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# The Antagonists: Kindleberger, Friedman, and the Doctrinal Foundations of the International Monetary System

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Charles Kindleberger has recently been singled-out as having envisioned the present international monetary system in which the U.S. dollar is the dominant global currency and the Federal Reserve plays the role of global lender-of-last resort, providing dollar liquidity to other central banks through swap transactions during crises. I compare Kindleberger's views on exchange-rate systems with those of Milton Friedman during the 1950s and 1960s. I show that the revisionist interpretation of Kindleberger's view is on the mark only up to a point. It overlooks Kindleberger's positions that were not borne out. Moreover, it should make some room for Friedman, who foresaw the breakdown of the Bretton Woods system and the move to flexible exchange rates by the industrial countries. Friedman also predicted that the dollar would remain the main global currency but, in contrast to Kindleberger, foresaw that it would do so under a regime of flexible exchange rates.

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## 1. Introduction

Recent years have seen considerable interest in the work of Charles Kindleberger, who established a distinguished record in the area of international monetary economics at the Massachusetts Institute of Technology (MIT) from 1948 until his retirement in 1976, and, in retirement, an equally-distinguished record in the areas of economic history and the causes and amplification of financial crises.[1] Recent studies of Kindleberger's work affirm the wide sweep of his contributions, including in the areas of hegemonic stability (Meardon 2014), the use of dollar swap lines to mitigate global financial crises (Carré and Le Maux 2022), the origins of financial crises (Carré and Le Maux 2023), the history of the irregular cycles of manias, panics, and crashes (Morck 2022), and all three areas of Kindleberger's specialization -- international monetary economics, economic history, and financial crises -- in Mehrling's biographical study, *Money and Empire: Charles Kindleberger and the Dollar System* (2022).[2] In turn, Mehrling's generally-sympathetic treatment of Kindleberger's views on the international monetary system spurred an op-ed piece by Coy in *The New York Times,* titled "The Economist Who Foresaw Our Global Economic Order" (2022). Coy wrote: "the world today is closer to Kindleberger's vision [of the international monetary system] than he or his intellectual opponents could have imagined." The thesis underlying this view is that Kindleberger foresaw the development of an international monetary system centered on the U.S. dollar, with the Federal Reserve playing the role of global lender of last resort – "the dollar system" (Mehrling 2022: chap. 6).[3]

In what follows, I provide an appraisal of Kindleberger's views on exchange rate arrangements during the period mainly from 1950, the year of that writer's first major publication in the field of international monetary economics while at MIT, until 1974, the year after the final unraveling of the Bretton Woods system.[4] This period saw a

[1] After retiring, Kindleberger (1910-2003) taught part-time at MIT for five years. His works during retirement included *Manias, Panics, and Crashes: A History of Financial Crises* (1978) and *A Financial History of Western Europe* (1984b). Mehrling (2022) provides detailed biographical information.

[2] Mehrling's aim apparently was to make Kindleberger's views accessible to a non-specialist audience. Perhaps for that reason, Mehrling presented but did not critically appraise Kindleberger's views on the international financial system.

[3] Obstfeld (2024a: 12, fn. 4) wrote: "Kindleberger's views have regained prominence in light of recent research on the international roles of the dollar and the global liquidity of US Treasury liabilities."

[4] 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

pronounced transformation in the views of the economics profession from the advocacy of pegged but adjustable exchange rates in the 1950s to flexible exchange rates by the late-1960s. The intellectual foundation for this transition was largely provided by Milton Friedman's "The Case for Flexible Exchange Rates" (1953a).[5] The practical impetus for the transition was provided by a series of balance-of-payments and other externally-related crises throughout the 1950s and 1960s which convinced the overwhelming majority of economists that a move toward exchange-rate flexibility was desirable -- and unavoidable. As I document below, Kindleberger was a hold-out; he defended fixed-exchange-rate systems and criticized flexible-rate systems throughout (and after) the Bretton Woods years. The major intellectual target of his criticisms was the case in favor of flexible exchange rates made by Friedman.

I examine Kindleberger's main arguments in favor of fixed exchange rates, and against flexible exchange rates, with the objective of comparing them with Friedman's views and evaluating the extent to which the respective positions of the two antagonists hold up after the five decades of experience with floating rates since the end of the Bretton Woods system. With the two antagonists providing polar positions on the flexible-versus fixed-exchange rate debate throughout the Bretton Woods period, the comparison enables an exploration of the doctrinal foundations of that debate. I adopt the approach used recently by Maurice Obstfeld (2020) in his Harry Johnson Lecture in which Obstfeld assessed a series of arguments and/or assertions made by Johnson in the latter's well-known paper "The Case for Flexible Exchange Rates, 1969." Obstfeld found that Johnson "over-promised" about several perceived benefits of flexible exchange rates but, by-and-large, made "many good calls" (Obstfeld 2020: 92, 96). I consider the series of arguments and/or assertions attributed by Obstfeld to Johnson, and I apply them to Friedman's 1953 essay and to Kindleberger's work on the exchange rate regime issue.[6]

## 2. Friedman's Case for Flexible Rates[7]

came in March 1973 when major Continental 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.

[5] Irwin (2019, 57) observed: "The professional consensus among economists ran against flexible exchange rates, at least until Milton Friedman published his famous essay, 'The Case for Flexible Exchange Rates,' in 1953.'" 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).

[6] I followed a similar procedure with regard to Friedman and Johnson in Tavlas (2024).

[7] This section is an abridged and much-revised version of Section 2.1 in Tavlas (2024).

Friedman (1953a) presented general statements about the efficacy of flexible for larger industrial countries and supported the general statements with a series of specific arguments and/or allegations.[8] Friedman did not provide any empirical evidence, whether original or via the citation of previous studies, to support his arguments. He referred to only two previous works – a study by Nurkse (1944) and a study by Meade (1951). Friedman rested the case for flexible exchange rates on his belief that flexible rates remove the balance-of-payments constraint on policymakers and, thus, provide autonomy for national monetary and fiscal policies.[9] By doing so, they give rise to unrestricted multilateral trade and promote an efficient use of resources internationally through an appropriate international division of labor (1953a: 158, fn. 3, 200).

Friedman presented the following specific arguments.

*Exchange rates and fundamentals.* 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 final positions.[10] He contended, however, that, if the fundamentals changed, "the actual path of adjustment may involve repeated overshooting and undershooting of the final position" (1953a: 183).

*Exchange rates and trade and capital account restrictions.* Friedman (1953a: 202) attributed the extensive and complex restrictions on international trade that proliferated immediately after World War II to the Bretton Woods fixed-rate system. Friedman (1953a: 167-68) maintained that floating rates would support the removal of both trade and capital-account restrictions.

*Phillips curve trade-off.* 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" (1953a: 170).[11] In his 1967 Presidential Address before the American Economic Association, he showed that there

[8] The paper was published in Friedman's book, *Essays in Positive Economics* (1953c). The paper was a revision of a 1950 memorandum that Friedman wrote as a consultant in Paris to the U.S. governmental agency, Finance and Trade Division of the Office of Special Representative for Europe.

[9] Friedman's views on exchange rates were influenced by those of his Chicago colleague, Lloyd Mints. For discussions of the influence of Mints' views on Friedman, see Irwin (2019), Nelson (2020b, vol. 1), Dellas and Tavlas (2021), Demeulemeester (2022), Tavlas (2023: chap. 7), and Edwards (2023).

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

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

is no long-run trade-off between the inflation rate and the unemployment rate when inflation is fully anticipated (Friedman 1968).

*Domestic-policy autonomy.* Friedman argued that, under fixed rates, the policy stances of other countries would determine the domestic inflation rate. He stated: "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" (1953a: 200).

*Discipline and one-way bets.* 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 because a country's reserves are put on the line while 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.[12] Friedman disagreed. Under fixed rates, he maintained, the exchange rate is changed infrequently, only after substantial pressure of the exchange rate has accumulated, and at little cost to speculators, providing the opportunity for one-way bets. Under flexible rates "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" (1953a: 179).

*Fiscal federalism.* Friedman 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.[13] Anticipating Mundell (1961), Friedman maintained that a requirement for the sustainability of a single currency area is "the free movement of goods, people and capital without restrictions" (1953a: 193, fn. 16). Anticipating Kenen (1969), Friedman argued that a requirement for a unified currency area is "a single central fiscal and monetary authority – the federal government – having ultimate fiscal and monetary powers" (1953a: 193, fn. 16).

[12] See Goldstein (1984: 15-16).

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

*The interwar experience*. Nurkse (1944) argued that freely floating exchange rates inevitably give rise to destabilizing speculation, basing his view mainly on the French experience with floating exchange rates from 1922 to 1926.[14] Friedman stated: "Nurkse's discussion of the effects of speculation is thoroughly unsatisfactory." Friedman noted that Nurkse's thesis rested on the experience of the French franc from 1922-1926: 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" (1953a: 176). In taking issue with Nurkse's view, Friedman maintained that speculation in the foreign-exchange market would be stabilizing under flexible rates; he argued that speculators who engage in destabilizing speculation will 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" (1953a: 175).

*Floating rates and trade.* Proponents of fixed-exchange-rate systems in the 1950s and 1960s maintained that flexible-exchange rates lead to highly volatile exchange rates, which were said to increase uncertainty, reducing international trade. Friedman (1953a: 174) expressed the view that flexible exchange rates give rise to future markets in which "traders can almost always protect themselves" at the cost of hedging. Under fixed rates, conditions that would have produced a change in the exchange rate in a flexible rate system, will "produce a shortage of exchange" resulting in "either internal adjustments of uncertain character or administrative allocation of exchange." Consequently, "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" (1953a: 174).

*Currency depreciation and inflation*. A recurrent theme of the exchange-rate-regime literature of the 1950s and 1960s was that flexible-rate regimes contain an inflationary bias because currency depreciations lead to wage and price increases, setting-off cost-push inflation. Friedman maintained that the operation of "a wage-price spiral" (that is cost-push inflation) depended on the existence of accommodating monetary policies: "A general wage rise -- or a general rise in domestic prices --

[14] Bordo (1993: 30, fn. 15) stated that "Nurkse'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.

becomes possible only if the monetary authorities create the additional money to finance the higher level of prices" (1953a: 181).

*Flexible rates as buffers.* Friedman contended that flexible rates could buffer an economy from monetary disturbances originating abroad (1953s: 181). Flexible rates could not, however, provide insulation from external real shocks. For example, if real income of a country's trading partners declined, "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" (1953a: 181).

*Less Developed Countries (LDCs).* Friedman's discussion (1953a) of exchange rate arrangements dealt with industrial countries, but subsequently he discussed exchange rate regimes for LDCs. Edwards (2023) documented that Friedman's views on exchange rate regimes for LDCs evolved during the 1950s and 1960s. For smaller, poorer countries, Friedman's preferred exchange rate arrangement was a unified-currency regime, which he distinguished from a pegged-rate regime in that the former imposed an external constraint on monetary policy whereas the latter did not.[15] In some specific cases, he supported auctions as well as variations of the crawling peg.[16] Edwards (2023: 832) pointed out that Friedman considered auctions and crawling pegs to be transitional arrangements toward either a hard peg or floating exchange rates.

## 3. Kindleberger on Exchange Rates

In my discussion of Kindleberger's views on exchange rate arrangements, I rely mainly on the following works by that author, spanning the period 1950 to 1974[17]: (i) the book, *The Dollar Shortage* (1950); (ii) the first edition of his well-known textbook, *International Economics* (1953); (iii) the essay, "Flexible Exchange Rates," written in 1960 but published in 1963; (iv) the essay, "The Dollar and World Liquidity: A Minority View" (1966), which Kindleberger co-authored with Emile Despres and Walter S. Salant; (v) the essay, "The Case for Fixed Exchange Rates, 1969" (published

[15] Friedman (1968) considered a unified currency to be irrevocably fixed: unlike an adjustable peg, it cannot be altered through administrative decisions. Unified pegs include dollarized regimes under which, in general, there is no central bank. For an account of Friedman's views on these matters, see Edwards (2023: 844-45).

[16] The crawling peg, like the Bretton Woods regime, permits a range of fluctuation around par values, but, the unlike the Bretton Woods regime, the par value would change gradually over time in response to market pressures.

[17] Mehrling (2022: chap. 7) mentioned that Kindleberger thought that flexible rates would be accompanied by destabilizing speculation, but Mehrling provided little other information about the reasons that Kindleberger favored fixed exchange rates and opposed floating rates.

in 1970), presented at a conference hosted by the Boston Fed in 1969 -- the discussant of the paper was Milton Friedman; (vi) the fifth and final edition of *International Economics*, with a Preface written in February 1973 – that is, one month before the breakdown of the Bretton Woods system;[18] (vii) the essay, "Lessons of Floating Exchange Rates," delivered at a 1974 conference -- that is, one year after the breakdown of Bretton Woods. The essay was published in 1976. I also report on a March 1973 article, "Should Dollar be Defended," published in the *Japan Times*; which provided immediate reactions by both Kindleberger and Friedman to the breakdown that month of the Bretton Woods system.

*The Dollar Shortage, 1950.* At the end of World War II, the United States held two-thirds of the world's monetary gold. The gold and the dollar reserves of the war-ravaged European countries were depleted. Europe ran large current-account deficits, reflecting the demand for essential imports and the reduced capacity of the region's export industries (Bordo 1993: 38-39). The main problem facing these countries was to acquire dollar reserves to finance purchases of needed imports from the United States, which, in turn, ran current-account surpluses. Consequently, many European countries were forced to ration foreign exchange to restrain spending on non-essential imports (Irwin 2019: 67). These circumstances led to what was called the "dollar shortage," the title of Kindleberger's 1950 book.[19] Kindleberger defined the dollar shortage as follows:

> By dollar shortage is meant a persistent departure from equilibrium in the balance of payments in the United States, or a tendency to so depart, in the direction of a current-account surplus in excess of long-term capital exports, or of a deficit of smaller magnitude than capital imports. Viewed from abroad, the condition of dollar shortage may by represented by a deficit in the current-account balance in trade with the United States in excess of long-term capital imports in dollars, or a surplus in current-account transactions smaller than long-term capital exports to the United States (1950: 172-73).

Two points are important. First, Kindleberger considered that the dollar shortage was a structural problem that would persist for some time into the future, reflecting his view that the rate of productivity advance in the rest of the world would perpetually lag behind that of the United States: "Different rates of technological progress in the United States and abroad, and in particular faster technological progress in the United States

[18] Subsequent editions of the book were made by Peter H. Lindert. See Mehrling (2022: 197). The sixth and seventh editions were under the co-authorship of Kindleberger and Lindert. The eighth edition, published in 1985, was under Lindert's sole authorship. There was also a ninth edition by Lindert in 1992.

[19] Mehrling (2022: 94) reported that *The Dollar Shortage* earned Kindleberger tenure at MIT.

than abroad, call for a continuous dynamic adjustment which other forces in the world economy resist" (1950: 24).[20]

Second, Kindleberger did not believe that the dollar shortage "comes down to the overvaluation of foreign currencies and the undervaluation of the dollar, which could be rapidly set to rights by changing the exchange rate" (1950: 175). He argued as follows: "This highly Viennese view of economics is pleasant enough in the parlor and instructive in the classroom. It embodies an important truth which frequently needs to be brought to bear on practical problems. Its adoption as the answer to every problem of lack of fit between need and capacity, however, is doctrinaire and futile" (1950: 175). In 1953, Milton Friedman published the paper, "Why the Dollar Shortage?," in which he expressed a very different view: "the dollar shortage is a result of governmentally controlled and rigid exchange rates; if exchange rates were freed from control and allowed to find their own levels in a free market ... the dollar shortage would evaporate overnight" (Friedman 1953b: 212).

Bordo (1993: 41) reported that, by the mid-1950s, the dollar-shortage problem "had been solved." The currencies of Western European countries "were virtually convertible by 1955, and their current account positions were in surplus" (Bordo 1993: 41).[21] Kindleberger, however, continued to believe that the dollar shortage was systematic. In a 1958 paper, "The Dollar Shortage Re-Visited," he wrote: "I ... would be prepared to bet ... that there was greater likelihood that a given future disequilibrium in the balance of payments in the United States would involve dollar shortage than dollar surfeit.... I am persuaded that the disequilibrium is systematic" (1958: 395). Kindleberger's view that the world suffered from a permanent deficiency of dollars would undergo a marked change in the 1960s, during which time he argued that the then-existing global excess *supply* of dollars was essential for global financial stability (see below).[22]

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[20] Kindleberger maintained that the dollar shortage had existed since 1919. Kindleberger's presentation gave the impression that he believed that the dollar shortage would be a *permanent* condition, and his book was interpreted in that way -- see, for example, Bloomfield (1952: 189), Solomon (1977: 17), and Walters (1998: 264).

[21] Key factors that contributed to these developments were the Marshall Plan and the European Payments Union. European currencies were officially made convertible (on current-account transactions) at the end of 1958; at that time, Germany also made the deutsche mark convertible on capital-account transactions. Japan restored convertibility in 1964. See Meltzer (1991) and Bordo (1993).

[22] By the 1970s, some economists viewed the dollar-shortage debate of the 1950s as having been ephemeral. See Bauer and Walters (1975).

*International Economics, 1953.* The first edition of Kindleberger's textbook scarcely discussed flexible exchange rates. There were three likely reasons. The first was that most members of the economics profession, including Kindleberger, did not consider flexible rates to be a viable alternative to the Bretton Woods system. Hence, a discussion of flexible rates was irrelevant. The second reason had to do with Kindleberger's belief in the validity of the price-elasticity-pessimism thesis. One of the arguments underlying the case for flexible exchange rates by the regime's proponents was the view that exchange-rate flexibility permits the substitution of expenditure-switching policies for expenditure-reducing policies, decreasing the output and employment costs of external adjustment. Underlying that view was the assumption that, once a country's (effective) exchange rate moves in the direction needed to effect external adjustment, the resulting price effects would provide the support necessary for external adjustment (Goldstein 1984: 34-35). Kindleberger doubted that the magnitudes of price elasticities of exports and imports, at least in the short-run, were sufficiently large to bring about external adjustment: "In the short run, it would appear that in certain circumstances and for limited periods of time the elasticities are so low that the price system does not respond readily. Over the longer term, there is evidence that it does, in fact, operate in the right direction" (1953: 151). Additionally, Kindleberger believed that trade elasticities had declined over time so that the exchange rate had become a less-important adjustment instrument: "it is probably true that elasticities in international trade are less now than they were fifty years ago" (1953: 152).

The third reason that Kindleberger scarcely discussed flexible exchange rates was his belief that speculation under a flexible rate system could be destabilizing. In what was the only reference to Friedman in his 1953 book, Kindleberger stated: "The Friedman-Mintz (sic) scheme for permitting the foreign-exchange rate to fluctuate without official intervention had provision for forward rates which it was hoped would bring out stabilizing speculation…. however, the establishment of a forward market is no guarantee that stabilization will be of the stabilizing variety. If it is, the foreign-exchange market rate will move within a narrow range around the long-term equilibrium rate…. If not, however, destabilizing speculation will exaggerate the deviations" (1953: 302-03).

Beginning in 1950, the Canadian dollar was allowed to float; the floatation which continued until 1962, was considered a success (Laidler 1999; Schembri 2008).[23] Writing with only a few years' experience of the floatation of Canadian dollar, Kindleberger judged it "an unqualified success," but he attributed that success to the following circumstances specific to Canada (1) "The discovery of oil fields in Alberta and the investment of millions of United States dollars in Canadian production and pipelines"; (2) "United States institutions … regard Canadian securities as only semiforeign;" and, (3) "while speculation for a rise in the Canadian dollar may be regarded as destabilizing in the short run, in the long run there is more or less implicit in the economic relations between the United States and Canada the understanding that the two currencies should exchange for each other fairly close to par" (1953: 514-15). In the absence of such factors, floating exchange rates could give rise to destabilizing expectations: "Much depends on expectations … and particularly whether the market is able to establish any norm around which stable expectations could be built…. A freely fluctuating exchange rate which moves slowly within a relatively narrow range has much to commend it…. A widely gyrating exchange rate … would achieve a formal balance of imports and exports at the cost of eliminating a large proportion of total desirable trade" (1953: 515).

*Flexible Exchange Rates (1960)*. Reflecting the influence that Friedman's 1953 essay was having on the profession, Kindleberger's 1960 article (published in 1963) sought to rebut several of Friedman's arguments. As a measure of Friedman's influence, "Flexible Exchange Rates" cited Friedman's name twelve times in its twenty-three pages of text, whereas Kindleberger's 1953 book, *International Economics*, mentioned Friedman's name only a single time in its 530 pages. The 1960 article presented a series of arguments about the disadvantages of flexible exchange rates and the advantages of fixed rates.[24]

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[23] Schembri (2008: 4) reported: "the flexible exchange rate traded in an orderly manner and responded to shocks to underlying fundamentals largely as theory would predict; it did not fluctuate widely or erratically as some had predicted. This largely beneficial experience confirmed the predictions of ... Milton Friedman." Friedman (1972: 217) referred to the stability of the Canadian dollar during 1950 to 1962 as evidence that "flexible rates can be relatively stable."

[24] After stating that the subject of flexible exchange rates "has produced some polemics," Kindleberger followed that statement with: "many writers have conceded that the issue is a close one" (1963: 112). An accompanying footnote lists several writers who held what Kindleberger considered to be a balanced view, followed by this sentence: "Contrast Friedman ... who states so long as flexible exchange rates are not adopted, it will be impossible to achieve multilateral trade free of extensive and complex restrictions" (1963: 135, fn. 1).

- Speculation under flexible exchange rates can be either stabilizing or destabilizing. Kindleberger expressed the view that "Friedman has a powerful theoretical argument that speculation must be stabilizing" (1963: 114). Kindleberger, however, stated that "the question of whether speculation is stabilizing or destabilizing … cannot be settled by recourse to theoretical arguments. At basis it is empirical" (1963: 116). He provided both an example in which (in his view) speculation appeared to have been stabilizing and an example in which it appeared to have been destabilizing. The former example was the case of the Canadian dollar, which had continued to move in a narrow range against its U.S. counterpart since its floatation in 1950. The latter example was the case of European currencies in the 1920s and, specifically, the case of the French franc. In contrast to Friedman's criticisms of Nurkse's thesis that the case of the 1920s French franc provided evidence of destabilizing speculation, Kindleberger (1963: 113-14), citing Nurkse's (1944) work, argued that movements of the French franc in the 1920s demonstrated that speculation had been destabilizing.
- Flexible exchange rates adversely affect trade and investment. Kindleberger presented three arguments to support this view. First, he asserted: "Fluctuating exchange rates increase the risk of holding inventories of internationally traded goods, whether or not the risk in any particular transaction is covered, and hence tend to reduce the volume of world trade" (1963: 120). Second, he argued that flexible rates increase the level of uncertainty and, thus, the level of risk, compared with fixed rates (1963: 121). The increase in uncertainty depresses trade volume. Third, even if exchange rate movements do not depress the volume of international trade, they could increase unemployment by "shifting resources into and out of the foreign-trade sector – exports and import-competing industry – when the rate depreciates and appreciates respectively. Is this method of adjustment desirable?" (1963: 121).[25]
- Flexible exchange rates do not provide autonomy for monetary policy. Kindleberger asserted that monetary policy is endogenous: "When export and import prices rise because of depreciation, exporters and importers attempt to

[25] The arguments that flexible rates (1) increase uncertainty and (2) produce costly shifts of resources from traded to non-traded goods had been made by Nurkse (1944).

borrow more. This can be prevented by raising interest rates. But this means that monetary and fiscal policy must be used" (1963: 125).

- Fixed exchange rates discipline macroeconomic policies. Relying on the discipline hypothesis discussed in the previous section, Kindleberger argued that, under fixed rates, the loss of reserves stemming from overly expansive macroeconomic policies provides an autonomic brake on those policies (1963: 126-27): "A fixed rate sets limits … without setting off an adverse balance-of-payments reaction. Under flexible exchange rates these limits are removed."
- Inflation is *not* always a monetary phenomenon. Kindleberger believed that inflation (as opposed to one-time increases in the price level) could be produced by cost-push factors in the absence of accommodative monetary policy. He noted that this view was not shared by Friedman: "In his [Friedman's] view, inflation is always monetary…. Wages cannot be raised unless the money supply is expanded to finance the higher level of costs" (1963: 125). He continued: "The Friedman position is extreme. There is little doubt that for economies posed on the verge of inflation, depreciation provides an inflationary push" (1963: 125).
- The fixed exchange rate system expedites international monetary cooperation (1963: 130). The reason? Fixed rates require harmonization of policies. Kindleberger could not envisage any exchange rate regime under which the exchange rate was not a target. Consequently, he did not consider that there could be such a thing in practice as a system of flexible exchange rates. He wrote: "But it is difficult to see exactly what is implied by a system of universally floating rates with each country possessing reserves in exchange. In particular, this last arrangement raises the question how much central bank cooperation would be necessary to operate it, and whether there would not be strong incentives for the monetary authorities in various countries to protect their balance sheets by shifting reserves out of depreciating and into appreciating currencies, thus injecting destabilizing speculation into the system from an official source" (1963: 128).[26]

[26] Similarly, Kindleberger wrote: "But it is hard to see how any change could move in the direction where the United States currency and every other one was free to float without any central bank intervention" (1963: 131).

- The fixed rate system facilities the spontaneous transition of the global economy. Kindleberger noted that, under the gold standard, London stood at the center of the international monetary system, providing financial services to the rest to the world (1963: 131). Subsequently, New York became the center: "The role of New York as the holder of the world's exchange reserves, like that of London of an earlier day, has evolved in practice, rather than been devised" (1963: 131). In his 1966 essay, co-authored with Emile Despres and Walter Salant, Kindleberger developed this view into the argument that the United States played the role of global banker in the international monetary system, as I now discuss.

*United States as Global Banker.* In 1960, U.S. foreign monetary liabilities exceeded U.S. gold reserves for the first time; under the rules of the Bretton Woods system, foreigners had the option of converting their dollars into gold, while the United Sates had the responsibility to maintain the gold-dollar price fixed (Meltzer 1991: 56). As the stock of dollars rose relative to the U.S. holdings of monetary gold, concerns grew about the ability of the Unites States to convert its liabilities into gold (at a fixed price) – the "second horn" of the Triffin "double dilemma." Specifically, under the Bretton Woods system the United States committed to redeem the dollar at the fixed price $ 35 per ounce of gold. Triffin (1964) argued that, as global dollar holdings increased over time to exceed the United States' monetary gold holdings, the country would find it increasingly difficult to honor its commitment to covert the dollar into gold. Eventually, the Federal Reserve would not be able to lower interest rates for domestic economic reasons without provoking a "bank run" as foreign central banks attempted to cash their dollars into gold, leading to the collapse of the Bretton Woods system.[27]

In the essay, "The Dollar and World Liquidity: A Minority View," published in *The Economist* in 1966. Despres, Kindleberger, and Salant (hereafter DKS) argued that the Bretton Woods system did not inevitably have to collapse. They posited that the United States balance of payments provided financial intermediary services to the rest of the world. The country's current account surpluses supplied goods and services to the rest

[27] Earlier, Triffin (1960) had emphasized the "first horn" of the double dilemma, under which the reliance of the Bretton Woods system on only gold and dollars as reserves would impede global trade. With the supply of gold guided by exogenous forces, a steady supply of dollars was needed to finance the rise in world trade, otherwise world trade would be hampered. For excellent discussions of Triffin's views, see Bordo and McCauley (2019) and Maes (2021).

of the world. The country's capital account "deficit" (DKS put the word deficit in quotations) performed two functions. First, it supplied "loans and investment funds to foreign enterprises which have to pay more domestically to borrow long-term money and which cannot get the amounts they want at any price." Second, it supplied "liquidity to foreign asset-holders, who receive less for placing their short-term deposits at home." DKS argued that "this is a trade in liquidity which is profitable to both sides" (1966: 526). Effectively, the United States performed "the function of a financial intermediary.... The United States is no more in deficit when it lends long and borrows short than is a bank when it makes a loan and enters a deposit on its books" (1966: 527). DKS noted that there had been speculation in gold in the private markets against the dollar in the 1960s. However, they argued that the speculation had "been induced largely by reluctance of some central banks to accumulate dollars. The dollar is the world's standard of value.... Admittedly, short-term destabilizing speculation against the dollar is possible, largely as a consequence of errors of official and speculative judgement" (1966: 527).[28]

DKS maintained that "the most desirable solution" to the dollar problem would be for other countries to recognize that the "dollar is in a special position as a world currency." The authors stated that there were several actions that U.S. authorities could take to increase confidence in the dollar, "including widening the margin around parity at which it buys and sells gold, reducing the price at which it buys gold, and otherwise depriving gold of its present unlimited convertibility into dollars" (1966: 528-29).[29] In a comment immediately following the DKS article in their periodical, the editors of *The Economist* took issue with DKS. The editors noted that commercial banks were able to borrow short term and lend long term, without necessarily prompting concerns among their depositors, because the commercial banks were backed by central-bank discount (and, thus, lender-of-last resort) facilities, which were not available to an international financial intermediary.

[28] Halm (1968) criticized DKS for neglecting the liquidity risk stemming from the transformation of long-term assets into short-term liabilities: should the flow of short-term capital suddenly reverse, the maturity mismatch could lead to a liquidity crisis.

[29] Mehrling (2022: 153) stated that Kindleberger wanted to "eliminate convertibility [of the dollar into gold] altogether, and to operate a pure exchange standard." Mehrling (2022: 148) implied that the initiative for the DKS article was Kindleberger's. Specifically, Kindleberger took the "highly unusual step of recruiting those coauthors [Despres and Salant] and publishing in the financial press [in what] seems to have been an attempt to make it harder for his target audience to ignore what he now explicitly recognized was a 'minority view.'"

Kindleberger (1965) had anticipated the criticism in *The Economist*.[30] He argued that the Basel Swap Agreement, established in 1961 between the U.S. Treasury (whose role in the Agreement was taken over by the Federal Reserve in 1962) and foreign central banks had been put in place specifically to counter a run on the U.S. gold stock, thereby helping to safeguard pegged exchange rates.[31] Under the Agreement, if traders were, for example, selling dollars and buying Swiss francs, the Fed would acquire Swiss francs -- in exchange for dollars -- from the Swiss National Bank (SNB), and use them to meet the higher demand for Swiss francs. The transaction would then be reversed in the future. (The Fed would deliver the Swiss francs back to the SNB and, in return, receive U.S. dollars.) The two sequential operations left the SNB holding the same amount of dollars as before the operation. The forward leg of the swap covered the SNB's dollar position, reducing the need to exchange unwanted dollars for gold, thus helping to maintain the dollar at $ 35 per ounce of gold.

Although Kindleberger had argued in the 1960s that pegged exchange rates might be maintained with a limited provision of international liquidity via swaps, in the 1970s he foresaw that crises were a recurrent feature of the international financial system and required unlimited amounts of dollar liquidity provision (since global financial transactions typically took place in dollars).[32] He stated the following with regard to the financial-stability function: "the crucial feature on an international central bank, is the availability of unlimited amounts of liquidity through discounting in a period of crisis" (1974: 21). Kindleberger developed the idea that the Fed should assume leadership of the international financial system so that in periods of crises it would lend freely against currency swaps without a penalty rate.[33] During the 2007-08 financial crisis, the Fed provided dollar liquidity via other central banks at full allotment (unlimited quantity) and at a fixed rate.[34]

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[30] This paragraph and the following one are based, in part, on Bordo, Humpage, and Schwartz (2015), Carré and Le Maux (2022) and Mehrling (2022).

[31] Kindleberger had started his career at the New York Fed. He developed a deep knowledge of banking, and the workings of financial markets (including foreign exchange markets).

[32] Carré and Le Maux (2022) call these two motives the monetary motive and the financial motive, respectively.

[33] Somewhat ironically in terms of Kindleberger's prediction, the first meetings of the Basel Committee (from February 1974) were prompted by banking risks related to fluctuating exchange rates. See, for example, Goodhart (2011). I thank Maury Obstfeld for this observation.

[34] See Bordo, Humpage, and Schwartz (2015), Carré and Le Maux (2022) and Aizenman, Ito, and Pasricha (2022). Fisher, Kohn, and Truman (1996: 8) had earlier recommended that the swap lines be modified or replaced with an alternative arrangement to "provide a mechanism whereby the Fed could provide dollar liquidity ... to foreign monetary authorities, who may in turn need to provide dollar

DKS did not discuss the possibility of moving to flexible exchange rates as a remedy for the "dollar problem." The profession, however, was moving in that direction. In 1964, Fritz Machlup published, *Plans for Reform of the International Monetary System*, in which he reviewed proposals to reform the international monetary system, one of which was freely flexible exchange rates. Machlup (1964: 79-81) listed the names of twenty-four "of the best known economists [including Friedman] who have declared themselves as favoring flexible exchange rates, in principle or under certain conditions." After listing the names, Machlup added: "But these are by no means all the advocates of the system" (1964: 81).

*Kindleberger versus Friedman, 1969.* In May 1969, Harry Johnson published the essay, "The Case for Flexible Exchange Rates, 1969," in the Federal Reserve Bank of St. Louis *Review*.[35] Five months later, the Federal Reserve Bank of Boston held a conference on "The International Adjustment Mechanism" at which Kindleberger, playing on the title of Johnson's essay, presented the paper "The Case for Fixed Rates, 1969." As mentioned earlier, Kindleberger's discussant was Milton Friedman.

Kindleberger presented several main arguments against flexible exchange rates. First, he said that he did not believe that any system under which national fiscal and monetary policies were autonomous could be maintained for practical reasons. Second, even if such a system could be established, it would divide the global markets in goods and capital so that the exchange rate would re-emerge as a target; otherwise, trade in goods and services would be depressed and capital flows would dry-up. Regarding the former argument, Kindleberger expressed the view that movements in exchange rates under a floating-rate system would inevitably affect employment and inflation in the country the currency of which was floated. Because exchange-rate changes would have large distributional consequences, the authorities would be forced to use monetary and fiscal policies to affect the level of the exchange rate:

> Where a country itself forebears from affecting the exchange rate, using [domestic policy] rules instead of management, as Professor Friedman would say, or locking the door and throwing the key away, as it appears to me, the gain in autonomy for monetary and fiscal policy is an illusion. Along with one more variable, there is one more target – the exchange rate (1970: 95).

liquidity to their banks in the event that dollar funding of their banks' is suddenly (and unexpectedly) withdrawn." Quoted from Bordo, Humpage, and Schwartz (2015: 365).

[35] The essay was also published in May 1969 as a Hobart Paper in the United Kingdom. The title of the essay acknowledged the influence of Friedman's 1953 paper, "The Case for Flexible Exchange Rates."

Regarding the effect of flexible exchange rates on global markets, Kindleberger argued as follows:

> The main case against flexible exchange rates is that they break up the world market. There is no one money which serves as a medium of exchange, unit of account, store of value, and standard of deferred payment…. This is akin to a system of barter.... Under a system of freely fluctuating exchange rates, the world market for goods and capital would be divided. In fact, such a system clearly would not last long (1970: 99-100).

Why would the flexible-rate system not last long? Kindleberger believed that, even in the absence of central bank intervention in the foreign-exchange markets – a circumstance that he considered unlikely – foreign-exchange traders would "certainly converge on a single currency to hold as a vehicle currency or a numeraire. Under present circumstances it would be the dollar" (1970: 100). Traders would pressure their governments "to maintain the stability of their foreign holdings [of dollars] in terms of domestic currency" (1970: 101). Kindleberger continued: "The stable exchange rate system, in my judgement, is inherent in the evolutionary processes by which barter moves to become efficient trading through use of a single money" (1970: 101). Fixed exchange rates, he argued, promote international economic integration.

The other arguments made by Kindleberger for fixed rates and against flexible rates were the following.

- The idea that monetary policy can be used to control inflation is mistaken. Inflation has cost-push elements, which are resistant to monetary policy measures. "Professor Friedman believes that there is no such phenomenon as structural inflation, as he blames central bankers for yielding to the demands on them for more credit when wages are pushed up. This is one way to look at it, though not a very fruitful one" (1970: 101).
- Even if short-term exchange-rate movements do not discourage trade, long term exchange-rate changes can discourage investment: "hedging is needed not for particular transactions, but for activities. Business will not undertake investment in exporting, importing, producing abroad, foreign-security underwriting, etc., secure only in the knowledge that it can hedge the foreign-exchange risk in individual transactions. It must have a sense of where comparative advantage lies over a longer period" (1970: 103).

- Friedman's argument that fixed exchange rates encourage controls is valid but trivial: "Granted, there are risks of foreign-exchange controls under fixed rates. This is the *tu quoque* argument used by small boys" (1970: 103).
- Occasional adjustments of exchange rates may be necessary under a system of pegged-but-adjustable rates to take into account "national differences in trade-offs between full employment and inflation [that] are held with paranoid intensity and cannot be compromised." Thus, "there may be no choice but to break up the world market" (1970: 102). However, fixed rates are likely to foster "international corporation … to work to try to reshape local money requirements in the light of the larger system" so that exchange-rate adjustments would not be necessary (1970: 101).
- Flexible exchange rates rely on "exchange illusion" – a form of "money illusion" – for their effectiveness. Specifically, to be effective a change in the nominal exchange rate has to produce a change in the real exchange rate to affect a country's competitiveness, but this will not happen if domestic wage-earners raise wages and businesses raise prices in response to a nominal exchange-rate depreciation.

Kindleberger concluded with a ranking of his preferred exchange-rate regimes. The first best regime was a world money with a world central bank. The second-best was a fixed exchange rate system with independent national monies. The third-best – which Kindleberger judged unattainable (otherwise it would have been higher on the list) – was a "dollar standard managed internationally," that is, with the United States conducting its monetary and fiscal policies in such a way that fixes the dollar's exchange rate. The fourth best was the crawling peg. The flexible exchange-rate system? It was "well down the list" (1970: 108).

In his rebuttable to Kindleberger's paper, Friedman argued that a unified world money was impractical and unattainable.[36] A world central bank, Friedman affirmed, would, at best, be "a benevolent dictatorship of 'experts' chosen in an arbitrary way and subject only very indirectly if all all to any effective political process" (1970: 117).

[36] Friedman's tone was sarcastic. This circumstance was evident in his opening remarks: "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" (1970: 109).

Friedman maintained that there was no evidence that speculation in forward markets is destabilizing and he asserted that flexible exchange rates provide autonomy in internal policy (1970: 116, 118). As in his 1953 essay on flexible rates, he argued that flexible rates would promote the removal of trade barriers. Friedman also argued that long-term movements in exchange rates in line with the economic fundaments provide a "fundamental hedge in all long-term capital investment" (1970: 116). Finally, he disputed Kindleberger's claim that exchange-rate adjustments depend on "money illusion" to be effective.

*International Economics (1973)*. As mentioned, the Preface of the final edition of *International Economics* was dated February 1973 – one month before the collapse of Bretton Woods. With the United States running a large current-account deficit in 1971, in August 1971 U.S. President Richard M. Nixon closed the "gold window": foreign central banks were no longer allowed to exchange dollars for U.S. monetary gold. Nixon imposed a ten percent surcharge on U.S. imports and blamed the U.S. deficits on unfair trading practices by other countries and their unwillingness to share the military burden of the cold war. At the Smithsonian meeting of finance ministers and central-bank governors, held in Washington D.C., in December 1971, it was agreed to reprice gold at $ 38 per ounce (from $ 35) and widen the bands on exchange rates from one percent to 2.25 percent around central rates (Meltzer 1991: 78). At the same time, the German mark was revalued against the dollar by about 17 percent, the Japanese yen by about 14 percent, and other currencies by smaller amounts.[37]

In the fifth edition of *International Economics* (1973), Kindleberger addressed the causes of the U.S. current-account deficits that led to the events of August 1971 and December 1971. He attributed the deficits to a failure of the industrial countries to coordinate monetary policies and he expressed scepticism about the ability of the dollar to remain the center of the system. He wrote:

> It is easy to see the nature of the debate here. On current account, the argument is over whether the dollar is overvalued or the DM, yen, Canadian dollar, and so forth, are undervalued. In the capital area, an excess flow into foreign hands can be stimulated by too easy a monetary policy in the United States or policies in Europe and Japan that are too tight. The failure of monetary policies to be coordinated has been far more responsible for the volume of dollars in foreign hands than the current-account imbalance, which began only in the middle of 1970 and was attacked in 1971 by the 10 percent surtax on imports of August and the devaluation

[37] Solomon (1977: 209) reported that calculations by Federal Reserve staff put the dollar's effective devaluation at between 6.5 percent to 7.75 percent. Garber (1993: 466) reported that the average devaluation of the dollar against other currencies was ten prevent.

> of the dollar by 7.9 percent in December at the Smithsonian Institution. If the dollar is going to survive as international money it seems clear that monetary policies in the United States and the other major financial centers of the world must be coordinated to produce agreed amounts of liquidity (1973: 422).

Kindleberger did not discuss the possibility of allowing the dollar to float. His discussions of flexible exchange rates in the 1973 edition of his book were brief and largely repetitious of his earlier arguments: speculation in foreign exchange markets can be destabilizing (1973: 410, 418) and a flexible exchange rate would require intervention in the foreign exchange market to prevent destabilizing speculation. Thus, monetary and fiscal policies would need to target the exchange rate (1973: 423). However, Kindleberger modified his view about the price elasticities of exports and imports. Whereas in the 1953 edition of his textbook he had considered that these elasticities were low in the short run, in the 1973 edition he argued that the elasticities depend on "whether the world is depressed or prosperous." He stated:

> In depression, demand and supply elasticities are low for price decreases, and depreciation fails to work well. Appreciation, however, is likely to be effective in producing an adverse balance of trade, since there is extra capacity to produce supply, and marginal demanders drop off when the price is raised. Conversely in periods of prosperity, demand and supply elasticities are high for price decreases: in a seller's market, people turn avidly to the country that cuts prices, and adjustment is easy in declining lines because of alternative opportunities. (Conversely for price increases) (1973: 334).

Three more points made by Kindleberger are relevant. First, he suggested that flexible exchange rates are not compatible with an international currency: "A monetary system with no international money has flexible exchange rates" (1973: 433). Second, he continued to maintain that inflation can be produced by cost-push, or "structural," factors. He argued: "This concept of structural inflation is anathema to the monetarists … [because] it neglects all mention of the money supply" (1973: 379). He further argued: "The issue, however, is not one of technical economics but of practical politics…. There is a money aspect to structural inflation; it lags rather than leads, and it rests not on economic ignorance but political impotence" (1973: 379). Third, Kindleberger continued to believe in a long-run Phillips curve trade-off although he noted that the "Phillips curve is … under attack from econometricians" (1973: 380). He also stated: "The monetarists detest the Phillips curve. All inflation is monetary, in their view, and the Keynesian model of fixed prices and varying employment is accepted only with qualifications and grumbles. (Friedman has said, 'We are all Keynesians

now.') The monetarists want flexible exchange rates, but not for the purpose of harmonizing different choices along Phillips curves" (1973: 380).

*Kindleberger vs. Friedman, 1973*.[38] The first few months of 1973 saw the final unraveling of the Bretton Woods system. A renewal of selling pressures on the dollar prompted the central banks of Germany, Belgium, and the Netherlands to intervene in the first week of February to prevent their currencies from piercing their ceilings against the dollar. The Bank of Japan also intervened, selling its currency for dollars, during the first nine days of February (Solomon 1977: 230). On February 12, the yen was floated; on that day, the dollar was devalued by 10 percent. On March 11-12, six Continental European countries floated their currencies. Nelson (2024: 223) reported that "the dollar centered fixed exchange rate system of the postwar period ended."[39]

On March 16, 1973, the *Japan Times* ran the headline "Should Dollar Be Defended?" under which, side-by-side, there were two articles under the sub-headlines: "Kindleberger Says Yes" and "Friedman Says No." Under the former sub-headline, Kindleberger was quoted as saying that, with the devaluations of the dollar in December 1971 and March 1973, "the dollar is through as an international currency."[40] He said that he was concerned that the devaluation would be offset by an increase in wages and prices, erasing the advantages of devaluation. He also said that the traditional way to defend a currency under pressure "is to raise the discount rate, and do it decisively. A full percentage point, or two, or three, is both a signal to the speculators that the country means to defend the dollar and a penalty to those speculators who have borrowed dollars." Kindleberger was unhappy that the dollar was not defended. He was quoted as saying: "Passivity is not always the best way to handle speculative attacks. I should have liked to see the authorities lash back at the gold speculators by forcing central bank gold down their throats" (*Japan Times* 1973: 10).

Under the sub-headline, "Friedman Says No," that economist argued that it would be a costly mistake for the U.S. to make any new commitments to shore up the dollar against European currencies.[41] He was quoted as saying that if other countries "don't want to absorb dollars, the alternative is to buy goods and services, to permit floating exchange rates, to lower tariffs, to deflate at home." He was also quoted as saying that

[38] I thank Ed Nelson for providing me with the material in this section.
[39] Solomon (1977: chap. 8) provided a detailed assessment.
[40] The quotations from Kindleberger appear to have been from Congressional testimony that he gave on March 13.
[41] Friedman's views were expressed in a telephone interview with the *Japan Times*.

"a perfectly free float of all currencies against each other would be the best solution." Friedman stated that he was against a proposal under which the U.S. would engage in swap agreements to borrow European currencies for the purpose of buying dollars, paying back the borrowed money back at interest because it would involve the Fed and the Treasury "engaging in currency speculation with money that belongs to all of us." In contrast to Kindleberger, who believed that the December 1971 and March 1973 devaluations of the dollar marked the end of that currency's international role, Friedman believed that floating exchange rates would enhance that role: "The emergence of a system of floating exchange rates in a very important sense strengthens the position of the dollar as the international medium of exchange" because its value would more accurately reflect its relative value in terms of other currencies. Friedman predicted the dollar would continue to be preferred to other currencies because of the existence of: international banking facilities to handle it, the larger volume of direct transactions in the dollar than in other currencies and investors' confidence in the long-run stability of the United States (*Japan Times* 1973: 10).

*Lessons of Floating Rates (1974)*. Why did the Bretton Woods System break down and what were the initial lessons of floating exchange rates? Kindleberger addressed those questions in the paper, "Lessons of Floating Exchange Rates," presented at a 1974 Carnegie-Rochester Conference.[42]

*Why The System Broke Down.* Kindleberger's account of the demise of the Bretton Woods system focused on an abrupt change in U.S. competitiveness beginning in 1970. His account emphasized: "the inability of the reserve currency to maintain its reserve position as it issues liquid assets to the rest of the world on demand -- so-called international financial intermediation." Specifically, he argued that, beginning in 1970, the U.S. economy underwent an abrupt decline in competitiveness. Kindleberger stated:

> The only hypothesis which goes any distance to explaining why the United States lost exports and increased imports so abruptly is that its [real] exchange rate had [in former years] been adjusted to a dynamic comparative advantage, under which old exports losing out to limitation and United States direct investment abroad were replaced by new products innovated in the United States, and that this innovative process had precipitously halted. The speed of the changes is against such a theory, but there is no alternative explanation for a swing of almost $ 5 billion in the trade balance between 1970 and 1971 (1976a: 53-54).

[42] The conference volume was published in 1976.

The current account deficit was accompanied by capital outflows, the latter "largely [being] the result of failure to understand the exchange standard system" (1976a: 54). Kindleberger observed that U.S. interest rate declined during the course of 1970.[43] However, German rates initially rose. The result? "A flood of funds from New York to the Euro-dollar market and another from the Euro-dollar centers to Germany brought the German rate down.... When New York and Frankfurt money markets were joined through the Euro-currency market, any attempt to achieve independent interest rates was doomed to failure and could only result in issuing too many dollars in New York and acquiring too many in the Federal Republic" (1976a: 54). Kindleberger argued that the capital outflows, combined with the devaluation of the dollar at the December 1971 Smithsonian meeting, "led to destabilizing speculation. This is another controversial question in which I part company with Milton Friedman who is unable to find a single empirical case of destabilizing speculation in history and has *a priori* reasons for believing it cannot occur" (italics supplied, 1976a: 55-56). In light of the above arguments, what was the underlying cause of the breakdown of Bretton Woods system? Kindleberger laid the blame on the failure of U.S. authorities to follow the rules of the game: "The dollar exchange system was mismanaged and could have worked satisfactorily" (1976a: 53).

*Lessons of Floating.* Regarding the lessons (after about a year) from the experience with floating rates, Kindleberger drew the following conclusions. First, as he had predicted in his earlier work, floating did not produce balance-of-payments equilibrium for the countries that had allowed their currencies to float nor did floating provide autonomy for domestic monetary policies (1976a: 57). Second, "the elasticity optimism of the late 1950s and 1960s which replaced the pessimism of the immediate post-war period, has given way again to pessimism" (1976a: 57). Third, contrary to his expectation "outside the Euro-currency market, floating does not appear to have discouraged international investment" (1976a: 60) and it did "not seem to have reduced [capital movements] seriously" (1976a: 64). Fourth, speculation had been "both destabilizing and profitable" (1976a: 62).

*Postscript: The Dollar System*. In a 1970 paper, "The Dollar System," Kindleberger reflected on his earlier essay with Despres and Salant in which those authors wrote that

[43] Meltzer (2009: vol. 2, 744) reported: "The federal funds rate declined over the course of the year from 9 percent in January to 4.9 per cent in December."

the United States functioned as a global central bank, lending long term in dollars and borrowing short term in dollars.[44] Kindleberger argued that "the dollar system ... is a fine way to run the world economy" (1970: 6), but that it was on its way out. He wrote: "I doubt that the system can be restored. The primary reason is the rise of new financial centers in Europe and Asia, which threaten new instability by diffusing leadership and responsibility" (1970: 7). He continued: "A system with two or three leaders is unstable in the same way that a system with two or three reserve currencies is, in that responsibility vanishes from the system" (1970: 7). Kindleberger's solution to this state of affairs involved two proposals. (1) Open-up the Federal Reserve's Open Market Committee to "the Europeans and the Japanese" (1970: 8). (2) "Make the Euro-dollar market the central world short-term money market" (1970: 8) in which then-existing swap arrangements would be "extended further in the direction of credit control" (1970: 8). As in his 1969 exchange with Friedman, he believed that the global economy required a global central bank (1970: 8).

In the course of the next fifteen years, Kindleberger's conviction in the viability of a fixed-rate global-financial system centered on the dollar diminished further. In a 1976 paper, "Systems of International Economic Organization," he wrote: "At the present time the world economic system is plagued with uncertainty and uneasiness. The dollar is finished as an international money, but there is no clear successor ..." (1976b: 314).[45] In a 1985 paper, "The Dollar Yesterday, Today, and Tomorrow," he reflected on his earlier position with Despres and Salant that the United States played the role of global banker: "the cogency of that position has been thoroughly undermined by the fact that the United States has now developed a real [current-account] deficit" (1985: 295). He continued to criticize the flexible-rate system because of its susceptibility to destabilizing speculation and its tendency to produce overvalued and undervalued exchange rates (1985: 299-300); and he continued to argue "that the world will move unevenly back to a system of stable exchange rates" but that the dollar would not be the center of the system (1985: 305). What currency would take over the dollar's role? Kindleberger speculated that "perhaps in 2010 or 2015" a "dark horse" would emerge

[44] As in the 1966 essay with Despres and Salant, in his 1970 paper, "The Dollar System," Kindleberger continued to argue that "the world had not fully understood how the international monetary mechanism had evolved so that the United States was a bank."

[45] Mehrling (2022: 155) provided a near-identical statement by Kindleberger.

(1985: 305, 308): "As a stab in the dark, could I suggest that presently-troubled giant, but ebullient and dynamic Brazil, and its cruzeiro?" (1985: 308).

*Discussion*. Meltzer (1991) identified two critical reasons for the breakdown of the Bretton Woods system, both of which were missing in Kindleberger's accounts in the early-1970s. First, Meltzer (1991) attributed the collapse of the system to the adoption of inflationary policies by the United States, resulting in a substantial decline in that country's competitiveness, beginning in 1966. Meltzer wrote: "By far the major flaw in U.S. policy and the most damaging feature of the Bretton Woods system, was the failure to prevent U.S. inflation. As the system developed, the United States was able to choose domestic over international goals whenever a choice had to be made" (1991: 82). Second, Meltzer also noted that countries with large current account surpluses in the 1960s, including West Germany and Japan, "had no incentive to adjust, and they were generally reluctant to do so" (1991: 80).[46] It is puzzling that the erosion in U.S. competitiveness as a result of relatively high U.S. inflation rates in the second half of the 1960s and early-1970s was not the focus of Kindleberger's accounts in the early-1970s of the Bretton Woods system's collapse.

## 4. Taking Stock

How have the respective views of Friedman and Kindleberger held up with the hindsight of fifty years of floating exchange rates? As mentioned in the introduction, to address this question, I apply a series of criteria used by Obstfeld (2020) in his evaluation of Johnson's (1969) paper on flexible rates.[47] Where appropriate, I cite other studies that relate to the issues under discussion.

*Economic integration.* Friedman argued that flexible exchange rates would support the removal of both trade and capital-account restrictions, thus promoting an efficient use of resources internationally. Consequently, the balance-of-payments rationale for intervention in trade and capital movements would be removed. Kindleberger expressed the view that flexible exchange rates would "break-up" the markets for goods and capital.

[46] Bordo (1993:82-83) and Eichengreen (2007: 243-44) expressed similar views.
[47] For a detailed analysis of the performance of alternative exchange-rate systems, see Tavlas, Dellas, and Stockman (2008).

Obstfeld (2020: 93) noted that flexible exchange rates have allowed most countries to open-up their trade and capital accounts over time.[48] However, Obstfeld also noted that large exchange-rate movements have at times -- for example, in the 1980s in the U.S. -- "generated strong political pressure for protection in export-oriented industries disadvantaged by an externally strong currency" (2020: 93), leading to occasional (sometimes co-ordinated) central bank intervention in foreign exchange markets. Obstfeld (2020: 93) credited Kindleberger for predicting that the exchange rate would emerge as a target under floating rates. Thus, the case can be made that Friedman overestimated the effects that floating rates would have in removing trade barriers. However, floating rates appear to have facilitated a significant reduction of the trade barriers and capital-account restrictions that had been in place in the 1960s; they certainly have not led to a segmentation of markets or a collapse of capital-flows as had been predicted by Kindleberger.

*Policy autonomy.* Friedman argued that the monetary authority would be able to have a decisive influence on nominal variables in the long run and on real variables in the short run. He also argued that floating rates helped insulate the economy from foreign nominal shocks; foreign real shocks, however would affect the domestic economy, but flexible rates could prevent those shocks from being magnified. Kindleberger argued that exchange-rate changes under floating rates would have large distributional consequences; along with one more variable there would be one more target. He did not distinguish between the effects on the domestic economy from foreign real shocks and foreign nominal shocks.

As mentioned above, the floating rate period has seen occasional episodes in which the exchange rate became a target for the larger economies. On the whole, however, large economies have operated under the condition of policy autonomy during the floating-rate era. In this regard, Nelson (2020a) has shown that, under floating rates, the central banks of large floating-rate economies have been able to pursue domestic stabilization policies – typically, via the management of the policy interest rate. Nelson (2020a: 118) pointed out that, although floating rates enable the monetarily authority to

[48] For evidence, see Lane and Milesi-Ferretti (2018), Tena Junguito and Federico (2018), and IIzetzki, Reinhart, and Rogoff (2019).

create deviations in its policy rate from those abroad, "its pursuit of domestic objectives may lead it, on occasion, to make the policy rate move with rest-of-world rates."[49]

*Exchange rate volatility and trade.* Friedman thought that exchange rates under a flexible-rate system would move in line with changes in the macroeconomic fundamentals although there would be overshooting and undershooting as rates moved to their final positions in response to changes in the fundamentals. He believed that speculators would play a stabilizing role. He also thought that global trade would thrive under floating rates. Kindleberger maintained that flexible rates would lead to high exchange rate volatility and uncertainty, hampering international trade.

Obstfeld (2020) made the following points. First, "the surprising volatility of floating exchange rates relative to the volatility of observable macro-variables has been perhaps the most salient feature of the global monetary system" (2020: 93). Moreover, Obstfeld (2020: 92-93) commented that the empirical literature has had difficulty in linking short-term exchange-rate movements to observable macroeconomic drivers. Second, "there is little evidence that exchange rates have become more volatile [over time].... For example, the volatility of day-to-day changes in the nominal effective U.S. dollar has been very high, but trendless across decades" (2020: 94). Third, the "prediction that flexible rates would not hamper growth in world trade seems to have been borne out by experience" (2020: 97).[50]

*Destabilizing speculation and the interwar experience.* Friedman expressed the view that fixed rate systems give rise to destabilizing speculation. He also maintained that Nurkse's (1944) assessment of the interwar experience was flawed. Kindleberger argued that speculation under floating rates is destabilizing. He agreed with Nurkse's assessment that the interwar experience had demonstrated that speculation in foreign exchange markets can be destabilizing. Obstfeld (2020: 97) agreed with the argument

[49] In a paper, "Economic Multilateralism 80 Years After Bretton Woods," Obstfeld (2024b: 8) wrote the following of the flexible-exchange-rate period: "Freed of the need to restrict international payments to manage foreign exchange reserves, countries would have more scope to relax barriers to international trade and capital movements. Moreover, an enhanced ability to deploy monetary and fiscal policy in pursuit of domestic macroeconomic objectives made international payments restrictions much less tempting as a solution to the open-economy macro-policy trilemma." Obstfeld (2024b: 8) noted that these developments "had been predicted correctly by economists like Friedman (1953), Meade (1955), and Johnson (1969)."

[50] Based as the data presented in Tena Junguito and Federico (2018), Obstfeld (2024b: 7) concluded: "With respect to trade, the Bretton Woods package was effective. However, the trade growth of that period is dwarfed by the ascent that began in the mid-1970s after the Bretton Woods fixed exchange rates among industrial countries - in 1944 deemed to be essential to promote world trade - were scrapped."

that the interwar experience had shown that speculators were correct in attacking fixed exchange rates because the rates were not consistent with the economic fundamentals: "the chaotic conditions of the time promoted currency instability and made fixed rates difficult to defend."[51]

*Inflation and the Phillips Curve.* For large countries, Friedman believed that inflation is a monetary phenomenon. Cost-push inflation, he maintained, would not take place in the absence of monetary accommodation. Friedman never postulated a stable short-term trade-off between inflation and output.[52] He maintained that exchange-rate changes need not be inflationary if the changes reflect responses to external monetary disturbances. Kindleberger believed that inflation has cost-push elements. At least until the mid-1970s, he believed in the existence of a long-run Phillips curve trade-off. He maintained that currency depreciations produce inflation through price- and cost-raising channels.

Based on the experience under floating rates, Obstfeld (2020: 97) concluded: "domestic monetary policy and domestic monetary policy alone determines long-run inflation, economic openness notwithstanding." Obstfeld (2020: 93) stated that beliefs in the Phillips curve "were far off the mark." In addition, the idea that currency depreciations could lead to inflation independent of the stance of monetary policy has long been rejected by most economists.[53]

*Elasticity pessimism.* Kindleberger subscribed to the view that the response of trade flows to exchange-rate changes was low in the short run.[54] He believed that price elasticities of imports and exports had declined over time. Friedman believed that exports and imports would respond in a timely way in response to exchange-rate changes, promoting balance-of-payments adjustment.

Obstfeld did not address the debate about elasticity pessimism in his 2020 paper, but he had done so in an earlier (2002) paper in which he wrote: "'elasticity pessimism'

[51] As mentioned, following the 1973 (fifth edition) of *International Economics,* Kindleberger turned over subsequent editions to Peter Lindert. In the seventh edition, Lindert's evaluation (1986: 400) of the interwar experience corresponded with Friedman's view.

[52] In a review of the literature through the late-1970s, Artus and Young (1979: 655-56) stated: "Milton Friedman's classic article published in 1953 promised only modest benefits from the adoption of flexible rates.... Many of those who supported flexible rates in the 1960s, however, expected much more ... [including] an opportunity for individual countries to adopt price-employment objectives [*i.e.,* Phillips curves] of their own choosing."

[53] See Goldstein (1977).

[54] In fact, two forms of elasticity pessimism were prevalent in the 1950sand 1960s. The second form was the view that investment did not respond much to interest rate changes. See Meltzer (2009: vol. 2, bk. 2, 262).

of the early postwar era ... is based on a misinterpretation of the empirical record. In reality, the case that exchange rates are an aid in international adjustment remains strong" (Obstfeld 2002: 24). Goldstein and Khan (1985) estimated trade equations with data through the 1970s. Those authors did not find any consistent tendency for price elasticities to be lower in the 1970s than in equations based on data from earlier periods.

*Distributional effects.* Friedman believed that flexible exchange rates provide countries with the ability to achieve their natural rates of unemployment because monetary policy can focus on the domestic economy. Kindleberger argued that flexible exchange rates increase unemployment because frequent exchange rate changes shift resources into, and out of, the foreign trade sector. Obstfeld did not address this argument, presumably because it is no longer topical. Earlier, in a review of the empirical literature on this issue after the first decade of floating, Goldstein (1984: 21) concluded: "Real exchange rate movements surely had an important influence on sectoral employment (*i.e.*, in export and import competing ones), but their contribution over the period of floating rates as a whole to *aggregate* unemployment appears modest in comparison with other factors" (italics in original, 1984: 21).

*Fiscal federalism*. Friedman 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 the latter, fiscal federalism is able to smooth the effects of asymmetric shocks to the country's regions. Kindleberger focused almost exclusively on the role that coordinated monetary policy plays in a global fixed rate system. He had little to say about the need of harmonized fiscal policies – as well as about the need of factor mobility – in sustaining fixed exchange rates. Effectively, given a single monetary policy, Kindleberger thought that the optimum currency area is the world. Obstfeld (2020: 97) concluded that fiscal federalism is an essential element in supporting "fixed intra-regional exchange rates."

*System sustainability.* Friedman correctly predicted that pegged-but-adjustable-rate systems break down because they provide the opportunity for one-way bets. He believed that a system of flexible exchange rates among the advanced countries was desirable -- and necessary. He correctly predicted that the dollar would continue to be leading international currency under floating exchange rates. In the 1950s and the 1960s, Kindleberger contended that floating-exchange-rate systems are not sustainable: inevitably, they give rise to foreign-exchange intervention as the exchange rate becomes a target. He believed that a fixed-exchange-rate global system, centered on a

single currency, the country of which functioned as a global central bank, emerged in a spontaneous and evolutionary way. In light of the central role played by U.S. financial markets and the dollar in the international financial system, he originated the ideas that (1) the United States played the role of world banker, and (2) swap arrangements could be used by the central bank that issues the global currency to engage in lender-of-last-resort transactions with other central banks. His conceptions of the U.S. role as an international financial intermediary and the Fed's (informal) role as a global lender of last resort were on the mark.[55]

## 5. Concluding Remarks

Friedman's predictions about exchange-rate systems have -- with some exceptions -- been borne out by the experience of fifty years of predominantly flexible rates among the currencies of the industrial economies. His prediction that the U.S. dollar would continue to be preferred over other currencies under a system of floating exchange rates because (1) the large international banking and financial facilities are located in the U.S., (2) flexible exchange rates more accurately reflect markets' assessments of relative values of currencies than do fixed exchange rates, and (3) there is worldwide confidence in the long-run stability of the U.S. economy, have also been borne-out. Kindleberger's reputation for a successful forecast is based on his conception of a "dollar system." In Mehrling's study of Kindleberger's work, Mehrling (2022: 149) defined the "dollar system" as "an integrated international monetary and financial system, a single money market and a single capital market, all of it denominated in a single unit of account: the U.S. dollar." Under "the dollar system," the Federal Reserve would help maintain exchange-rate parities – the 1960s version of the "dollar system" – or provide lender-of-last-resort facilities (at low cost and unlimited amounts) to other central banks to maintain global financial stability – the 1970s-and-after version of the dollar system. The revisionist interpretation of Kindleberger's conception of a viable international monetary system is on the mark -- up to a point. The revisionist view, however, overlooks the points on which Kindleberger's positions were not borne out, including the sustainability of fixed exchange rates, the infeasibility of flexible exchange rates, the incompatibility of flexible rates with a global currency, the incompatibility of the world banker conception with current-account deficits, the belief

[55] The Fed has not officially made itself a global lender of last resort.

in a long-run Phillips curve trade-off, the view that monetary policy cannot affect inflation, and the expected permanent dollar shortage. Moreover, the claim that a single capital and money market has been realized in practice misses the fact that spreads between U.S. and other major countries' interest rates have frequently been sizable under floating rates; a unified financial system hasn’t implied a single interest rate worldwide.

Both Friedman and Kindleberger predicted that the dollar would be the dominant global currency although those predictions were conditioned on very different arrangements -- a fixed exchange rate system with the Fed conducting a global monetary policy in the case of Kindleberger; a floating rate system with the Fed conducting policy with regard to domestic economic conditions in the case of Friedman. What, then, about the appraisal by Mehrling (2022) and Coy (2022) that the present international monetary system was foreseen by Kindleberger? The appraisal overstates matters. It is more accurate to say that, taken together, the visions of Kindleberger and Friedman provided an accurate window through which the emergence of the present dollar-based flexible-rate system was foreseen.

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