

The Control of Money

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Stable money is one of the most important prerequisites of free markets. In *Capitalism and Freedom*, Milton Friedman addressed the questions of the monetary arrangements most consistent with economic freedom within individual countries and between countries. In Chapter III Friedman took on the issue of how monetary policy should be made in a free society. Acknowledging a legitimate role for government in the management of money, Friedman posed the challenge as being that of coming up with "...a stable monetary framework for a free society" and more specifically "to establish institutional arrangements that will enable government to exercise responsibility for money, yet at the same time limit the power thereby given to government and prevent the power from being used in ways that will tend to weaken rather than strengthen a free society" (39). He assessed the relative merits of commodity standards and independent central banks, and concluded by arguing that a rule prescribing that the Federal Reserve System (Fed) keep some measure of the money stock growing at some constant rate is preferable to either.

In Chapter IV, Friedman took on the question of international monetary arrangements. At the time, the Bretton Woods system of fixed exchange rates was still in place. Friedman argued that "...the most serious short-run threat to economic freedom in the United States today...is that we shall be led to adopt far-reaching economic controls to 'solve' balance of payments problems" (57). In the international arena, Friedman saw the main challenge as being not to solve *a* balance of payments problem, but to solve *the* balance of payments problem. Reprising the arguments of Friedman (1953), he argued for freely floating exchange rates. This paper reviews Friedman's proposals, and

assesses their impact on domestic and international monetary arrangements in the four decades since *Capitalism and Freedom* was published.

The Control of Money

Friedman's discussion began with a review of commodity money standards. At the time he was writing, the world had not completed the transition from the gold standard to a fully fiat standard: the major currencies all retained a partial link to gold through the fixed exchange rate arrangements of the Bretton Woods system. It is well known that most early forms of money were commodity moneys. Precious metals in particular have a long history of use as money, due in no small part to their desirable characteristics as media of exchange (portability divisibility, etc.). In *Capitalism and Freedom*, Friedman acknowledged the important advantages possessed by pure commodity money standards. Indeed, pure commodity standards where changes in the money stock are governed by changes in the technology for producing the monetary commodity and changes in the demand for money can, in principle, function without any government involvement. Friedman noted that automatic commodity standards, if feasible, would provide an excellent solution to the liberal's dilemma by providing a stable monetary environment free of the risk of instability due to government mismanagement of the money stock. However, automatic commodity standards are neither feasible nor desirable. The primary drawback of commodity standards is the real resources that are needed to maintain them. The monetary commodity is a real resource that has value in other uses, and real resources are needed to add to the stock of the monetary commodity over time. These real resource costs make commodity standards undesirable since fiat money standards can facilitate the same volume of monetary exchange without incurring these resource costs. Commodity standards are also infeasible because they inevitably evolve to incorporate fiduciary elements so as to economize on the real resources needed to operate them. The

introduction of fiduciary elements inevitably opens the door to the involvement of government, be it simply to prevent counterfeiting or enforce contracts, or to issue fiduciary money itself.

Friedman then proceeded to a discussion of the management of money by a discretionary monetary authority. His analysis focused on the performance of the Federal Reserve System since its creation in 1914. Friedman argued that the behavior of the stock of money, prices and output in the United States had been decidedly more unstable since the creation of the Fed than before, and that this instability was attributable first and foremost to errors of omission and commission by the Fed. To support these claims, Friedman drew heavily on the evidence that he and Anna Schwartz had gathered in the then-unpublished *Monetary History*. He paid particular attention to the role of the Fed in making the Great Depression a more severe downturn in economic activity than it otherwise would have been. Given the importance of the Depression in shaping (or, as he put it, “deforming”) the public’s ideas about the stability of capitalism and the appropriate role of government in the economy, this line of argument was quite controversial. He famously concluded:

“The Great Depression in the United States, far from being a sign of the inherent instability of the private enterprise system, is a testament to how much harm can be done by mistakes on the part of a few men when they wield vast power over the monetary system of a country” (50).

Friedman dismissed the argument that the mistakes of the Fed during this period might be attributable to an imperfect understanding of the workings of monetary policy as being beside the point. Independent central banks, such as the Fed, are undesirable on political and technical grounds: on political grounds because they put too much power in the hands of a few individuals without “...any effective check by the body politic” (50); and on technical grounds because of the inevitability of

mistakes in any system where responsibility is dispersed.¹

So if commodity standards and independent central banks are not the answer, what is? The challenge, as Friedman saw it, was to legislate "...rules for the conduct of monetary policy that will have the effect of enabling the public to exercise control over monetary policy through its political authorities" while at the same time preventing "...monetary policy from being subject to the day-to-day whim of political authorities" (51). Friedman dismissed a price-level rule as being "...the wrong kind of rule because it is in terms of objectives that the monetary authorities do not have the clear and direct power to achieve by their own actions" (53). What was needed, rather, was a rule stated in terms of the stock of money. Friedman referenced *Program for Monetary Stability* (Friedman, 1960a) for details, summarizing by stating:

"I would specify that the Reserve System shall see to it that the total stock of money...rises month by month, and indeed, so far as possible, day by day, at an annual rate of X percent, where X is some number between 3 and 5. The precise definition of money adopted, or the precise rate of growth chosen, makes far less difference than the definite choice of a particular definition and a particular rate of growth" (54).

Friedman did not see this as "...a be-all and end-all of monetary management," but rather something that could be used to develop better rules as our knowledge advanced.

With domestic monetary policy determined by such a rule, how should international monetary relations be conducted? Friedman turned to this issue in chapter IV of *Capitalism and Freedom*, and began his discussion by noting how the controls on foreign exchange necessitated

¹Friedman's discussion of independent central banks drew heavily on Friedman (1960b).

by international monetary arrangements then in place (i.e., the Bretton Woods system of fixed exchange rates) posed a serious threat to economic liberty. Again Friedman noted that a fully automatic commodity standard could, in principle, provide a stable architecture for international monetary arrangements, but noted that the same factors that made it undesirable and infeasible at the national level also applied at the international level. Furthermore, even if it were desirable and feasible for the US to move to a commodity standard on its own, it would not facilitate adjustment in the international arena unless other countries adopted the same standard. “The discussion then proceeded to a further analysis of the role that gold then played in the U.S. monetary system, with Friedman noting that there was no substantive difference between the nationalization of the gold stock that took place in the United States in 1933 and 1934, and Fidel Castro’s nationalization of Cuba’s land and factories. After explaining the susceptibility of fixed exchange rate systems to crises by drawing an analogy to bank runs, Friedman then laid out the various ways in which countries can achieve balance in their payments to the rest of the world, namely changes in reserves, changes in domestic price levels, changes in exchange rates or controls on trade. He concludes that “...a system of freely floating exchange rates determined in the market for private transactions ...is the proper free market counterpart to the monetary rule advocated in the preceding chapter. If we do not adopt it, we shall inevitably fail to expand the area of free trade and shall sooner or later be induced to impose widespread direct controls over trade” (67).² Friedman then laid out the steps he thought would be necessary for the United States to promote a free market on dollars and gold. As if to anticipate later developments. Friedman noted that there should be no reason for the

²Friedman had first advocated flexible exchange rates in Friedman (1953).

United States to object to other countries pegging their currencies to the dollar, as long as the United States did not make any commitment to buy or sell the currencies of such countries at a fixed price.

Milton and Rose Friedman revisited the issue of the conduct of monetary policy in a free society in their 1980 book and TV series *Free to Choose* (Friedman and Friedman, 1980). Chapter 3 of *Free to Choose*, titled “The Anatomy of Crisis,” restated Friedman’s view that the Great Depression was primarily a failure of government (and specifically a failure of the Fed) rather than a failure of capitalism. Chapter 9 of *Free to Choose* was titled “The Cure for Inflation,” which had by then become a much greater problem than it was when *Capitalism and Freedom* was published. Both the Great Depression of the 1930s and the Great Inflation of the 1970s were due to a failure of government, and could have been avoided by conducting monetary policy according to a rule.³ In *Free to Choose* the Friedmans took the proposal for a constant money growth rate rule one step further and argued that a money growth rule, specified in terms of the monetary base, should be enshrined in the U.S. Constitution. With the Bretton Woods system largely dismantled by the time *Free to Choose* appeared, the Friedmans did not spend any time discussing international monetary arrangements in that volume.

So what did the reviewers think? *Capitalism and Freedom* was not widely reviewed when it was first published, but reviews by John Hicks, Abba Lerner and Paul Baran were published in *Economica*, the *American Economic Review* and the *Journal of Political Economy*, respectively. In a generally favorable review, Hicks spent some time addressing the monetary prescriptions in *Capitalism and Freedom*, noting that “A really thoroughgoing Economic Liberal must surely maintain that the only sound money is hard money (or commodity money); that the less the state has to do with money the better” (Hicks, 1963, 319). How then to

³Bernanke (2004) refers to the Great Inflation as the second most important monetary policy mistake of the twentieth century, after the Great Depression.

make the national money systems that have emerged since the demise of the gold standard more automatic? Hicks found Friedman's prescription of an X-percent rule "very unappetizing" and questioned the basis for the specific rates of growth suggested by Friedman. Hicks also wondered about how binding such rules would be if ever established. Hicks was also unsympathetic to Friedman's prescriptions for international monetary arrangements, flexible exchange rates, noting that it appeared to be a "...very nationalistic form of economic liberalism," which would deprive the world of the benefits of international money (such as existed under the Gold Standard). The reviews by Baran and Lerner were less favorable, and did not pay as much attention to the monetary proposals in *Capitalism and Freedom*.

Assessment

Assessing Friedman's influence on public policy, Allan Meltzer (2004) cites the decision to float the dollar in 1971 and 1973⁴ as one of Friedman's major successes (the others being ending the military draft and the repeal of interest rates ceilings). Meltzer cites Friedman's proposal for a constant money growth rule as his most famous proposal, but notes that it was never adopted. Nevertheless it helped shape the debate about monetary policy in subsequent decades. What follows are some observations about the arguments made in *Capitalism and Freedom* to support the specific proposals made there about monetary policy and how the debate subsequently evolved.

Impact on the Economics Profession

Before considering the ideas in the abstract, it is worth asking to what extent the key proposals regarding money in *Capitalism and*

⁴The convertibility of the dollar into gold was suspended in August 1971. The Smithsonian Agreement of December 1971 provided for a multilateral realignment of exchange rates and a devaluation of the dollar against gold. In April 1973 the currencies of the major industrial countries were allowed to float.

Freedom were accepted by members of the economics profession. As show in Table 1, a 1976 survey by Kearl et al. asked a sample of economists whether they agreed or disagreed with a number of basic economic propositions, including “The Fed should increase the money supply at a fixed rate.” In 1976 and in a follow up survey in 1990 (Alston et al., 1990) Kearl et al. found a relatively strong consensus among economists disagreeing with this proposition. A key difference between the authors’ 1976 and 1990 surveys is that in the 1990 survey they found less agreement on the ability (as opposed to the desirability) of the Fed to control the growth of money.⁵ Nevertheless, the same surveys found a growing consensus among economists on a key Friedman proposition, that inflation is a monetary phenomenon. In 1976, 43 percent of the economists surveyed disagreed with this proposition, as opposed to 29 percent in 1990, and 17 percent in 2000 (according to Fuller and Geide-Stevenson, 2003).

While only 14 percent of the economists surveyed by Kearl et al. in 1976 were in general agreement with the prescription of a constant growth rate rule for the money stock, 61 percent of the respondents in the same survey agreed with the proposition that, “Flexible exchange rates offer an effective international monetary arrangement.” The later surveys of Alston et al. and Fuller and Geide-Stevenson found comparably large percentages of economists agreeing with this proposition. Interestingly, Alston et al. also document significant vintage effects in the extent of agreement with the key Friedman propositions. They find that the older one’s highest degree, the greater the tendency to disagree with the proposition that inflation is a monetary phenomenon and the proposition that the Fed should follow

⁵As indicated by the responses to the proposition, “The Fed has the capacity to achieve a constant rate of growth of the money supply if it is desired.”

Table 1. Professional Support for Friedman's X-percent Rule

The central bank (Fed) should be instructed to increase the money supply at a fixed rate

<u>Country</u>	<u>Year(s) of Survey</u>	<u>Generally Agree</u>	<u>Agree with Provisions</u>	<u>Generally Disagree</u>				
US	1976	14	25	61				
	1990	13.4	30.6	54.1				
US (graduate students)	1985	9	34	45				
	2001-2003	7	22	50				
Canada	1986	13.5	29.1	54.9				
Austria	1981	5.5	24.2	68.1				
France	1981	32.7	32.7	28.4				
Germany	1981	9.5	26.7	62.6				
Switzerland	1981	15.1	34.2	44.7				
		<u>Agree Strongly</u>	<u>Agree with Reservations</u>	<u>Neither Agree nor Disagree</u>	<u>Generally Disagree</u>	<u>Disagree Strongly</u>		
UK	1989	3.1	13.6	28.0	37.4	17.2		

Notes to Table: Sources: US: Kearn, Pope, Whiting and Wimmer (1979), Table 1 for 1976 data; Alston, Kearn and Vaughn (1992), Table 1, for 1990 data; US graduate students: Colander and Klamer (1987), Table 4, for 1985 data; Colander (2005), Table 6, Walker (1988), Table 2; Austria, France, Germany and Switzerland: Pommerehne, Schneider, Gilbert and Frey (1984), Table A.

a constant money growth rule.⁶

Given the existence of such vintage effects, it is interesting to see how the views of graduate students on these propositions have evolved. In their 1985 survey of graduate students at seven major economics departments, Colander and Klamer (1987) assessed the degree of agreement with the propositions, “The FRB should maintain a constant money growth,” and “Inflation is primarily a monetary phenomenon.”⁷ Only 9 percent agreed with the money growth proposition without reservations; 34 percent agreed with some reservations. As to the proposition that inflation is a monetary phenomenon, almost equal proportions of graduate students agreed, agreed with reservations, and disagreed. Perhaps not surprisingly, agreement with both propositions was strongest at the University of Chicago. Colander (2005) reports findings from a follow-up survey conducted among students at the same schools between 2001 and 2003. In the later survey, Colander found fewer students agreeing with the constant money growth prescription for monetary policy, with the number of students in agreement at Chicago declining from 41 percent to 18 percent. There was more agreement among students on the proposition that inflation is a monetary phenomenon, except at Chicago. In the earlier survey 84 percent of students agreed with the proposition without reservations; that number fell to 44 percent in the later survey, with 25 percent of Chicago students agreeing with reservations and 21 percent in outright disagreement. (At all the other schools, the percentages disagreeing with the inflation proposition

⁶Alston et al. also find that economists who received their highest degree either prior to 1961 or during the 1960s had the greatest tendency to disagree with the proposition that economies have a natural tendency to return to their equilibrium growth paths following disturbances.

⁷The seven departments were Chicago, Harvard, MIT, Yale, Princeton, Columbia and Stanford.

declined between the two surveys.)

What about economists in other countries? Surveys of economists' opinions similar to those just reviewed for the United States have been carried out in a number of other countries. Block and Walker (1988) surveyed economists in Canada; Ricketts and Shoemith (1990) surveyed economists in the UK; Pommerehne, Schneider, Gilbert and Frey (1984) surveyed economists in a number of continental European countries. In their surveys of European economists in 1981, Pommerehne et al. found a relatively high degree of disagreement (close to two-thirds of respondents) with the X-percent rule proposal in Austria and Germany, with somewhat less disagreement in Switzerland. However, almost two-thirds of the French economists in their survey either agreed or agreed with provisions with the X-percent proposal, a higher fraction than in any of the U.S. surveys. Block and Walker found more than half of Canadian economists disagreeing with the proposal, while Ricketts and Shoemith found relatively little support among UK economists for the X-percent rule.

Table 2 summarizes support for the proposition that "Flexible exchange rates offer an effective international monetary arrangement" from the same surveys of economists. Support for the flexible exchange rate proposal is a lot stronger in these surveys than for the X-percent rule, and also quite widespread. The exception seems to be France, where only 11.1 percent of economists were in general agreement, as opposed to close to two-thirds of economists elsewhere.

Commodity Standards

Friedman published a lengthy discussion of commodity standards topic in his paper "Commodity Reserve Currency," which was published in the *Journal of Political Economy* in 1951 and reprinted in *Essays in Positive Economics* in 1953. Much of what Friedman had to say about the resource costs of commodity standards is now conventional wisdom. Indeed, in a comparison of the competing merits of commodity and fiat money standards, it is generally accepted that fiat

Table 2. Professional Support for Friedman's Flexible Exchange Rate Proposal

Flexible exchange rates offer an effective international monetary arrangement

<u>Country</u>	<u>Year(s) of Survey</u>	<u>Generally Agree</u>	<u>Agree with Provisions</u>	<u>Generally Disagree</u>
US	1976	61	34	5
	1990	56	33.6	8.4
	2000	61.4	31.5	5.0
Canada	1986	57.6	35.9	5.9
Austria	1981	34.1	49.4	16.5
France	1981	11.1	38.3	44.4
Germany	1981	62.0	30.0	5.1
Switzerland	1981	52.3	38.7	7.5

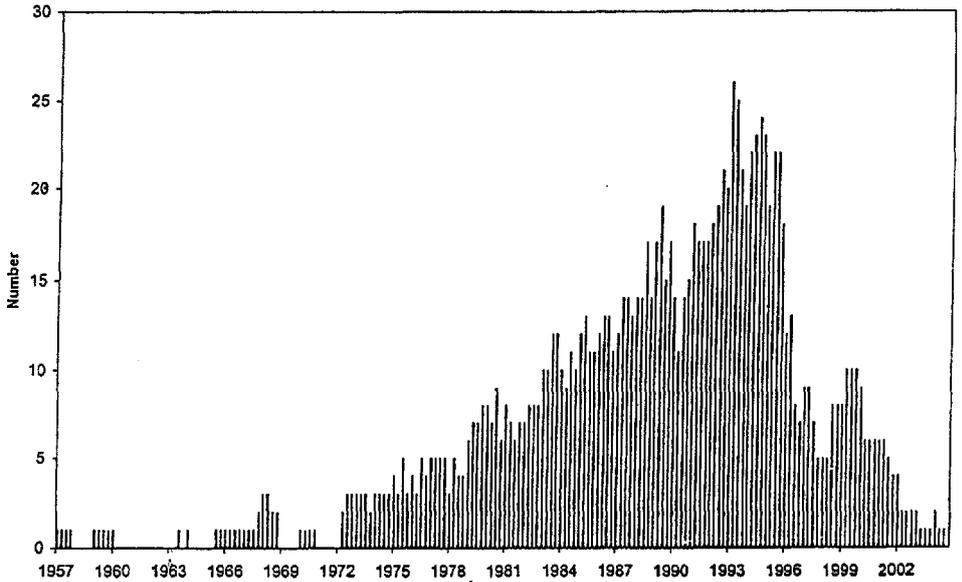
Notes to Table: Sources: US: Kearl, Pope, Whiting and Wimmer (1979), Table 1, for 1976 data; Alston, Kearl and Vaughan (1992), Table 1, for 1990 data; Fuller and Geide-Stevenson (2003), Table 1, for 2000 data; Canada: Block and Walker (1988), Table 2; Austria, France, Germany and Switzerland: Pommerehne, Schneider, Gilbert and Frey (1984), Table A.

standards win every time because of their lower real resource costs. In recent years the central banks of most industrial countries have been selling off their gold stocks, thereby eliminating the last vestiges of any commodity backing of currencies.

However, in a 1986 paper, Friedman revisited the issue and noted that fiat standards have real resource costs as well, especially when they are associated with long run price uncertainty. In the mid-1980s it was still far from clear that inflation had been tamed, although inflation had fallen dramatically in the United States. Friedman (1986) noted that under commodity standards, the price level had a physical anchor which generated long-run price stability. He noted "The price level in Britain in 1930 was roughly the same as in 1740; in the United States in 1932, it was roughly the same as in 1832" (Friedman, 1986, 643). Friedman (1986) gave a number of examples of the real resource costs that long-run price level uncertainty under fiat standards generated: real resources are consumed in financial planning, as well as in the development of financial markets to allow businesses and households to insulate themselves against high and variable inflation. The same price level uncertainty also leads private individuals to hold precious metals to hedge against uncertainty under fiat standards, and Friedman speculated that the real resource costs of these precious metal holdings "...may have been as great as or greater than it would have been under an effective gold standard" (Friedman, 1986, 644). Friedman concluded that measurement of the real resource costs of irredeemable paper money and comparison of these costs with the better-understood resource costs of commodity money was an open question for economic research. However, this is not an issue that economists seem to have embraced: A recent citation search for Friedman's 1986 article turned up only 3 citations in the SSCI.

Part of the reason for the lack of research on the resource costs of fiat money, no doubt, is the success central banks have had in the intervening period in bringing inflation under control. Figure 1 shows the number of countries experiencing quarterly inflation rates in excess

Figure 1
Total Number of Countries Experiencing Inflation
Rates in Excess of 50 percent



of 50 percent (a commonly used definition of hyperinflation). Note the steady increase in the number of high inflation countries following the collapse of the Bretton Woods system. At the time, Friedman wrote his 1986 article, it was far from obvious that central banks would be as successful as they subsequently turned out to be in lowering inflation. Many industrial countries made significant progress in lowering inflation in the 1980s, with the developing countries catching up in the 1990s. By the turn of the new century, only one or two countries were experiencing inflation rates in excess of 50 percent a quarter.

Central Bank Independence

Friedman's discussion of independent central banks runs contrary to much of the contemporary conventional wisdom on central banking. Developing ideas expressed in Friedman (1960a, 1960b), as well as in *Capitalism and Freedom* and elsewhere (Friedman, 1985) went on to advocate ending independence of the Federal Reserve by making it a bureau of the Department of the Treasury. However, subsequent developments have tended to convince most economists of the need for greater rather than lesser central bank independence. In an influential paper, Alesina and Summers (1993) pointed out a remarkable correlation between central bank independence and inflation outcomes: specifically, independent central banks seem to deliver better inflation performance over time, and this better performance comes at no cost in terms of real growth. This finding and its confirmation by many subsequent studies motivated the global trend towards granting central banks greater independence in the 1990s (starting with the Reserve Bank of New Zealand in 1990, the Bank of France in 1994, the Bank of England in 1997, the European Central Bank in 1998, and most recently, the Central Bank of Iraq).⁸

⁸As decreed by L. Paul Bremer in Coalition Provisional Authority Order Number 18, dated July, 2003.

Friedman's two major concerns about independent central banks (the political and technical) have been addressed in recent years by a variety of means. It is generally accepted that when central banks are granted independence, mechanisms should be put in place to ensure that they are held accountable. In many cases the granting of independence to a central bank has been accompanied by the adoption of some form of inflation targeting as a monetary policy strategy. This serves to focus central bank deliberations on the one thing it can consistently deliver over time, and provide a ready metric by which its performance can be judged. In the case of the Bank of England, for example, which was granted operational independence by the Labour government in May 1997,⁹ this takes the form of requiring the governor and other members of the Bank's Monetary Policy Committee testify before the relevant committees of parliament, having an inflation objective set by the Chancellor of the Exchequer, and requiring that the governor provide a written explanation of when inflation deviates by more than a prescribed amount from the government's target.

Addressing Friedman's technical arguments against central bank independence is more difficult. Friedman's concern was that mistakes were inevitable when policy actions were dependent on accidents of personality.¹⁰ While monetary policy in the United States is made by a committee, the Federal Open Market Committee (FOMC), the Chairman of that committee wields significant power, and is often seen as the key personality. Chairmen inevitably wield more power than other committee members, but the global trend towards greater central

⁹Subsequently confirmed by the Bank of England Act 1998, which came into force on June 1, 1998.

¹⁰Friedman (1985) later argued that subsequent experience led him to alter his views about the importance of personalities in monetary policymaking, noting that Fed policy had shown remarkable continuity despite major differences in the personalities and backgrounds of the key players.

bank independence in the 1990s has also seen a tendency to hand responsibility for monetary policy over to committees. In the UK, monetary policy is made by the Monetary Policy Committee of the Bank of England, which includes technical experts presumably to minimize the risk of errors.

Of course, whether a central bank can ever be truly independent is an open question. As many students of monetary policy have noted, independence that is conferred by legislation can be just as easily revoked by subsequent legislation. Coleman (2004) is an interesting study of how fleeting independence can be when the monetary authority falls foul of powerful business interests. Enshrining independence in a constitutional document or, as in the ECB's case, an international treaty, is likewise no guarantee that independence will last. Constitutional amendments can always be undone by subsequent amendments.

Rules based monetary policy

One area where Friedman has had a lasting impact is in terms of his arguments for rules-based monetary policy. As noted above, Meltzer (2004) argues that this is the most famous of Friedman's many policy proposals. However, we need to distinguish between Friedman's arguments for rule-based policy making and the specific rule Friedman proposed. The X-percent rule has been much debated in the practical literature on monetary policy, yet has never been fully adopted. The closest any country or central bank has come to adopting the rule has been to use monetary targets in setting monetary policy. Monetary targets became popular with many central banks following the collapse of the Bretton Woods system in the 1970s. The Fed started to specify explicit targets for the monetary aggregates in 1975, and these targets became enshrined in law with the Full Employment and Balanced Growth Act of 1978. From 1974 until the establishment of EMU, the Bundesbank announced annual targets for the rate of growth of M3. The ECB's publication of a reference value for M3 growth is a relic of

Friedman's proposed rule. No other major central bank continues to report targets or reference values for monetary aggregates. This is due to the experience with money targets in the 1970s and 1980s: as one former Governor of the Bank of Canada famously put it, "We did not abandon M1, M1 abandoned us."¹¹

What is no longer in dispute is that central bank policy making should be guided by rules rather than discretion, or rather, that the discretion that central banks enjoy should be in some sense constrained. While the particular rule favored by Friedman has never been widely used, others have. In this sense, Friedman may be said to have lost the battle but won the war. Friedman's arguments for rules followed in many ways from Simons (1948). Kydland and Prescott (1977) strengthened the argument for rules by showing that even a benevolent monetary policy maker will generally produce too much inflation if allowed full discretion. Woodford's (2003) treatise reviews the recent debates about the role of rules in monetary policy and clarifies what it means for policy to be rule based.

Woodford's treatise is also important in illustrating the shift away from an emphasis on money (the quantity theory view) and towards a neo-Wicksellian approach to monetary policy. As Poole (2004) has noted, money now plays very little role in the deliberations of the Fed, or of other major central banks for that matter. The ECB is an anomaly in this regard in that it still assigns a prominent role to money in its deliberation, but it is not clear whether the monetary pillar has been all that important in practice.

Contemporary discussions of rules-based monetary policy are cast in terms of a reaction function for the interest rate controlled by the central bank. The interest rate is specified to be some function of

¹¹Attributed to Gerald Bouey, Governor of the Bank of Canada, 1973-1987. The source is *Canada: House of Commons Standing Committee on Finance, Trade and Economic Affairs: Minutes of Proceedings and Evidence*, No. 134, 28 March 1983, 12.

inflation and indicators of real economic activity, and possibly other macroeconomic indicators. The best known such rule is the Taylor (1993) rule, which specifies how the central bank should change interest rates in response to deviations of inflation, π , from some target and output, y , from potential output, \bar{y} :

$$i = 0.04 + 1.5(\pi - 0.02) + 0.5(y - \bar{y})$$

Friedman, of course, was famously skeptical of central bank efforts to control interest rates. In his 1967 presidential address to the American Economic Association, Friedman (1968) outlined how attempts to peg interest rates could lead to explosive inflations or deflations. If nominal rates are pegged at a level below the natural rate, inflation will rise, which will lead to higher inflation expectations. With pegged nominal rates, this causes real interest rates to decline, further stimulating demand and adding to inflation. The same line of argument implies accelerating deflation when nominal rates are pegged above the natural rate.

Woodford (2003) argues that this line of reasoning may be correct as far as it goes, but it is critically dependent on the assumption that the central bank does not alter its setting for its interest rate in response to inflation developments. Once this assumption is relaxed, interest rates rules of the sort now widely studied in the literature on monetary policy are quite compatible with stable prices.

Optimal rules

No central bank has ever adopted the X-percent rule for monetary policy proposed by Friedman in *Capitalism and Freedom*, and it has received relatively little attention in the academic literature. However, academics continue to debate the merits of the other “Friedman rule” that Friedman put forward in his classic essay on The

Optimum Quantity of Money (Friedman (1969)).¹² This Friedman rule, the Friedman rule in the eyes of many, called for contracting the stock of money at a pace sufficient to drive the nominal interest rate down to zero. The rationale for the rule is simple: since money yields useful services (by facilitating transactions) but does not pay interest, consumers will hold less of it than they otherwise would if nominal interest rates were zero. Furthermore, since under a fiat standard money is essentially costless to produce, it is welfare improving to equalize the returns on money and alternative assets. This requires contracting the stock of money at a pace sufficient to induce deflation at a rate equal to the real rate of interest, thus making nominal interest rates equal to zero.

Unlike the rule proposed in *Capitalism and Freedom*, this particular rule for monetary policy was shown by Friedman to be optimal (welfare maximizing) on the basis of basic economic principles. Subsequent analysis of this rule has shown it to be optimal in a wide range of circumstances. Early critics of the rule argued that it might not be optimal in situations where the government has to rely on distorting taxes to fund government programs; in such a situation, it was argued that optimal public finance considerations would call for some revenue to be raised by inflation taxes. Mulligan and Sala-i-Martin (1997) review the literature on the Friedman rule and show that the optimality of the rule cannot be decided on theoretical grounds alone. Rather, as with many other things in economics, it depends on assumptions. They show that existing evidence on key parameters of consumer preferences suggests that the optimal inflation rate is positive, but small. Lucas (2000) reviews some of these arguments and concludes that the needed qualification to the Friedman rule that the presence of taxes or other distortions requires is trivially small. The Friedman rule has also attracted renewed attention from central bankers (or at least from their

¹²A quick search on Google for “The Friedman Rule” turned up nearly 6,000 hits, all of which seem to refer to the 1969 Friedman Rule.

staffs), given the recent deflation scare in the United States in 2003 and the more protracted experience of Japan. However, the prospects of any central bank adopting this rule any time soon are remote. In the eyes of many central bankers, the models that yield the Friedman rule as the optimal prescription for monetary policy over emphasize the shoe leather costs of inflation and ignore the other costs of inflation. In addition, these models tend to have a limited role for counter-cyclical policy.

In the conclusion to his 1969 essay Friedman addressed the conflict between the Friedman rule, an optimal rule for monetary policy worked out from basic principles of economic theory, and the X-percent rule proposed in *Capitalism and Freedom*. Friedman advanced two reasons for the differences between the two. The first is that the X-percent rule was proposed "...with an eye primarily to short-run considerations" (Friedman, 1969, 48) whereas the optimal rule "...puts more emphasis on long-run considerations." (Friedman, 1969, 48) The second and more fundamental reason was that at the time *A Program for Monetary Stability* was written, Friedman had not yet worked out the theory in the optimum quantity paper. In concluding Friedman noted that "The gain from shifting to the [X]-percent rule would... dwarf the further gain from going to the 2 percent rule, even though that gain may well be substantial enough to be worth pursuing. Hence I shall continue to support the 5 percent rule as an intermediate objective greatly superior to present practice."

The importance of money in economic fluctuations

Friedman and Schwartz' *Monetary History* convinced many of the importance of money in economic fluctuations. As Robert Lucas noted in his 1994 review of *Monetary History* after 30 years, it constituted a "...remarkable and durable achievement of historical and economic scholarship" and "...played an important – perhaps even decisive – role in the 1960s debates over stabilization policy between Keynesians and monetarists" (Lucas, 1994). In *Capitalism and Freedom*, Friedman was

primarily concerned with the role of money in generating business cycles, and argued based on the *Monetary History* that the Great Depression was due to the shortcomings of monetary policy at that time. Indeed the view that monetary policy is the primary cause of business cycles has become mainstream, with the late Rudiger Dornbusch famously quipping that “Expansions do not die of old age: they are murdered by the Fed.”

In the past two decades, economists have begun to pay more attention to the importance of real shocks as sources of business fluctuations. In a seminal paper, Kydland and Prescott (1982) argued that almost all of the business cycle fluctuations observed in the postwar US economy could be accounted for by real shocks, with only a small role for money. Whatever one may think of the ability of real business cycle models to explain postwar business cycles in the US, most mainstream economists still subscribe to the Friedman and Schwartz view of the Great Depression as being the result of bad monetary policy. Speaking at a University of Chicago conference held in 2002 to honor Friedman on his ninetieth birthday, Federal Reserve Governor Ben Bernanke concluded on the Fed’s role in the Great Depression “You’re right, we did it. We’re very sorry. But thanks to you, we won’t do it again.”¹³ In his review of *Monetary History* on its thirtieth anniversary, Lucas (1994) argued that “Viewed as positive theory, real business cycles do not offer a serious alternative to Friedman and Schwartz’s monetary account of the early 1930s.” (Lucas, 1994, 13) He argues that the relative success of real business cycle models in accounting for postwar fluctuations in the US may simply be a reflection of the fact that the conduct of monetary policy has been so much better in the postwar period, not that money doesn’t matter.

However, recent research has begun to challenge Friedman and Schwartz’ explanation of the Great Depression as being due primarily

¹³See McLane (2002).

to monetary policy. Cole and Ohanian (1999, 2000) show that while monetary shocks might be able to account for the decline in output during the Great Depression, they cannot account for the slow pace of the recovery after 1933. Likewise they find that bank failures and the increases in reserve requirements in 1936 and 1937 cannot account for the slow pace of the recovery. They conclude by suggesting, very much in the spirit of Friedman, that the New Deal policies introduced to end the Depression, specifically the National Industrial Recovery Act of 1933, may have played an important role in prolonging the recovery by allowing many sectors of the economy to cartelize.¹⁴ Cole and Ohanian (2001) evaluate this idea about New Deal cartelization policies and find that it can account in a quantitative sense for the slow pace of the recovery after 1933.

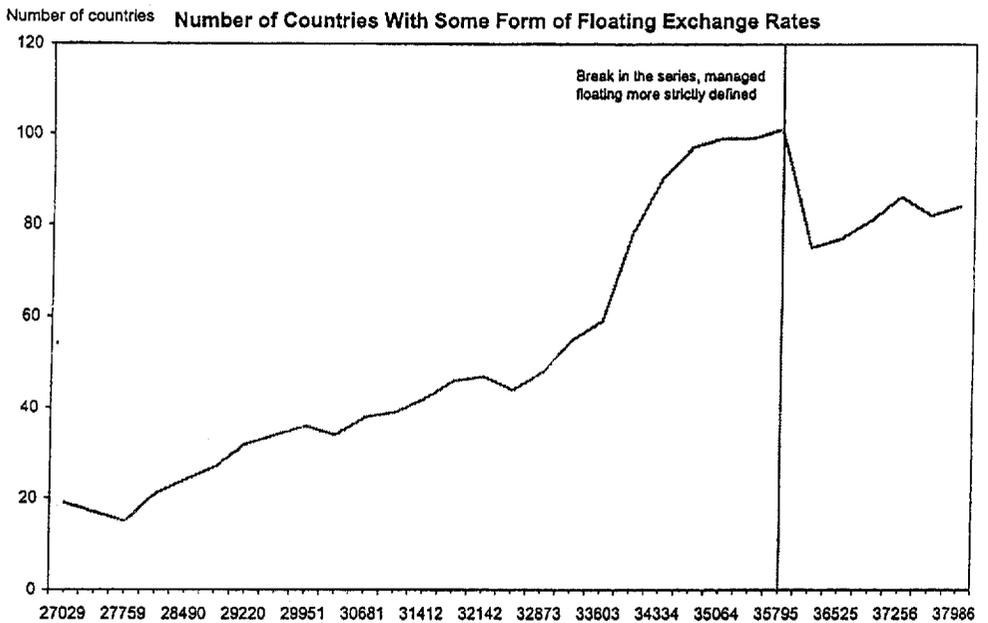
Flexible exchange rates

As noted above, Meltzer (2004) counts the decision to float the dollar as one of Friedman's great policy successes. As Figure 2 shows, there has been a steady increase in the number of countries with some form of floating exchange rates since the demise of the Bretton Woods system in the early 1970s. In many cases the decision to let a currency float was taken after a financial crisis precipitated by an attempt to defend an unsustainable peg. Many countries continue to peg their currencies to the dollar or the euro or a basket of major currencies as a way to limit discretionary monetary policy. Some have gone even further and adopted currency boards or dollarized outright, effectively outsourcing monetary policy and thereby completely removing any scope for discretionary domestic monetary policy.

The most important intellectual challenge to Friedman's

¹⁴Higgs (1997) provides a different take on why the recovery from the Great Depression took so long: he emphasizes the role of regime uncertainty (in particular uncertainty about property rights) as a factor depressing private investment.

Figure 2
Number of Countries With Some Form of
Floating Exchange Rates



argument for flexible exchange rates is probably that posed by Wallace (1979) and Kareken and Wallace (1981). These authors pointed out that under a fiat money standard and with no controls on currency holdings, the exchange rate between currencies is indeterminate: any exchange rate will serve to equate the world supply and demand for money. The reason for the indeterminacy is that fiat currencies have three important features that distinguish them from other goods or assets, namely that they are intrinsically useless, they are unbacked and they are essentially costless to produce. As a result there are no fundamentals of tastes and technology to determine the relative prices of fiat currencies if individuals are free to use any currency.

The only way to resolve this indeterminacy is to impose restrictions on currency holdings, which are also costly. The alternative is a system of fixed exchange rates where central banks agree to trade unlimited amounts of each other's obligations at a fixed rate at any time, and agree on the total amount of obligations to be issued and the allocation of seigniorage. As Wallace (1979) notes, none of the feasible options is without drawbacks. A system of fixed exchange rates requires international coordination of monetary policies, which means that monetary policy can no longer be directed exclusively at the attainment of domestic objectives. If the determination of exchange rates is to be left to free markets, the only way exchange rates can be made determinate is through the imposition of capital controls or legal restrictions on the use of currency.

Conclusion

Writing in the *Wall Street Journal* in 1988, Friedman asserted "No major institution in the U.S. has so poor a record of performance over so long a period as the Federal Reserve, yet so high a public recognition."¹⁵ Fifteen years later, in the same forum, he essentially

¹⁵*Wall Street Journal*, April 15, 1988.

retracted this view, noting that in the intervening period the Fed seemed to have gotten its act together. Friedman attributed this to the Fed's adoption of price stability as its primary goal and the use of better economic theory.¹⁶ The improved performance of the Fed was matched by improved performance by central banks in almost all countries, due in no small part to the influence of Friedman's ideas.

Of the two key monetary policy proposals put forward in *Capitalism and Freedom*, only floating exchange rates have been widely adopted. After a brief experiment with monetary targeting in the 1970s and 1980s central banks have adopted other strategies for monetary policy, with inflation targeting now the preferred strategy of many central banks. Friedmans' arguments against commodity standards are now part of the conventional wisdom: with central banks around the world gradually disposing of their remaining stocks of gold, the last vestiges of the gold standard are disappearing. The use of currency boards in some emerging market economies can be viewed as a manifestation of the acceptance of the idea that monetary policy needs to be rule based, which is arguably Friedman's most important legacy in the monetary arena. Economists continue to debate the causes of the Great Depression, but the thesis advanced by Friedman that it was first and foremost a failure of government rather than a failure of capitalism remains integral to most of the stories. Most economists now accept that money plays an important role in economic fluctuations, but money itself is no longer center stage in central bank deliberations about policy. While the rule proposed by Friedman in *Capitalism and Freedom* was never adopted, Friedman's later work on the optimum quantity of money continues to inspire research and was the earliest attempt to pose policy questions in what is now the dominant approach.

¹⁶Wall Street Journal, August 19, 2003.

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