push process is observed although the inflation is monetary in nature.[36] He asserted that "actual wage increases will depend on the economic climate set by the government's fiscal and monetary policies" (1969, 21). If a government had a reputation of accommodating wage hikes through expansionary monetary and fiscal policies, cost-push inflation could operate. Cost-push inflation would not take place, however, if wage earners knew that the government would not accommodate wage hikes. Moreover, Johnson argued that currency depreciation need not be inflationary if it served to correct an overvaluation of the currency that would otherwise result in domestic price deflation. He also argued that under a flexible-rate system, "exchange rate adjustments would occur gradually, and would be less likely to require drastic revisions of wage-and price-setting decisions" (1969, 21).

Friedman, likewise, considered the ratchet hypothesis to be fallacious. He expressed the hypothesis as follows: "The rise in prices of foreign good [because of depreciation of the domestic currency] will, it is argued, mean a rise in the cost of living, and this, in turn, will give rise to a demand for wage increases, setting of what is typically referred to as a 'wage-price spiral' – a term that is impressive enough to conceal the emptiness of the argument that it generally adorns" (1953, 180). As Johnson would do, Friedman maintained that the operation of "a wage-price spiral" (that is cost-push inflation) depended on the existence of accommodating monetary policies. Friedman wrote:

> The crucial fallacy is the so-called 'wage-price spiral.' The rise in prices of foreign goods may add to the always plentiful list of excuses for wage increases; it does not in and of itself provide the economic conditions for a wage rise- -- or, at any rate, for a wage rise without unemployment. A general wage rise -- or a general rise in domestic prices -- becomes possible only if the monetary authorities create the additional money to finance the higher level of prices (1953, 181).

Thus, both Johnson and Friedman maintained that the ratchet hypothesis depended on a cost-push view of inflation, which, in turn, depended on accommodative policies.

Flexible rates as buffers. Johnson contended that flexible rates can buffer the economy from internal or external demand shocks. Underlying Johnson's view was the role played by flexible rates in helping to achieve balance-of-payments adjustment. He argued that "if economic changes or policy changes occurred that under a fixed

[36] That is, if inflation is driven by monetary forces, in the absence of monetary accommodation cost-push forces would have a one-time effect on the price level.

exchange rate would produce a balance-of-payments surplus or deficit, and ultimately a need for policy changes, the flexible exchange rate would gradually either appreciate or depreciate as required to preserve equilibrium" (1969, 17). He stressed that governments could take "counter-active measures in the form of inflationary of deflationary policies" if the trend of the exchange rate were viewed as undesirable (1969, 17). Governments "would never be forced to take ... measures by a balance-of-payments crisis' (1969, 17). Moreover, flexible exchange rates would remove "the pressures to intervene in international trade and payments for balance-of-payments reasons," thereby freeing governments to respond to shocks through adjustments of fiscal and monetary policies (1969, 18).

Like Johnson, Friedman thought that flexible exchange rates would prevent the occurrence of balance-of-payments crises. On this issue, however, there was a substantial difference between the respective views of Johnson and Friedman. As mentioned, Johnson believed that exchange-rate changes under flexible rates would occur "gradually" so as to preserve balance-of-payments equilibrium. As also mentioned, Friedman believed that exchange-rate adjustments to changes in the economic fundamentals under flexible rates would involve "overshooting" and "undershooting" of their final levels. In terms of the role of exchange rate in preventing crises, Friedman's view differed from Johnson's in that Friedman asserted that *rapid* movements in exchange rates help prevent crises: "The exchange rate is therefore potentially an extremely sensitive price. Changes in it occur rapidly, automatically, and continuously and so tend to produce corrective movements before tensions can accumulate and a crisis develop" (1953, 163).

Like Johnson, Friedman contended that flexible rates could buffer an economy from external demand shocks. However, Friedman maintained that, although flexible rates could reduce the effects of certain shocks, they could not fully eliminate those effects. In this connection, he wrote:

> Suppose, for example, that the tendency toward a deficit were produced by monetary deflations in other countries. The depreciation of the currency would then prevent the fall in external prices from being transmitted to the country in question; it would prevent prices of foreign goods from being forced down in terms of domestic currency. There is no way of eliminating the effect of the lowered 'real' income of other countries; flexible exchange rates prevent this effect from being magnified by monetary disturbances (1953, 181).

Monetary policy and inflation. Johnson pointed-out that countries lose control over inflation under a fixed-rate system. He argued that the "the fixed rate system imposes, not the need to maintain domestic price stability, but the obligation to conform to the average world trend of prices, which may be either inflationary or deflationary rather than stable" (1969, 21). As mentioned, Johnson maintained that, under flexible rates, (1) inflation would depend on the "government's fiscal and monetary policies" (1969, 21) and (2) the government could choose a combination of unemployment and inflation along a stable Phillips curve. In contrast to Johnson, Friedman confined his discussion of the determination of inflation to the role of monetary policy (1953, 177-80).

Role of the IMF. Under the Bretton Woods regime, the IMF had power to influence the international monetary system strongly. It could (1) approve of (or disallow) changes in exchange-rate parity in excess of ten percent, (2) approve (or disallow) the use of multiple-exchange rates and other discriminatory practices, (3) undertake surveillance in support of the international monetary system, and (4) impose the conditionality that was implicit in members' access to Fund resources (Bordo, 1993, 56).[37] As Obstfeld (2020, 97) observed, Johnson correctly foresaw that the Fund would continue to play a central role in an international monetary system in which flexible rates prevailed. In this regard, Johnson (1969, 24) wrote: "But there is no reason to believe that the Fund, as the dispassionate administrator of an international monetary system established nearly a quarter of a century ago to serve the needs of the international economy, is insensitive to the tensions of the contemporary situation and blindly hostile to reforms that would permit the system as a whole to survive and function more effectively."

Friedman put forward a very different position. Friedman (1953, 190) asked: "what, if any, functions the IMF would have in a world of flexible rates"? He speculated that the Fund's role would be a greatly diminished. The Fund might "serve as a short-term international lender of funds along commercial lines, though I see no particular need for such an institution in a world of fully convertible currencies; to provide advice about internal monetary and fiscal policy; and possibly to serve as some kind of clearing agency" (1953, 191).

Thus, Johnson, writing with the benefit of the experience of sixteen additional years, correctly foresaw that an international monetary regime comprised of flexible-exchange

[37] In practice, these powers could not always be enforced. See Bordo (1993).

rates among currency areas would continue to feature an important role for the Fund. Friedman thought that the Fund would, by-and-large, become unnecessary.

3. Taking Stock

3.1 *The Arguments*

Having followed Friedman's essay by sixteen years, was Johnson's essay "unusually pungent and more contemporary" than Friedman's, as opined by McKinnon (1981, 536)? Why did Cooper (1999, 104) single-out Johnson's essay, and not Friedman's, as having influenced the views of economists and central bankers in favor of flexible-exchange rates? Let us take stock of the preceding discussion. Where did Friedman and Johnson agree, and where did they differ?

- Both economists framed the basic case for flexible exchange rates in terms of the ability of flexible-exchange-rate systems to facilitate adjustment in the balance of payments, provide autonomy for monetary and fiscal policy, and promote efficient resource allocation in the global economy.
- Both Friedman and Johnson maintained that the economic fundamentals would determine exchange rates in a floating regime. Johnson argued that changes in the fundamentals would produce smooth and predictable adjustments in exchange rates. Friedman asserted that the exchange rate would react to changes in the fundamentals by overshooting and undershooting its final resting position.
- Both Friedman and Johnson predicted that flexible rates would be accompanied by a dismantling of controls on trade and capital flows.
- Johnson considered that domestic policy autonomy would permit policymakers to attain their desired point along a long-run non-vertical Phillips curve. Friedman argued that domestic autonomy permitted a country to achieve price stability, which he considered a precondition for full employment.
- Johnson contended that exchange rates under floating would be determined by the purchasing power parity (PPP) condition in the long run. Friedman did not refer to PPP.
- Johnson argued that flexible exchange rates would lead to reduced prestige of central bankers. Friedman expressed the view that monetary policy would play a central role in a regime of flexible rates with domestic-policy autonomy; the

domestic autonomy would elevate the role of central bankers in policy formation.

- Both Friedman and Johnson took issue with the view that fixed-rate systems discipline macroeconomic policies. In this connection, both economists argued that fixed-but-adjustable systems invite destabilizing speculation by providing one-way bets because the implications of reserves losses are observed only after a crisis erupts. Both economists put forward the view that, under flexible rates, changes in policies are quickly transmitted to exchange rates, providing a signal to policymakers that allows them to take measures that prevent crises. On the basis of Britain's experience in the 1960s, Johnson claimed that fixed-but-adjustable rates forestall necessary adjustments in exchange rates, an argument not made by Friedman.
- Both Friedman and Johnson believed that the classical gold standard would not be viable in the political and economic milieu of the mid-twentieth century.
- Johnson considered that fiscal integration, under which a centralized fiscal authority would smooth the effects of asymmetric shocks among regions through fiscal transfers, was a necessary condition for the successful operation of a fixed-rate system. Similarly, Friedman argued that a central fiscal and monetary authority was a necessary condition for a successful fixed-rate regime although, unlike Johnson, Friedman did not assert that fiscal integration entails fiscal transfers from high-employment regions to low-employment regions to smooth the effects of asymmetric shocks. Friedman identified factor mobility as a necessary condition for the sustainability of fixed rates. In making that argument, Friedman anticipated the literature on optimum currency areas.
- Both Friedman and Johnson contended that the interwar experience did not provide evidence that floating rates would be highly volatile. Additionally, the two economists took issue with the then-conventional view the interwar experience proved that speculation in foreign-exchange markets would be destabilizing. Both economists maintained that speculation in foreign-exchange markets would be stabilizing; otherwise, speculators would constantly lose money.
- Both Friedman and Johnson argued that floating rates would not hamper international trade. In making their respective arguments, each economist

expressed the view that futures markets, in which speculators could hedge exchange-rate risk, would develop under floating rates.

- Both Friedman and Johnson took issue with the view that flexible rates contained an inflationary bias because currency depreciations lead to wage and price increases in the country experiencing the depreciation but to smaller wage and price decreases in the country experiencing an appreciation – the so-called ratchet hypothesis. Both economists insisted that the validity of the ratchet hypothesis depended on the existence of accommodative policies.
- Johnson alleged that flexible rates can buffer an economy from internal and external demand shocks. Friedman expressed a similar view but argued flexible rates could not fully eliminate the effects of external demand shocks.
- Both Friedman and Johnson contended that domestic macroeconomic policies would determine national inflation rates under a regime of flexible rates. Friedman singled-out the role of monetary policy whereas Johnson referred to the roles of monetary and fiscal policies in determining domestic inflation.
- Friedman predicted that the IMF would have a greatly diminished role under a regime of flexible rates. Johnson argued that the Fund would continue to play an important role under a flexible-rate regime.
- Neither economist foresaw that floating exchange rates could be a source of shocks.

3.2 *What Johnson Added*

In light of the above discussion, Johnson's essay certainly did not add materially to the arguments in favor of flexible rates and against fixed rates in Freidman's essay. What Johnson's essay did add was in the following area. The essay provided a discussion of an issue that emerged in the literature of the 1960s and, therefore, was not discussed in Friedman's essay – namely, that the international monetary system should be reformed in a way that allowed fluctuations in exchange rates to take place within a limited range. Johnson (1969, 22-23) identified the two major proposals to this end – the wider band proposal and the crawling peg proposal. Under the former proposal, par values of currencies would be allowed to fluctuate within a wider range than the one percent range (on either side of par values) set under the Bretton Woods system – Johnson (1969, 22) mentioned a five-percent range as an example. Under the crawling peg proposal, the range of fluctuation permitted around the par values would remain at one percent or, perhaps, widened "somewhat," but the par value "itself would be determined by a moving average of the rates actually set in the market over some fixed period of the immediate past, and so would gradually adjust itself upwards or downwards over time to the market pressures of excess supply of or excess demand for the currency" (1969, 22).

Johnson evinced some sympathy for those proposals in lieu of freely flexible rates. He expressed the view that both proposals required "a great deal of empirical study" to examine the way they might work in practice. He added: "In the meantime, those persuaded of the case for flexible exchange rates would probably be better advised to advocate experimentation with limited rate flexibility, in the hope that the results will dispel the fears of the supporters of the fixed rate system, than to emphasize the dangers inherent in the residual fixity of exchange rates under either of the contemporary popular proposals for increasing the flexibility of rates under the existing fixed rate systems" (1969, 23).

During the 1980s and the 1990s, the wider band concept became known as the target zone proposal. Among proponents of various forms of target zones were McKinnon and Ohno (1997), Cooper (1999), and Williamson (1983) -- in the cases of McKinnon and Cooper, economists who had singled out Johnson's essay as having been more influential than Friedman's.[38]

4. Concluding Observations

Based on the above evidence, Friedman's 1953 essay presaged *all* of the major arguments made in Johnson's essay while excluding Johnson's major misses about the existence of a long-run Phillips curve trade off and loss of prestige of central bankers under a floating-rate regime.[39] Why, then, did Johnson's essay gain a reputation among some economists as having been more pungent and contemporary than Friedman's? Did Johnson's essay really become more influential among economists, bankers, and government officials, than Friedman's, as Cooper had argued? The following observations are relevant.

[38] The target zone proposals of McKinnon and Ohno (1997) and Williamson (1983) differed. For a comparison, see Aschheim and Tavlas (1998).

[39] However, Friedman's prediction that the IMF would play a diminished role under flexible exchange rates was a major miss.

First, as discussed in the preceding section, Johnson's essay, while coming out in support of flexible exchange rates, was more pragmatic than Friedman's. Johnson put forward a strong case for flexible rates, but he also argued that a move toward a flexible-rate system should proceed gradually, with consideration being given to less-than-fully-flexible exchange-rate systems, such as crawling pegs and wider bands (or target zones). These alternative regimes had not received attention in the early-1950s; they were not discussed in Friedman's essay. They did, however, gain prominence in the 1970s and 1980s. Thus, Johnson's essay *was* "more contemporary" than Friedman's.

Second, the context in which the papers were written was important. Although the main arguments on flexible-rate and fixed-rate regimes were essentially the same in both papers, Friedman wrote before the major European currencies and the Japanese yen had become convertible; it was written at a time during which the dollar shortage and trade protectionism dominated the agenda of policymakers at the international level. His essay provided a way (through flexible rates) to deal those latter issues. In the 1960s, these issues had become outdated and/or settled. Additionally, the essay contained discussions of issues that strayed from its central theme – for example, it included subsections on the "Role of European Payments Union," "The Sterling Area," and "The Current Rearmament Drive." By the end of that decade, however, the problems posed by the Bretton Woods system, including the rise in U.S. inflation, the difficulties in maintaining a fixed price of the U.S. dollar in terms of gold, and sterling's renewed crises, brought the exchange-rate-regime issue to the center of international policy discussions.

Third, Johnson had a well-deserved reputation of being a first-rate synthesizer and transmitter of ideas – as reflected in a series of survey papers on developments in macroeconomics.[40] Johnson's essay was more compact and better-written than Friedman's. Johnson's essay was thirteen pages in length; Friedman's essay numbered forty-seven pages and contained some repetitions of key ideas.[41] Although Friedman was normally an excellent writer, his 1953 essay was somewhat of an exception. As mentioned, it grew out of a memorandum written for a U.S. government agency. The memorandum went through several revisions as Friedman tried to make it suitable for

[40] See, for example, Johnson (1962; 1970). Corden (2001, 643) referred to Johnson's "brilliance as a synthesizer." Tobin (1978, 446) wrote that "Johnson was a master of creative synthesis."

[41] Consider the following example. On page 158, Friedman wrote that a system of flexible rates permits "each nation [to pursue] domestic economic stability according to its own lights." On page 200, he wrote "flexible exchange rates are a means of … permitting each country to seek for stability according to its own lights." On page 202, Friedman stated that rigid exchange rates undermine "unrestricted multilateral trade and freedom of each country to pursue internal stability after its own lights."

publication as a magazine article.[42] The published version retained much of the bureaucratic style of the original memorandum.

Fourth, Johnson was also a better publicist than Friedman. Johnson published his essay twice in 1969 – as a Hobart Paper and in the Federal Reserve Bank of St. Louis *Review*; both of these outlets were associated with the growing influence of monetarism in the U.K. and the U.S., respectively, and became leading bastions of economic policy analysis. The following year, he published the essay in a book, *Approaches to Greater Flexibility of Exchange Rates: The Bürgenstock Papers* (Halm, 1970), which was comprised of articles by leading international economists of the day. In contrast to Johnson, Friedman situated his paper in a collection of mainly random chapters for his 1953 book.

Fifth, Johnson's essay was published in the waning days of the Bretton Woods system. He wrote with the benefit of two decades' experience of the postwar system, plus the Canadian experience of floating, which he referenced. (The only data chart in his paper was of the Canadian dollar!) The occasion to document the weaknesses of the Bretton Woods system gave his paper an immediate policy relevance that Friedman's essay, focused on the problems of the early 1950s, no longer had. Therefore, it was easier to draw a plausible link between Johnson's arguments and the collapse of the Bretton Woods system than was the case for Friedman's essay, published some twenty years before the collapse of that regime.

Sixth, by the late-1960s, Johnson had become a highly-respected and popular member of the economics profession's establishment.[43] In the 1960s, Johnson was called upon to: author a survey of the then-state of macroeconomics for the *American Economic Review* (Johnson, 1962); co-edit (with Richard Caves) the American Economic Association's *Readings in International Economics*, in 1968; and, present the AEA's Richard T. Ely Lecture, in 1970.[44] Although not a monetarist, he believed that monetary policy played a leading role in determining inflation and that the central bank could steer inflation; Johnson straddled both monetarist and Keynesian sides of the profession. In contrast, economists at the official monetary institutions considered Friedman's views on exchange-rate systems to be unorthodox. For example, in his semi-

[42] The paper was rejected by *Forbes* magazine. See Dellas and Tavlas (2009, 1122).

[43] Regarding Johnson, Tobin (1978, 443) wrote: "For the economics profession throughout the world the third quarter of this century was an Age of Johnson.... [He] bestrode our discipline like a Colossus."

[44] In the lecture, Johnson (1971) was highly critical of Friedman's (1956) claim of a Chicago monetary tradition, which led to tensions between Johnson and Friedman. See Tavlas (2023, chap. 1).

official history of the international monetary system, I*nternational Monetary Cooperation since Bretton Woods*, James wrote that in the 1970s "governments and monetary authorities [regarded] Milton Friedman of the University of Chicago … as an eccentric outsider" with regard to exchange-rate issues (James, 1996, 213).[45] Thus, while both Friedman and Johnson correctly called the shots about many of the benefits of flexible exchange rates and the unsustainability of fixed rates, it may have been easier – or preferable -- for some international monetary economists to give more credit to Johnson's essay than to Friedman's.

Seventh, Cooper's argument that Johnson's essay "helped shape the prevalent view among academic economists" (Cooper, 1999, 104) seems overstated. It appears to have been the case that most of the economics profession had already embraced flexible exchange rates by 1969. Consider the following. (1) By the mid-1960s, many economists preferred flexible rates. Thus, in a 1964 monograph, *Plans for Reform of the International Monetary System*, Machlup listed the names of the twenty-four "best known" (in Machlup's view) economists, including Friedman and Johnson, who favored "freely flexible" exchange rates.[46] (2) In his 1968 book, *Dollars and Deficits*, Friedman claimed: "Probably the *great majority* of economists who specialize in money and international trade favors abandoning any fixed price for gold and permitting greater flexibility in the price of the dollar (*i.e.*, in exchange rates)" (1968b, italics added, 2). (3) In 1968, Samuelson was quoted as saying that: "If you took a poll of experts in international economists, you would find eighty percent of them favoring floating exchange rates as a result of Friedman's influence" (*Chicago Daily News*, March 28, 1968; quoted from Nelson, 2022, 116). Thus, to the extent that either of the two essays helped shaped the economic profession's view in favor of flexible rates, it would have been Friedman's; it could not have been Johnson's since much of the profession already favored flexible rates at the time that Johnson's article appeared.

Eighth, what was apparently the case for economists was *not* apparently the case for bankers and government officials. Cooper (1999, 104), it will he recalled, had argued that Johnson had also helped shape the views of bankers and government officials. The polished writing style of Johnson's essay would have been more accessible to bankers

[45] For similar interpretations of Friedman's professional reputation in the 1960s, see Barro (1998, 5) and Lucas (1984, 53). Regarding the semi-official status of James's book, James (1996, v) wrote that the book was written "in consultation with an editorial panel composed of distinguished outside observers, with the full cooperation of the International Monetary Fund and its staff."

[46] See Machlup (1964, 79-80).

and government officials than Friedman's prose (in his 1953 essay). Did bankers and government officials favor fixed rates in the late-1960s, unlike the majority of economists? There is evidence in the affirmative. In a 1969 study on exchange-rate systems, Halm (1969, 5) wrote that it was "surprising that fixed exchange rates meet with the almost unanimous approval of bankers, businessmen, and government officials."

Finally, what, in fact, converted most of the economics profession, as well as bankers and government officials, to flexible exchange rates by the early-1970s were the recurring balance-of-payments crises experienced under the Bretton Woods system. The essays by Friedman and Johnson provided the intellectual underpinnings for flexible rates, and against the then-existing system, and for the view that the Bretton Woods regime was no longer viable. As Brunner and Meltzer (1976, 2; quoted from Nelson (2022, 116)) put it, the adoption of flexible rates in the early-1970s was "more of a triumph for events over policymakers than for economists over events." Johnson's essay brought an establishment's voice to bear on the issue – a voice that closely echoed the arguments made by Friedman many years before.

References

Artus, Jacques R., and John H. Young. 1979. "Fixed and Flexible Rates: A Renewal of the Debate." *IMF Staff Papers* 26 (4): 654-98.

Aschheim, Joseph, and George S. Tavlas. 1998. "Two Types of Target Zone Proposals: McKinnon and Ohno versus Williamson." *Review of World Economics* 134 (3): 548-57.

Bailey, Martin J., George S. Tavlas, and Michael Ulan. 1986. "Exchange Rate Variability and Trade Performance: Evidence for the Big Seven Industrial Countries." *Weltwirtschaftliches Archiv* 122: 466-77.

Bailey, Martin J., George S. Tavlas, and Michael Ulan. 1987. "The Impact of Exchange-Rate Volatility on Export Growth: Some Theoretical Considerations and Empirical Results." *Journal of Policy Modeling* 9 (1): 225-43.

Barro, Robert J. 1998. "Tribute on the Quad." *Hoover Digest* (4): 1–9.

Black, Stanley W. 1978. "The New Exchange Rate Regime and the Developing Countries." *The Journal of Finance* 33 (3): 813-815.

Bordo, Michael D. 1993. "The Bretton Woods International Monetary System: An Historical Overview." In *Retrospective on the Bretton Woods System: Lessons for International Monetary Reform*, edited by Michael D. Bordo and Barry Eichengreen, 3-108. Chicago: University of Chicago Press.

Boyer, R.S. 2009. "Reflections on Milton Friedman's Contributions to Open Economy Money/Macro." *Journal of International Money and Finance* 28 (7): 1097-1116.

Brunner, Karl, and Allan H. Meltzer. 1976. "The Phillips Curve." *Carnegie-Rochester Conference Series on Public Policy* 1 (1): 1-18.

Caves, Richard E., and Harry G. Johnson. 1968. *Readings in International Economics, The Series of Published Articles on Economics.* Vol. XI. Homewood, Ill.: Richard D. Irwin, Inc.

Cooper, Richard N. 1999. "Exchange Rate Choices." In *Rethinking the International Monetary System*, edited by Jane Sneddon Little and Giovanni P. Olivei, 99-123. Federal Reserve Bank of Boston.

Corden, Max. 2001. "Harry's View of the Scientific Enterprise." *American Journal of Economics and Sociology* 60 (3): 641-47.

Dellas, Harris, and George S. Tavlas. 2005. "Wage Rigidity and Monetary Union." *Economic Journal* 115 (506): 907-27.

Dellas, Harris, and George S. Tavlas. 2009. "An Optimum-Currency-Area." *Journal of International Money and Finance* 28 (7): 1117-37.

—. 2018. "Milton Friedman and the Case for Flexible Exchange Rates and Monetary Rules." *Cato Journal* 38 (2): 361-77.

Dornbusch, Rudiger. 1976. "Expectations and Exchange Rate Dynamics." *Journal of Political Economy* 84 (6): 1161-76.

Dunn, Robert M., Jr. 1983. *The Many Disappointments of Flexible Exchange Rates*. Essays in International Finance (December). Princeton: Princeton University Press.

Edwards, Sebastian. 2023. "Milton Friedman and Exchange Rates: History and Controversies." *History of Political Economy*, forthcoming.

Eichengreen, Barry. 2007. *The European Economy Since 1945.* Princeton, NJ: Princeton University Press.

—. 2008. *Globalizing Capital: A History of the International Monetary System.* 2nd. Princeton, NJ: Princeton University Press.

Friedman, Milton. 1948. "A Monetary and Fiscal Framework for Economic Stability." *American Economic Review* 38 (3): 245-64. Reprinted in *Essays in Positive Economics*, by Milton Friedman, 133-56. Chicago: University of Chicago Press, 1953.

—. 1951. "Commodity-Reserve Currency." *Journal of Political Economy* 59 (3): 203–32. Reprinted in *Essays in Positive Economics*, by Milton Friedman, 204-50. Chicago: University of Chicago Press, 1953.

—. 1953. "The Case for Flexible Exchange Rates." In *Essays in Positive Economics*, by Milton Friedman, 157–203. University of Chicago Press.

—. 1956. "The Quantity Theory of Money: A Restatement." In *Studies in the Quantity Theory of Money*, by Milton Friedman, 3-21. Chicago: Chicago University Press.

—. 1968a. "The Case for Flexible Exchange Rates." In *American Economic Association, Readings in International Economics*, by Richard E. Caves and Harry G. Johnson, 413-40. Homewood, Ill.: Richard D. Irwin, Inc.

—. 1968b. *Dollars and Deficits: Inflation, Monetary Policy and the Balance of Payments.* Englewood Cliffs, NJ: Prentice Hall.

—. 1968c. "The Role of Monetary Policy." *American Economic Review* 58 (1) (March): 1–17.

—. 1969. "The Case for Fixed Exchange Rates, 1969: Discussion." In In *The International Adjustment Mechanism: Proceedings of a Conference Held at Melvin Village, New Hampshire, October 8-10, 1969,* 109-19. Boston: Federal Reserve Bank of Boston.

Goldstein, Morris. 1977. "Downward Price Inflexibilty, Ratchet Effects, and the Inflationary Impact of Import Price Changes: Some Empirical Evidence." *Staff Papers* 24: 569-612.

—. 1980. *Have Flexible Exchange Rates Handicapped Macroeconomic Policy?* Special Papers in International Economics No. 14. Princeton: Princeton University.

—. 1984. *The Exchange Rate System: Lessons of the Past and Options for the Future.* Occasional Paper No. 1984/003 (July 8). U.S.A.: International Monetary Fund.

Halm, George N. 1969. *Toward Limited Exchange-Rate Flexibility*. Essays in International Finance 73 (March). Princeton: Princeton University Press.

—. 1970. ed. *Approaches to Greater Flexibility of Exchange Rates: The Bürgenstock Papers*. Princeton, NJ: Princeton University Press.

James, Harold. 1996. *International Monetary Cooperation Since Bretton Woods*. Washington, DC: International Monetary Fund; and New York: Oxford University Press.

Helliwell, John F. 1978. "The Balance of Payments: A Survey of Harry Johnson's Contributions." *The Canadian Journal of Economics. Supplement: The Harry G. Johnson Memorial Symposium* 11: S55-S86.

Hirsch, Fred. 1977. "The Bagehot Problem." *The Manchester School of Economic and Social Studies* 45 (3) (September): 241-57.

Johnson, Harry G. 1962. "Monetary Theory and Policy." *American Economic Review* 52: 335-84.

—. 1969. "The Case For Flexible Exchange Rates, 1969." *Federal Reserve Bank of St. Louis Review*, 12-24.

—. 1970. "Recent Developments in Monetary Theory: A Commentary." In *Money in Britain, 1959-69: The Papers of the Radcliffe Report Ten Years After*, by David R. Croome and Harry G. Johnson. London: Oxford University Press.

—. 1971. "The Keynesian Revolution and the Monetarist Counter-Revolution." *American Economic Review, Papers and Proceedings of the Eighty-Third Annual Meeting of the American Economic Association* 61 (2) (May): 1–14.

Kenen, Peter B. 1969. "The Theory of Optimum Currency Areas: An Eclectic View. In *Monetary Problems of the International Economy*, by R. Mundell, R. and A. Swoboda, 41-60. Chicago: University of Chicago Press.

Kindleberger, Charles P. 1969. "The Case for Fixed Exchange Rates, 1969." In *The International Adjustment Mechanism: Proceedings of a Conference Held at Melvin Village, New Hampshire, October 8-10, 1969,* 93-108. Boston: Federal Reserve Bank of Boston.

—. 1976. "The Exchange-Stability Issue at Ranbouillet and Jamaica." In *Reflections on Jamaica*, Essays in International Finance, No. 115 (April), Department of Economics, International Finance Section, 25-38. Princeton: Princeton Univeristy.

Krugman, Paul. 1993. "Exchange Rates." In F*ortune Encyclopedia of Economics*, edited by D. R. Henderson, 518-22. New York: Warner Books.

Laidler, David E.W. 1984. "Harry Johnson as a Macroeconomist." *Journal of Political Economy* 92 (4) (August): 592-615.

Leeson, Robert. 2000. "Patinkin, Johnson, and the Shadow of Friedman." *History of Political Economy* 32 (4): 733–64.

Lucas, Robert E. Jr. 1984. "Conversations with New Classical Economists." In *Conversations with Economists*, by A. Klamer, 29–57. Totowa, NJ : Rowman and Allanheld.

Machlup, Fritz. 1964. *Plans for Reform of the International Monetary System.* Special Papers in International Economics No. 8 (March), Department of Economics, International Finance Section. Princeton: Princeton University Press.

McCallum, Bennett T. 1996. *International Monetary Economics*. New York: Oxford University Press.

McKinnon, Ronald I. 1963. "Optimum Currency Areas." *American Economic Review* 53 (September): 717-25.

—. 1981. "The Exchange Rate and Macroeconomic Policy: Changing Postwar Perceptions." *Journal of Economic Literature* 19 (2): 531-57.

McKinnon, Ronald I., and Kenichi Ohno. 1997. *Dollar and Yen: Resolving Economic Conflict Between the United States and Japan.* Cambridge, Mass.: MIT Press.

Meade, James E. 1951. *The Balance of Payments.* Vol. I of *The Theory of Inernational Economic Policy*. Oxford: Oxford University Press.

Moggridge, Donald. 2008. *Harry Johnson: A Life in Economics.* New York: Cambridge University.

Mundell, Robert A. 1961. "A Theory of Optimum Currency Areas." *The American Economic Review* 51 (4): 657-65.

Nelson, Edward. 2009. *Milton Friedman and U.K. Economic Policy: 1938-1979.* Working Paper Series no. 2009-017A, U.S.A.: Federal Reserve Bank of St. Louis.

—. 2020a. "The Continuing Validity of Monetary Policy Autonomy under Floating Exchange Rates." *International Journal of Central Banking* 16 (2) (March): 81-123.

—. 2020b. *Milton Friedman and Economic Debate in the United States.* 2 vols. Chicago: University of Chicago Press.

—. 2022. *Milton Friedman and Economic Debate in the United States, 1973-2006.* May. Accessed October 25, 2022. http://cdevcom.win02.tmd.cloud/EdwardNelson/Chapters2to6and8to10-MFED-1973to2006-web.pdf

Nurkse, Ragnar. 1944. *International Currency Experience: Lessons of the Inter-war Period.* Princeton, NJ: Princeton University Press.

Obstfeld, Maurice. 1985. "Floating Exchange Rates: Experience and Prospects." *Brookings Papers on Economic Activity* 1985 (2): 369-464.

Obstfeld, Maurice. 2020. "Harry Johnson's 'Case for flexible exchange rates' - 50 years later." *The Mancester School* 88: 86-113.

Solomon, Robert. 1977. *The International Monetary System, 1945 ‑1976*. New York: Harper and Row.

Tavlas, George S. 1993. "The 'New' Theory of Optimum Currency Areas." *World Economy* 16 (1):1-16.

—. 2023. *The Monetarists: The Making of the Chicago Monetary Tradition, 1927–1960.* Chicago: Chicago University Press.

Tavlas, George S., Harris Dellas, and Alan C. Stockman. 2008. "The Classification and Performance of Alternative Exchange-Rate Systems." *European Economic Review* 52 (6): 941-63.

Tobin, James. 1978. "Harry Gordon Johnson, 1923-77." *Proceedings of the British Academy* 64: 443-58.

Williamson, John. 1983. *The Exchange Rate System.* Policy Analyses in International Economics No. 5 (September), Institute for International Economics, Cambridge, UK: The MIT Press.