TOWARD AN INTERNATIONAL COMMODITY STANDARD?

Richard N. Cooper

Determination of the basis for a national currency is one of the foremost attributes of national sovereignty. At irregular intervals over the past half century, countries have been urged to link their currencies by more or less rigid formulae to a variety of commodity baskets, with contents varying from one (gold) to several dozen commodities, and even beyond to an index of prices of goods and services, with varying intermediate combinations. Usually the stated aim is to ensure stability of the real value of money or, what is not the same, to reduce uncertainty in the real value of money. These objectives are typically assumed to be sufficient unto themselves, but sometimes they are justified as reducing uncertainty for business and household decisions that involve allocation of resources over time, and thereby as contributing to national well-being.

This paper will discuss the desirability of basing an international monetary system, which encompasses the formal rules and conventional practices governing payments among residents of different nations, on a basket of commodities. To anticipate the conclusion, the paper finds that such a move, while technically workable (though difficult), would not have much to recommend it. The paper offers an alternative suggestion for improving the international monetary system: a common currency among the industrialized democracies, with a common, jointly agreed monetary policy, which might well be targeted on some measure of price stability.

But as background it will be helpful first to review briefly the various suggestions that have been made over the years to tie a given national currency to commodities, that is, to tie money to the real economy so as to "anchor" the price level in some way.

Cato Journal, Vol. 8, No. 2 (Fall 1988).

The author is the Maurits C. Boas Professor of International Economics and the acting Director of the Center for International Affairs at Harvard University.

National Commodity-Based Monetary Systems

Commodity Money

The most straightforward way to link a national currency to the real side of the economy is to have a commodity *be* the currency or, closely related, to require the money-issuing authority to buy and sell the currency for the commodity at a fixed price (perhaps with a mint charge between the buying and selling price), as was done under the metallic standards (usually based on gold or silver, occasionally copper) of bygone times. But unless the commodity in question is an unusual one, which is representative of the whole collection of goods and services in which producers and consumers have an interest, this procedure will lead both to fluctuations over time in the growth of the money supply and to fluctuations in the general price level measured in terms of currency and of the monetized commodity. These fluctuations are simply a manifestation of changes in the commodity terms of trade, for any commodity in terms of others, that will occur in any economy undergoing continual changes in technology and in the level and composition of final demand. If P is an index of money prices of a broad and relevant collection of goods and services, P_G is the money price of the monetary commodity (e.g., dollars per ounce of silver), and T is an index of the terms of trade between the monetized commodity and the other goods and services, then

$$P = P_G \times T \tag{1}$$

A commodity standard fixes P_G by law or convention, but that is not sufficient to ensure the stability of P, the widely accepted objective, so long as T is not also fixed. However, T will vary in response to variations in the supply and demand for the monetized commodity relative to other goods and services. If P_G is fixed, P will vary with T. Moreover, not only will P be variable, but it will also be unpredictable except insofar as future movements in T can be predicted with confidence. More will be said below about the stability and the predictability of P under the historical gold standard.

Commodity-Convertible Money

The foregoing problem can be mitigated by enlarging the contents of the monetized commodity basket. Alfred Marshall (1926) suggested a century ago that a basket comprising fixed weights of gold and silver, with the price between them free to vary, would offer a more stable monetary medium (measured in T or P) than would gold or silver alone. Francis Edgeworth dubbed it a symmetallic standard (to differentiate from a bimetallic standard) based on gold and silver

at a fixed price, which ran the risk under Gresham's Law of evolving into a monometallic standard as one or the other became more valuable as a commodity than as money. (Isaac Newton had undervalued newly reminted silver coins relative to gold in 1717, and thus inadvertantly put Britain on the gold standard as silver was exported; a similar development occurred in the United States in 1834 when legislation designed to correct an undervaluation of gold in terms of silver overdid it by altering the mint ratio from 16:1 to 15:1, and full-bodied silver ceased to circulate as money.)

A logical extension of Marshall's symmetallism would be to enlarge the basket of commodities, fixed in quantities, in which money is defined and against which it is issued. Such a proposal was put forward by Benjamin Graham (1937) in the 1930s.[1]

Graham proposed that the dollar be defined in terms of a fixed-weight basket of 23 commodities and that the Federal Reserve issue notes against warehouse receipts for the basket thus defined. He selected his commodities on the strength both of their economic importance and their storability; the commodities included the standard list, varying from coal to wood pulp. Graham was motivated in large measure by antidepression considerations; his idea was first advanced in 1933. He felt that support for commodity prices in times of economic slack would help stabilize overall economic activity. By the same token, sale of the commodity basket (demonetization) would limit inflationary pressure in booms, both by supplying commodities out of stocks and by contracting the money supply. In effect his scheme would provide perfectly elastic demand for the commodities (taken as a group, their individual relative prices were free to vary) in the monetary unit in times of depressed economic activity, and it would provide perfectly elastic supply (so long as physical stocks lasted) in times of boom.

Graham envisioned that his scheme should supplement the then-existing monetary system. His unrelated namesake Frank D. Graham (1942) carried the proposal further. He would have included a much longer (but unspecified) list of commodities in his basket, and he would have required all future money growth to be based solely on purchases of warehouse receipts for these commodities, in the stipulated proportion. This proposal would have tied money growth directly to production of the monetized commodities, in this respect much like a metallic gold standard but with an enlarged basket.

Stabilizing the price level of a basket of storable commodities will stabilize the general price level only if the terms of trade between

[1]The next few paragraphs draw heavily on Cooper (1982, pp. 38–43).

the monetized commodities and other goods and services are unchanging over time, an improbable event. Broadening the basket from a single commodity may help, but the problem in equation (1) remains: fixing P_G will not in general stabilize P. For instance, over the period 1947–86 the price index for crude materials, which includes all the items in Graham's list plus some, increased by 177 percent. Prices of finished manufactured goods rose by 291 percent over the same period, and prices of services in the consumer price index rose by 684 percent. Reducing the price increase of crude materials to zero would not have avoided inflation in a broader index.

Apart from this problem and from the fact that real resources are tied up in warehoused monetary commodities (proponents have placed the annual costs at 3 to 4 percent of the outstanding value), it is unclear why there has not been more enthusiasm for commodity-reserve proposals. While they could not stabilize the general price level, these proposals might make its movements more predictable insofar as prices of finished goods and services have a reasonably stable relationship to commodity prices. (More on this subject will be presented below.) Yet these proposals have found little interest beyond intellectuals. I suspect that conservatives really want gold for reasons of history and sentiment, whereas nonconservatives prefer managed fiat money.[2] Also, the schemes are too complicated to appeal to a wider public.

The Tabular Standard

In the mid-1960s Albert Hart, Nicholas Kaldor, and Jan Tinbergen revived the idea of commodity-reserve currency in an explicitly international context; their proposal is discussed below. But first, it is worth mentioning the "tabular" standard, described by W. Stanley Jevons in 1875, advocated by Irving Fisher in 1920, and revived by

[2]It is of interest, though, that F. A. Hayek (1943) viewed commodity money favorably. John Maynard Keynes and Milton Friedman both opposed it. Keynes, though highly supportive of stabilization schemes for individual commodities, opposed a commodity-reserve currency on the grounds that it would have the same disadvantages as a gold standard in failing to persuade organized labor to keep its demands for money wages in line with the increase in efficiency wages (that is, productivity). He considered the risk of excessive money wage demands as one of the major obstacles to maintenance of a full employment economy. See his 1943 letter to Benjamin Graham, reprinted as an appendix to B. Graham in Yeager (1962, pp. 215–17).

Friedman (1953) opposed a commodity-reserve currency on the grounds that a full commodity-reserve currency, lacking the mystique and historical legitimacy of gold, would in time become financially burdensome because of the real costs associated with it. This problem in turn would lead to discretionary policy, which he also opposed. In Friedman's view, therefore, a commodity-reserve currency is dominated both by a gold standard, with its mystique, and by a properly managed fiat money, which he favors.

Robert Hall in 1982. This standard is the logical extension of the commodity-money idea to the entire basket of goods and services, in the context of a national currency. The price level associated with this basket is regarded as the most relevant price level for purposes of stabilization.

Writing during the gold standard period, Fisher (1920) proposed that the definition of the dollar in terms of gold should be indexed to the cost of living. In this way not only contracts written in nominal terms but currency itself in effect would be indexed so as to stabilize their real value over time, except during the intervals between adjustments.[3] If, for instance, the cost-of-living index fell, the number of grains of gold that defined the dollar as a unit of account would be reduced by a corresponding amount. For purposes of settling debts, the real value of the dollar would be preserved, since more gold would be required to settle a given dollar debt. The reverse adjustment would take place if the relevant price index rose. In terms of equation (1), P_G would be adjusted exactly to compensate for movements in T, thus stabilizing P over time.

This scheme amounts to the full indexation of all contracts, including gold convertible paper money, against changes in the value of gold, with gold remaining the formal basis of the dollar. Fisher would also have adjusted the gold money supply in parallel, with adjustments in the gold value of the dollar. If the price level fell, for instance, the dollar price of gold would be raised, and gold would flow into the Treasury (against the issuance of gold certificates) from private holdings, from abroad, and eventually from new production. The reverse would occur if the price level rose. Fisher would have reinforced this natural influence by issuing new gold certificates against the capital gains on existing Treasury stocks of gold, or by retiring gold certificates in the event of rising prices.

Robert Hall (1982) has revived the idea of a tabular standard (without endorsing it), but he suggests substituting for gold a fixed-weight basket of four commodities (ammonium nitrate, copper, aluminum, and plywood—ANCAP for short) whose index tracked well the U.S. consumer price index over 30 years. The dollar would be defined in terms of the ANCAP basket, and the basket would be legal tender in settlement of debts. Bank notes could be issued freely and would be fully redeemable in ANCAPs. When the consumer price index rose, the dollar would be redefined to contain more ANCAPs. In this way,

[3]Fisher (1920, p. 142) suggested an adjustment every two months, with a 2 percent brassage fee to prevent gold speculation at the expense of the Treasury immediately before each adjustment.

dollar contracts with deferred payment would involve repayment that was constant in terms of purchasing power, as measured by the consumer price index. Unlike Fisher or the Grahams, Hall would not require or even permit the government to engage in purchases or sales of the commodities composing ANCAP. The government would simply define the dollar in terms of ANCAPs and endow them with the attribute of legal tender, so that debts could be settled in ANCAPs or paper claims on them. Private arbitrage, which would involve some physical storage of the commodities in the ANCAP basket, would be relied upon to ensure that a paper dollar or dollar-demand account remained equal in value to the current ANCAP definition of the dollar.

Price-Level Target

Storage costs could be avoided by dropping the intermediary commodities (gold in Fisher's proposal, the ANCAP basket in Hall's) and simply gearing monetary action to a target price level. If the price level rose above the target, the monetary authorities would take steps to reduce some definition of the money supply (relative to trend), or to raise interest rates; and the reverse if the price level fell below its target. The action could be governed by formula. Since this approach would not involve the direct purchase and sale of commodities, however, the linkage between changes in monetary policy and prices would be an indirect one, which would be mediated by the full economy and by the responsiveness of the public to, say, additions or subtractions from some measure of the money supply. How close and how reliable the linkage is between money and prices is a deeply controversial question. We have known for years, moreover, that when there are response lags in the system, maintaining steadiness in one variable (the price level) by controlling another variable (the money supply or short-term interest rates) in the face of diverse and not directly observable shocks is not an easy task. Indeed if improperly formulated, even well-intended policy actions may lead to less, rather than greater, stability (Phillips 1954).

Futhermore, if the response lags themselves are unknown and variable, simple formula-based control will be suboptimal and might even be destabilizing. Proponents of discretionary control of monetary policy, aimed at a well-defined target such as stability in some measure of the price level, rest their case on this observation. They presuppose that the complex and not fully articulated "feeling" of the monetary authorities in a variety of circumstances will yield superior results to a formula-based response. This presupposition continues to be a source of controversy for it entails comparing dis-

cretionary responses, which will always be suboptimal (ex post) except by sheer luck, with a formula-based response, which can always be made optimal (ex post) with sufficient imagination. Such a comparison, however, is irrelevant in examining regimes with respect to future disturbances and responses.

If a price level is to be targeted, a *specific* measure of the price level must be chosen. What should it be? The consumer price index is the obvious choice, but that choice involves certain problems when considered in the context of an international monetary system (discussed below). Moreover, in an open economy the consumer price index contains imported items; it thus may be strongly and directly influenced by prices of imported goods, a problem that is less acute for value-added deflators.[4] The appropriate choice requires careful consideration of exactly what ultimate objectives are to be served by price-level stability.

Even the notion of price-level stability, on any particular measure, requires more careful specification if it is to be targeted. Do we mean by stability *constancy* over time (i.e., an expectation of return to a particular level)? Or do we mean that it should not change from where it is now (i.e., a zero expected rate of change)? These definitions are not the same, and they have quite different implications for policy if the price level is altered by some unforeseen event or is unexpectedly altered by a foreseen event. Should bygones be bygones, or should the price level be forced back to its earlier level? Finally, when we talk about the desirability of stability in the price level, that goal may really represent a loose way of expressing a desire for predictability in the price level. Most of the costs economists have attributed to price-level "instability" really arise from unpredictable movement rather than from predictable movement. Again, a more precise statement of ultimate objectives is required to sort out these various possibilities.

Once this necessity is acknowledged and active manipulation of monetary policy is countenanced, whether by formula or discretion, the question naturally arises whether stability of some measure of the price level is, or should be, the sole economic objective of society and, if not, whether monetary policy should be directed solely toward that objective rather than, say, to reducing unemployment, to increasing home ownership, or to fostering investment in plant and equipment.[5]

[4]Although the problem is less acute for value-added deflators, it is not entirely absent insofar as some domestically produced goods are in close competition with foreign-produced goods.

[5]See Hall (1986) for a proposal for formula-based use of monetary policy to achieve both price stability and employment stability.

Since stability of the price level is manifestly not society's only economic objective, the case for directing monetary policy solely toward that objective must rest on one or another of several possible assumptions:

- Price stability is a necessary condition for the attainment of other objectives, so there is no real conflict or "trade-off" among objectives.[6]
- Monetary actions cannot influence any other objectives. This view, often adopted in the formal theorizing of professional economists, is clearly erroneous in the short run. Moreover, it is unlikely to be true in the long run for any given definition of money (Tobin and Buiter 1976).
- Monetary actions have a comparative advantage in influencing the price level, and other instruments are better suited to the pursuit of other objectives. This proposition has some validity but runs up against William Brainard's (1967) observation that optimal policy formulation in an uncertain world would require that all objectives influence the choice of all policy instruments.
- While monetary actions might usefully help to attain other objectives, attempts to use them for this purpose and disagreements over which objectives should be emphasized are likely to reflect inconstancy of purpose and may lead to instability in real activity and in the price level, or even to neglect of the latter objective. This observation, while possibly valid, takes economists out of their role as economic analysts and prescribers of economically optimal policies and into the realm of political and social analysis. That is fair enough, but consistency requires that a similar perspective be taken on other proposed policy regimes as well, and on the political prospects for their survival in the form proposed under the impact of the serious disturbances and social strains.

An International Commodity-Based Monetary System

The world has more than 160 distinct national monies. The collection of national choices concerning the basis for these monies deter-

[6]See, for example, the congressional testimony of Alan Greenspan (1987) during which he argued: The mandate for economic policy in the United States and elsewhere should be to maintain the maximum growth in real income and output that is feasible over the long run. A *necessary condition* for accomplishing that important objective is a stable price level, the responsibility for which has traditionally been assigned in large part to the central bank, in our case to the Federal Reserve [emphasis added].

mines the character of the international monetary regime. The regime may (but need not) involve formal and explicit undertakings by national authorities with regard to their monetary relationships with other countries. Likewise, the regime may (but need not) involve formal multilateral agreement on the main features of the international monetary system. Two key observations concerning the relationship between national monetary bases and the international regime are in order.

First, if two or more countries choose the same national standard linked to the same basket of goods and services (e.g., gold), by so doing they also fix the exchange rate between their national monies, which to that extent determines the international standard as well. A special case involves the choice by one country to peg its currency to the currency of another country. It thereby indirectly chooses the same standard as the other country, whatever it may be.

Second, if two or more countries choose different standards (i.e., a different basket) as bases for their currencies, then inevitably the exchange rate between those currencies will have to be altered from time to time, if not continuously. In particular, this proposition is true even if the countries choose the same principle, such as stabilizing the national consumer price index. A corollary is that if a country chooses to peg its currency to that of another country, it will not, in general, stabilize its national price level except by coincidence. The reason has to do with the presence of nontradable goods and services, combined with the proposition that over time there is likely to be an upward drift in the price of (mostly nontradable) services (P_N) with respect to the price of (generally tradable) goods (P_T). This drift will occur at a rate that will vary from country to country, depending largely on the differences in per capita income and in growth rates.

The secular rise in P_N/P_T occurs in part from a slower growth in productivity in services than in tradable goods and in part because we have much greater difficulty in measuring productivity growth in services than in goods, which leads to a tendency to overstate price increases in services. Indeed, for a number of services the national statistical authorities identify outputs with inputs (e.g., an hour of a physician's time) so that by assumption there can be no increase in measured productivity. Under these circumstances, the secular upward drift in P_N/P_T will be a positive function of the national growth in productivity, which will be especially rapid in low-income, rapidly growing countries such as Japan in the 1950s or South Korea in the 1980s.

When we speak of a national price level, we usually mean a weighted average of P_N and P_T in which the weights must be adjusted from time to time, generally giving more weight over time (at least for high-income countries) to the service component of consumption. If $P = a(t)P_N + (a - 1)P_T$ is targeted for constancy in each of two countries that differ in per capita income, a secular decline in (P_T) will be required in both countries, but more sharply in the poor than in the rich country. That decline in turn will require a secular appreciation of the currency of the poor country, provided tradable goods in the two countries are in close competition. Alternatively, if the exchange rate is fixed between the two currencies, P will increase more rapidly in the poor but growing country than in the rich one, as experience has generally confirmed.[7]

The alteration in exchange rates need not take place continuously, but failure to do so will generate a transitory misallocation of resources—toward tradable goods in the low-income, growing countries and away from tradable goods in the high-income countries. Moreover, discrete changes in exchange rates, or the prospect of them, provoke substantial international movements of speculative capital, unless prevented by exchange controls. So these characteristics also affect the international monetary regime by pushing it toward floating exchange rates or at least toward managed flexibility, whether by formula or not. The general point is that national consumer price levels and exchange rates cannot both be stabilized over time; one or the other must sooner or later be given up. The strains become less severe, however, as the ratio of tradables to nontradables in national output grows (a function of trade barriers and of transport and communication costs) and as the dispersion among nations in per capita income declines.

If nations choose to target their exchange rates (i.e., to fix their currencies to other currencies), that action will anchor individual currencies, but it will not anchor the international monetary system as a whole. That anchoring can be accomplished in one of two ways:

- The first is by a collective agreement to some common target such as the price of tradables ($e\ P_T$, where e is each country's exchange rate fixed to a numeraire currency), to some average

[7]During the 1950s when the Japanese currency was fixed at 360 yen per dollar, the consumer price index in Japan grew at 4 percent per annum compared with 2.1 percent in the United States, even while Japanese tradable goods were becoming more competitive relative to American goods. This general phenomenon has been emphasized by Balassa (1964) and shows up in a different way in Kravis et al. (1982), who show that real purchasing power in poor countries is far higher than is suggested by per capita income converted at official exchange rates.

of national consumer price indices, or to some other common basket.

- The second is by an implicit agreement that the country whose currency is used as an anchor by others will target some basket of goods and services. If the basket is its consumer price index and if P_N/P_T rises over time, the money price of tradables will fall both in the anchor country and in all countries whose currencies are tied to it. The consumer price index will also fall in those countries where the upward drift of P_N/P_T is slower than in the anchor country.[8]

International Monetary Standards as Proposed

There has been much less systematic discussion of the international monetary standard than of national standards. Historically, the international standard has simply been the result of national standards. There have, however, been several exceptions to this generalization.

The Genoa Conference of 1922

The Genoa conference was called after World War I to deal explicitly with the international standard and to address concretely the shortage of monetary gold that would emerge as countries resumed convertibility of their currencies into gold—as it was taken for granted they would. Exchange rates among currencies were floating at the time, but that arrangement was viewed as unsatisfactory and therefore a temporary condition. The problem was that national price levels had greatly increased since 1914 and could not be supported by the available gold; yet a monetary contraction sufficient to restore convertibility was seen as requiring a substantial and prolonged depression in economic activity.

The proposed solution was to economize on monetary gold in two ways: (1) to call in gold from circulation, which would be held by central banks (largely an accomplished fact outside the United States), and (2) to encourage central banks to hold in their reserves "bills of exchange" drawn on foreign financial centers in partial substitution for gold reserves. Thus a multiple reserve currency system was formally sanctioned, along with exchange rates fixed by gold convertibility. Under a simple monetarist model, the world price level could then ultimately be determined by the world's monetary gold stock,

[8]This statement abstracts from a number of factors, such as changes in product mix or in barriers to trade, that would permit changes in the price levels of tradable goods to diverge from country to country, even at unchanged exchange rates.

plus the willingness of central banks to hold in their reserves financial claims in other currencies. Without specifying the latter component quantitatively, however, the price level would be strictly indeterminant. At the time, the problem was assumed to be that central banks would hold too little foreign exchange reserves, not too much, and that the gold holdings of the countries whose currencies were held (combined with a commitment to gold convertibility) would limit the expansion of foreign exchange holdings—and thus also of domestic currencies and the price level. The significance of the Genoa Conference lies mainly in its attempt to view the international monetary system as a whole.

Bretton Woods

During World War II, British and American authorities negotiated a plan for the international monetary system whose purpose was to foster trade and growth and to avoid a repetition of the economic disasters of the interwar period. The regime that emerged was structurally similar to the regime envisaged at Genoa: fixed exchange rates determined by a gold parity for each currency, convertibility into gold or into a currency that was convertible into gold (the U.S. dollar), and the holding of foreign exchange as international reserves. There were two important additions: The regimen of the system was not to prevent the pursuit of national employment policies; and if the combination of commitments and policies became irreconcilable, a country could, with international permission, change the parity of its currency (i.e., devalue or revalue against gold and other currencies).

In practice, after some postwar adjustments, major currencies rarely changed their parities, and the U.S. dollar came to play a much greater role in reserves than had originally been envisioned. Gold provided a de jure anchor for the system, except for a somewhat mysterious provision for a "uniform change in par values" (i.e., a change in the price of gold). In fact, the system relied for its anchor on the prudence of U.S. economic policies, influenced in part by conversion of dollars into gold.

The world economy grew much more rapidly in the 1950s and 1960s than anyone dared anticipate in the late 1940s, and the demand for reserves grew with it. The reserves were supplied in part from the large U.S. gold stock but in larger part by a build up of dollar balances. This development led to the dilemma posed by Robert Triffin (1960): If dollar balances continue to grow, the gold-convertibility of the dollar would cease to be credible; if they did not, the growth in world trade might be constrained by insufficient internationally acceptable monetary medium.

The dilemma was resolved in 1968 by the decision to create a new international fiat money, the SDR—now defined as a fixed-weight basket of the five leading currencies. The International Monetary Fund was to create the SDR at not less than five-year intervals with the aim "to meet the long-term global need, as and when it arises, to supplement existing reserve assets in such manner as will promote the attainment of [IMF] purposes and will avoid economic stagnation and deflation as well as excess demand and inflation in the world" (IMF Article XVIII(1a)). In 1976 it was agreed that IMF members should strive to make the SDR "the principal reserve asset in the international monetary system" (IMF Article XXII). In principle, the SDR could be issued to satisfy the secular growth for international reserves, subject to the general guideline of avoiding both inflation and economic stagnation. Thus was introduced a fully discretionary monetary system at the international level, which, in fact, mirrored the practice at the national level in virtually all countries with the exceptions of Liberia and Panama (which use U.S. dollars), the CFA franc zones of west and equatorial Africa, and a few British colonies that still use fully backed currency boards for local issue. In fact, there have been only two decisions to allocate SDRs over a 20-year period, totaling 21 billion SDRs, or $29 billion at current exchange rates (a sum that accounts for less than 5 percent of existing official foreign exchange reserves and even less if officially held gold is included in reserves).

In short, neither national monetary systems nor the international monetary system is anchored to the world of goods and services, except by the prudence of monetary authorities. In addition the present international monetary system is extremely permissive with regard to exchange rates, requiring only that nations notify the IMF of their exchange arrangements and that these arrangements conform with the objectives of fostering "orderly economic growth with reasonable price stability" and of promoting economic and financial stability. Member nations are enjoined to "avoid manipulating exchange rates or the international system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members" (IMF Article VIII(1)), and those nations cannot introduce discriminatory exchange rate practices.

An International Commodity-Reserve Currency

When discussion of the Triffin dilemma was in full swing, Hart, Kaldor, and Tinbergen (1964) proposed that the dilemma be resolved by creation of an international commodity-reserve currency (ICRC), which is an international version of the Graham proposal. The pro-

posal was updated in a post-SDR context by Hart (1976). He suggests that the goods in question should be both standardized and storable, and he offers an illustrative list (reproduced in Table 1) of 31 commodities that might make up the basket. Hart suggests that annual storage and turnover costs on the commodities selected should not exceed 5 percent. He would leave some operational flexibility for the final list of goods to be included in the ICRC, and their weights, which would be necessary if the initial accumulation period is to have a fixed time period of, for example, five years.

The IMF would purchase the basket of commodities, aiming at an amount equal to, say, 25 percent of world trade in these commodities, and would issue SDRs in exchange.[9] The SDRs so issued would be the principal source of new international reserves. Increases in monetary gold and in foreign exchange reserves would not be allowed once the scheme was in full swing, although Hart would permit the IMF to engage in open-market operations in SDRs to provide some monetary flexibility beyond purchases of the commodity basket.

The commodity basket would be bought or sold as a unit, by telegraphic instruction to the different markets and storage areas in which the various goods were physically held around the world. To cover costs and to gain a bit of seigniorage, the IMF would have a 10 percent buy-sell spread on its purchases and sales of the basket. The gross costs of managing the scheme would involve storage costs plus

TABLE 1

STANDARDIZED AND STORABLE COMMODITIES FOR POSSIBLE INCLUSION IN AN INTERNATIONAL COMMODITY-RESERVE CURRENCY

Wheat	Pork bellies, frozen	Cotton
Maize	Orange juice, frozen	Wool
Rice	Butter	Jute
Soybeans	Lard	Hard fibers
Oats	Milk, dried	Silk
Linseed		Rubber
Peanuts	Copper	
Sugar	Lead	Plywood
Coffee	Zinc	Lumber
Tea	Tin	Woodpulp
Cocoa	Silver	Newsprint

SOURCE: Hart (1976, p. 6).

[9]Hart (1966) suggested 75 percent of world trade in the listed commodities. No explanation is given for the lower figure suggested in 1976.

interest plus the costs of turnover, since some of the commodities deteriorate physically over time and would have to be changed occasionally. Hart reckons annual storage costs for most of the commodities at 1 percent or less of their value, although for wheat and maize it approaches 6 to 7 percent. It is noteworthy that the interest costs, from a social point of view, might be negligible if the stocks are acquired mainly in times of economic slack when the future opportunity cost of producing now is low, a point that Hart fails to mention. He does note that net social cost would be lower than gross cost to the extent that the existence of public storage of these commodities permits some reduction in private stocks and to the extent that his scheme headed off various proposals for export-restricting commodity schemes that were under discussion at UNCTAD in the mid-1970s.

Hart makes the interesting suggestion that the IMF might occasionally substitute future contracts for physical holdings of individual commodities in the basket, thereby releasing those commodities into the market under conditions of an emergency.

Under this conception of an international currency, individual nations would be free to set national monetary standards as they chose and to allow their currencies to float against one another and against the SDR. But individual countries would be permitted to peg their currencies to the SDR. In all likelihood many would do so, just as today many peg their currencies to some other currency or to a basket of currencies.

In sum, this proposal involves an international unit of account and the creation of an international money that is anchored in a basket of economically significant commodities. The unit of account would over time maintain a stable value in those commodities through purchase or sales of the basket within a margin of plus or minus 5 percent. The omission of oil and coal from the basket is noteworthy: They were both included in Graham's list in 1937. Moreover, this scheme obviously would not stabilize a more general price level if there is secular drift between the average prices of the ICRC commodities and other prices. The problem of a secular increase in prices of services, as we measure them, has already been discussed.

The question of whether there is secular drift in the prices of primary products relative to the price of manufactured goods has long been debated. The view of David Ricardo, revived in the 1970s by the Club of Rome, is that the price of manufactured goods must decline secularly relative to the price of primary products in a world of growing population and income. This decline is the result of the increase in rents on agricultural land and on resources in limited

supply. Under these circumstances, stabilizing the value of the monetary unit in terms of primary products would result in a secular decline in the price of manufactured goods, although that decline would perhaps be offset in whole or in part by the rise in the measured price of services.

In the early 1950s, Raul Prebisch took the opposite view, widely held in many developing countries, that there is a secular rise in the price of manufactured goods relative to that of primary products. If the monetary unit is stabilized in terms of the prices of primary products and if the Prebisch view is correct, the ICRC scheme will generate secular inflation. In fact, the historical evidence is ambiguous on very long-term movements in the ratio of primary product to manufactured prices (Spraos 1980). There do seem to be swings in one direction or the other for periods of a decade or longer, such as the swings that took place under the gold standard, but those swings are less pronounced than for gold alone.

International Monetary Systems in Practice

The Gold Standard

The pre-World War I gold standard does not fall into the category of carefully worked out international monetary systems. It was a historical consequence of national choices, strongly influenced by the political, military, and economic successes of Britain, plus the historical accident of Britain's being on the gold standard. It was, moreover, a period of great economic tension and considerable instability both in prices and in output (Cooper 1982).

An idealized version of the gold standard was, to be sure, a self-correcting mechanism that could both stabilize the world price level and generate the right amount of international liquidity. For a single country with an insufficient monetary base to support its desired activities, the national price level would fall, a trade surplus would develop, gold would flow into the country from the rest of the world, and this process would continue until price level equality was restored with sufficient additions to gold money to support the higher desired economic activity. This mechanism was described by David Hume clearly and concisely in 1752.

For the world monetary system, inadequate gold would lead to a decline in the world price level, thus increasing the real value of money and satisfying the need for money in that way. But a longer-term adjustment would also be set in motion. With gold more valuable in real terms, gold production could be expected to increase, and the total supply of money in physical terms would thus

be augmented. This process would ensure long-run stability of the price level, provided technological improvements in ore extraction and new discoveries could be assumed to offset exactly the gradual exhaustion of known gold supplies and to thwart the emergence of Ricardian rents, which otherwise would require a trend decline in the general level of prices measured in gold money so long as the economy was growing.

Unhappily, this idealized version was not readily observable in reality. The lags in the adjustment process were so long that large swings in prices could be observed as a result of periodic surpluses or shortages of gold relative to commodities. Table 2 records the changes in wholesale prices that occurred during a century under the gold standard (roughly parallel movements in all four countries listed) by amounts between 30 and 70 percent. This experience is certainly not a record of stability.

It is conceivable that, despite these long swells, economic agents expected an eventual return to a "normal" price level. Certainly a striking feature of the 19th century is that there were long periods of price decline as well as long periods of inflation.

If the relevant public expected the long-term price level to be stable, long-term interest rates should be *negatively* correlated with the price level. High price levels would give rise to expectations of a subsequent fall in prices, which should lower nominal long-term interest rates, and vice versa for a lower-than-normal price level. In fact, long-term nominal interest rates were *positively* correlated with prices—rising as the price level rose, falling as it fell. This phenomenon was dubbed the Gibson Paradox by Keynes (1930) and was already a puzzle to analysts in the 1920s.

The movements in long-term interest rates are more easily interpreted by assuming that the relevant public expected the contemporary price level to remain unchanged regardless of where it is

TABLE 2

WHOLESALE PRICE CHANGES UNDER THE GOLD STANDARD

Years	United States	United Kingdom	Germany	France
		(Percentage Change)		
1816–1849	−45	−41	−29	−33
1849–1873	67	51	70	30
1873–1896	−53	−45	−40	−45
1896–1913	56	39	45	45

SOURCE: Cooper (1982, p. 9).

relative to past levels, perhaps adjusted slightly for recent changes. That is, if prices have fallen recently, the public expected them to fall a bit more and then remain unchanged.

But if this was the public's expectation—and it fits best the relationship between the price level and long-term interest rates—they were constantly fooled. We now know that, at least for a 20-year holding period (this was the maturity of many bonds), ex post real interest rates varied much more sharply than did nominal interest rates, and both series were positively correlated with the price level. This is not a record of intertemporal constancy in contract values.

It is conceivable too that short-term predictability was quite high despite long-term swells in prices, despite apparently erroneous expectations about the real value of long-term contracts, and despite the high variability both of short-term prices and of short-term interest rates. Lawrence Summers (1983) has shown, however, that short-term nominal interest rates did not, in fact, adjust well to compensate for short-term fluctuations in the price level. More recently, Allan Meltzer (1986) has shown that quarterly prediction errors (on a simple forecasting model relying only on past data of each series) were much higher in the gold standard era both for prices and for real output than they were in the 1950–80 period. Table 3 records the forecast errors for quarterly forecasts of U.S. GNP and the prices for each of six monetary periods as characterized by Meltzer. (He distinguishes between a gold standard with and without a Federal Reserve System, and he separates the period of fixed long-term interest rates during

TABLE 3

VARIANCE OF QUARTERLY FORECAST ERRORS (TIMES 1,000) FOR THE UNITED STATES

	Nominal GNP	Price Level	Real GNP
Gold Standard			
1890(1)–1914(4)	2.98	.25	2.83
1915(1)–1931(3)	1.80	.60	1.41
No Clear Standard			
1931(4)–1941(4)	5.64	.24	4.02
1942(1)–1951(1)	.67	.60	.78
Bretton Woods, 1951(2)–1971(3)	.13	.02	.11
Fluctuating Rates, 1971(4)–1980(4)	.13	.02	.14

NOTE: Quarterly forecasts are made using a Kalman filter with respect to expected level and expected rate of change on past data for each series.
SOURCE: Meltzer (1986, p. 141).

the 1940s. He does not exclude the two world wars.) A comparison of the first two rows with the last two rows shows a *dramatic* improvement in quarterly predictability on moving from the gold standard to either the managed monetary system under Bretton Woods or the period of fluctuating exchange rates since the early 1970s. The forecast errors decline relative to price and output variability as well as in absolute terms, and they decline sharply on expectations with respect to level and rate change of the variables as well as with respect to general background noise (Meltzer 1986, pp. 141–44). It is likely, furthermore, that an extension of Meltzer's analysis through 1981–87 would show, by these standards, a marked superiority of the Bretton Woods system over the full period of fluctuating exchange rates. Of course, we could not be sure that the difference was attributable to the change in international monetary arrangements.

In sum, the historical gold standard did not perform very well—indeed it was a source of consternation and controversy to those who lived through it—except with respect to fixing exchange rates among currencies.

The Present Non-standard

The present mixed arrangement of fixed and fluctuating exchange rates also does not reflect a considered collective judgment on what the international monetary system should be. Rather, present arrangements are a jumble reflecting national choices and evasion of choices. They are not "anchored" in anything, neither a commodity basket nor even (except for the United States) the prudence of U.S. macroeconomic policy. This lack of an anchor is a source of uneasiness. Neither national price levels nor the SDR-denominated price level are determined in the "logic" of the arrangements, although they are determinant at every moment of time. The lack of a clear anchor may suggest that there is no foundation for long-term expectations about the price level, although, as we have seen, such expectations were not very accurate under the historical gold standard either.

There are two further problems with present international monetary arrangements. The first concerns unsettled expectations about the future value of real exchange rates among major currencies, over the horizon of one to five years that is appropriate for investment and production decisions. It is noteworthy that price levels moved substantially under the gold standard but that in different countries price indexes moved roughly in parallel with one another, suggesting that there may not have been significant variations in national competi-

tiveness arising from the monetary side of national economies. This aspect of the gold standard deserves a closer examination.

If they are to be subjected to economic disturbances, most businesses, especially in manufacturing, place a high value on their competitors being subjected to the same disturbances so they are not put at a competitive disadvantage. The problem with present arrangements involving flexible exchange rates is that the arrangement provides no such assurance in industries operating in a world market. On the contrary, for reasons that are remote from a firm's activity and that often originate in the arcane world of finance, the firm can suddenly find itself facing much stiffer competition (or much less, but that is rarely a cause of concern) as the result of the movement of an exchange rate.

This uneven source of uncertainty will have several consequences that are adverse to the efficient allocation of resources. First, businesses, at the national level, will attempt to blunt the source of supposedly unequal competition by urging an increase in trade barriers of various kinds. This response was manifest in the United States in 1983–86. It will slow import liberalization in Japan in the late 1980s, and I expect it to become more pronounced in Europe as trade surpluses decline there.

Second, investment will be reduced in the tradable sector as a result of the greater uncertainty arising from fluctuations in real exchange rates—an uncertainty of a more compelling type for investors than uncertainty about the general price level over the period of their investments. The latter influences profitability, but the likelihood that unanticipated changes in the price level will cause bankruptcy is much lower than the likelihood that unanticipated changes in the exchange rate will cause bankruptcy. It is perhaps not a complete coincidence that investment rates in manufacturing have dropped sharply in all major industrial countries since the advent of flexible exchange rates, although there are other explanatory factors as well, most notably the two oil price increases and the associated sharp recessions in economic activity.

Third, firms will adjust their investment behavior to hedge against the offending uncertainty. Since they cannot hedge their future commitments to production through financial markets, they will do so by investing abroad, across currency zones, even if that means giving up some of the advantages of cost and scale associated with exporting from their home bases or some other lowest cost location. One possible consequence, since some of this diversification takes place through takeovers and buyouts, is a greater world concentration in certain industries, leading to a reduction in worldwide competition.

So on all these counts, a regime that reduced uncertainty about real exchange rates without increasing costs elsewhere would be an improvement over the present arrangements.

The second problem with current monetary arrangements is that the most important official international reserve continues to be the U.S. dollar, despite a general commitment to make the SDR the principal reserve asset. The dollar is supplemented by holdings of other currencies, most notably the German mark and the Japanese yen. In practice, dollars are likely to provide most of the growth in reserves over the next decade, although the share held in other currencies may grow somewhat. Reserves are necessary and are thought to be necessary, because the exchange rates of almost all countries are either fixed to something or are subject to managed floating. We have a mixed and permissive system rather than a floating rate system. Moreover, as many countries have now discovered, access to the international capital market is not ensured at all times, especially when a country is seen to be in some external economic difficulty (i.e., just when it needs foreign funds most badly). So monetary authorities feel they need owned reserves, and they will want those reserves to grow, on average, over time.

Sometimes countries acquire reserves as the lesser of evils, as a result of exchange market intervention to keep their currencies from appreciating too rapidly or too far. But once acquired, the higher level of reserves sets a new expectation: While some decline may be tolerated and even welcome, a decline toward the former level more often than not provokes restrictive action to halt the drop. A rachet is thus introduced into implicit reserve targets.

Over the coming decades the relative importance of the United States in the world economy is likely to decline—not because the U.S. economy is performing badly, but because others are performing well. Europe and Japan are also likely to experience relative declines as well, and for the same reasons: low population growth rates and productivity that advances only as rapidly as new technology permits. Other countries have more rapid population growth, and they can continue to introduce existing technology from abroad. Of course, poor economic policies or political turmoil may retard their growth, but on balance the U.S. share of gross world product is likely to decline over time.

The combination of reduced relative U.S. economic importance with growing use of the dollar as an international reserve will sooner or later put serious strains on U.S. monetary policy. In a certain sense, it implies more external "discipline" on the United States. But this discipline will not necessarily conduce toward greater economic or

monetary stability, so as to provide a firm anchor for the system. Rather, the Federal Reserve will find itself more frequently having to respond to international financial pressures, whether they are rational in the larger scheme of things or not, and these pressures may sometimes cause less rather than more stability in monetary affairs. Yet the proper role of a monetary system, national or international, is to provide a stable expectational environment for the wealth-producing sectors of the economy and for the public generally.

An International Fiat Money

The exceptional importance of real exchange rate uncertainty suggests that a system should be introduced that can reduce it. Several proposals to accomplish this objective have been made, ranging from target exchange rate zones that would limit exchange rate movements around a calculated equilibrium real exchange rate (Williamson 1985) to close coordination of monetary policy among the three largest countries with a view both to stabilizing their exchange rates and controlling their collective monetary growth (McKinnon 1984).

But to eliminate exchange rate uncertainty definitively—and sharply reduce real exchange rate uncertainty—requires a single currency. For the international monetary system, this objective could be effectively achieved with much greater prospect of negotiability by first introducing the single currency to the large industrialized democracies of Europe, North America, and Japan. A single money requires a single monetary policy. The constitution of the new International Central Bank (ICB), as we may call it, could be modeled on the Federal Reserve System, with changes appropriate to the circumstance that participants would be nations rather than regions within a nation. Representatives of national central banks, whether or not under control of sitting governments, could make up the Board of Governors with votes weighted by the relative size of national economies. Or finance ministries could be directly represented. Or there could be nationally selected independent appointees with the number of appointees apportioned by economic size. Whatever its exact constitution, the key point is that monetary policy would be a collective decision; no single government could determine the outcome.

The ICB's powers would be similar to those of central banks today, with a discount window for distress lending and open market operations to influence the monetary base. Governments would share the seigniorage resulting from the issue of central bank money. But no government could finance budget deficits at the ICB beyond its share

of the seigniorage; it would have to go to the financial market for that.

Other democratic countries could formally join the system, and any nonmember could choose to fix its exchange rate vis-à-vis the international kroner,[10] which would permit many of the advantages of fixed exchange rates without the formal commitments.

What principles should guide the actions of the ICB? It would face much the same choices that nations face today, although it could not fix the exchange rate, because there would be no plausible currency to which to fix it. The earlier discussion about various national standards becomes relevant, including the various disadvantages of a commodity-based standard. Nonetheless the ICB needs some guidelines. The standard could be, as Keynes (1930, p. 391) suggested, a tabular standard based on an index of wholesale prices of 62 internationally traded commodities with an implied secular inflation in consumer prices, which Keynes recognized and welcomed. Or it could be a target based on a weighted average of the consumer price indices in the participating countries with an implied secular decline in commodity prices. Or the standard could be a defined price level but modified in response to movements in unemployment away from some target level, as Hall (1986) has suggested. Or the ICB could even fail to agree on a sharply defined target and muddle through as the Federal Reserve does now. That would not be intellectually satisfying, but Meltzer's findings suggest that we could be much worse off under many alternatives.

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[10]It does not matter what the new currency is called. In view of the widespread use around the world of the U.S. dollar, "dollar" would be a natural designation, but that designation might be politically offensive to some. So it could be called the thaler, or the kroner, or the franc. *The Economist* (9 January 1988, p. 9) has suggested the "phoenix."

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TOWARD AN INTERNATIONAL FIAT STANDARD?

Lawrence H. White

Richard Cooper's paper evokes in me a certain nostalgia. It is somehow reassuring to find that the ideological outlook at Harvard has not changed appreciably since my days as an undergraduate economics major. Though Cooper has joined Harvard's economics faculty since I graduated, it is evident from his paper that he shares what I remember as a parochial and rather wishful view of the beneficence of government institutions.

In one respect, though, his paper shows that the outlook at Harvard is perhaps not as parochial now. Cooper cites Allan Meltzer, whose name I certainly never heard in any Harvard classroom. Even more remarkably, the paper cites Meltzer (1986) favorably. The occasion for this outreach is revealing. Cooper finds Meltzer's work useful because they agree on one thing: that a commodity money system is inferior to a fiat money system run the right way. Of course, Cooper and Meltzer have very different ideas about what is "the right way" to run a fiat money system. But monetary politics can make for strange bedfellows. We have here a question of politics because both want a political system to supply the economy with its basic money.

Meltzer, like many other monetarists, wants base money supplied by a national monetary authority, albeit an authority bound by a strict money growth rule, with cleanly floating exchange rates among industrial nations. Cooper, like at least a few other Keynesians, wants a world central bank that is either managed to stabilize some price index or empowered to engage in activist counter-cyclical policy. The most important question is not which of these two political money-supply systems is better, but whether we would not be better off with a nonpolitical, market-based monetary system.

The idea of a nonpolitical monetary system, unfortunately, nowhere intrudes into Cooper's paper. (In fact he suggests that any monetary

Cato Journal, Vol. 8, No. 2 (Fall 1988).
The author is Associate Professor of Economics at the University of Georgia.

system not consciously designed and collectively installed is per se unsatisfactory.) This omission is understandable, of course; denationalization of money is not yet within the realm of the politically realistic. It will no doubt be as absent from the agenda of the next Democratic administration as it was from the last one, in which Cooper occupied a position of importance.

Commodity Standards and Free Market Money

Cooper's first sentence reminds us of how deep-rooted political control is over money: "Determination of the basis for a national currency is one of the foremost attributes of national sovereignty." This statement is certainly true, but it is not a necessary truth. It is instead a sad reflection of the pervasiveness of state intervention in our daily lives that the currency we carry in our wallets, and more importantly the ultimate medium of settlement in our payments system, is today nothing but a token of state sovereignty.

It need not be so. Determining the basis for currency could be left to the market. Once it was: Commodity money evolved long before nation-states discovered the profits to themselves in (1) monopolizing the mints, (2) monopolizing the issue of commodity-redeemable paper currency, and (3) finally terminating the commodity standard by abrogating the central bank's obligation to redeem its currency. Thus a commodity standard (particularly a gold or silver specie standard, but perhaps even a nongovernmental commodity basket standard) can be viewed in a way quite distinct from what one finds in Cooper's paper. He characterizes single-commodity and multi-commodity standards as a set of "rigid formulae," which are urged on national governments by would-be reformers, for linking national currencies to arbitrary commodity baskets. Instead, a commodity standard may be viewed as the naturally evolved market (or nonpolitical) arrangement for supplying money.[1]

To have a single-commodity standard, contrary to Cooper's account, is not characteristically "to require the money-issuing authority to buy and sell the currency for the commodity at a fixed price." There simply need not be any monopoly currency-issuing authority.[2] Paper currency (banknotes) can instead be supplied by a plurality of competing banks. Redeemability of paper currency for the money commodity at a prearranged rate is then not an imposed requirement, but simply a natural part of the contract freely made between a bank and the holders of its banknotes.

[1]See Selgin and White (1987).

[2]A point made by McCulloch (1986).

I cannot go into more detail here about (1) how such a "free banking" system has worked historically or would work under modern conditions; (2) whether a free banking system would tend, or should be nudged (as Leland Yeager has suggested), to evolve beyond a single-commodity standard with direct redeemability to a multi-commodity standard with only indirect redeemability; (3) the reasons for believing that political money supply regimes are radically flawed; or (4) why the intellectual case for government provision of money, on the grounds that it is a "natural monopoly" or "public good," is an empty box. I refer the reader to other works on these topics.[3]

The point I want to emphasize is that, from the perspective of denationalization, a free-market commodity standard is quite unlike the contrived, government-run, commodity-basket proposals to which Cooper devotes most of his paper. The most forceful argument for a gold standard, in my view, is not that it would best guide the monetary authorities, but that it would allow us to do without monetary authorities. Even among gold advocates who do not go that far, the case for gold is generally the case for a nonpolitical, self-regulating monetary order, free of covert inflationary finance (thus they speak of "honest money") and free of central-bank-generated monetary instability (thus "stable money").

When Cooper writes that gold advocates "really want gold for reasons of history and sentiment," he shows little understanding of the case for gold. The history of gold is relevant because, to some extent, it shows us how a monetary system evolves and how it can operate in the absence of state intervention—not because what is traditional is per se better than what is new. Perhaps he assumes that the case must be built on history and sentiment because it is not built on optimal control theory. Indeed, a better system can always be designed for hitting any specific nominal goal one likes, such as a price index target.

As Cooper argues, a commodity standard is not sufficient to ensure the stability of any particular price index. As I have indicated, however, there is at least one other important reason for preferring gold: the desire to have a basic money that is outside the hands of governments and is not subjugated to whatever goal authorities decide to pursue. Why should the monetary system be hitched by force of law to any centrally planned goal? I am not against price stability, mind

[3]Regarding (1), see White (1984a) and Selgin (1988); for (2), see Greenfield and Yeager (1983, 1986), Yeager (1985), and White (1984b, 1986); for (3), the two major reasons are the possibilities of monetary policy being turned toward seignorage maximization or toward creation of unintentional or intentional (political) business cycles (see Willett 1988); and for (4), see Vaubel (1984).

you. (As central bank goals go, it is far from the worst.) I just believe that everyday transactors are smart enough, and the market selection process is responsive enough, that the monetary standard and payment media they converge on in a free-market setting will embody as much purchasing-power stability as they feel is worth having, given the cost of enchancing it.

Monetary Policy Rules

Cooper asks why monetary policy should be exclusively concerned with stability of the price level (or more generally, with producing whatever path for the price level). Once we take a national government-run fiat money regime for granted, this is an important question. Cooper ponders several possible answers to why the price level should be the central bank's sole concern. Oddly, he does not address the strongest case for precommitting monetary policy toward a single objective of zero inflation rather than toward some combination of low inflation and something else (low unemployment, for example): namely, the case made by Kydland and Prescott (1977) and by Barro and Gordon (1983). These authors show that a discretionary policy authority in a "natural rate" world, which is known by the public to face the temptation of exploiting the short-run Phillips Curve, is driven to produce pointlessly high inflation. A natural rate world is one in which unemployment can be reduced (or the real interest rate reduced, or any other supposedly beneficial real effect produced) by monetary policy only when the policy fools the public, inflating faster than they expected. Monetary shocks can disturb the real economy but cannot improve its results. Cooper apparently doubts that we live in such a world, though it is not clear why he doubts it. Surely the possible "Tobin effect" of inflation on capital accumulation, even overlooking the weakness of its empirical support, provides no grounds for a monetary policy targeted on real variables.

The discretionary monetary authority in Kydland and Prescott's example is driven to create high inflation, because the authority knows that the public expects high inflation and that to create low inflation, with its negative monetary surprise, would increase unemployment. The public rationally expects high inflation because it knows the authority is tempted to notch up the inflation rate whenever the employment gain from surprise inflation is worth it. This is known in the literature as the "time inconsistency" problem with discretionary monetary policy. Cooper cites Brainard (1967) as an argument for having all objectives influence the choice of all policy instruments, but the whole optimal-control approach to monetary

policy represented by that advice has yet to be rehabilitated from the time-inconsistency critique.

As mentioned earlier, Cooper favorably cites Meltzer (1986), a work claiming to show that greater macroeconomic uncertainty was experienced under the historical classical gold standard than has been experienced under the postwar Bretton Woods international monetary system and the floating-rate system. Meltzer's evidence, however, has problems that we ought to note. Most importantly, the older time series Meltzer uses were not collected in the postwar manner. They were constructed after the fact and, because of limitations on readily available data, were constructed in a way that very likely exaggerates their cyclical volatility. A much narrower basket of commodities was available for the construction of price indices, for instance. Christina Romer (1986) has shown that the unemployment and GNP series similarly exaggerate cyclical variability. Thus the poor showing of the gold standard in Meltzer's tests may be simply a figment of the data.

The Proposal for an International Political Fiat Money

Finally, we have the punch line of the paper: a reiteration of the call Cooper (1984) made earlier for an international fiat money issued by an international central bank. Forthrightly facing the fact that any genuine fixity of exchange rates between independent national fiat monies is absurd and unworkable (the fixity of a currency's exchange rate cannot be sustained unless the national monetary authority gives up its independence), Cooper opts for fixity through an international fiat money. One must respect him for being radical (or "utopian") enough to take his ideals (fiat money and fixed exchange rates) to their limit and not to shirk from the sweeping institutional change that would be necessary to implement his vision, namely the formation of an International Central Bank among the leading Western industrial powers.

I am broadly sympathetic to the goal of a unified world monetary system, because I think such a system would be the natural child of unhampered international commerce and cross-border banking. If not for the barriers thrown up by the scourge of monetary nationalism, we would have a unified international monetary system. But it is not a goal that justifies any and all means.

An international central bank issuing fiat money, with power delegated to it by national governments, strikes me as a means so inappropriate as to outweigh any progress it might represent toward a

unified global monetary system. Such a bank would render the supply of money no less a creature of politics, and possibly even more so. I would expect an international central bank's monetary policy-formation process to be even more muddled than the Federal Reserve's, if that is possible. Certainly the practical experience of the European Economic Community (the Common Market) does not give one any great hope for a "Eurocratic" monetary policy. An international central bank is unlikely to be aloof from games of power politics among national governments, which are anxious in various degrees to inflate away fiscal and re-election problems. It is even less likely to be aimed resolutely toward any academic policy target. Thus it would hardly enhance the predictability of the monetary system.

Fortunately, there are alternative means to global monetary unification. One, proposed by F. A. Hayek (1976), would be to free businesses and individuals everywhere to choose whichever existing national fiat currencies they find most attractive. If they use and hold German marks or Swiss francs, that verdict would give valuable feedback on what monetary policy they effectively prefer. Presumably, the currency of the best-behaved central bank would play a dominant role, at least in international transactions. It is difficult to understand how Cooper could consider that currency inferior (as an international medium of exchange and unit of account) to a currency controlled only 10 percent by the government of the best-behaved central bank and 90 percent by more inflationary governments.

For those who, understandably, feel uncomfortable with the prospect of a money managed by the bureaucracy of any foreign city, be it Brussels or Bonn, there is a modestly more sweeping reform available: Allow citizens everywhere to use a basic money that is not the liability of any central bank or governmental agency. A commodity standard makes such an international money of the market possible. Whether a single-commodity or a multi-commodity standard is better suited to the role is a secondary issue.

We can envision the results of such a reform by considering what would happen naturally between the United States and Canada if the same commodity monetary standard prevailed in both nations and if no barriers were erected to cross-border branch banking. Can anyone doubt that we would have a fully unified international monetary system? Exchanges between New York and Toronto would present no greater complexity than exchanges between New York and Chicago, especially with the same set of banks operating branch offices in all three cities. Transnational investments, just like interstate investments today, would be completely unfettered by exchange rate risk. The advantages of free trade in commodities and capital

would be magnified appreciably, one would expect, by this monetary unification.

Perhaps the similarities and differences between Cooper's approach to global monetary unification and mine are best summarized the following way. Both of us would like the Federal Reserve, the Bank of Canada, and other central banks to give up their respective national monopoly powers over the supply of currency. He, however, would like the powers to be merged into a unitary international central bank cartel, a multinational monopoly issuer. I would like the powers to be surrendered so that no agency has a monopoly over money. Competitive provision of currency, responsive to the wants of money-holders rather than to the exigencies of power politics, could then prevail both within each nation and across national boundaries.

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How Economists Wrought a Nonsystem

Paul Craig Roberts

I suppose that I am the leavening for the utopianism of Richard Cooper's single currency on the one hand and Lawrence White's private money on the other. Nothing is logically wrong with ideas that go to the heart of matters. If there are no exchange rates, we cannot be bedeviled with exchange rate volatility. If money is private, the market will winnow the good from the bad. In the real world we are a long way from formally adopting either a single currency or private money, but informally there is movement toward both. Along Cooper's lines, there is a sense in which the dollar is becoming the single currency. Many countries certainly prefer the dollar to their own national currencies. In some Latin American countries, major purchases such as housing cannot be made in the national currencies. For example, if you want to buy a house in Peru, you will probably need dollars. This example shows that even if the dollar looks bad to us, it looks very good to the majority of the world's population.

Private money will emerge when governments destroy the integrity of official monies. That, too, is happening. In many countries, the U.S. dollar performs the function of private money, and although not the legal tender, it is the preferred currency. More generally, the rise of parallel economies demonstrates that whenever governments make official economies too costly, people turn their backs and create unofficial activities that displace the official ones. In short, there is some reality in Cooper's and White's utopian schemes. The most successful mechanisms are probably those that develop on their own rather than those designed by politicians and economists. We can compare the market, for example, with the planning schemes of economists.

While we wait for an evolving world, what can we as economists contribute that might improve things on the margin? Our contribu-

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Cato Journal, Vol. 8, No. 2 (Fall 1988):

The author holds the William E. Simon Chair in Political Economy at the Center for Strategic and International Studies.

tion is unlikely to be grand schemes of international cooperation. If the world could agree on monetary policy, we would not need Cooper's common currency. Moreover, I doubt many of us would favor concentrating power in a single central bank; it is hard to imagine a more surefire way of leveraging mistakes.

I have heard complaints that describe current international monetary arrangements as a "nonsystem." While I believe that this characterization exaggerates, I am willing to accept it if the reader can accept the role of economists in bringing about a nonsystem. Let's examine this interesting idea.

In 1981, the Federal Reserve took us off the dollar standard by driving up exchange rates and holding them up. When this policy changed, the Germans kept us off the dollar standard by adopting austerity policies as a defense against fears of importing U.S. inflation. Neither development could have occurred without the incorrect analysis and hysterical advice of economists.

The Fed collapsed inflation unexpectedly, sending the dollar through the roof, because lazy economists misinterpreted a supply-side policy as a huge demand-side fiscal stimulus coming on top of double-digit inflation. Moreover, Paul Volcker heard the chorus that "monetary policy is a junior partner that at best can conduct a weak, rear-guard action." Government policy was supposedly in the hands of crackpots, inflation was the order of the day, and the Fed would be blamed. With this expectation, the Fed went into a self-defensive posture, reasoning that an administration with monetarists in office could not blame inflation on the Fed if there was no growth in the money supply. This is the way the policy process really works. Governments do not have policies the way economists think; policy is what you discover in the next morning's newspaper.

The budget deficits were not intended. They were the consequence of unanticipated disinflation. The revenue loss from the tax cuts was fully anticipated; the administration's economic and budget forecasts were based on the treasury's static revenue analysis that tax cuts would lose revenues dollar-for-dollar. However, the loss of tax base from sudden disinflation was not anticipated.

Despite the facts, economists insisted on misinterpreting deficits, resulting from unanticipated disinflation, as "expansionary fiscal policy" and "excessive fiscal stimulus." Economists repeated these absurd mischaracterizations of policy while inflation collapsed in front of their eyes.

The result of this, perhaps willful, mischaracterization of the administration's fiscal policy was to convince the Germans that Reagan's policy was an escalation of the Keynesian policy of the 1970s,

thereby threatening them with a new round of imported inflation. The American economic establishment worked overtime to grind this dangerous misinterpretation deep into German consciousness. German policymakers soon reached a point where they would not even listen to administration explanations, and they became impervious to factual analysis.

Like it or not, this description is an honest account of economists' responsibility for the current "nonsystem." If exchange rate stability is a goal, the G-7 will have to agree on a rate of economic expansion. Either the United States ceases to generate jobs or Europe starts to generate jobs. We are more likely to convince Europe to generate some jobs if our economists cease prattling about "major misalignments of fiscal policy."