

**The Development and Reform of the
Modern International Financial System**

by

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Working Paper No. 225

January 1998

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I would like to thank Jan Kregel and John Harvey for comments. An early version of this paper was presented at a seminar at the Economic Policy Institute, and I would like to thank participants for comments.

ABSTRACT

The international financial system might be said to be in crisis. It requires frequent intervention by central banks and other national and international bodies to reduce fluctuations of currencies. It does not tend to eliminate current account deficits or surpluses; exchange rate fluctuations do not lead to movements toward balanced trade, nor do they appear to follow from flows of international reserves: some countries run persistent surpluses while others run persistent deficits.

This paper first examines the functioning of the modern international financial system in order to design a reformed system that will make it easier to deal with some of the problems that face the international financial system today. The paper advocates reformation of the international financial system along the lines of Keynes's famous bancor proposal. Most importantly, the reform would eliminate the current bias toward "austerity" that results from the way in which existing international financial institutions operate.

INTRODUCTION

The international financial system might be said to be in crisis. It requires frequent intervention by central banks and other national and international bodies to reduce fluctuations of currencies. It does not tend to eliminate current account deficits or surpluses; exchange rate fluctuations do not lead to movements toward balanced trade, nor do they appear to follow from flows of international reserves: some countries (notably West Germany and Japan) run persistent surpluses while others (notably, the U.S.) run persistent (even rising) deficits. Nor does "free" trade appear to operate according to the Ricardian Law of Comparative Advantage. "Free" international credit markets do not appear to provide credit in a socially acceptable manner--some countries and activities appear to receive far too much, while others receive too little. The world is experiencing nearly universal stagnation while governments appear to be unwilling, perhaps unable, to do anything about it.

Before moving on to our primary concern, this paper will briefly present the orthodox view of "money"--both at the national level and at the international level. In this view, money is primarily a medium of exchange that facilitates the circulation of goods either domestically or internationally. Accordingly, domestic monetary policy should be concerned primarily with control over the money supply in order to minimize inflation. On this view, international monetary policy

should be devoted to removing barriers to free capital flows and to maintenance of freely floating exchange rates. Flexible exchange rates are said to permit independence of domestic policy from international considerations; they also ensure rapid adjustment of international balance sheets to equilibrium.

We next examine the Post Keynesian view of money. This will require a brief excursion into monetary history to make it clear that money was, and is, first and foremost a unit of account. This helps to clarify the nature of various manifestations of money: credit money, commodity money, and reserve money. We can then move to an understanding of the functioning of the modern international financial system; this will allow us to design a reformed system that will make it easier to deal with some of the previously discussed problems that face the international financial system today.

Finally, this paper will advocate reformation of the international financial system along the lines of Keynes's famous bancor proposal. However, it will be argued that Keynes's theoretical justification of his proposal was flawed. Using Post Keynesian theory, this paper will provide a justification for reform that is free from the flaws of Keynes's argument.

THE ORTHODOX VIEW OF DOMESTIC AND INTERNATIONAL MONEY

Let me begin with a quote from Samuelson; this is very similar to the exposition in every money and banking book with which I am familiar. It is also historically incorrect and logically flawed.

Inconvenient as barter obviously is, it represents a great step forward from a state of self-sufficiency in which every man had to be a jack-of-all-trades and master of none....If we were to construct history along hypothetical, logical lines, we should naturally follow the age of barter by the age of commodity money. Historically, a great variety of commodities has served at one time or another as a medium of exchange: ...tobacco, furs, slaves or wives...huge rocks and landmarks, and cigarette butts. The age of commodity money gives way to the age of paper money.... Finally, along with the age of paper money, there is the age of bank money, or bank checking deposits. (Samuelson 1973: 274-6)

As we all know, the orthodox story begins with a barter economy, which discovers that money can be used to lubricate the market mechanism. While the first moneys are Samuelson's "furs, slaves, or wives" and so on, it is eventually discovered that precious metals serve as better media of exchange (scarcity and physical characteristics ensure their value is high relative to carrying cost; and gold is

probably less likely to run off than are wives when used as media of exchange). Transactions costs are further reduced when the goldsmith accepts deposits of gold, issuing paper money backed by gold reserves. The quantity of gold reserves closely governs the amount of paper money issued so that redeemability is ensured.

Eventually, government fiat money somehow becomes the reserve held by banks against deposits, but this doesn't change anything: the quantity of money is still determined by reserves. Since the central bank determines the quantity of reserves, it controls the money supply. If it supplies too many reserves, the money supply increases too fast, causing inflation. Thus, according to orthodox economists, money policy should control reserves in order to control inflation: the primary domestic responsibility of the central bank is to serve as an inflation guard dog.

The orthodox view of international money is similarly based on the barter paradigm. As Hahn says, "The pure theory of International Trade pays no regard to financial matters and deals with non-mediated exchange of regions..." (Hahn 1991: 1) In a simple, moneyless, model, the addition of "foreign countries" would not complicate the analysis; each country could be treated as an optimizing agent such that an equilibrium vector of relative prices would emerge from barter. If production is added, countries would specialize according to the Ricardian Law

of Comparative Advantage, with each taking advantage of its unique national environment. (Davidson 1992, p. 116) If equilibrium were stable, then the process of tatonnement would generate an equilibrium vector of relative prices in accordance with technologies and tastes.¹

"Free" trade among countries is believed to increase economic efficiency just as "free" trade within a country would do so. In the absence of money and historical time, international trade would always be "balanced"--with all trades executed at an instant of logical time, each purchase of a time-dated commodity by Country A would be offset by a time-dated commodity sale by Country A. A trade deficit would be impossible, as "Each region is at all times taken to be in Walrasian equilibrium". (Hahn 1991: 1)

Things become more complicated once we allow for the use of money as a medium of exchange. Of course, as recognized by Hahn (1983), General Equilibrium Theory (GET) has no room for money but, like the orthodox economists, we will ignore that problem for now. Once money is allowed, we must specify whether our international economy operates with a unified money system (UMS) or a nonunified money system (NUMS). (Davidson 1992) A unified money system is one in which all nations either use the same money unit, or one in which different money units are used but in which the exchange rates among the different money units are stable and are expected to remain so. (It is

not necessary that the exchange rates are fixed; it is only necessary that movements are perfectly foreseen.) A nonunified money system is one in which a number of monetary units are used and in which exchange rates are not expected to be stable. It is the NUMS that causes the greatest problems for Neoclassical theory (and for real world stability).

Assuming a UMS operating in historical time, a trade deficit now becomes possible: country A can import more commodities than it exports, leading to an outflow of the currency of A. Agents of country B will accept this currency, knowing the rate at which it will exchange against currency B. However, assuming that these currencies are indeed different and that currency A will not be accepted as legal tender in country B, then the agents of B will hold this currency only on the expectation that it will be used later to buy the exports of A. If this is not the case, the currency of A will have to be converted into the currency of B; this might be accomplished by profit-seeking agents specializing in currency exchange (who charge a small fee for the service). These currency exchanges would have to keep reserves of a variety of currencies in order to accomplish conversions for the currencies of a variety of trading partners; these "capital" reserves would have to earn a normal return obtained through the fees.

In general equilibrium theory, a gold standard is normally assumed; in this case, each currency is made convertible into gold. Gold can operate as the single

reserve, reducing the required reserves of the currency exchanges, resulting in efficiency gains. The currency of any country would be increased whenever a trade surplus led to an inflow of gold reserves; on the other hand, a country facing a trade deficit would lose gold reserves, destroying a portion of the supply of its currency. Seignorage would replace fees as a "central bank" with the power to issue currency based on gold reserves replaced currency exchanges. As Hahn argues, addition of (UMS) money under a gold standard to GE theory leads to "no changes in the 'real' equilibrium conditions, that is the equilibrium terms of trade". (Hahn 1991: 1) Just as money is neutral in the domestic economy, in the UMS case, it is neutral in the international economy.

The specie-flow mechanism is supposed to quickly rectify a trade imbalance: the deficit country would lose gold reserves and its money supply would shrink; the prices of its commodities would fall due to the loss of purchasing power of its citizens, attributed to a loss of wealth (as the money supply shrinks); as its prices fell relative to those of competitor nations, its exports would rise; at the same time, its imports would fall due to falling wealth of its citizens. No country could maintain a trade deficit indefinitely for the simple reason that it would eventually run out of gold reserves; before this point is reached, it would have to depreciate the currency, making imports more expensive and exports cheaper. Indeed, a flexible exchange rate, according to the logic of

Neoclassical theory, would seem to speed the adjustment toward balanced trade. However, a freely flexible exchange rate conflicts with the conditions required to operate a UMS--a flexible exchange rate system could be a UMS only if the exchange rate did not move much, and was not expected to move much.

On the other hand, a freely flexible exchange rate is consistent with a NUMS. Here, while all currencies may be freely convertible into a gold reserve, exchange rates are (or are expected to be) free to adjust to eliminate trade imbalances. According to the Efficient Market Hypothesis, laissez faire will again establish an equilibrium price vector that includes a relative price for each currency; the central bank would merely stand ready to exchange gold reserves for the domestic currency on demand. It is believed that this will promote stability of the NUMS.

Under a NUMS, a trade deficit forces a devaluation to protect gold reserves. This then works "via the real cash balance effect" to lower domestic spending until the trade deficit is eliminated. (Hahn 1991: 1) According to Hahn, a "variable exchange rate is an ideal (although imperfect) substitute" to perfectly flexible domestic prices. (Hahn 1991: 6) For example, assume that wages and prices are rigid in an economy which is subjected to a negative productivity shock. If exchange rates are fixed, this economy can adjust to the shock only by lowering employment and real income; if exchange rates are flexible, however, adjustment

is made through depreciation that lowers domestic prices relative to foreign prices. Thus, the flexible exchange rate regime is believed to allow adjustment to shocks without adverse employment effects even if domestic prices are not flexible. In this sense, flexible exchange rates are seen as a substitute for flexible domestic prices, and thus increase flexibility of a market economy to speed adjustment to equilibrium.

A flexible exchange rate system generates uncertainty about the exchange rate. However, Hahn argues that "uncertainty" over exchange rates only replaces "uncertainty" over employment levels--because the fixed exchange rate system would use unemployment as the method for adapting to rigid wages. He thus argues that a flexible exchange rate system is preferred over a fixed exchange rate system in the "real world" where wages are not perfectly flexible.

In sum, orthodox economists can accept either an international gold standard in which the specie-flow mechanism leads to movement toward trade balance, or a flexible exchange rate system in which fluctuating values of currencies rectify trade imbalances. In either case, the focus is on real variables and money only lubricates the market system. In either case, money is neutral (at least in the long run) but has not been successfully introduced into any rigorous neoclassical model. Freely flexible prices (including the "price" of the domestic currency in terms of foreign currencies) are supposed to lead to a general

equilibrium (although this has never been shown for a model with money). Although it is admitted that a flexible exchange rate system will generate speculation, this is believed to be stabilizing (again, this has never been shown rigorously), and can even offset some degree of rigidity in domestic markets.

Orthodox domestic policy is reduced to guarding against inflation through purported control over the domestic money supply (although the experience of the 1980s has cast considerable doubt among orthodox economists that the central bank can control the money supply--doubters have tended to call for direct control over inflation, but have been unable to get beyond pure mysticism regarding how the central bank is to accomplish this). Orthodox international policy is reduced to hand waves concerning efficient international allocations through free markets with a UMS or NUMS; the latter is believed to impart greater flexibility.

A POST KEYNESIAN VIEW OF MONEY

As discussed, the orthodox view of money (whether national or international) begins with barter and with money lubricating trade as a medium of exchange. While it is true that all orthodox economists would also admit a role for money as a store of value, as Keynes remarked, only a lunatic would hold money for such purposes in the Neoclassical world. This is because uncertainty of the

Keynesian variety is ruled out of existence by Neoclassical assumptions. In this section, we will relate the use of money to uncertainty and to private property; in such an environment, money is first and foremost a unit of account--or, as Davidson (1990) argues, as the terms in which private contracts are written. Money is then closely associated with the means of contractual settlement, with the universally recognized measure of wealth, and with the form in which wealth is stored. This is not to deny the importance of the medium of exchange function of money, but an understanding of the origins of money will help to make the nature of money clear. This will help us to understand the international money system so that we can reform it.

We will first go through a reconstruction of the history of money and the development of our modern financial system. My view can be summarized as:

1. primitive barter did not lead to the development of market exchange;
2. money did not develop out of barter;
3. credit money predated commodity money and government money--credit money comes first;
4. and the quantity of credit money has never been constrained by the quantity of gold or government money reserves.

Space constraints prohibit a full development of each of these points; a full treatment with citations can be found in Wray (1993A). I will only summarize the major points presented there.

Let's begin with the barter story. Orthodoxy imagines a market economy that predates money; that is, a market based on barter. This is neither historically accurate, nor is it logical. The orthodox economist and historian claim to find barter in tribal societies. I will argue that exchange may occur in tribal societies, but it cannot lead to markets nor to the use of money: tribal exchange is not markets based on barter, but is very different from market exchange.

For example, Polanyi argues that the exchanges which occur in tribal societies are "public acts performed in regard to the status of persons and other self-propelling things..." [Polanyi 1971, p. 75] According to Malinowski, these exchanges have as their main aim to "exchange articles which are of no practical use..." [Malinowski 1932, p. 86]; indeed, Polanyi says that often "the identically same object is exchanged back and forth between the partners...the sole purpose of the exchange is to draw relationships closer by strengthening the ties of reciprocity" [Polanyi 1971, p. 74] Furthermore, exchanges were frequently made to equalize wealth, rather than to achieve mutually beneficial allocations of resources. (Heinsohn and Steiger (1983; 1989) In tribal society, all exchanges were determined by custom. There was generally no fixed exchange rate among

exchanged goods--the exchange rates would depend upon the status of the parties to the exchange; and the so-called primitive monies we observe in tribal society (Samuelson's landmarks, rocks, seashells) are never used as a unit of account to compare the value of different items--there are no free exchanges so there is no need for a unit of account to measure the terms of exchange.

Nor are the primitive moneys ever used as a unit of account to measure debts; there are never any deferred payments, so there is no reason to have a measure of how much one would pay later. In fact, in primitive society, there are no loans in the modern sense of the term. Loans today are always initiated by the borrower and money is used as the measure of how much has to be repaid later. If an individual fails to repay the loan, h/she is subject to sanctions. But in primitive society, loans are always forced by the lender onto the "debtor". They will be repaid through a very specific action, with repayment terms fixed by social norms of reciprocity--there is no private negotiation over the terms--and the lender does not expect to receive any economic gain from the loan; the loan is undertaken to destroy his/her wealth, not to increase it, while building ties of reciprocity.

Finally, the "monies" are always special purpose--one trades a specific object only in a very specific social setting. For example, a necklace of sea shells is presented to the family of the bride. This does not mean that a wife is worth a

necklace; it does not mean that either wives or necklaces are money; obviously, the family certainly doesn't view the woman as money to be used to buy necklaces. It merely means that the primitive valuable, a necklace, is the appropriate gift in marriage. (Dalton 1982) One can't substitute something else; and one never uses the necklace in another social interaction: necklaces are always for marriage and never for "generalized exchanges".

Clearly, primitive exchanges do not conform to the orthodox view of profit-seeking market behavior, but represent conventional behavior (that is, socially and culturally established norms of behavior) similar to the Western practice of gift-giving at Christmas. Then what are the primitive monies cited in Samuelson's story? What is the exchange, if it is not an economic exchange designed to maximize individual wealth? The primitive exchange of "monies"--primitive valuables is a better term--really was designed to reproduce tribal society, to bring people closer together through social rituals. Tribal exchanges did not lead to the development of the use of money; nor to the development of markets. There is no reason to try to maximize wealth in tribal exchanges; everyone is taken care of to the best of the ability of the tribe.

The institution of private property is a prerequisite to the development of monetary production, that is, production for sale in markets for money to generate profits. (Heinsohn and Steiger 1983, 1989) The development of private property

destroys the collective security of tribal or command society and generates "existential uncertainty"--each member of society becomes responsible for his/her own security. Each individual household tries to build up a surplus (mainly in the form of grain reserves) to get through bad times. The development of private property leads to the possibility of loans, and to the creation of propertyless individuals. If an individual household finds it was not able to produce enough to survive, it must borrow some of the surplus reserves of another household. When private loans are made, the lender gives up private property in exchange for an IOU issued by the debtor, which represents a forward contract.

This private contract must include an interest premium, the size of which is determined by the estimate of the existential uncertainty faced by the lender regarding the possibility that the lender might need the loaned property before payment is due.² Thus, all forward contracts involve "wheat now for more wheat later" propositions, which are monetary propositions. The earliest loans were in-kind loans: a bushel of wheat for 2 bushels later, and so on. In the beginning, interest could be paid out of the natural fecundity of the loaned grain-- I borrow a bushel now, and repay 2 bushels at the end of the growing season.

But eventually, repayment terms became standardized in wheat terms. (As Keynes discovered, the early money of account was kept in terms of wheat units.) Temples played a role in standardizing the terms--that is, in development of the

money of account. The creditor and debtor needed a neutral witness to (and enforcer of) the contract (there was no writing). Later, writing was invented in the temples to keep track of debt contracts and the tribute that each household had to pay to the temple. The temple would receive payment in kind for the tribute and for witnessing contracts. It also began to act as a depository for the creditors: when a borrower repaid a loan, the temple would hold it for safekeeping for the creditors. Hence, temples accumulated large stocks of grain and animals. To reduce storage costs, the temples encouraged the development of a standard unit of account--at first wheat because its storage costs were lower and because it was fairly uniform in size; but later barley because it was even more uniform. All the early units of account were weight units based on the number of wheat or barley grains. For example, the early money of account used in Babylonia was the mina, equal in weight to 10,800 grains of wheat. The weight units pre-existed money; they were already used to measure tribute paid to temples and they were adopted as the unit of account in which debts were measured. Later, the temple would issue a piece of metal that weighed the same amount as the number of barley grains it represented, with a stamp to show the value. These stamped metals would merely represent the temple's IOU, measured in the wheat or barley unit of account. When a creditor wanted to withdraw a portion of his/her deposit from the temple, transactions costs were reduced by giving stamped metal rather than

counting out the grains of wheat. The metal was then used in private transactions (as a means of payment--or means of contractual settlement) or to pay tribute, but its value was determined by weight in terms of the number of barley grains it represented--again (like the transition from wheat to barley grains), this was a technical advance that did not change the nature of money.

Thus, the first money was created as part of a forward contract that involved "wheat now, for more wheat later". As the terms became standardized, we have the creation of a money unit of account. The temples did not create money; and money was not first in the form of precious metals. Instead, money was privately created; the temples only played a role in the technical evolution of money. The use of precious metals as money-denominated assets comes later; and the primary reason is not that gold is inherently valuable, but because it would be difficult to counterfeit. Even when gold was first used, its value was still determined by its weight equivalent to the barley unit of account. Once there existed a universal unit of account and a method for witnessing and recording private contracts, then privately issued credit money (a privately-issued, money-denominated liability--see the next section) could circulate among third parties. It could function as a means of payment, retiring private debt commitments, and even perhaps in paying tribute to the temples. So money is first a unit of account,

and then a means of payment; it does not start as a medium of exchange. In conclusion, money came before markets--it got its start in private loan contracts.

Now of course we don't have written records to prove this. The earliest writing does seem to be records of debt contracts; and all early monetary units are weight units, always in terms of a specific number of grains of wheat or barley. This is true for the mina, and the shekel; but it is also true for the unit of account used everywhere in Europe: the pound. Whether it is the Roman pound, or the Italian lira, or the French livre, or the Milanese ducatoon, the early money of account was always a weight unit. This is not quite so controversial as it sounds at first. Historians have long written about the ghost money, or imaginary money, of Europe that lasted from the time of Charlemagne through the middle ages. There was always an attempt to write debt contracts in an imaginary pound unit of account, even though there often was no equivalent coined unit.

The historians have usually attributed this to confusion or illusion. They think it is strange, for example, to write a debt contract in terms of a pound unit of account, when there are no pound coins. Typically, the only coins were shillings; and over time, the shillings would decline in value so that it took more and more of them to equal a pound unit of account. But this was neither confusion, nor was it anything new. The money of account had always been a weight unit, and it is entirely irrelevant whether there is a coin of the same unit.

I'll examine coining later, but money is not the same thing as coins; or, coins are not money. The historian's confusion arises from identifying coin as money, and from emphasizing the medium exchange function of money. If one instead recognizes the fundamental importance of the unit of account in any private property economy operating in historical time, the confusion disappears.³

Let's return to the orthodox belief that markets existed before money was invented. However, markets cannot predate money because independence of individuals and private property must exist before markets. In a tribal society, there is no sense in producing things you don't need for the market in order to get things you do need. In tribal society, all needs are already met to the best of the tribe's ability to do so. But as I argued, once you have private property and independence, you already have the conditions required for the existence of money: the possibility of loans and the existence of uncertainty. The market is not a place for getting things you need; it is a place where you earn the means of retiring debt (or, means of contractual settlement)--that is, money. From the beginning, production for markets was production to obtain money--and not to barter for needed commodities. The barter economy is merely a hypothesis obtained by neoclassical economists who take our economy, then drop money and analyze it as if it were a barter economy; then they add money back in as if it came from helicopters. But this leads to a view of money that is completely

wrong, and leads to incorrect conclusions about appropriate monetary policy. Let's look in more detail at a money economy like ours.

In a monetary economy, production occurs not to satisfy "needs", but to satisfy the desire to accumulate wealth in money form. Production is not undertaken by a Robinson Crusoe type agent who is both a producer and consumer; instead, there are those who own private property, and those who do not--and so must work for wages. However, the existence of propertyless workers extends market demand, and extends the use of money as a medium of exchange. Unlike production in, say, a tribal society, capitalist production always involves money. The capitalist must hire workers to produce the goods that will be sold on markets. As production takes time, the capitalist must pay wages now, before sales receipts are realized. Furthermore, because the future is uncertain, sales receipts are uncertain. This means that interest must be paid on liabilities and that capitalist production is only undertaken on the expectation of making profits. Thus, capitalist production always involves "money now, for more money later".

Since money contracts always include interest, and because contracts always are of the nature of money now for more money later, this means that monetary contracts will always grow over time at a rate determined in part by the rate of interest. (Wray 1993B) This generates a logic of accumulation: all monetary economies must grow. If they do not, accumulation falters and nominal

contracts cannot be met. The logic of monetary production, then, requires nominal economic growth. It cannot be constrained by a fixed money supply, nor by a commodity money whose quantity expands only upon new discoveries. That is, the money-of-account supply is determined in the private contracts between debtors and creditors; the quantity of wheat-money-of-account can never be constrained by the quantity of wheat in existence. Rather, the quantity of wheat money created in contracts is constrained by the perceived ability of the borrower to deliver "more (wheat denominated) money" later. This leads directly to what is called the endogenous money approach--money has always been endogenous, with its quantity determined in debt contracts denominated in money terms (or, the unit of account). The same principles hold regardless of the money unit of account chosen (whether it is the dollar or the yen), and regardless of the medium of exchange used (bank notes, bank deposits, gold coin, or "fiat" currency), which would be denominated in the money of account.

In order to enhance the ability of privately created money to circulate, IOUs would be "accepted" by trustworthy individuals or institutions, through an endorsement that guaranteed the IOU. At first, this role was played by the temples, but later, a wide variety of institutions and individuals could perform the role, ranging from governments to merchants, to respected and usually wealthy individuals, and to banks. A good example of such a private IOU was the bill of

exchange; indeed, this was by far the most important money-denominated asset used as a medium of exchange and means of payment from the middle ages right up to the 19th century. It would circulate upon endorsement; in fact, if it was endorsed by a bank, it was called a gilt-edge, meaning, it was supposed to be as good as gold. But it wasn't quite. This brings us to the primary problem of privately created money: its issuer might default. If the issuer defaults, creditors go after the endorsers--but they can default too. So to increase the ability of private IOUs to circulate, these would be made convertible into other media of exchange, such as the precious-metal-wheat-denominated bars issued by temples. Finally, after the development of stamped coins, private liabilities could be made convertible into currency.

Thus, we finally arrive at the "goldsmith" stage, at which orthodox theory begins, with a commodity money (gold) that is deposited with the goldsmith, who discovers the "deposit expansion process". Actually, the process worked in reverse. A commodity money could not have developed before the development of a money of account--which is necessarily the result of private debt contracts. The commodity money is developed for technical reasons, but becomes the reserve money because privately issued credit money is subject to default risk. It is not that deposits of commodity money make loans and credit money; rather, loans and credit money generate a desire to hold small reserves of commodity money in

order to ensure convertibility. Gold, and so on, is not money, nor has it ever been money. Money is the socially determined unit of account; it is wheat money, lira money, or dollar money. But, all privately issued money has at least some risk of default, and to make this risk palatable, privately issued credit money is made convertible into other money-denominated liabilities. The commodity money is the risk-free representation of the social measure of value; as such, it is chosen as the "ultimate" backing for privately issued money. However, the quantity of commodity money available never constrains the money of account supply. This means that wholesale conversion ("liquidation") of private IOUs can never be accomplished in the aggregate. That is, a credit money economy based on a commodity money reserve collapses if there are attempts at conversion.

In all private property economies, money is characteristically a promise to pay. A pyramid of these promises evolves--each backed by (or made convertible into) a promise higher in the pyramid. The rules of the game require that one discharge one's IOU using a third party IOU. (No private party is able to issue its own means of payment to be used to discharge its own debt.) Frequently, it is required that the third party IOU to be delivered is one issued by a party higher in the debt pyramid. For example, a bill of exchange liability is discharged through delivery of a bank note; a bank note liability is discharged through delivery of a Bank of England note; the Bank of England note liability is

discharged through delivery of gold reserves. Clearly, not all liabilities that serve to fulfill certain functions associated with "money" fulfill all functions; some serve as general media of exchange; others serve as means of payment only for those lower in the debt pyramid. Over time, there has been a continual narrowing of the types of liabilities that will circulate, to those in the highest reaches of the pyramid. Thus, the financial system has evolved from one in which a wide variety of types of liabilities circulated to one in which government liabilities and the liabilities of banks comprise the vast majority of the circulating "money supply". Similarly, there has been a narrowing of the liabilities that are accepted as means of payment that discharge liabilities, although this narrowing has not been as pronounced as that of media of exchange.

The first central banks were created (without exception) to provide government finance. Governments were typically very constrained in their ability to borrow, probably because it was not healthy to be a creditor of a king in financial difficulty. Typically, a government could borrow only if its IOU were backed by a respected individual. (This, of course, is much different than today, when government guarantees back private liabilities.) The crown was typically seen as the least credit worthy borrower; it could borrow only with private guarantees; it usually had to pay a much higher interest rate than other borrowers; and crown debts were almost never repaid.⁴ In any case, governments had trouble

borrowing, and could not issue fiat money. Government money could circulate only on the basis of the amount of precious metals contained in it. One could say that the whole monetary history of the middle ages could be explained as an attempt by the governments to either find gold that they could coin, or to debase coin--trying to get more coins out of their gold. Debasement caused the value of coins to fall continually throughout the middle ages--sometimes very rapidly. This brings us back to the ghost money. Orthodox analysis attributes the continual loss of the value of government coins to inflation caused by "too many" coins in circulation--money causes inflation. In reality, it is not that too much money causes inflation, rather, the prices of commodities actually were very stable in terms of the ghost money of account; for example, in terms of the pound. But because government coins were only worth as much as the gold value of the coins, debasement would increase prices in terms of coin, but not in terms of the money of account. Again, this is because one would not accept government debt--a debased coin is really government debt, so it falls in value to the amount of embodied precious metal.

Private institutions did issue money-denominated assets that were stable in value, the so-called giro monies. As long as people trusted an issuer of a liability, the liability could remain stable in terms of the ghost money; so private institutions could issue fiat money--that is, IOUs denominated in pounds. Because

the crown was not trustworthy, however, as it continually tried to get purchasing power by debasing coin or taking gold, its liabilities were worthless so that government money circulated only at the value of embodied precious metals. In fact, the Bank of England was founded because the Crown could not borrow from private lenders to finance a war with France as it had recently seized gold that had been deposited for safe-keeping. Thus, central banks were created to buy government debt as they issued their own notes. This development essentially allowed the government to create fiat money: central bank notes could be denominated in pounds--just as any private bank notes were denominated in pounds.⁵

For a number of reasons, central banks gradually took a position at the apex of the pyramid of liabilities. In the case of England, country banks used London banks as their reserve banks, so pyramiding on London was already commonplace. The Bank of England succeeded in passing laws to outlaw note issue by all other London banks, giving it a big advantage. Eventually, London banks made their liabilities convertible into Bank of England notes, leading to the development of a pyramid based on the Bank of England. Thus, nonbank liabilities would be made convertible into bank liabilities, and bank liabilities would be made convertible into central bank liabilities. All capitalist countries developed similar mono-reserve systems, with the liabilities of the central bank acting as the

reserve. Under the gold standard, the central bank liabilities would be made convertible into gold, thus, gold was the ultimate reserve at the apex.

Later, states discovered that imposition of a tax made payable in terms of the state's own liabilities would generate a demand for government "fiat" money (that is, government money-denominated short-term liabilities--not essentially different from bank notes). Finally, government debt was accepted as a means of payment and medium of exchange; at this point, neither gold backing nor a central bank was necessary--the government could purchase merely by "printing money", gladly accepted by the population as the means with which taxes could be paid.⁶ Perhaps because the implications were not fully recognized, states continued to maintain a sort of fiction--"selling bonds" to the central bank, which then increased central bank liabilities (reserves and notes). While it would have been easier to dispense with the central bank, this might have made matters too transparent--government can always obtain anything for sale in the domestic money of account merely by offering fiat money; taxes ensure a demand for this fiat money.

However, central banks gradually discovered that their position at the apex gave them the ability to function as lenders of last resort--historically, the second major function of central banking (finally understood after the mid-nineteenth century). As they could essentially provide reserves without limit merely by

discounting the assets of other banks, they could always stop a run. However, such behavior required that the central bank abandon narrow self-interest, a development that took nearly two centuries after the establishment of the Bank of England to come to pass. This greatly increased the stability of the capitalist system, for it solves the primary problem of a commodity reserve system: the supply of reserves becomes elastic at precisely the moment that reserves are needed and maintains orderly markets. But under a gold standard, even the central bank is ultimately limited by its gold reserves, so its ability to stop a crisis is limited. This is why countries invariably went off the gold standard whenever there was a crisis, and this is why a gold standard is not consistent with stabilization of the capitalist economy.

Abandoning the gold standard was a major innovation because it made the supply of reserves completely elastic, and because it eliminates debt deflation and decumulation at the aggregate level. Stabilization requires an elastic supply of reserves, and to the extent that the central bank tries to constrain the growth of reserves, it abandons its responsibility for sustaining accumulation. Thus, the orthodox approach to money and to policy is historically and logically flawed: the Monetarist policy prescription (close control over the quantity of reserves) represents a giant step backward, to an unstable system in which accumulation is prone to reversals. Furthermore, Monetarist policy would not lead to greater

control of the money supply--the supply of reserves (whether of wheat, of gold, or of central bank liabilities) has never determined the quantity of money supplied.

The current system, based on central bank reserves, did not evolve out of a commodity money system. Rather, the commodity money evolved out of an endogenous money system to solve one of the problems with a monetary economy. In any monetary economy, the vast majority of the liabilities denominated in the money of account (indeed, of wealth in general) consists of private IOUs, the value of which depends on the economic condition of their issuers. Thus, commodity money developed as a riskless representation of the social unit of account. Privately-issued money was made convertible into commodity money merely to enhance circulation, but, was never constrained by the quantity of commodity money in existence. This helps to make it clear that an exogenous money system is not possible in an economy that is based on nominal accumulation. While a commodity reserve system is possible, it is far more unstable than a central bank reserve system. Rather than attempting to constrain the central bank so that its liabilities are supplied as if we had a commodity money reserve system, it is far better to maintain the current accommodative reserve system in domestic economies. As we shall see, a similar arrangement is required for the international economy.

THE RELATION BETWEEN MONEY AND CREDIT: A Brief Digression

Orthodox theory frequently identifies money as a stock, used as a medium of exchange to facilitate spending flows. On the other hand, credit is identified with domestic or foreign saving flows; it is used to finance domestic or foreign investment flows or flows of imports. Some Neoclassical economists, such as Tsiang (1980), try to formulate hybrid models in which money stocks that are released through dishoarding can add to the flow of saving to meet the demand for loanable funds. But, as I'll argue, credit is not savings, nor is it dishoarding.

Much of the confusion arising in discussions of money is generated by an identification of it with certain physical representations of money, such as government paper money and coins, bank notes, checks, or even numbers on computer tapes that record various types of deposits. This focus on physical objects obscures the fact that credit really represents a complex social relation. Credit money (as I prefer to call it) is a private, money-denominated liability.

First, credit money is denominated in the social unit of account (the dollar in the US); a unit of account is by its very nature social, and it cannot have meaning outside that social context. Second, credit money is "created" when one agent issues a liability denominated in the social unit of account, and this liability is accepted by another agent. Credit money is never created for inventory, or to

be thrown onto the market; it is created as part of a social relation between "borrower" and "lender". Enforcement of this credit relation is also social--the recording and enforcement of debt contracts has always been undertaken by society.⁷ Frequently, credit money is created to allow one to "buy now" on the promise to "pay later" by delivering a third party liability denominated in the unit of account at the later date. Even payment (retirement of debt and destruction of credit) is social (entailing the delivery of a third party liability), and ability to do so will depend to a great extent on economic performance of society.

This can be contrasted with the neoclassical view of exchange and "efficient allocations". In this view, scarce resources confront unlimited wants; a system of relative prices is generated that allocates the resources in an efficient manner. Credit, however, is not a scarce resource; in some sense there is an infinite supply of credit (the quantity is limited only by the willingness of "borrowers" to issue liabilities and the willingness of "lenders" to accept them). In the neoclassical world with no uncertainty, no transactions costs, and no externalities, the "efficient" price of credit would be zero, as is the efficient price of any good of infinite supply. It is not surprising that the neoclassical world has no use for money contracts.

If there is a price of credit, it cannot be due to relative scarcity facing unlimited wants. Instead, the price of credit has to do with the existence of a

preference for liquidity in an uncertain world--liquidity preference.⁸ Liquidity preference generates a price system for assets; all financial assets represent liabilities, and each has a price. The price system of financial assets has an impact on the rest of the economy through its effects on investment (and, to a lesser degree, on other types of spending). Capital (that is, means of production) must also have a price; its supply price is determined in the price system for current output, while its demand price is determined in the asset price system; it will be newly produced only if its demand price exceeds its supply price. (Minsky 1986)

This is where liquidity preference plays a role, as the return to the most liquid asset (usually high powered money--HPM) is determined by the preference for liquidity. All other assets must have expected returns greater than this return to liquidity in order for them to find homes; thus, asset prices adjust to equalize expected returns. As Keynes (1964) argued, the return to liquidity thus sets the standard return that must be achieved by all assets.

Space constraints do not permit me to go beyond this initial introduction to the role of liquidity preference and its effect on asset prices, except to note that the "price" of credit is not determined by scarcity.⁹ Rather, the "price" of each liability must adjust so that all expected returns to holders of these liabilities are equal. This means that a liability that promises to pay a "dollar" one year hence cannot in general obtain a "dollar" today; it must be discounted not because of a

positive rate of time preference, but due to liquidity preference. Thus, for example, the spot price of this liability today might be ninety cents; the expected return to the holder of this liability is equal to ten cents over the course of the year. These "prices" of liabilities do not "efficiently allocate" credit, rather, they incorporate the discounts required to equate expected returns, which, in turn, are required due to uncertainty which generates liquidity preference. The effect of an "increase in supply" ("reduction of scarcity") of any particular type of liability has no clear impact on its price (or discount).¹⁰ Similarly, it makes no sense to speak of independence of "supply" and "demand" in the case of credit; liabilities are never issued for inventory. Thus, the impact of an "increase of demand" for credit does not have a simple impact on its "price". And it makes no sense to speak of flexible prices of credit ensuring "efficient allocations" of a "scarce credit resource".

In contradistinction to orthodox Monetarists who advocate close control by the central bank over the "money supply", other orthodox free marketers advocate a "competitive money system" with complete deregulation. There are many fundamental problems with proposals that would unleash "free markets" to provide "mutual funds money"--that is, a privately issued medium of exchange whose value would be market determined--not least of which is a misreading of history and a misunderstanding of "money". Money is the social unit of account in which

debts are measured; as such, it is the unit of measurement applied to credit. Serious problems arise when liabilities whose values fluctuate relative to the money of account are the basis of the payments system. This is why all capitalist countries now operate with a payments system using liabilities which always trade at par--and why "free markets" voluntarily abandoned "mutual funds money" as they attempted to set-up giro systems and ghost monies in which liabilities would exchange at par against the unit of account. This is not due to government intervention into a well-functioning free banking system; it is the result of 2000 years of evolution and innovation during which experimentation proved that this is the best sort of system. Those institutions which became able to issue liabilities that would trade at par (that is, without discount in spot markets) naturally had an advantage because their liabilities would force others from the payments system. Over time, a pyramidal structure was developed such that liabilities could be converted at par to those higher in the pyramid. This, however, requires that the institution that is higher will substitute its liabilities without limit for its correspondent that is lower. This is why all capitalist countries develop a "lender of last resort" whose liabilities are provided on demand to ensure that those of institutions lower in the pyramid will maintain parity. Any agent without direct or indirect access to the lender of last resort facility cannot maintain spot parity, thus, cannot issue means of payment or media of exchange.

The obvious problem with a "mutual money" issued by an institution without access to a lender of last resort is that rational behavior leads to a run out of it whenever confidence falls. Self-interest alone will not generate a lender of last resort; the ultimate lender of last resort must act against its own narrow self interest whenever there is a run in order to save the system as a whole. A system that operates on individual self-interest cannot be stable because the market value of liabilities must be linked to asset values; unforeseen depreciation of assets lowers the "free market" value of liabilities, inducing a run out of these; par can be maintained only if the run can be stopped so that the issuer can have time for a work-out. This may well involve lender of last resort activity and equity injections; given time, some assets may recover value or the issuer may be able to absorb losses through future profit earnings.

IMPLICATIONS FOR THE INTERNATIONAL FINANCIAL SYSTEM

"Free" market determination of exchange rates in a "freely" floating regime faces problems similar to those faced by "mutual funds" money in the domestic economy. A system with mutual funds money is a NUMS, in Davidson's terminology; as mentioned above, "free float" exchange rates in a NUMS are anchored only by convention. Speculative runs into/out of a currency can easily

swamp flows of a currency arising from its medium of exchange function; for this reason, speculation can, at times, dominate over "fundamentals" having to do with the current account balance.

Free marketers had argued that flexible exchange rates would make adjustment to a balance on current account rapid since a deficit nation would face loss of reserves and depreciation of the currency. In reality, countries in Latin America and the U.S. have run persistent deficits since exchange rates became more flexible. Orthodox economists had also argued that flexible exchange rates would increase the independence of countries to pursue domestic monetary and fiscal policy. This was based on the belief that floating exchange rates could eliminate trade imbalances without necessitating domestic austerity programs. In reality, austerity has been used as the major adjustment mechanism for most deficit nations (excluding the U.S.). Rather than allowing greater independence of nations to pursue policy, flexible exchange rates have increased the need for greater coordination of economic policies among the major developed countries. This results partly from the tendency of flexible exchange rates to lead to speculation; at times, "capital flows" or speculative demand for currencies dominates Purchasing Power Parity in determining exchange rates so that coordinated intervention is necessary to stem appreciation (or depreciation) of a currency.¹¹ In short, the 1980s have not been kind to free marketers. The

orthodox view that international financial flows merely reflect international flows of goods and services underlies their flawed predictions regarding the benefits of floating exchange rates. An alternative view is required.

Most importantly, it must be recognized that all money-denominated liabilities are assets that carry a price so as to generate expected returns ($q-c+l+a$) such that each finds a home.¹² In the case of a foreign liability, the q 's come from the explicit interest rate and the a 's from expected appreciation (depreciation) of the foreign currency; the liquidity of the foreign liability depends, on the organization of secondary markets and on the orderliness of these markets--which depends, in turn, on the existence of a market-maker to limit exchange rate movements. Under a freely flexible exchange rate system, the liquidity of foreign liabilities is low; their expected q 's and/or a 's must therefore be high in order to find homes for them. Only foreign liabilities denominated in currencies which are expected to remain stable (or to rise in value) will have orderly markets, thus, will be highly liquid. When international liquidity preference rises, there will be a run into these currencies and out of currencies that do not have orderly markets; expected q 's of international liabilities must adjust--with those of illiquid assets (especially those denominated in currencies expected to depreciate) rising the most (that is, discounts rise so that prices fall and yields rise).

In the absence of a market-maker, prices of liabilities denominated in those currencies that are expected to depreciate must fall quickly--leading to further destabilizing expectations of declining prices. As Davidson (1992) argues, if the elasticity of expectations exceeds unity (more than half the participants in the market expect the currency to depreciate further), then self-interested behavior will cause a cumulative depreciation (through a "reflexive process") of the currency, generating a run out of it. In this case, a flexible exchange rate system can be made stable only if a market-maker steps in to stop the depreciation by setting a floor to the prices of liabilities denominated in the depreciating unit of account.

Within a UMS, money-denominated liabilities promise to deliver, say, \$100 a year hence. These will sell for a spot price of, say, \$90 today; the \$100 to be delivered will take the form of a means of payment (or means of contractual settlement)--almost certainly a short-term bank liability. As the bank liability within a UMS is guaranteed to exchange at par against the dollar unit of account, there is no uncertainty about the exchange rate of the means of payment that will be used one year hence to fulfill the terms of the forward contract within the UMS. However, in a NUMS, additional uncertainty is generated if the forward contract is written in terms of a foreign currency. Even if the means of payment is guaranteed to exchange at par against the foreign currency, there is, of course, no way to know what exchange rate, between the foreign and domestic units of

account, will rule. The uncertainty will be even greater if the foreign means of payment to be delivered is not fixed at par against the foreign unit of account. Modern capitalist countries have eliminated this uncertainty by abandoning "mutual funds money" within domestic economies through the use of media of exchange and means of payment whose spot price is fixed against the domestic unit of account.

Similarly, attempts have been made to eliminate uncertainty regarding exchange rates among currencies. As discussed above, the gold standard represented a relatively recent attempt to fix exchange rates and to create a UMS. This was not the first attempt, however. The so-called giro monies and ghost monies also created a limited UMS. Often, these were privately established UMSs; in other cases, they were set up by governments. The problem with a UMS run by private, profit-seeking institutions, however, is, as discussed above, that the market-making function can conflict with individual self-interest; the problem with a UMS based on gold reserves of a central bank is the inelasticity of reserves.

A lender of last resort is needed to set a floor to asset prices--that is, to establish orderly markets. In the case of assets that are to be used as the dominant media of exchange and means of payment (or means of contractual settlement), the lender of last resort usually ensures that the spot price of the asset equals one, or, that it trades at par against high powered money. (This ensures that these are,

in Davidson's terminology, fully liquid assets.) Of course, the forward price of these assets need not equal one; the discount will depend on the state of liquidity preference. However, given guaranteed spot prices, forward contracts can then be written within the UMS specifying delivery of the means of payment in the future. Similarly, in the international sphere, a UMS reduces uncertainty involved in making forward contracts. An international lender of last resort sets a floor to the value of each national unit of account relative to the international unit of account, even if the international unit (say, a ghost pound) doesn't explicitly exist. This is done by keeping relative exchange rates constant. In practice, this can be accomplished by an international lender of last resort for the national central banks; these, in turn, act as lenders of last resort within their domestic economies.

Implementation of fixed exchange rates is not without difficulties. We have long operated within the US with an UMS; this sets fixed exchange rates across all regions of the country. Such a fixed exchange rate system creates various inequities--there is no doubt, for example, that some regions of the country have higher rates of productivity.¹³ This has been dealt with in two different ways: the various Federal Reserve Banks were designed to set discount rates independently. This would allow a smaller discount on forward contracts in the disadvantaged regions in the belief that this might stimulate the regional economy. In practice, differential discount rates do not play a major role in the US, perhaps because it

is difficult to ensure that benefits of lower discount rates remain within favored regions. The other way in which we have managed to reduce the inequity of the UMS has been to allow different prices (particularly for inputs to the production process) among regions. (Of course, there are a variety of other policies which have been adopted to deal with unequal development, including various types of fiscal policy--income redistribution, favorable tax treatment, and so on--but these will be ignored here.) As Hahn (1991) recognized, flexible prices within regions represent an alternative (but certainly not "ideal substitute", as he had argued) for flexible exchange rates among regions.

If an international UMS is adopted, inequities caused by setting the exchange rate "too high" for some currencies and "too low" for others will be inevitable. Again, differential discount rates can be used by the international lender of last resort to reduce inequities; a lower discount rate would be offered to those countries whose exchange rate appeared "too high". Similarly, countries can also adapt to inappropriate exchange rates through inflation or deflation ("flexible domestic prices")--the method used in the case of the U.S. However, deflation is especially onerous in any economy which uses forward contracts--that is, in any monetary economy--and significant deflation cannot occur without causing default on nominal forward contracts. For this reason, a country whose exchange rate has been set too high cannot be expected to adjust through

deflation; the burden of adjustment can only be carried by those whose exchange rates were set too low, as these can inflate. In a monetary economy, inflation is always preferable to deflation.

However, the preferred course of action would be to readjust the exchange rates. It will never be simple to determine the "proper" exchange rate for a currency; however, it will be easier to determine this in the absence of speculation against the currency. Once speculation is removed, Purchasing Power Parity is more likely to play a dominant role in determination of exchange rates.¹⁴ However, speculation cannot be removed without creating the expectation that exchange rates will be fixed. Once this is done, it will be somewhat easier to determine if the exchange rate is "too high" or "too low"; in the presence of speculation, this is nearly impossible to determine because the exchange rate is set primarily by convention. To prevent recurrence of speculation, it is necessary that the expectation is that exchange rates will not be changed; thus, changes should be made only rarely.

If we are to move to a world UMS, what is to be used as the international unit of account? One option would be to adopt a universal unit of account for use within each country and among all countries; this, of course, mimics the current domestic UMS used in the US. If this route were followed, the international unit could be based on some existing national unit (say, the dollar) or on a newly

created unit, say, a ghost pound. The former would seem to be prohibited due to political considerations. There is apparently a widespread notion that current de facto adoption of the dollar for most international trade is unfair because it gives the US an unlimited ability to purchase the output of foreign countries and to run persistent deficits. Actually, of course, when dollar liabilities are issued, these give a claim to holders over US goods, services, or assets. If the holders prefer to hold their dollar-denominated wealth in the form of financial assets, then the US is "forced" to run trade deficits because those with the power to buy US output refuse to exercise this power. Use of the dollar as the international unit of account gives the US no extraordinary advantage--but political resistance to this would be great.

Assuming the ghost pound is adopted, all agents would then be permitted to issue liabilities denominated in the ghost pound; under a single currency system, exchange rates cannot fluctuate. All adjustment would be through one of two price systems: that for current output and that for assets. While all liabilities would be denominated in the ghost pound, the value of any particular liability would be determined by $q-c+l+a$. However, each domestic central bank would determine which liabilities maintain spot parity against the ghost pound--through lender of last resort activities that guarantee orderly markets. As each domestic

central bank could issue an unlimited supply of reserves denominated in the ghost money of account, it could always set a floor to spot asset prices.

The problem with this arrangement is immediately apparent. Such lender of last resort creates "orderly" markets, but this removes "market discipline". So long as the central bank does not worry about its own narrow self interest, nationalistic considerations could cause it to widen the lender of last resort activity until all domestic liabilities are covered by guarantees. Essentially, this then violates the rule that one cannot discharge one's debts by issuing an IOU--if the central bank always guarantees one's IOUs, one is never forced to discharge one's debts. The UMS would certainly break down as exchange rates would reappear among the "ghost pounds" used by different countries.

Perhaps the use of an international ghost pound as the unit of account would work only with world integration--that is, with a truly international financial system and a single central bank--because of the social nature of the unit of account. Perhaps the right to determine which liabilities always have spot parity against the unit of the account is the last refuge of national economic autonomy. Keynes seemed to recognize this when he argued that an "International Clearing Union" (to be discussed momentarily) "might become the pivot of the future economic government of the world." (Keynes 1980: 189)

An alternative that is consistent with the "rules of the game", but which can provide a way out when necessary, is required. In this spirit, Keynes called for the creation of an International Clearing Union (ICU) based on a bancor unit of account; the bancor, in turn, would be fixed in value relative to gold and then all the currencies of all countries participating in the ICU would be fixed in value relative to the bancor. The bancor would be used only for clearing purposes among countries; countries could buy bancor balances from the ICU using gold, but bancors could not be redeemed for gold. In this way, bancor reserves could never leave the system--eliminating any possibility of a run on bancors.

The initial quantity of bancor reserves would be allocated among countries based on their previous levels of imports and exports. Countries which then ran trade surpluses would accumulate further bancor reserves, while deficit countries would lose reserves. The ICU would provide overdraft facilities to those countries that exhausted their reserves. Since reserves could not leave the system, the ICU could always expand the supply of bancor reserves merely by making advances to deficit countries. In addition, surplus countries could use bancor reserves to make loans to, investments in, or unilateral grants to deficit countries.

The ICU would adopt rules regarding sanctions to be placed on such debtors and on countries which ran persistent surpluses (thus, accumulated bancor reserves). Keynes called for a charge on excessive overdrafts and on excessive

reserve balances of one or two percentage points in order to encourage balanced trade. Other possible actions to be taken in the case of deficit countries would include: currency devaluation, capital controls, seizure of gold reserves, and domestic policy "which may appear to be appropriate to restore the equilibrium of its international balance". (Keynes 1980: 462) Actions to be taken in the case of surplus countries include: measures to expand domestic demand, appreciation of the currency, reduction of tariffs and other trade barriers, and encouragement of international development loans. (Keynes 1980: 463) Finally, the ICU could use its power to encourage economic development through the use of overdrafts for relief work, for development of buffer stocks of commodities to provide "ever-normal granaries", for the establishment of an International Investment Corporation, and to help stabilize prices. (Keynes 1980: 190)

Similarly, Davidson (1992) has proposed the use of an international clearing money unit (ICMU) as an international reserve used only by central banks in an international UMS. Each country would continue to use its unique money of account for domestic purposes; private agents could choose any of these moneys of account for international purposes. Exchange rates among the international moneys of account would be fixed (with allowance made for adjustments under specified conditions). Clearing among central banks would then take place on the books of an international central bank, kept in ICMUs. The

ICMUs would be used only for clearing purposes among central banks. As in Keynes's scheme, sanctions would be placed on countries that continually faced clearing drains, and would also be placed on those countries that continually accumulated reserves of ICMUs. As Davidson explains, this allows creditor nations to share the burden of adjustment with deficit nations; this has three justifications: i) creditor nations can "afford" to bear the costs of adjustment; ii) creditor nations may share the "blame" for deficits of others; iii) placing the full burden of adjustment on deficit countries contributes to worldwide stagnation if it forces them to use austerity. Under the Keynes-Davidson scheme, the creditor nations will lose their ICMU reserves if they don't use them; these would then have an incentive to stimulate their economies so that the ICMU reserves would be used to support greater imports or greater foreign investment; alternatively, excess ICMUs could be given as grants. The international central bank would act as lender of last resort for the deficit countries once they have lost their ICMU reserves. This intervention, however, would come with strings attached, comprised of a combination of rules and discretionary actions taken by the international central bank. Because the creditor nations would be similarly forced to rectify their balance sheet flows, adjustment by the deficit nations would not be so difficult--they would be trying to increase exports precisely when the creditors are trying to increase imports.

Since the ICMU reserves could always be expanded without limit by the international central bank, it could always maintain fixed exchange rates among international units of account by purchasing the liabilities of the central bank of any nation facing pressure to depreciate. Essentially, the international central banker would operate as the ultimate market-maker, with its ICMU at the very top of the debt pyramid. It would guarantee that the liabilities of all central banks were fully liquid internationally; each central bank would then choose which liabilities would be fully liquid nationally. However, the threat of sanctions to be imposed by the international central banker on those countries that continually experienced a clearing drain would force the national central banker to behave in an appropriate manner domestically. It must be remembered that it is very easy to set a floor to asset prices (whether domestically or internationally); it is much harder to set price ceilings. Once fear of failure is removed, "market discipline" cannot operate to constrain asset prices. The prices of assets are not determined by scarcity, as discussed above, but by $q-c+l+a$. If depreciation is eliminated and full liquidity is guaranteed, this is taken into account when asset prices are determined. Thus, lender of last resort guarantees cannot be adopted without a system of sanctions to be applied when intervention does occur.

While the Keynes-Davidson proposal seems to be perfectly consistent with the analysis presented above which focuses on money as a unit of account, the

argument used by Keynes to promote his ICU was actually based on a view of money as medium of exchange. Of course, the argument adopted by Keynes was above all pragmatic given the political implications of the proposal. Thus, he may not have been interested in the theoretical basis of his proposal. However, let us briefly examine and critique his argument.

Keynes began with the argument that his goal is to design an international currency system so that the currency exchange will be made to operate as if countries were "trading goods against goods". (Keynes 1980: 18) "The principal object can be explained in a single sentence: to provide that money earned by selling goods to one country can be spent on purchasing the products of any other country." (Keynes 1980: 270) The operation of the ICU would be designed to ensure that bancor reserves would not be lost to idle hoards; rather, the reserves of one country would form the basis of overdrafts of another. Keynes argued that his proposal would merely "generalise the essential principle of banking as it is exhibited within any closed system." (Keynes 1980: 171) This will substitute an expansionist tendency in place of a stagnationist tendency.

In short, the analogy with a national banking system is complete. No depositor in a local bank suffers because the balances, which he leaves idle, are employed to finance the business of someone else. Just as the development of national banking systems served to offset a deflationary

pressure which would have prevented otherwise the development of modern industry, so by extending the same principle into the international field we may hope to offset the contractionist pressure which might otherwise overwhelm in social disorder and disappointment the good hopes of our modern world. The substitution of a credit mechanism in place of hoarding would have repeated in the international field the same miracle, already performed in the domestic field, of turning a stone into bread. (Keynes 1980: 177)

This is because hoarded reserves lower world aggregate demand and employment; if instead reserves form the basis of loans, world demand and employment would be higher.

According to the perspective adopted above, there are two problems with Keynes's argument. First, an international monetary system cannot be designed as if trade were "goods against goods". The fundamental activity of any capitalist economy consists of position-taking in assets that are expected to generate gross income denominated in money terms. So long as foreign ownership of assets is permitted, the international monetary system must be designed with this in mind. While I certainly would not advocate "free market capital flows", it does not seem desirable to eliminate "capital flows" altogether. The goal of Keynes's ICU or Davidson's ICMU is not to limit trade to "goods against goods", but to eliminate

speculation against currencies that arises from floating exchange rates. In other words, the goal is to remove expected currency appreciation as a component of the expected returns that foreign assets can deliver.¹⁵

Second, Keynes's banking analogy is confused. While he is correct in his assertion that prohibiting conversion of bancors into gold will eliminate the possibility of a run developing on bancors, his argument that the existence of the ICU ensures that bancor reserves will necessarily form the basis of loans is flawed.¹⁶ His plan is not expansionist merely because reserves remain in the system; rather, it is expansionist because it eliminates exchange rate uncertainty, encouraging the use of forward contracts and reducing speculative and precautionary reserve balances. If creditor nations can be encouraged to increase domestic demand for the output of deficit nations, or to employ labor in deficit nations in order to generate foreign investment, then Keynes's plan will indeed be expansionist. On the other hand, if the creditor nation merely prefers to hold its surplus in the form of paper claims on foreigners, then Keynes's proposal does nothing to stimulate world demand. The form in which the creditor nation chooses to hold its wealth depends, of course, on the state of liquidity preference; it is primarily the fixed exchange rate system which is expected to lower the return to liquidity that will be required to raise the expected returns $(q-c+l+a)$ from capital investment sufficiently to stimulate world demand.

CONCLUSION

I hope that the "Post Keynesian" view of money as a unit of account, and the necessity of maintaining parity of the media of exchange and means of payment against the unit of account provides a more powerful theoretical argument for Keynes's proposal than that advanced by Keynes himself. If we retreat to the view that money is primarily the medium of exchange and if we focus on "real exchange" in which money merely lubricates the market mechanism, then the arguments for fixed exchange rates are not strong. A general equilibrium price vector should have room for inclusion of exchange rates as "prices" of currencies; if we essentially remain within the barter paradigm of relative prices serving as signals, then there can be no justification for fixed exchange rates. As Hahn says, even uncertainty over exchange rates cannot generate a convincing argument for fixed rates since flexible exchange rates reduce uncertainty over employment.

In contrast, the Post Keynesian view leads immediately to a justification for fixed exchange rates; exchange rates are not merely seen as relative prices that emerge from trade, but as ratios of the units of account in which monetary contracts are written. Fixing these ratios as part of a comprehensive reformation of the international financial system will merely apply at the international level the step taken in every developed country at the national level. In the domestic sphere,

capitalist countries moved from "mutual funds money" to "par money" based on gold reserves, and finally to "par money" based on central bank reserves. In the international sphere, we moved from "mutual funds money" to giro and ghost money, to a gold standard and then backwards to flexible exchange rates.

In summary, establishing fixed exchange rates, a bancor or an ICMU, and an international central bank has the following benefits:

1. Expected appreciation/depreciation of a currency no longer plays a role in determining asset prices.
2. Use of forward contracts is encouraged because uncertainty over exchange rates is removed.
3. Speculation in currencies is eliminated.
4. The volume of reserves (of gold and foreign currencies) that must be held (for speculative and precautionary purposes) by national central banks and private agents is reduced.
5. A method of dealing with trade imbalances is created that doesn't rely on austerity. This carries over to the international sphere practices that are frequently adopted domestically. (A nation normally doesn't force austerity onto a region that runs a trade deficit with the rest of the nation. Of course, the US could deal with such imbalances more rationally than it has in the past.)

6. It reduces the need for international coordination. In spite of the claim of free marketers, the flexible exchange rate system actually increased intervention into foreign currency markets by governments as they attempted to deal with problems brought on, for the most part, by flexible exchange rates.

7. The bancor or IMCU plan eliminates stagnationist tendencies in world economies, recognizing that capitalist economies require accumulation of money-denominated wealth.

Perhaps the primary result of the flexible exchange rate system has been to allow national central banks to pursue control of domestic inflation with single-minded abandon. When combined with the stagnationary influences caused by the asymmetric adjustment problem whereby trade deficit nations pursue austerity (not matched by expansionary policies of trade surplus countries), this has contributed to worldwide stagnation. Keynes's bancor proposal would encourage surplus nations to undertake expansion and would limit austerity imposed on deficit nations. While it is beyond the scope of this paper, domestic policy must also be redirected away from concern with inflation; it should be noted, however, that it is ironic that orthodox economists are so concerned with the uncertainty generated in the domestic economy by inflation but are so willing to sweep aside the uncertainty caused by fluctuating exchange rates, even when theory and evidence

suggest that the uncertainty caused by moderate inflation is minuscule when compared with that generated by wildly fluctuating exchange rates.

NOTES

1. As Ingrao and Israel (1990) demonstrate, the invariant paradigm of general equilibrium theory has been to demonstrate the existence, uniqueness, and global stability of equilibrium. While it has been shown that equilibrium does exist for the hypothesized barter economy under quite general assumptions, uniqueness of this equilibrium can be shown only under unacceptably restrictive assumptions; proof of stability is even more difficult to obtain.
2. Thus, the interest rate is not the rate of time preference. See below.
3. Part of the reason that historians focus on coins is due to the relative abundance of coin and the severe scarcity of surviving evidence of private credit monies. Not only is evidence of private contracts unlikely to survive due to the physical form it takes (eg: written on paper), but also because once a private contract is fulfilled there is no reason to preserve it. When you meet contractual obligations to your neighbor so that your IOU is returned, you destroy the IOU. It would be silly to retain it for posterity.
4. One might wonder why anyone would ever lend. Sometimes, the loans were forced; but some were voluntary in order to get concessions. Sometimes the Crown would borrow against future taxes--it would farm out the tax collections to the lenders, reducing the uncertainty.

5. This wasn't actually the first time government fiat money was created--Italian city states had been able to do it hundreds of years earlier. But this was because all citizens were responsible for city debts. This was not true once you had the development of monarchies--crown debt was not the debt of citizens.
6. See Knapp (1924) and Wray (1993a).
7. Davidson (1990) emphasizes the importance of the existence and enforcement of the "civil law of contracts" in creating the conditions under which forward contracts in money terms are made possible.
8. Liquidity preference can be defined as a preference for liquid assets, which in turn can be defined as those assets that can be sold quickly with little chance of loss of value. Existential uncertainty is said to be the source of liquidity preference.
9. For a more detailed treatment, see Wray (1992).
10. As Wray (1992) shows, an increase of "money demand" normally induces an increase of "money supply"; the effect on asset prices is determined in a very complex way so that this cannot in general be pre-determined.
11. According to the "purchasing power parity" theory, equilibrium exchange rates should ensure that the "real" price of a commodity will be equalized across currencies (ignoring transactions costs such as transportation); thus, if one dollar equals two marks in foreign exchange markets, then an item that costs one dollar

in the US should cost two marks in Germany. If a commodity that sold for a dollar in the US were selling for a mark in Germany, then (again, ignoring transportation costs) it would be profitable to trade one dollar for two marks, and then to buy two units of the commodity in Germany for sale in the US (since the dollar could buy only one unit in the US). Exports would flow from Germany, driving up the value of the mark until "real" prices were equalized. However, this does not appear to hold in the real world, where "real" prices do not seem to be equalized across currencies. This is because currencies are desired not only for purchases of goods and services, but also for "capital" transactions (purchases and sales of assets internationally). Indeed, "capital" transactions currently swamp international trade in goods and services. Capital transactions include "investment" in real and financial assets, but also include transactions in derivatives and other complex financial instruments. An indeterminant amount of capital transactions is nothing more than speculative behavior.

12. This analysis follows from Keynes (1964). Keynes had defined $\underline{q}$ as the yield (or coupon) of an asset, $\underline{c}$ as its carrying cost ("wastage", depreciation), $\underline{l}$ as its liquidity return, and $\underline{a}$ as its expected appreciation/depreciation in nominal terms. The liquidity return is a subjective return, with liquid assets providing greater subjective amounts of liquidity. While illiquid assets obtain very little $\underline{l}$, their $\underline{q}$'s can be large. Carrying cost ($\underline{c}$) would be large for physical assets that depreciate

(machinery that is used up, wheat that rots), while it would be negligible for highly liquid assets like money. In equilibrium, the total return $q-c+l+a$ is equalized on assets.

13. This implies different equilibrium exchange rates consistent with Purchasing Power Parity if wages are equalized--as Hahn argued, flexible exchange rates can compensate for inflexible wages, so that if government policy or union bargaining equalizes wages across the country, then the "dollar" in the low productivity part of the country should exchange at less than par with a "dollar" from a high productivity region. This is not permitted within the country, however.

14. This is admittedly nothing more than a guess; no one can know whether deviations from Purchasing Power Parity are largely a function of international speculation. Perhaps capital controls would also be necessary. By the way, Keynes had argued that nothing is more certain than that capital flows must be controlled. (Keynes 1980: 25)

15. Thus, while reduction of currency speculation would move us closer to Keynes's goal (to make the system operate as if trade were "goods against goods" (with "real" prices equalized as in the Purchasing Power Parity theory), this goal would never be reached because other capital flows would continue.

16. Indeed, as all who accept the endogenous approach to money are aware, it is

loans of bancors that create the reserves of bancors held by surplus nations--loans create deposits.

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