Revista de Instituciones, Ideas y Mercados Nº 75 | Marzo 2023 | pp. 26-53

MILTON FRIEDMAN: AN EARLY ADVOCATE OF DOLLARIZATION?

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recibido: 22 de noviembre 2022
aceptado: 19 de enero 2023

Abstract: Milton Friedman's longstanding advocacy in favor of floating exchange rates has contributed to a mistaken belief that he opposed currency board regimes or outright dollarization. Nothing could be further from the truth. Over a period of almost five decades Friedman consistently made it clear that he favored floating exchange rates for advanced nations but not for developing nations. In fact, he was one of the earliest advocates of dollarization for countries suffering from high and chronic inflation such as Argentina. Interestingly, it is rarely known that one of the earliest debates on the advantages and disadvantages of dollarization and currency boards took place in 1973 in Washington, D.C., during a Congressional Hearing which pitted Friedman against Argentine economist Ricardo Arriazu. The purpose of this brief note is to trace the evolution of Friedman's thinking on the subject from the mid 1950s until his death and the events that influenced it.

Keywords: Milton Friedman, Foreign Exchange Rate Regimes, Currency Boards, Dollarization, Monetary Policy, Argentina.

Resumen: La conocida posición de Milton Friedman a favor de los tipos de cambio flotantes ha contribuido a la errónea creencia de que se oponía a los regímenes de cajas de conversión o de dolarización. En repetidas ocasiones a lo largo de cinco décadas

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Friedman dejó en claro que estaba a favor de los tipos de cambio flotantes para las economías avanzadas pero no para las naciones en desarrollo. De hecho, fue uno de los primeros defensores de la dolarización en países que con tasas de inflación altas, persistentes y volátiles como la Argentina. Uno de los primeros debates sobre las ventajas y desventajas de una dolarización tuvo lugar en 1973 en Washington, D.C., durante una audiencia en el Congreso entre Friedman y el economista argentino Ricardo Arriazu. El propósito de esta breve nota es rastrear la evolución del pensamiento de Friedman sobre esta cuestión desde mediados de la década de 1950 hasta su muerte.

Palabras clave: Milton Friedman, regímenes cambiarios, cajas de conversión, dolarización, política monetaria, Argentina.

JEL Codes: B2, B17, B3, B22, B27, F31, F32, O24.

So, the whole reason why tying to a major currency would be an advantage to Argentina is that precisely that it would prevent them from following bad domestic monetary policies.

Milton Friedman (1973)

If I were an Argentinean, I'd be opposed! It means Argentina accepts U.S. monetary policy. It's the same as the euro. Argentina would deny itself monetary tools.

Milton Friedman (1999)

Introduction

Milton Friedman's longstanding advocacy in favor of floating exchange rates has contributed to a mistaken belief that he opposed dollarization or currency board regimes. Nothing could be further from the truth. Starting in 1963 and for over four decades Friedman made it abundantly and publicly clear that he favored floating exchange rates for advanced nations but not for developing countries. In fact, he was one of the earliest public advocates of dollarization or currency board regimes for the latter. He considered "a floating rate as a second-best solution and a pegged rate as very much worse than either" (1972b, p.64). In Friedman's view, it was always better for developing countries to have open and transparent taxation "than to have taxes imposed implicitly without legislative enactment by the rate of money creation" (ibid., p.64). Friedman called these regimes as "unified currencies" since they implied "unifying" the currency of one country to another's stronger one. He didn't specifically argue in favor of choosing the dollar as the currency. It only had to be the currency of a country with stable prices. He considered Hong Kong and Panama as variants of such a regime.

Hanke (2008) and Edwards (2020, 2021) provide an excellent overview of Friedman's position on exchange rates over his long career, particularly for developing countries. In this brief note I will expand on their work focusing specifically on the evolution of his advocacy of unified currency systems. I also bring to light a relatively unknown but interesting exchange on the subject between Friedman and Argentine economist Ricardo Arriazu during a 1973 Congressional Hearing. This exchange anticipated many of the issues that would be at the center of the debate on foreign exchange rate regimes in the following decades. Although at first sight it seems Friedman maintained a consistent position, in the last years of his life he equivocated and even contradicted himself. The introduction of the euro posed a challenge Friedman's notion of unified currencies that he never managed to satisfactorily resolve.

From Floating Rates to Unified Currencies (1953-1963)

In his classic 1953 essay, Friedman made a strong case in favor of floating exchange rates. It was a cause he would consistently champion until his death.

> A system of flexible or floating exchange rates — exchange rates freely determined in an open market primarily by private dealings and, like other market prices, varying from day to day — [is] essential for the fulfilment of our basic economic objective: the achievement and maintenance of a free and prosperous world community engaging in unrestricted multilateral trade (Friedman, 1953, p.157).

However, Friedman also said that he did not object to areas of fixed exchange rates such as the pound sterling area if the government did not impose exchange controls. One could argue that he was not so much advocating floating exchange rates per se as but floating exchange rates as the fastest means to eliminate exchange controls, which in his view were hampering trade.[2] In fact, Friedman's treatment of the "sterling area" problem foreshadowed his notion of a unified currency regime.

> In principle there is no objection to a mixed system of fixed exchange rates within the sterling area and freely flexible rates between sterling and other countries [currencies], provided that the fixed rates within the sterling area can be maintained without trade restrictions. And it may well be desirable to take the attainment of such a mixed system as the immediate goal of policy (ibid, p.193).

Such a system, Friedman explained, would require "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 structures" (ibid., p.194).

[2] Thanks to Kurt Schuler for pointing this out.

Friedman reiterated this position in favor of flexible exchange rates in *Capitalism and Freedom*: "There are only two mechanisms that are consistent with a free market and free trade. One is a fully automatic international gold standard. This, as we saw in the preceding chapter, is neither feasible nor desirable. In any event, we cannot adopt it by ourselves. The other is a system of freely floating exchange rates determined in the market by private transactions without governmental intervention. This is the proper free market counterpart to the monetary rule" (Friedman, 1962b, p.61). Basically, in the context of Mundell's trilemma, Friedman favored a system with full capital mobility, floating exchange rates and a monetary policy that followed a strict rule.

As part of an official mission sent by the Eisenhower Administration, in 1955 Friedman traveled to India to advise the government on economic issues (Edwards, 2020). His advice was summarized in a 11-page memo he submitted to the Nehru government in November of that year. Friedman was extremely critical of India's highly controlled exchange rate regime and proposed a scheme to turn the rupiah into a convertible currency (ibid., pp.8-9). However, he made no mention of a unified currency regime.

As Edwards (2020) has pointed out, at this time Friedman had a limited understanding of the currency and monetary issues facing developing countries. His perspective was entirely US centric and rather simplistic. When it came to choosing a foreign exchange regime, Friedman only considered three options: 1) a fixed exchange system such as the gold standard that prevailed until 1914, 2) pegged systems a la Bretton Woods, and 3) a freely floating exchange rate system (which did not exist any advanced country except Canada between 1952 and 1960). He considered the first system unfeasible and the second requiring widespread government controls one prone to recurring balance of payments crisis. That left floating rates as the only acceptable and realistic option for those who favored free markets.

Over the next decade two factors may have contributed to gradually change (enrich) Friedman's perspective on foreign exchange rate regimes. First, he started visiting developing countries and became acquainted with a variety of monetary regimes.[3] Particularly important was his week-long stay in Hong Kong in 1963. Second, an ongoing debate with other economists of classical liberal persuasion at the meetings of the Mont

[3] Friedman's internationalization probably also benefited from his interaction with a growing body of mostly Latin American students at the University of Chicago.

Pelerin Society (MPS). Notably among them was Frenchman Jacques Rueff, “an eminent fellow member” whose reputation as a monetary expert at the time eclipsed that of Friedman, at least in Europe. Rueff championed a return to the gold standard and was strongly against floating exchange rates (Rueff, 1963 and 1972, p.83).

In “Real and Pseudo Gold Standards” (1961) Friedman refuted Rueff’s arguments in favor of a return to the gold standard (without naming him) –he instead associated these arguments to Philip Cortney, another fellow member of the MPS and gold enthusiast– and further developed the ideas that would eventually lead him to recommend a system of “unified currencies”.

> Current proposals to link national currencies rigidly to gold whether at present or higher prices arise out of a confusion of two very different things: the use of gold as money, which I shall call a “real” gold standard; governmental fixing of the price of gold, whether national or international, which I shall call a “pseudo” gold standard (Friedman, 1961, p.67).

According to Friedman the problem with the gold standard (or any other commodity standard for that matter) was that it was not feasible in its ideal form and instead always tended “to develop in the direction of a mixed system containing fiduciary elements such as bank notes, bank deposits, or government notes in addition to the monetary commodity”, i.e., a pseudo gold standard (1962a [1968], pp.175-176).

In 1963 Friedman returned to India to give a series of lectures. He again criticized the prevailing system of pegged exchange rates and forcefully argued that “the appropriate solution is to stop pegging the price of foreign exchange. Let anybody buy and sell foreign exchange at any price mutually agreeable to buyer and seller. Remove import controls, remove subsidies on export and let there be a free market in foreign exchange” (Friedman, 1968, p.57). Although there was much discussion in the subsequent Q&A about exchange rates, at no point did Friedman implicitly or explicitly recommend fixing the rupiah’s rate of exchange to the dollar or the pound sterling. It seems that at this point he still hadn’t fully developed his notion of a unified currency regime.

Friedman’s second visit to Hong Kong during his 1963 Asian tour marked a watershed in his thinking. It not only had an impact on his views on exchange rates but on his overall worldview, as he encountered in the British colony an ideal model of a free market economy (Peck, 2021).[4] Friedman recalled in his memoirs:

> At the time, the Hong Kong dollar was pegged to the pound sterling: HK$16 to £1. I was interested in the financial mechanism by which the link was maintained. I discussed the issue with economists at the U.S. Consulate General and a number of both foreign and domestic bankers. None of them had a clear idea of how the system worked, but by the time I had finished checking with them, I thought I did (Friedman and Friedman, 1999, p.318).

Friedman was an empiricist and Hong Kong's currency regime offered a strong empirical refutation of the view on exchange rates that he had stated in his 1953 essay and in *Capitalism and Freedom*: it was indeed possible to have an absolutely free economy and fixed exchange rates. New facts emerged and Friedman changed his mind.

Two years later, in 1965, Friedman introduced his idea of a unified currency regime at a meeting of the MPS.[5]

> The crucial distinction made in my earlier paper [Friedman, 1961] is between a unified currency and a collection of separate currencies linked to one another at pegged rates, whether through the mechanism of gold or not. The use of precisely the same currency in different areas—as of the U.S. dollar in different states of the United States or of the pound sterling in different parts of the United Kingdom —is the most obvious example of a unified currency. However, a situation in which different areas attach different names to the currency or use pieces of paper with different pictures or printed in different languages can, from an economic point of view, also represent a unified currency. It will do so if the different names are simply designations for a common medium into which all the local currencies are continuously convertible at specified and unchangeable terms, without question and without discretion on the part of any political authority (Friedman, 1965 [1968], p.267).

According to Friedman, the gold standard that prevailed between 1879 and 1914 "came close" to a unified currency regime and the Hong Kong dollar "was a unified currency with the British pound" (ibid. p.268). "The decisive economic characteristic of a unified currency," he added, "is precisely that transfers of currency take place automatically, requiring no administrative action to effect them, and not being interfered with by such

[4] Friedman had stopped over in Hong Kong very briefly on his first visit to India in 1955 (see Peck, 2021).
[5] At this same meeting Cortney presented a proposal to reprice gold and return to the gold standard.

administrative action" (ibid., p.269). Friedman considered that this automaticity was a critical feature of a unified currency regime, as it explained why balance of payments crises could not arise under such system:

> One area may have economic difficulties or may experience declining prices; its residents may become poorer, and some may go bankrupt; but as an area, it cannot have a balance of payments problem. There can never be any more of a problem about how to effect international or interregional payments than about how to effect domestic payments; indeed, it is not easy to distinguish the one problem from the other. Illinois has no balance of payments problem—it does not even have statistics from which it could tell whether it is experiencing a deficit or a surplus in its out-of-state payments. And Hong Kong is in precisely the same position (ibid, p.269).

Shifting from such a system to a system of national currencies with pegged rates, requiring "the intervention of an administrative agency, generally a national central bank" would inevitably lead to a balance of payments crises. In fact, in a unified currency system the central bank would become a "superfluity" (p.270). Friedman easily reconciled his support of a unified currency regime with his earlier advocacy in favor of floating exchange rates.

> The basic fact is that a unified currency and a system of freely floating exchange rates are members of the same species even though superficially they appear very different. Both are free market mechanisms for interregional or international payments. Both permit exchange rates to move freely. Both exclude any administrative or political intermediary in payments between residents of different areas. Either is consistent with free trade between areas, or with a lessening of trade restriction" (ibid, p.271).

In contrast, Friedman considered that any system linking currencies directly through pegged exchange rates or indirectly through gold or a system of "variable exchange rates, controlled and manipulated by governmental bodies, either through an adjustable peg or day-to-day operations" were members of "the same "interventionist species" (ibid., pp.271-272).

As a classic liberal, Friedman rejected government controls and intervention on the foreign exchange markets and favored full capital mobility. Since historically a) most developing countries had mismanaged their monetary policy (i.e., they experienced high and chronic inflation) and b) returning to the gold standard was not an option, the only other alternative open to a developing country which was consistent with his liberal principles was a fiat standard (adopting the currency and therefore the monetary rule of an advanced country), i.e., a unified currency regime.

In 1967 Friedman participated in a debate over free versus fixed exchange rates with Robert Roosa at the American Enterprise (Friedman and Roosa, 1967). In his speech Friedman introduced the idea of a dollar area:

> I think it highly likely that if we announced that our government will no longer intervene in the exchange market, a fair number of other countries would peg their currencies to ours. I see no harm in that and much good. Perhaps we could begin to build up a truly unified currency area—not a collection of national currencies linked by pegged rates. A system of floating exchange rates has basically much more in common with a real gold standard—in that both leave private individuals free to buy and sell currencies as they wish and both are free of government intervention—than either has with our present system (ibid., p.6).

Friedman's statement provoked a reaction in the audience, which included several well-known economists. Among them was Gottfried Haberler who in the Q&A sessionadmitted his "surprise" at hearing that Friedman would be "in favor of fixed exchange rates" (ibid., p.186). Haberler then asked what would happen under a unified currency system if one country grew faster than another and whether under those circumstances floating rates would not be preferrable. Friedman replied in the affirmative to that latter but pointed out that under the system he proposed –a real gold standard– "the adjustment would be so gradual and slow that you would not in fact have a major problem of the kind you are suggesting… the problem would be what it now is among the different areas of the United States, where major discrepancies do no accumulate" (ibid., pp.187-188).[6] He then openly suggested a dollarization or currency board system tied to the dollar:

> The point is that it makes a great deal of sense for these other countries to tie themselves to the dollar in the sense of unifying their currency with the dollar— provided we adopt a reasonably stable internal policy. Of course, if we are foolish and stupid, if we let ourselves in for another crisis such as was suggested before, well then, they would be very smart to break the tie with the dollar. But so long as we maintain a reasonably stable internal policy, it makes a great deal of sense for smaller countries for whom

[6] As well shall see below, he contradicted himself in a debate with Mundell many years later.

> foreign trade is a large part of their total trade to tie themselves to the dollar (Friedman and Roosa, 1967, p.121).

Basically, Friedman argued that for most developing countries the dollar was the best currency. In *Dollars and Deficits* (1968), Friedman developed further the notion of a unified currency system: "such system does not exist today on a worldwide scale though it still exists among the different states of the U.S., between Britain and some of its colonial territories, like Hong Kong, and in many similar cases" (ibid., p.222). However, he wondered if perhaps "we could begin to build up a truly unified currency area—not a collection of national currencies linked by pegged rates. A system of floating exchange rates has basically much more in common with a real gold standard—in that both leave private individuals free to buy and sell currencies as they wish and both are free of government intervention (ibid., p.231)".

From the Horowitz Lectures to the Congressional Hearing of 1973

By the end of the 1960s Friedman had become fully convinced that, under most circumstances, a unified currency was "probably" the optimal foreign exchange regime for a developing country, particularly, but not exclusively, those that were small or suffered from chronic monetary mismanagement. He made a strong and unequivocal argument in favor of the implementation of such a system in a series of lectures he delivered in Israel in 1972 (Friedman, 1972a and 1972b).

At the time, the idea that inflation promoted development (or at least was associated with it) was very much in vogue. Friedman rejected this notion. In his view, inflation went hand in hand with greater governmental controls and intervention which discouraged private investment, often fostered capital flight and led "to economic waste and inefficiency" (ibid., p.269). The best recipe for development was price stability.

> The surest way to avoid using inflation as a deliberate method of taxation is to unify the country's currency with the currency of some other country or countries. In this case, the country would not have any monetary policy of its own. It would, as it were, tie its monetary policy to the kite of the monetary policy of another country—preferably a more developed, larger, and relatively stable country. Hong Kong is the obvious example. Hong Kong is an obvious example. It has no central bank, no independent monetary policy (p.270)

A few paragraphs later he made an unqualified recommendation that developing countries –of any size– adopt a unified currency system:

> For most such countries [developing countries], I believe the best policy would be to eschew the revenue from money creation, to unify their currency with the currency of a large, relatively stable, developed country with which they have close economic relations, and to impose no barriers to the movement of money or of prices, wages, or interest rates. Such a policy requires avoiding a central bank (ibid. p.277).

Friedman saw two other advantages from following this course of action. First it accorded full freedom to individuals. Second, it reduced the dangers of "monetary mischief" by the government or the central bank. However, he recognized that its implementation entailed political problems:

> While the use of a unified currency is today out of fashion, it has many advantages for development, as its successful use in the past and even at present indicates. (Indeed, I suspect that the great bulk, though by no means all, of the success stories of development have occurred with such a monetary policy or absence of monetary policy.) Perhaps the greatest advantage of a unified currency is that it is the most effective way to maximize the freedom of individuals to engage in whatever transactions they wish. Second, while the major countries are capable of policy that seems unwise to many of their residents and to professional economists, yet they are likely to have far stabler and less erratic policies than the smaller, newer, less-established developing countries. Hence, a unified currency is likely to reduce the possibility of unwise governmental policy. Third, a unified currency assures a maximum degree of integration of the country in question with the greater world. However great these advantages, the brute fact is that few countries are willing to accept the discipline of a unified currency and to refrain from establishing a central bank (ibid., pp.271-272).

In the Q&A session that followed Friedman was asked to clarify his position with respect to Israel. His response left no room for doubt: "a unified currency" was the best solution, "with a floating rate as a second-best solution and a pegged rate as very much worse than either" (1972b, p.64).[7]

The following year Friedman was invited to expound his views on exchange rate systems at a Congressional Hearing convened by the Committee on International Economics to

[7] In 1970, Israel's GDP was twice the size of Hong Kong's and 20% of that of Argentina.

evaluate the functioning of the regime that had emerged after the collapse of Bretton Woods. The Committee also invited Allan H. Meltzer, from Carnegie Mellon and Ricardo Arriazu, an Argentine economist who at the time was Alternate Executive Director of the IMF in representation of Argentina, Bolivia, Chile, Paraguay and Uruguay.

Arriazu was asked to provide a developing country perspective of the new exchange rate system and spoke first. In his testimony he argued that the "present system" had been "detrimental for the developing countries" and proposed instead a crawling peg or sliding parities. However, he clarified that "if floating were to continue to play an important role in the reformed international monetary system," he said, "it should be subject to strict international surveillance" (U.S. Congress, 1973p.114).

An interesting exchange then ensued between Friedman and Arriazu the advantages and disadvantages of floating rates and unified currencies that anticipated the debates over the euro and dollarization. The arguments of both sides are still relevant today, particularly in Argentina, where dollarization is now being debated as a long-term solution to chronic high inflation.

In his testimony Friedman made two important points. First, the introduction of floating exchange rates had "facilitated rather than impeded international trade and investment transaction" which confirmed the arguments he had made over the years. Second, he advocated a floating rate system for advanced countries but not for developing countries:

> With respect to the point which Mr. Arriazu has just made let me say at the beginning, before I go on to my own statement, that while I have long been in favor of a system of floating exchange rates for the major countries, I have never argued that that is necessarily also the best system for the developing countries. Indeed, in April of last year I gave a series of lectures in Israel which are shortly to be published in book form on the problem of monetary policies for developing countries. And in these lectures, I recommended as probably the optimum policy under current conditions for a developing country that it peg its exchange rate to its major trading partner rather than have a floating system. So, I believe there is no conflict between wholehearted advocacy of floating rates for major countries and the existence of currency blocs of smaller countries attached to the major countries (US Congress, 1973, p.115)/

Friedman also argued against the use of gold as a monetary standard, although he made concession to Rueff:

> I do not rule out the possibility that gold may at some future time regain an important monetary role. It will do so if, and only if, governments, and the US Government in particular, manage their national moneys in a highly irresponsible fashion. But for the present gold is simply a speculative commodity with the special feature that governments own large quantities (ibid., p.116).

Following Meltzer's testimony –which basically in favor of floating rates and no government intervention– the Committee's Chairman turned to Friedman and asked him how could a "less-developed country tie to a major currency for which it has an affinity without intervention?". The answer was simple, said Friedman:

> The best and most effective way is to use that currency. Panama is a good case in point. It uses the American dollar. No official intervention is necessary. That is to say, what you want is a unified currency –and this goes very much along of what Professor Meltzer was saying — the ideal, I would think, would be a strictly unified currency. That is essentially what the United States did in the 19th century. We essentially used, along with Britain, a single currency, namely gold. We gave it the name dollar, and they gave it the name sterling, but essentially it was a single money.

If a country wasn't ready to dollarize its economy, the next best system in Friedman's view was a currency board. Interestingly, he mentioned Hong Kong as the classic example, but suggested that it was a system that could be used by a developing country suffering from high inflation such as Argentina:

> The next best thing if a country is going to insist on having a currency with its own name is to do what Hong Kong for example did for many years. It issues a Hong Kong dollar. Of course, that Hong Kong dollar was rigidly linked to the pound sterling in the sense that anybody could get Hong Kong dollars at a fixed rate with respect to sterling, or anybody could get sterling for Hong Kong dollars by turning in the dollars. And in fact, the Hong Kong Currency Board maintained a 100 percent reserve for its currency in terms of sterling. So essentially the alternative to a developing country is to avoid speculation by having essentially the currency of a large trading partner for its currency. It may if it wishes for national pride, and soon, give it another name and call it an Argentina peso instead of a U.S. dollar, or an Israel pound instead of a British pound (ibid., p.126).

The Chairman of the Committee then turned to Arriazu and asked his opinion about these ideas:

> I would very much agree with him [Friedman] that if we could have an international currency, one currency for the whole world, this would be a very ideal situation. But I would very much hope that this is not the national currency of one country, but an international currency managed by international authorities (ibid., p126).

What Arriazu described in this last sentence is a currency regime similar to the eurozone. This comment prompted the Congressman to ask him if under Friedman's scheme there was a "danger" of establishing a "master-slave relationship" between the currency issuing country and the currency adopting country.

> More than that, Mr. Chairman. The point is that even though we could use, let's say, one currency which is not our own to manage our domestic affairs, the problem that we would have there is that we would not have the same degree of freedom that we have now internally. It is not only a political question but also an economic question related to changes in the amount of money domestically. And the third point that I will stress here is that if we are tied to one currency and used this currency as our main intervention and domestic money, then we would actually be having an adjustment process which is very similar to the gold standard where domestic deflation and inflation would be the adjustment processes of the system. So, beside the political reason, I wouldn't favor this solution on economic grounds (ibid., p.127).

In his response to Arriazu's objections, Friedman made a very important point: one of the most important reasons for a country to adopt a unified currency system such as dollarization or a currency board was a history of bad economic policies such as Argentina:

> …what Mr. Arriazu has pointed out as disadvantages are really advantages. The whole reason why it is an advantage for a developing country to tie to a major country is that historically speaking the internal policies of developing countries have been very bad. U.S. policy has been bad, but their policies have been far worse. There are no gyrations in American monetary policy which can hold a candle to the gyrations which have occurred in Argentinian domestic monetary policy. So, the whole reason why tying to a major currency would be an advantage to Argentina is that precisely that it would prevent them from following bad domestic monetary policies. They would have less of an adjustment problem simply because our policy will prove to be more stable than theirs (ibid, p.127).

With respect to the other alternative proposed by Arriazu –"a transnational central bank issuing a common currency for its members"– Friedman's response was also emphatically negative: “heaven forbid an international, unified currency which is managed by an international central bank” (ibid, p.127). He (wrongly) believed the probability of such scenario was negligible, as no major country would ever accept having its economy dominated by decisions taken independently by a supranational bank which it did not approve.

> There is all the difference in the world between countries accepting the same currency –gold, as they did in the 19th century– not subject to management by some group of people but limited in supply by physical circumstances, and their accepting an internationally politically managed currency (Friedman, 1973, p127).

Consistent with this position, during a visit to Yugoslavia a few months later Friedman recommended unifying the dinar with the deutsche mark (Edwards, 2020, p.13).

A Champion of Currency Boards

In subsequent years Friedman did not stray from these views. He favored floating exchange rates for advanced countries and unified currencies for developing countries and was against a) returning to the gold standard, b) pegged rates a la Bretton Woods, and c) an international currency with a supranational central bank. Friedman believed a crawling peg system was superior to a fixed exchange rate system (particularly if it adjusted for domestic inflation) but nevertheless considered it sub-optimal and prone to crises (Edwards, 2020, pp.13, 14).[8]

Consistent with these views, Friedman played an active role in advising the British government in the 1983 reform of the Hong Kong currency system and in the early 1990s and publicly supported the establishment of currency boards in Eastern Europe as well as in Argentina (Edwards, 2021, p.23).

> The experience of Hong Kong clearly indicates that a particular country like Hong Kong does not need a central bank. Indeed, it has been very fortunate that it has not had one. The currency board system that was introduced in 1983 has worked very well for HK and I believe it is desirable that it be continued” (Friedman, 1994, p.55)

[8] Edwards has pointed out he seemed to have implicitly supported Chile’s crawling peg system by not openly criticizing it during a visit he made to this country in 1981 when it was evidently clear that it was unsustainable (Edwards, 2020, p.12). A slightly more extended version of this debate was published in Friedman and Mundell (2001).

It seems that Friedman had serious misgivings about mixing a currency board with a central bank. Steve Hanke recalled a conversation they had in mid-1992, after Argentina's currency board had been in operation for a year. In Friedman's view, the Achilles' heel of the Convertibility Plan was the central bank. "Even though the system had worked well so far," Hanke wrote, "Friedman thought that the central bank would eventually adopt a discretionary monetary policy and convertibility would get into trouble" (Hanke, 2006, p.279). However, in comments he made in 2000, when Argentina's convertibility was already reeling under pressure, he made no distinction between the exchange rate regimes of both countries

> My position has always been that a small country should do one of two things: eliminate its central bank and really hard peg—that is, unify its currency with the dominant currency the way Argentina has done with its currency board and Hong Kong has done with its currency board; or it ought to float completely" (Bank of Canada, 2000, p.418).

The Euro Challenge

The introduction of the euro challenged Friedman's notion of a unified currency and eventually led him to equivocate. In 1989, as the prospect of European currency integration loomed, Friedman published an article in the *Financial Times* with the same title as his famous 1953 paper. Titled "The Case for Floating Exchange Rates", in it he made the case for a unified currency and against an international currency with a supranational bank.

> Discussions of the prospects for a monetary union within the Common Market have generally scanted the difference between two superficially similar but basically very different exchange rate arrangements. One arrangement is a unified currency: the pound sterling in Scotland, England, and Wales, and at an earlier date, in Ireland as well; the dollar in the 50 states of the United States and in Panama. A slightly more complex example is the Hong Kong dollar much earlier when it was unified with the pound sterling by means of a currency board that was ready to convert the one into the other at a fixed rate, keeping in reserve an amount of sterling equal to the sterling value of the outstanding Hong Kong dollars. An alternative arrangement is a system of exchange rates between national currencies pegged at agreed values, to be maintained by the separate national central banks by altering ("coordinating" is the favorite term) domestic monetary policy appropriately.

Friedman had long believed that a "true economic unification" of Europe was only possible "in conjunction with a system of freely floating exchange rates." The evidence of many decades had reaffirmed this view, but also made him "far more skeptical that a system of freely floating exchange rates is politically feasible". Even though Central banks always "messed things up", a "dirty floating exchange rates seem to me preferable to pegged rates, though not necessarily to a unified currency" (Friedman, 1989). The following year, in an article on *The National Review* he insisted on the distinction between the euro and a unified currency system, "two superficially similar but basically very different exchange-rate arrangements" (Friedman, 1990).

In 1991 at the city of Maastricht, twelve European countries signed a treaty that laid the ground for the eurozone giving Friedman another opportunity to state his views on exchange rate regimes. At first sight, his opposition to the euro was consistent with his 1973 Congressional testimony, in which he deplored the idea of a universal currency and a supranational central bank. In an interview he gave in 1992 at the Minneapolis Fed he tried not very successfully to make a distinction between a unified currency and a unified money.

> I do not believe that at the moment, a single European currency is either feasible or desirable. Let me restate that. It would be highly desirable if Europe could have a common money, a single unified money, just as it's desirable for the United States that we have a single unified currency. But in order for that to be possible or desirable, you have to have a unified currency over an area in which people and goods move relatively freely, and in which there is enough homogeneity of interest so that severe political strains are not raised by divergent developments in different parts of the area. Now come to Europe. Will there be as much tolerance for that kind of an adjustment as between France, on the one hand let's say, Germany, Italy, Spain, Sweden, and so forth? I'm very dubious that those preconditions for a successful unified currency exist on the European continent. That's looking at the ultimate.
>
> Now consider the process you have to go through to get to a unified currency. In order to have a truly unified currency, not a collection of separate national currencies joined by temporarily fixed exchange rates like the European Monetary System or the International Monetary Fund was in its earlier days –in order to have a truly unified currency, you either need to have no central bank, as with a commodity currency like a gold standard for example, or you need to have at most one true central bank: one authority that can issue money. In the United States that authority is

> the Federal Open Market Committee of the Federal Reserve System… In order to have a comparable situation in Europe, you have to eliminate the Bank of France, the Bank of Italy, the Deutsche Bundesbank, the Bank of England and so forth. You have to have one true central bank with full authority (Friedman, 1992b).

Friedman was skeptical that Europe could create such an institution "to call for something is one thing, to do it is a very different thing" (Friedman, 1992b). Even though he turned out to be wrong, his opposition to the euro never wavered.

A few years later, when the plans for the creation of the ECB were well in advance, he argued that Europe "exemplified a situation unfavorable" to the creation of a unified currency. "It is composed of separate nation states, whose residents speak different languages, have different customs, and have far greater loyalty and attachment to their own country than to the common market or to the idea of 'Europe'." Also, regulation on private sector activity was not only excessive but highly fragmented and "as a result, wages and prices in Europe are more rigid, and labor is less mobile". In such circumstances, he believed "flexible exchange rates provide an extremely useful adjustment mechanism". Finally, the Eurozone lacked a unified political system, i.e., fiscal policy was determined at the country level. Friedman took a very pessimistic view of the future of the euro. "The drive for the euro has been motivated by politics, not economics. The aim has been to link Germany and France so closely as to make a future European war impossible, and to set the stage for a federal United States of Europe. I believe that adoption of the euro would have the opposite effect. It would exacerbate political tensions" (Friedman, 1997).

Beyond all these arguments and the distinctions, he tried to make between the eurozone and a unified currency regime, it seems that Friedman's antipathy towards the euro was his in great part driven by his antipathy to the idea of an independent supranational central bank. One thing that Friedman feared more than a central bank was an independent central bank. In his view the latter embodied the "very appealing idea that it is essential to prevent monetary policy from being a day-to-day plaything at the mercy of every whim of the current political authorities." However, it was not desirable for a variety of "strong" economic, technical, and political reasons (Friedman, 1962 [1968], pp.177, 180-190). But even if one accepted this proposition, his objection to the euro was logically inconsistent with his support for unified currency regimes: any member of the eurozone –even small ones like Portugal– would have more influence over the ECB than Panama or Hong Kong could have over the Fed.[9]

In 1998 a succession of crisis in Southeast Asia put Mundell's trilemma at the forefront of the debate over which exchange rate regime was best for developing countries. Krugman and Stiglitz led the charge in favor of capital controls. Consistent with his earlier views, Friedman supported free capital movements under two alternative systems:

> One is to fix the exchange rate, by adopting a common or unified currency, as the states of the U.S. and Panama (whose economy is dollarized) have done and as the participants in the Euro propose to do, or by establishing a currency board, as Hong Kong and Argentina have done. The key element of this alternative is that there is only one central bank for the countries using the same currency: the European Central Bank for the Euro countries; the Federal Reserve for the other countries. Hong Kong and Argentina have retained the option of terminating their currency boards, changing the fixed rate, or introducing central bank features, as the Hong Kong Monetary Authority has done in a limited way. As a result, they are not immune to infection from foreign-exchange crises originating elsewhere. Nonetheless, currency boards have a good record of surviving such crises intact. Those options have not been retained by California or Panama and will not be retained by the countries that adopt the Euro as their sole currency (Friedman, 1998).

In Friedman's view, the fact that Panama was dollarized, not integrated to the US economy and had surrendered its monetary policy to a politically independent supranational central bank –the Federal Reserve Board– did not pose any challenge to his notion of a unified currency regime. Why what was good for Panama was not good for Portugal or Spain? The only possible distinction with the euro was that Panama was a very small country. In his memoirs published in 1999, co-authored with his wife Rose, Friedman devoted a few paragraphs to unified currencies and explained that they made sense for "small" countries (Friedman and Friedman, 1999, p.221). However, neither Hong Kong nor Argentina qualified as small at the time.

In an interview he gave in early 1999 he was asked to clarify his position on exchange rate regimes given the recent turmoil in Southeast Asia. "My position has been that there are three alternatives: a really flexible exchange rate, a pegged exchange rate, or a truly

[9] It was also inconsistent with his support of the sterling area without trade restrictions (Friedman, 1953, p.193).

unified exchange rate." When asked to clarify what he meant by the latter he said the following:

> A common currency or the equivalent. What I have always argued is that, for major countries, a floating exchange rate is almost surely the best solution. For smaller countries the best solution is what I call a unified currency, or what has come to be called a currency board. In such a case the community links its currency to that of its major trading partner. But for that to work there must be no central bank. And if the country insists on having a central bank, then it should have a floating currency. An example of the unified currency in its fullest form is Panama, which essentially uses the US dollar as its currency. It has its own currency, but its value is set at one to one. Panama is an extreme case; it uses the dollar as its currency and that has worked very well for a long time. More recent examples are Hong Kong with its currency board and Argentina with a currency board. In Hong Kong's case, its currency is unified with the United States. The advantage of a currency board, rather than simply using the US dollar, is that Hong Kong can get the seigniorage on its currency (Friedman, 1999a, p.50).

Friedman emphasized that in the case of a currency board tied to the US dollar –like the ones existing at the time in Argentina and Hong Kong– "what happens to its quantity of money depends entirely on Federal Reserve policy in the United States. It has no independent monetary policy" (ibid., p.50).

In January 1999, Brazil devalued its currency triggering another crisis in emerging markets. Argentina was particularly hard hit. Due to the lingering uncertainty about the peso since the Thailand crisis, the Argentine government had been evaluating for some time the possibility of dollarizing the economy. In response to the devaluation of the real, President Carlos Menem publicly announced that the Argentine government would adopt the dollar as legal tender (it never happened).

To dollarize or not to dollarize? That is the question

A few months later, in August 1999, Friedman gave an interview to Peter Brimelow at *Forbes Magazine* in which he was specifically asked whether he supported Argentina's dollarization (Friedman, 1999b). Friedman's answer was not only internally contradictory but also inconsistent with positions he had consistently defended over the previous three decades. He first said: "If I were an Argentinean, I'd be opposed! It means Argentina accepts U.S. monetary policy. It's the same as the euro. Argentina would deny itself monetary tools." But in the interview that took place six months earlier he had clearly stated that a currency board implied accepting U.S. monetary policy and that such system had worked well for both Hong Kong and Argentina.[10] He had also reiterated at that time that dollarization was the extreme case of a unified currency. Finally, Friedman said that this system, although superficially like the euro, was fundamentally different. He wrapped up his answer contradicting himself again: "if U.S. monetary policy continues to be good, [dollarization] probably it's desirable" (Friedman, 1999b). In other words, he seemed to think that improving the relative quality of monetary policy was an important criterion for dollarization. At least this last statement was consistent with his position in the debates with Roosa in 1967 and Arriazu in 1973.

Brimelow then asked how integrated were the Argentine and the US economies and of not whether this could be an obstacle to dollarization. Friedman replied that they were not particularly integrated. "There's a much better case for [dollarization in] Canada", which was not entirely inconsistent with the "small country" criteria. Also, if improving the quality of the monetary policy was an important criterion, then dollarization made a lot more sense for Argentina than for Canada. "As an economic matter, it [dollarization] makes sense. I'm not sure it makes sense as a political matter." As a pragmatist, Friedman placed a lot of weight on the political viability of any currency regime.

The last statement Friedman made on the possibility of dollarizing the Argentine economy is even more puzzling given his earlier positions: "Currency is a very important symbol of sovereignty. And it seems to me a nation, if it's going to stay a nation, needs as many symbols of sovereignty as it can possibly have" (Friedman, 1999b). This was probably the most unFriedmanite statement he ever made. Rafael Correa, the leftwing populist president of Ecuador, would make a similar argument against dollarization in his own country.

One may question Friedman's mental acuity at this time, since he was 88 years old. However, he seemed quite sharp in an interview he had a few months later with John Taylor (Taylor, 2001). In November 2000, he gave the keynote address at a conference organized by the Bank of Canada. In the Q&A that followed, Friedman was asked if a dollarization like the one Ecuador had implemented in January would "make any sense

[10] It is worth mentioning that in 1999, Hong Kong's GDP was roughly half the size of Argentina's but by no means it could be described as a "small" economy.

for a country like Canada?" His reply was unequivocal: "I think that it [dollarization] makes most sense for those countries who would otherwise have a very bad internal monetary policy" (Bank of Canada, 2020, p.418). The "small country" criterion was again subordinated to the quality of domestic monetary policy (an historical problem for Argentina). Then Friedman contradicted what he had told Brimelow a few months earlier about the prospects for dollarization in Canada:

> Now, it [dollarization] makes no sense for Canada. At the moment, it seems to me that if I were a Canadian, I would not want to integrate the Canadian dollar with the U.S. dollar. U.S. monetary policy hasn't always been so good. We're in a very good patch right now, but looking over our history, Canada did much better in the 1930s than the United States did, and it did better in the 1970s, as well. I would say that for a large country like Canada, it makes much more sense to float than it does to try to peg, to try to unify your currency with the dollar (ibid., p.418).

Friedman also seemed lucid in a debate he had with Robert Mundell on the future of the euro organized by a Canadian newspaper a few weeks later.[11] On this occasion, Friedman insisted with his trichotomy of FX regimes: "(1) hard fixed (e.g. members of Euro, Panama, Argentine currency board); (2) pegged by a national central bank (e.g., Bretton Woods, China currently); (3) flexible (e.g., U.S., Canada, Britain, Japan, Euro currency union)".[12] With respect to unified currencies he quoted his 1972 Horowitz lectures (Friedman, 1972a and 1972b). However, he added, incorrectly, that his recommendation back then only applied to "small" developing countries. In fact, during the Q&A he had explicitly recommended that Israel adopt such system (Friedman, 1972b, p.64).[13] Moreover, in the Brimelow interview he had suggested that dollarization made more sense for Canada than for Argentina even though the quality of the monetary policy was much higher in the former than in the latter.

With respect to the euro Friedman repeated his longstanding objections:

> The one really new development is the Euro, a transnational central bank issuing a common currency for its members. There is no historical precedent for such an arrangement. It involves each country's giving up power over its internal monetary policy to an entity not under its political

[11] This statement has to be put in context. The debate was done remotely and Friedman's responses were emailed to the moderator. In some instances, it seems evident that Friedman (or whoever wrote his answers) was "cutting and pasting" from previous articles. See Corcoran (2001).
[12] The euro was a hard fix for its members but floated against the rest.
[13] In 1972 Israel's GDP was roughly one fifth that of Argentina's and five times that of Panama.

> control. Such a system has economic advantages and disadvantages, but I believe that its real Achilles heel will prove to be political; that a system under which the political and currency boundaries do not match is bound to prove unstable.

The eurozone was the worst-case scenario Friedman had anticipated in his 1973 testimony to Congress (Friedman, 1973b, p.127). Although he was consistent in his opposition to such regime, he was not very clear about the reasons why it was different from other unified currency regimes.

The moderator then asked Friedman: "One of you once said that the choice of currency regimes is more of a political matter than an economic matter. Leaving aside political issues such as national sovereignty for the moment, what are the core economic principles we should apply in deciding whether to adopt fixed or flexible regimes?" Friedman replied that with respect to "hard fix a unified" currency regimes it would depend on the following factors: 1) the extent of bilateral trade, 2) wage flexibility in the adopting country, 3) worker mobility between both countries, 4) capital mobility between both countries. These are the criteria Mundell defined for an optimal currency area (Mundell, 1961).[14] Interestingly, Friedman added a fifth criteria to the list: how "good" the monetary policy in the currency adopter had been in relation to that of the country issuer and how "good" it was expected to be in the future. He then contrasted the case of Hong Kong and Argentina. In the former, according to Friedman the first four criteria were "favorable to a unified currency" (even though labor mobility was non-existent), whereas in the latter, the fifth criteria "was clearly the major reason for the adoption of a currency board tying the Argentine currency to the US dollar. Items 2, 3 and 4 are much less favorable than in Hong Kong. Limited flexibility and mobility are likely to subject the Argentine currency board to repeated tests. The resultant uncertainty and its effect on interest rates has led Argentina to consider replacing the currency board with dollarization" (Friedman and Mundell, 2001).

This paragraph suggests that in Friedman's view, when evaluating whether dollarization was the right choice for a particular country the quality of its monetary policy was a

[14] With respect to the first, Friedman correctly pointed out that the adoption of a unified currency "may have a major effect on the amount of trade" between the two countries, i.e., trade is endogenous to the currency system.

dominant factor. He had stressed this consideration in his 1973 debate with Arriazu and in fact mentioned Argentina as an example of a country to which it applied.

When asked the same question, Mundell replied that an "important part" of his disagreements with Friedman over exchange rates were the product of "linguistic" differences and argued that a currency board or dollarization (a "hard fix" in Friedman's trichotomy of regimes) were "viable alternatives for countries such as Canada, Mexico and other Latin American countries". In his view, a fixed exchange rate was essentially a monetary rule whereas a flexible exchange rate was the absence of such rule, which was consistent with both price stability and hyperinflation. A country with high inflation "should adopt a monetary rule because the high inflation rate is almost certainly due to excess growth of the reserve base of the money supply (usually fiscal deficits that have to be financed by the central banks)" (Friedman and Mundell, 2001, p.13). Mundell had "no objection" to the five criteria Friedman proposed to evaluate the adoption of a unified currency but clarified that "the overriding criteria for a workable currency area is that member countries agree on the target rate of inflation are willing to accept the arrangements for fixing the exchange rates and deciding upon the monetary policy that will bring about the common target rate of inflation about" (ibid., p.14). He thought another important consideration for fixing the exchange rate –one that Friedman in fact had also made in 1973– was the quality of monetary policy (which he measured by the average inflation rate). He highlighted several conceptual points that explained the "other important part" of his differences with Friedman: 1) the exchange rate is not an effective cushion against real shocks, 2) exchange rate flexibility is no substitute for price flexibility, 3) devaluation is not a good tool for increasing the level of employment and 4) exchange rate volatility was costly. In wrapping up, Mundell emphasized that countries that adopted dollarization or a currency board obtained "a rudder for its monetary policy, a stable rate of inflation, and discipline for its fiscal policy" (ibid., pp.25-26).[15]

Conclusion

Beyond a constant growth in the supply of money the other policy recommendation for which Milton Friedman is best known is the adoption of flexible exchange rates. However, since the mid-sixties until his death, Friedman held and defended the view that a currency board or dollarization regime, both of which he included in his definition of a

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[15] For an excellent summary of the differences between Friedman and Mundell see Harris (2001).

"unified currency" regime, were "probably" the optimal foreign exchange system under most circumstances for most developing countries. Although Friedman considered bilateral trade, wage flexibility and factor mobility were important when evaluating the adoption of such a regime, he also believed that price stability was an important factor. The introduction of the euro challenged Friedman's definition of a unified currency regime leading him to equivocate and contradict himself in the last years of his life.

What may explain these contradictions is that Friedman never explored the full implications of what he defined as unified currency regime. Probably because such regimes didn't have much empirical relevance, since until the early 1990s they only existed in relatively countries such as Panama and Hong Kong. Another possible reason is that the subject itself was peripheral to Friedman's main interests as a macroeconomist, which centered around monetary policy in the United States.

References

Arriazu, Ricardo. 1973. "Statement and Testimony", In U.S. Congress, Joint Economic Committee, Hearings before Subcommittee on International Economics, *How Well are Fluctuating Exchange Rates Working?*, pp. 114-120. 93rd Congress, 1st Session, 20-27 June 1973.

Corcoran, Terence. 2001. "'A couple of *prima donnas'*: managing Mundell-Friedman", *Policy Options*, May 21. Available at https://policyoptions.irpp.org/magazines/one-world-one-money/a-couple-of-prima-donnas-managing-mundell-friedman/

Edwards, Sebastian. 2020. "Milton Friedman and Exchange Rates in Developing Countries", NBER Working Paper No. 27975, October 2020.

Edwards, Sebastian. 2021. "Milton Friedman and Exchange Rates: History and Controversies", mimeo.

Friedman, Milton. 1953. "The Case for Flexible Exchange Rates." In M. Friedman (eds.), Essays in Positive Economics, pp. 157-203. Chicago: University of Chicago Press.

Friedman, Milton. 1961. "Real and Pseudo Gold Standards", *The Journal of Law and Economics*, Vol. 4 (October), pp. 66-79.

Friedman, Milton. 1962a. "Should there be an independent monetary authority?", pp. 173-194, in Friedman, M. 1968. *Dollars and deficits: inflation, monetary policy and the balance of payments*. Prentice-Hall.

Friedman, Milton. 1962b. *Capitalism and Freedom, 20th anniversary edition*. Chicago: University of Chicago Press, 1982.

Friedman, Milton. 1965. "The Political Economy of International Monetary Arrangements", pp. 266-279, in Friedman, M. 1968. *Dollars and deficits: inflation, monetary policy and the balance of payments*. Prentice-Hall.

Friedman, Milton. 1968. *Dollars and deficits: inflation, monetary policy and the balance of payments*. Prentice-Hall.

Friedman, Milton. 1972a. "Monetary Policy in Developing Countries", pp. 265–78, in David, P.A. and Reder, M. W. (eds.) *Nations and Households in Economic Growth, essays in honor of Moses Abramovitz*. New York: Academic Press. Also published in Friedman, M. 1973.

Friedman, Milton. 1972b. "Monetary Policy in Developing Countries", pp. 38-67, in Friedman. M. 1973. *Money and Economic Development: The Horowitz Lectures of 1972*. New York: Praeger Publishers. This version includes the Q&A session after the lectures not included in 1972a.

Friedman, Milton. 1973. "Statement and Testimony." In U.S. Congress, Joint Economic Committee, Hearings before Subcommittee on International Economics, *How Well are Fluctuating Exchange Rates Working?*, pp. 114-120. 93rd Congress, 1st Session, 20-27 June 1973.

Friedman, Milton. 1989. "The Case for Floating Exchange Rates", *Financial Times*, 18 December 1989.

Friedman, Milton. 1990. "As Good as Gold", *National Review*, 11 June 1990, pp. 28-31.

Friedman, Milton. 1992a. *Money Mischief: Episodes in Monetary History*. New York: Harcourt, Brace and Jovanovich.

Friedman, Milton. 1992b. "Interview with Milton Friedman", Federal Reserve Bank of Minneapolis, 1 June 1992.

Friedman, Milton. 1994. "Do We Need Central Banks?", *Central Banking*, 5 (1): pp. 55–58.

Friedman, Milton. 1997. "The Euro: Monetary Unity to Political Disunity?", Project Syndicate. Available at https://www.project-syndicate.org/commentary/the-euro--monetary-unity-to-political-disunity?barrier=accesspaylog

Friedman, Milton. 1998. "Markets to the rescue", *The Wall Street Journal*, 13 October 1998.

Friedman, Milton. 1999a. "Interview with Milton Friedman," *World Economic Affairs* (Winter).

Friedman, Milton. 1999b. "Interview with Milton Friedman: Beware the Funny Money", Forbes Magazine, 30 July 1999. Available at https://www.hoover.org/research/beware-funny-money

Friedman, Milton. 2000. "Keynote Address: Canada and Flexible Exchange Rates", Bank of Canada (November), Available at https://www.bankofcanada.ca/wp-content/uploads/2010/08/keynote.pdf

Friedman, Milton and Friedman, Rose D. 1999c. *Two Lucky People: Memoirs*. Chicago: The University of Chicago Press.

Friedman, Milton and Mundell, Robert. 2000. "Nobel Money Duel: Fixed or Flexible Exchange Rates?", *The National Post*, 11 December 2000.

Friedman, Milton and Mundell, Robert. 2001. "Mundell and Friedman: Four key disagreements", *Policy Options*. Available at https://policyoptions.irpp.org/magazines/one-world-one-money/mundell-and-friedman-four-key-disagreements/

Friedman, Milton and Robert V. Roosa. 1967. *The Balance of Payments: Free Versus Fixed Exchange Rates*. Washington, D. C.: American Enterprise Institute for Public Policy Research (includes Q&A not included in Friedman, M. 1968).

Hanke, Steve H. 2008. "Friedman: Float or Fix?", *Cato Journal*, Vol. 28, No. 2 (Spring/Summer 2008), pp.275-285.

Harris, Richard. 2001. "Mundell and Friedman: Four key disagreements", *Policy Options*, 1 May 2001. Available at https://policyoptions.irpp.org/magazines/one-world-one-money/mundell-and-friedman-four-key-disagreements/

Mundell, Robert. 1961. "The Theory of Optimal Currency Areas", *American Economic Review*, Vol. 51, No.4 (November), pp.657-665.

Mundell, Robert E. 2000. "Currency Areas, Exchange Rate Systems and International Monetary Reform", *Journal of Applied Economics*, 3: 2 (November), pp. 217-256.

Peck, James. 2021. "Milton's Paradise: Situating Hong Kong in Neoliberal Lore", *Journal of Law and Political Economy*, 2(1), pp. 189-211.

Rueff, Jacques. 1963. *L'Age de l'Inflation*. Paris: Payot.

Rueff, Jacques. 1972. *The Monetary Sin of the West*. New York: The Macmillan Company.

Taylor, John. (2001). "An Interview with Milton Friedman", *Macroeconomic Dynamics*, 5 (May), pp. 101–131.

U.S. Congress. 1973. *How well are fluctuating exchange rates working?*, Joint Economic Committee, June 20, 21, 26, and 27, 1973. Washington, D.C.: U.S. Government Printing Office.