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Why money matters: lessons from a half-century of monetary theory

Years ago, Dennis Robertson (1956, p. 81) uttered the following witticism about economic doctrine: "Now, as I have often pointed out to my students, some of whom have been brought up in sporting circles, high-brow opinion is like a hunted hare; if you stand in the same place, or nearly the same place, it can be relied upon to come round to you in a circle."

In the past half-century, the role, importance, and functions of money in the economy have been the "hunted hare" in monetary theory. The first section of this paper presents a brief historical prospective. The second section provides an example of the periodic recurrence of themes in monetary theory by showing that one of the most vociferous controversies of the late 1970s involving the "crowding out" effect had actually been debated and resolved forty years ago by Keynes. The third section summarizes some fundamental aspects of monetary theory that, like the hunted hare, are coming round to the forefront again in order to explain why money matters.

A BRIEF HISTORICAL PROSPECTIVE

Half a century ago the quantity theory of money, especially the convenient pedagogical form of the equation of exchange developed by Fisher (1911), reigned supreme in the United States. In England, Marshall and Pigou had popularized the Cambridge cash balance approach. In his 1923 *Tract on Monetary Reform*, Keynes (1971, p. 60) insisted that the quantity theory is "fundamental . . . [and] not open to question. Nevertheless, it is often misstated and misrepresented" — a statement that is just as true today as it was a half-century ago. In Keynes' *Tract* (1971, p. 63 n), "exposition follows the general lines of Professor Pigou . . . and of Dr. Marshall rather than the more familiar analysis of Professor Irving Fisher." Keynes' ver-

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sion of the quantity theory differed significantly from Fisher's in that Keynes emphasized (1) a behavioral demand for money rather than a more mechanical velocity concept; and (2) this demand for money (and goods) could not be considered, in an analysis of the real world, entirely independent of the supply of money. In a perceptive passage Keynes (1971, p. 65) argued that the quantity theory "has often been expounded on the further assumption that a *mere* change in the quantity of money can not affect k [velocity] . . . that is to say, in mathematical parlance, that n [the quantity of money] is an *independent variable*. . . . Now 'in the long run' this is probably true."

Then Keynes continued: "But this *long run* is a misleading guide to current affairs. *In the long run* we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again."

In actual experience Keynes (1971, pp. 65-67) insisted that changes in the money supply could affect either velocity or income or both; moreover, in certain circumstances changes in income induced changes in the money supply. Starting from this general view of the quantity theory, which asserts that none of the variables in the cash balance equation can be assumed to be independent in the mathematical sense, Keynes went on to develop a monetary framework in the *Treatise* and the *General Theory* which Harrod (1969, p. 151) has characterized as "a study in depth of a magisterial quality not matched in the present century."

Keynes, of course, was preeminently a monetary theorist. Throughout his life Keynes was a firm believer in the importance of money and a passionate advocate of monetary reform, both domestically and internationally. Keynes' criticisms of most quantity theorists involved their use of simplifying and tacit assumptions as to what variables are taken as independent so as to provide a unique and unidirectional cause-and-effect relationship running from money to either prices or money incomes.

In this respect it is enlightening to compare the views of Keynes and Friedman on the role and relationship of money to the economic system. In a 1933 article entitled "A Monetary Theory of Production," Keynes insisted that what should be modeled from the very beginning is the operation of a real world monetary production economy, not a barter system upon which money is superimposed. In Keynes' words (1973, pp. 408-9):

> An economy which uses money but uses it merely as a neutral link between transactions in real things and real assets and does not allow it to enter into motives or decisions might be called — for want of a better name — *a real exchange economy*. The theory which I desiderate would deal . . . with an economy in which money plays a part of its own and affects motives and decisions and is, in short, one of the operative factors in the situation, so that the course of events cannot be predicted either in the long period or in the short, without a knowledge of the behavior of money between the first state

> and the last. And it is this which we ought to mean when we speak of a monetary economy.

Thus Keynes specifically rejected the idea that money was neutral in either the short or the long run. Once money enters, real relations are different. For Keynes the real and monetary subsectors were not independent. Unfortunately, such an analytical bifurcation is inherent in Hicks' pathbreaking 1937 article and is explicitly claimed as a virtue in Modigliani's 1944 article (p. 190), which purports to explain Keynes' liquidity preference theory of money. These "Keynesian" articles, which established the *IS-LM* framework as the basis for the Keynesian neoclassical-synthesis approach, are not compatible with Keynes' analysis. To Keynes, if not the Keynesians, *money matters*!

Milton Friedman, on the other hand, continually proclaims the importance of money while he misuses and abuses the quantity theory (in Keynes' sense) by presuming which variables are independent and what the direction of causality is. In his "Theoretical Framework for Monetary Analysis," Friedman explains (1974, p. 27):

> We have accepted the quantity theory presumption . . . that changes in the quantity of money as such *in the long run* have a negligible effect on real income so that nonmonetary forces are "all that matter" for changes in real income over decades and money "does not matter" . . . I regard the description of our position as "money is all that matters for changes in *nominal* income and for *short-run* changes in real income" as an exaggeration but one that gives the right flavor of our conclusions.

Thus, for Friedman and modern quantity theorists, the real income level is in the long run independent of the money supply, while long-run changes in nominal income are caused by changes in M and not vice versa. In the short run in which we live, on the other hand, the modern quantity theory, as Friedman admits (1974, p. 50), "does not specify anything about the division of a change in nominal income between prices and output." Thus the modern quantity theory, according to Friedman, is devoid of any short-run theory of inflation. Moreover, in Friedman's view (1977, p. 470), the attainment of this long-run position by the economy "may take a long chronological time . . . time to be measured by quinquennia or decades, not years." If monetary theory can only provide anti-inflation policy guidelines for such a long run, then we are all truly dead!

To return to our historical prospective, by 1924 Keynes had already embarked on the draft of a new book which began the long metamorphosis of his quantity theory into his *Treatise of Money* and *General Theory*, which provided a monetary framework for a production economy that took account of the complex interdependencies involving money, markets, time, prices, contracts, money wages, expectations, output, and employment. Keynes' technical monetary analysis is developed in the lucid but

somewhat solemn tones of the eminent professional monetary theorist in his *Treatise on Money*, which Harrod (1951, pp. 402-3) has described as follows: "This great work embodied Keynes' gathered learning and wisdom on the subject of money which was preeminently his own special field . . . it was the work of a lifetime."

When Keynes realized that his critics simply failed to grasp the complexities of the *Treatise* analysis, he provided *The General Theory* as a jarring simplification which forced direct attention to the fact that there is no automatic market mechanism that reconciles the plans of all buyers and sellers at the full employment level of output. In developing *The General Theory's* simplification and clarification of the principle of effective demand that determines the scale of output and employment, Keynes (1936, p. vii) noted that, while "money enters into the economic scheme in an essential and peculiar manner, technical monetary detail falls into the background." Since these technical details have been dealt with at great length in his *Treatise*, Keynes' willingness to suppress these complications to make this point is understandable, although from hindsight it is regrettable. Unfortunately, this deliberate concealment of monetary technicalities in *The General Theory* was coincidentally followed in time by the introduction of the highly mathematical framework of general equilibrium (GE) analysis where, although it was not initially recognized, money could logically play no essential role. Thus, economists attempting to understand the revolutionary aspects of Keynes' system were (as we shall see) tempted by claims of the developers of GE analysis to use this new tool to compare the pre-Keynesian system with Keynes' *General Theory* (while ignoring the monetary aspects of the *Treatise*). This led many so-called Keynesians to develop in the 1940s and 1950s a neoclassical framework in which money was unimportant.

As early as 1937, while Keynes was still attempting to refine his new concepts (e.g., adding the finance motive to the demand for money) as a result of an exchange of ideas between Ohlin (1937) and Keynes (1973, pp. 201-23), Hicks was publishing a "potted version"[1] of what he believed to be Keynes' central argument. Hicks' truncated view of the Keynesian system, however, started a retrograde movement of modification and alteration of the new concepts forged by Keynes. By the fifties the mutant "Keynesian" neoclassical synthesis was sufficiently entrenched in the orthodox macroeconomic literature for some economists to begin to warn that what had been propagated as *the* Keynesian theory of output and employment was a perversion of Keynes' own views about the real sector.[2] These warnings

[1]The term "potted version" is used by Hicks (1967, p. vii) to describe his famous "Mr. Keynes and the 'Classics' " article.

[2]Weintraub (1957; 1960) was one of the first to call attention to this fact. More than a decade later, Leijonhufvud (1968) was more successful in focusing attention on the fact that macroeconomics deviated from the analysis of Keynes.

went practically unnoticed and unheeded — at least till Leijonhufvud's volume in 1968 — so that currently the analytical concepts used in macroeconomic writings emanating from some bastions of American "Keynesianism" are in conflict with Keynes' own grand design.

Accordingly, while Keynes' own analysis provided the impetus for a precipitous decline in the popularity of Fisher's quantity theory approach between the 1930s and 1950s, Keynes' own monetary views held the spotlight only for the brief decade of the thirties. After World War II, Keynes' theory followed Fisher's into near-oblivion, while a bastardized and bowdlerized version of Keynesianism in which money hardly mattered dominated the field for almost two decades. As it was analytically refined over time, this neoclassical-synthesis Keynesianism became so devoid of content for real world monetary problems that by 1956 it was a relatively simple matter for Milton Friedman to revive (after more than two decades) Fisher's quantity theory in modern garb and demonstrate its superiority over the then dominant neoclassical-synthesis Keynesian school of thought. The popularity of Friedman's monetarist theory, however, peaked at the beginning of the seventies as a resurgence of Keynes' original monetary analysis, combined with economic events, has reexposed its glaring defects.

As late as the mid-sixties, however — except, perhaps, in the writings of Shackle, Kahn, Clower, Minsky, Weintraub, and Davidson — few if any monetary theorists had focused on the fact that "Keynesian" monetary theory was a perverted caricature of Keynes' own view on money. Even Leijonhufvud, who had centered attention on the difference between "Keynesian economics and the economics of Keynes" in his famous book subtitled "A Study in Monetary Theory," did not understand what Keynes' original monetary framework involved. In his 1968 book (p. 52) Leijonhufvud claimed that "in the Keynesian macrosystem the Marshalliam ranking of price and quantity adjustment speeds is reversed. . . . The 'revolutionary' element in *The General Theory* can perhaps not be stated in simpler terms." This misconception of the difference between Keynes and earlier monetary theorists was immediately adapted by Friedman (1974, p. 16 n.7) as the basis for his revival of the quantity theory. By 1974, however, Leijonhufvud (p. 169) had recognized his mistakes and admitted that "it is *not* correct to attribute to Keynes a general reversal of the Marshallian ranking of relative price and quantity adjustments." Leijonhufvud (1974, pp. 164-65) has finally recognized that "most of the recent writings on Keynes' theory, including my own, insist on analyzing it in a Walrasian prospective. . . . But Keynes was, of course, a price theoretical Marshallian, and . . . ignoring this fact simply will not do."

Leijonhufvud's rediscovery of Keynes' price theory is not an isolated "hunted hare" incident. Some eminent economists (including two Nobel Prize winners) have traveled Robertson's full cycle of high-brow opinion and in the last few years have recognized that a serious monetary theory can

be developed only by restoring Keynes' basic building blocks.

Perhaps the strongest example of this cycle is illustrated in the following statements of J. R. Hicks, the first published in 1939, the second in 1976. In 1939 (pp. 1-4) Hicks exclaimed:

> I believe I have had the fortune to come upon a method of analysis which is applicable to a wide variety of economic problems. . . . The method of General Equilibrium . . . was specially designed to exhibit the economic system as a whole. . . . [with this method] we shall thus be able to see just why it is that Mr. Keynes reaches different results from earlier economists on crucial matters of social policy.

Thus, Hicks encouraged a line of development of macro-monetary theory that was carried through to fruition by Lange and Patinkin. In 1976, however, Hicks had recognized that "the use of a [general] equilibrium concept is a signal that time, in some respects at least, has been put on one side" (p. 140), while Keynes' monetary framework required an "in [calendar] time" approach that recognized "the irreversibility of time . . . that past and future are different" (pp. 135-36). This lack of perception of Keynes' "in time" monetary analysis by neoclassical Keynesians meant, according to Hicks (1976, pp. 140-41):

> The 'Keynesian revolution' went off at half-cock. The [general] equilibrists did not know that they were beaten. . . . they thought that what Keynes had said could be absorbed into their equilibrium system; all that was needed was the scope of their equilibrium system should be extended. As we know, there has been a lot of extension, a vast amount of extension; what I am saying is that it has never quite got to the point. . . . to look over my own work, since 1935, and to show how some aspects of the struggle, and the muddle, are reflected in it . . . I have found myself facing the issue, and (very often) being baffled by it.
>
> I begin (as I am sure you will want to begin) with the old ISLM (or SILL) diagram. . . . I must say that diagram is now much less popular with me than I think it still is with many other people. It reduces *The General Theory* to equilibrium economics; it is not really *in* time.

Hicks then suggests that general equilibrium analysis, with its focus on steady-state economics, shunted economics onto a wrong line for more than two decades. Hicks (1976, pp. 142-43) declares: "I shall not say much about steady state economics. . . . it is my own opinion that it has been rather a curse. . . . it has encouraged economists to waste their time upon constructions that are often of great intellectual complexity but which are so much out of time, and out of history, as to be practically futile and misleading." Thus Hicks has rediscovered the faults of neoclassical economics which Keynes discerned and tried to rectify with his "in time" monetary theory.

Similarly, Arrow and Hahn (1971), in their desire to give a systematic exposition of general competitive analysis, have stumbled across Keynes'

contract-time approach. In their chapter on "The Keynesian Model," they discover that (pp. 356-57):

> The terms in which contracts are made matter. In particular, if money is the good in terms of which contracts are made, then the prices of goods in terms of money are of special significance. This is not the case if we consider an economy without a past and without a future. Keynes wrote that "the importance of money essentially flows from it being a link between the present and the future" to which we add that it is important also because it is a link between the past and the present. If *a serious monetary theory* comes to be written, the fact that contracts are indeed made in terms of money will be of considerable importance. [Italics added.]

Furthermore, Arrow and Hahn (p. 361) have concluded that in "a world with a past as well as a future and in which contracts are made in terms of money, no [general] equilibrium may exist."

For a decentralized market economy moving irreversibly through calendar time (where the future is uncertain), forward contracting for inputs to the production process is essential to efficient production plans (see the third section of this article). Moreover, in such an economy, when slavery is illegal the money wage contract is the most ubiquitous forward contract of all; and since labor hiring precedes in time the delivery of newly produced goods, it is the money wage relative to productivity that is the foundation upon which the price level of new goods rests. If Arrow and Hahn are correct, it therefore follows that the relevant analytical framework for a market economy is the monetary approach of Keynes rather than the traditional GE analysis.

Hence, it would appear that the fundamental soundness of the monetary analysis developed by Keynes is slowly being rediscovered as "a serious monetary theory" once again — after a hiatus of almost forty years — and is being developed to make contact with the real world.

MONETARISTS VS. KEYNESIANS VS. KEYNES ON THE CROWDING-OUT EFFECT

A recent argument developed by monetarists (Spencer and Yohe, 1970) states that if the U.S. government attempted to increase deficit expenditures to stimulate the economy during a recession, the effect would be to "crowd out" private borrowers from credit markets, thereby further depressing private sector spending.

Since those who do not study history (of economic thought) tend to repeat the errors of the past, some American "Keynesian" scholars blatantly dismissed the "crowding-out" theory as lacking any understanding of the basic Keynesian principle that, before full employment, there can never be a shortage of savings "to finance" any level of investment (or government) spending. Yet, it was a similar debate which caused Keynes to add the

finance motive to his liquidity preference approach.

In *The General Theory,* Keynes (1936, p. 195) discusses the transactions demand for money (income deposits in the *Treatise*) as the motive for holding money in order "to bridge the interval between the receipt of income and its disbursement." Underlying this motive for spanning *institutional and contractually determined time intervals* is: (1) the behavioral pattern of households to avoid the embarrassment of insolvency between the time they expect to receive money as a result of contracting for the sale of goods and services (primarily labor) and the time they have to meet all their anticipated contractual commitments incurred while buying goods for money during the period; and (2) the need of entrepreneurs to redeem their promises to pay for inputs to the production process with money before the time when they will receive money receipts from the sale of goods produced by these inputs.

In the *Treatise,* the demand for income deposits by households and firms depended upon anticipated or expected spending that would come due during the contractual payments period. In the truncated monetary analysis of *The General Theory,* however, Keynes (1936, p. 170), while defining the transactions motive in terms of "personal and business exchanges," tends to encourage viewing this demand for money as a means of settlement of obligations solely from the householder's position, while neglecting the business motive. Since, in *The General Theory,* planned household spending is primarily a function of *income,* many "Keynesians" have been misled into incorrectly specifying the medium of exchange function of money as a simple function of income, for example,

(1) $L_t = f(Y)$
or even
(2) $L_t = bY$

where L_t is the aggregate demand for transactions cash balances, Y is aggregate income, and b is a constant. In fact, Keynes (1936, pp. 199-200) used equation (1) as a "safe first approximation" for the purpose of analyzing a specific set of circumstances where it was hypothesized that M was exogenous and the planned spending propensities did not change. Nevertheless, when the demand for transactions balances is a demand to meet *planned* expenditures during the contractual income period, then the correct specification of L_t is:

(3) $L_t = \alpha C + \beta I$

where C is planned consumption demand (at each Y level), I is planned investment spending, and α and β are constants.[3]

[3]In an expanded model where planned government spending (G) is included, equation (2) would be written as:

(4) $$L_t = \alpha C + \beta I + \sigma G$$

Equation (3) implies that all the parameters of the demand function for goods by households, investors, and governments are also parameters of the demand for money function. Thus, every time there is an exogenous shift in the aggregate demand for goods function, the demand for transaction balance function is displaced. (This interdependence should not be as shocking as it may first appear to some. After all, in "Principles," textbooks economists have always taught that the demand for goods depends on wants *plus the ability to pay*. In a monetary economy the ability to pay involves the possession of transactions balances.)

In 1937 Ohlin quickly spotted the error of Keynes' "safe first approximation" as embodied in an equation such as (1). In reply to Ohlin's criticism, Keynes (1937, pp. 201-23) introduced a new and, to appearances, somewhat novel purpose for demanding money: namely, the finance motive. Keynes argued that entrepreneurs typically hold some cash balances between payments periods to assure themselves that, when they enter into forward contracts for the purchase of capital goods that will be produced during the period, they will be able to meet these obligations. Thus, as long as planned (contractual) investment expenditures are unchanged in each period, demand for transactions balances is a stable function of output flow.

"But," Keynes (1973, p. 209) wrote, "if decisions to invest are (e.g.) increasing, the extra finance involved will constitute an additional demand for money." If, for example, profit expectations are increased exogenously, then at the given flow of output and rate of interest, entrepreneurs would desire to enter into more forward contracts for capital goods than before, and consequently the demand for money to use to pay for the hire-purchase of these goods would increase[4] (Robinson, 1952, pp. 20-22). In other words, an increase in planned investment expenditures will normally result in an increase in the aggregate demand for money function, even before the expenditures are undertaken.

Once the finance motive is properly introduced, the interdependence of

[4]To clarify the essence of the finance motive and indicate why it is not properly taken into account in the discussion of the transactions motive, Keynes wrote (1973, pp. 220-21):

> It follows that, if the liquidity-preference of the public (as distinct from the entrepreneurial investors) and of the banks are unchanged, an excess in the finance required by current ex-ante output (it is not necessary to write "investment," since the same is true of *any* output which has to be planned ahead) over the finance released by current ex-post output will lead to a rise in the rate of interest; and a decrease will lead to a fall. I should not have previously overlooked this point, since it is the coping-stone of the liquidity theory of the rate of interest. I allowed, it is true, for the effect of an increase in actual activity on the demand for money. But I did not allow for the effect of an increase in *planned* activity, which is superimposed on the former. . . . Just as an increase in actual activity must (as I have always explained) raise the rate of interest unless either the banks or the rest of the public become more willing to release cash, so (as I now add) an increase in planned activity must have a similar, super-imposed influence.

the real and monetary subsectors is readily demonstrated. For example, using the popular *IS-LM* framework as a pedagogical device, if equation (3) or (4) is utilized in developing the *LM* locus, then every upward shift of the *IS* curve due to an exogenous increase in aggregate demand implies a concomittant upward (but less than proportionate) shift in *LM* functions[5]; i.e., every increase in the aggregate demand for real goods induces an increase in the demand for money as contractual obligations per period increase at any level of *Y*.

Keynes (1973, p. 222) noted that his finance motive analysis highlighted the fact that *any* increase in planned spending will create "congestion" (to use Keynes' term) in the money markets, while

> the public can save *ex ante* and *ex post* and ex anything else until they are blue in the face without alleviating the problem. . . . the banks hold the key position in the transition from a lower to a higher scale of activity. If they refuse to relax, [i.e., to provide endogenous additional finance] the growing congestion of the short-term loan market or the new issue market, as the case may be, will inhibit the improvement, no matter how thrifty the public purpose to be out of their future income. On the other hand, there will always be *exactly* enough ex-post saving to take up the ex-post investment and so release the finance which the latter had been previously employing. *The investment market can become congested through shortage of cash. It can never become congested through shortage of saving. This is the most fundamental of my conclusions within this field.* [Italics added.]

Thus, exactly forty years ago Keynes recognized that the possibility of "congestion" (or, in modern parlance, "crowding out") was the "most fundamental" of his conclusions in the monetary theory field in which he was a preeminent scholar. In terms of the *IS-LM* framework, this congestion is due to the fact that the parameters of the planned spending (*IS*) function are also parameters of the demand for money (*LM*) function; that is, the *IS* and *LM* functions are interdependent.

Unfortunately, confusion reigns in much of the recent monetary theory literature because these aggregate interdependencies have not been recognized by American Keynesians, and only vaguely and incorrectly perceived by monetarists. Tobin (1974, p. 77), for example, has written that the "main issue" separating monetarists from his brand of Keynesianism is "the shape of the *LM* locus." Friedman (1974, p. 142), on the other hand, has discovered that "the main issue between us clearly is not and never has been whether the *LM* curve is vertical or has a positive slope." Friedman, in an analysis similar in some respects to Keynes' fundamental conclusion regarding the finance motive, has at least recognized that under certain circumstances, when the *IS* curve shifts because of an increase in planned spending, the *LM* curve shifts concomitantly. Although Friedman has not perceived all the ramifications of the interrelationships of *IS* and *LM*

[5]For proof see Davidson (1978, pp. 168-70, 185-88).

curves, he at least appreciates the possibility of the principle of interdependence of the functions of the monetary and real sectors — a principle that is basic to Keynes' approach but that has so far escaped the perception of the leading proponents of the neoclassical branch of the Keynesian school.

Friedman, accepting the "crowding-out" effect (without realizing its origin in Keynes' finance motive analysis), sketches his position with the following example. Assume a permanent, once-for-all shift in the *IS* function due to a deficit-financed increase in government spending from G_0 to G_1. The deficit, according to Friedman, must be financed by a concomitant increase in the money supply (to avoid "congestion") not only in the first period when income increase from Y_0 to Y_1, but in each future period as long as the deficit continues, even though government expenditures remains unchanged at G_1. Thus, the *LM* curve continues to shift rightward in each future period so that its movement "must swamp the effect of the once-for-all shift of the *IS* curve" (Friedman, 1974, p. 141).

Of course, Friedman has *not* recognized that when the *IS* curve shifts outward initially the finance motive will cause the *LM* curve to shift inward, and therefore an increase in the money supply in the initial period to finance the initial increase in government spending will merely offset the inward *LM* shift and *avoid* congestion. Whether the *LM* curve must continue to shift outward in each subsequent future period after the once-for-all shift of the *IS* function, however, depends on the flow-demand for securities out of savings in future periods. The flow demand for securities, as I have demonstrated in detail elsewhere (Davidson, 1978, ch. 13) depends on the magnitude of m, the marginal propensity to purchase securities out of each period's aggregate savings. Once the higher level of income Y_1 is established from the once-for-all shift in *IS*, the additional savings in each future period compared to savings that would be forthcoming if Y remained at Y_0 will just equal $G_1 - G_0$. If $m = 1$, then this additional savings sum will *all* be spent on securities, so that the additional new issue of government debt to finance the same $G_1 - G_0$ deficit in each future period, *ceteris paribus*, can just be absorbed by the private sector net flow demand for securities out of savings, and no additional money need be forthcoming to float the additional government debt. Thus if $m = 1$, the *LM* curve will not shift in future periods in response to the once-for-all shift in *IS*. In other words, both functions will shift about in the initial period only.

If, on the other hand, $m = 0$, then there will be no additional flow demand for securities by the private sector in each future period, and hence government bonds (at the current rate of interest) can be sold only to the banking system, so that Friedman's scenario of the money supply increasing *parri passu* with the $G_1 - G_0$ deficit in each future period is applicable.

Keynes (1973, p. 222) believed that $0<m<1$, and hence, *ceteris paribus*, some part of the new issue of government debt used to finance the $G_1 - G_0$

spending in each future period will be absorbed by the private sector and part will have to be financed by an increase in the money supply if tax revenues did not expand as income increased. Thus, whether the continuous shifting of the LM curve "swamps" the once-for-all shift of IS depends on the magnitude of m. Money clearly matters, but so does the liquidity preference (and hence the asset-holding desires) of the private sector.

WHY MONEY MATTERS

Time, liquidity, and finance

At the outset of his *Treatise,* Keynes (1930a, p. 3) explicitly stated that money is "that by delivery of which debt contracts and price contracts are *discharged,* and in the shape of which a store of General Purchasing Power is held." Thus in 1930 Keynes started his analysis with the same "hunted hare" that Arrow and Hahn finally glimpsed in concluding their analysis forty-one years later; namely, that the existence of contracts in terms of money is essential to the phenomenon of money and that "a serious monetary theory" cannot be developed unless this fact is explicitly accounted for.

Modeling of the real world requires an analysis of an economic system moving irreversibly through calendar time where the human institution of money and its related market institutions of money contracts for (a) immediate delivery and payments (spot contracts) and/or (b) future delivery and payment (forward contracts) play fundamental roles. This in turn requires a study of the relationship and organization of such time-related spot and forward markets similar to the one provided by Keynes in his *Treatise*, a framework which Keynes (1930b, pp. 140-46) proclaimed to be superior to the orthodox short-period theory of prices since it permitted a simultaneous analysis of the relationship of the (spot) price of stocks and the (forward) price of flows. Although Keynes' time-related market organization analysis has been virtually ignored — except perhaps in the writings of Kaldor (1939) and myself (1978) — in 1977 Clower (p. 209) rediscovered the principle that one of the objects of monetary theory is to explain "how the organization of... markets tends always to take highly specialized form that permits us objectively to assert that certain objects (or documents representing the latter) play a distinctive role as 'money.'"

Why must transactions on organized markets be time related? Time is a device that prevents everything from happening at once. Production takes time, and hence in a market-oriented economy most production transactions along the nonintegrated chain of firms involve forward contracts. For example, the hiring of factor inputs (especially labor) and the purchase of materials for the production of goods will normally require forward con-

tracting if the production process is to be planned efficiently. The financing of such forward-production cost commitments (i.e., taking a "position" in working capital goods) requires entrepreneurs to have money available to discharge these liabilities at one or more future dates *before* the product is sold, delivered, and payment received, and the position is liquidated. Since orthodox neoclassical theory neglects the concept of contracting over calendar time in organized markets for future delivery *and* payment, this ubiquitous liquidity problem of entrepreneurs in capitalist economies is left unattended by mainstream economists, who consequently are deserving recipients of the businessman's traditional gibe: "They have never had to meet a payroll!" Keynes, on the other hand, recognized that positions in working capital are necessary because final goods take time to produce.[6] Keynes' monetary theory of production explains why and how entrepreneurs attempt to meet their payroll (and other) contractual obligations.

The existence of money contracts for forward delivery *and* payment is fundamental to the concepts of liquidity and money (Davidson, 1977a). In such a setting, changes in money wage rates — Keynes' wage unit — determine changes in the costs of production and the price level associated with the production of goods that profit-oriented entrepreneurs are willing to undertake. The view that inflation (i.e., a rising money price level of newly produced goods) is a monetary phenomena makes logical sense only in an economy where time-oriented money contracts (especially labor hire) are basic to the organization of production activities.

Marshall (1950, p. vii) warned in the preface of the first edition of his *Principles* that the "element of Time is the centre of the chief difficulty of almost every economic problem." Most of the perplexing problems facing economic agents in the real world involve the temporal coordination of production, delivery and usage, and payments for both existing stocks and newly produced finished and intermediate goods. In order to aid in this coordination of production flows with stock-holding positions, economic man has organized, in a variety of ways, markets for dealing either with (a) immediate (spot) payment and delivery (and hence only preexisting stocks can be sold) or (b) forward payment and delivery at a specific future date (so that transactions in goods and services still to be produced can also be handled).

Neoclassical theory tends to treat all transactions as if they are made in *spot* markets, for example, the emphasis on "production to [spot] market" (and not to [forward] contract) in current textbooks on price theory. The Fisher quantity theory approach implicitly treats transactions as if they are made on the spot, as do Friedman and the monetarists with their emphasis on the relatively fast (instantaneous) speed adjustment in price. Even in GE

[6]Similarly, positions in consumer durables, houses, plant, and equipment must be financed over some period of calendar time beginning with their initial purchase date, since such goods take time to consume or use.

models where future delivery is possible, payments (or at least the clearing of all payments) occurs at the initial instant, that is, on the spot (to assure Walras's law and the absence of false trades).[7] Any of these economic models implicitly assumes either that no production of goods is carried out, so that everything is inherited from the past (Patinkin's initial endowment) or all production is completed before goods are brought to market, or that aggregate future production is sold and paid for at market-clearing prices at the initial instant, so that the future (real) production flows are independent of money payment flows. Hence the basis is laid for the Fisher-Friedman "quantity theory presumption" (Friedman, 1974, p. 27) that real income, at least in the long run, is not influenced by the supply of money, for the levels for the former are determined outside of the market price system, which functions merely to allocate a given total of (current and future) goods or endowments. In the real world, however, as in Keynes' analytical system, spot prices and initial instant payment coexist with forward prices and future money payment obligations for goods still to be produced.[8] Forward prices for producible goods depend (if entrepreneurs are rational) on the short-run Marshallian flow supply costs of production and hence ultimately on money wages (Davidson, 1978, pp. 149-50).

As early as 1939 Hicks (pp. 135-36) had explicitly presented his macro-analysis in terms of either a spot-trading or a forward-trading economy. Unfortunately Hicks, perhaps because of his GE orientation, tended to consider an economy either exclusively as spot market oriented or as forward market oriented. In later writings, Hicks' spot-market analysis was translated into flexprice markets (because the stock supply is, by definition, perfectly inelastic, and hence any change in the public's demand will be immediately and completely reflected in a change in the spot price)[9] while forward markets (because of the fixed money terms of the time-related contracts) became Hicks' fixprice markets in a calendar time setting. The popularity of Hicks' separate flexprice vs. fixprice analysis contributed significantly to the neglect of Keynes' monetary-market approach with its simultaneous spot-forward market analysis in the decades of the forties and fifties.

Recently, however, Hicks has recognized the artificiality of permitting

[7]Jaffe (1967, pp. 9-14) has demonstrated that Walras's own system was logically consistent only for an exchange economy where all goods are in essence traded on the spot.

[8]Minsky (1975, ch. 4), for example, has provided a lucid illustration of these two coexisting price mechanisms in his discussion "Capital Financing and the Pricing of Capital Goods."

[9]This is true only to the extent that public demand change is not offset by a change in reservation demand of the market makers of these spot markets. Even in spot auction markets the degree of price flexibility depends on this reservation demand of market makers, i.e., their reactions and interpretation of sudden changes in the public's market behavior and the institutional rules governing how market makers are supposed to maintain "orderliness" in spot prices over calendar time.

all prices to be fixed on the spot on the Monday of a Hicksian week while trying to develop a theory of "production *in* time." In 1976 Hicks (pp. 142-43) wrote of his *Value and Capital* spot-market GE analysis:

> It was quite an interesting exercise... but I have become abundantly conscious how artificial it was. Much too much had to happen on that "Monday"! And even if that was overlooked (as it should not have been overlooked) I was really at a loss how to deal with the further problem of how to string my "weeks" and my "Mondays" together.

Following the principle of Robertson's "hunted hare" analogy, Hicks has apparently rediscovered Keynes' view that if a community existed where *all* transactions require payment on the spot, nothing would possess liquidity over time; for such a spot-market system, as Keynes (1930a, p. 3) put it, would have "scarcely emerged from a state of barter."[10]

In the real world, however, it is the ubiquitous catenated forward contracts primarily (but not solely) for the purchase of inputs along the nonintegrated chain of firms in the production process which forms the string connecting Hicks' Mondays. Because production takes time, entrepreneurs require forward contracts whose duration exceeds the gestation period of production so that they can have some assurance of the monetary limits to the "position" they will be undertaking when they initiate a production flow.[11] If a producer can enter into a forward contract for the sale of product at the maturation date at the same time that (or before) he makes a substantial commitment to hire inputs — a practice that is typically sought and often occurs at all stages of production except the retail stage — then the entrepreneur can be assured of the profitability of his "position" in working capital goods and can therefore readily finance this position through the banking system. Accordingly, forward contracting can be considered as the way entrepreneurs in a "free market" environment attempt to maintain wage and price controls — for such sales and cost controls are fundamental in obtaining sound financing. Bankers and businessmen abhor what GE economists love — namely, recontracting.

Since 1975, economists at the Brookings Institution have apparently discovered that any analysis of real world inflation requires an analysis of contracts as well as two different types of markets: "'auction' markets... with instantaneous market clearing and 'customer' markets in which economic incentives induce long-term contractual arrangements" (Gordon, 1977; also see Okun, 1975, and Poole, 1976). Although there are obvious similarities between these auction and customer market concepts and the Keynes spot- and forward-market analysis, the former concepts have not

[10]Or, as Hahn (1970, p. 3) stated in 1970, "the Walrasian economy that we have been considering, although one where the auctioneer regulates the terms at which goods shall exchange, is essentially one of barter."

[11]Cost overruns, except when they are validated by forward cost-plus purchase contracts (e.g., in defense industries) can be a disaster to a firm.

been developed adequately. For the Brookings people, the difference appears to turn on the existence of an auction (and the implicit absence of contracts) in the one and the existence of contracts (and the absence of an auction) in the other. Contracts, however, are the essence of both "auction" and "customer" markets. It is the time duration of the contractual commitment in each type of market, and not whether the market is organized on an auction basis or not, that is the important feature in developing "a serious monetary theory." (It is possible to have well-organized auction markets for forward contracts — even though each contract involves long-time contractual arrangements.)

The existence of time-related markets and contracts for performance and money payments is the essence of a money economy, for it is basic to the concept of liquidity. Liquidity in a temporal setting, given the money wage unit and the resulting price level, is the cornerstone of Keynes' revolution! Problems of liquidity and finance are the hallmarks of everyday business decision making in a monetary economy.

Liquidity involves being able to have the means of settlement to meet all one's contractual obligations when they come due. Since money is the only thing that will discharge contract commitments (by definition), for any store of value besides money to be liquid, it must be easily resalable for money in a spot market. Thus the degree of liquidity associated with any durable depends on the organization and orderliness of the spot market in which it is traded.[12] Those durables whose spot markets are very poorly organized, thin, or even notional are *illiquid assets*. Such assets (e.g., fixed capital and consumer durables) are held primarily for either the net money stream or utility stream they are expected to generate at specific dates in the future.[13]

Liquid assets are durables traded in well-organized and orderly markets. Hence, what are the liquid assets of any economy depends on the social practices and institutions that exist in that economy. In his *Principles*, Marshall (1950, pp. 325-27) indicated a number of factors that would affect the degree of organization of a market for any good. He omitted, however, the most essential factor for well-organized markets — namely, the institution of a *market maker*, or trade coordinator in Clower and Leijonhufvud's terminology (1975, p. 184). The function of a market maker is to provide orderliness over time in the money price of the good traded, offsetting the random ebbs and flows of the market by utilizing sizeable inventories of both the good traded in the market and money (or other liquid assets)

[12]In GE systems, since it is assumed that all goods can be traded in well-organized spot markets and all payments are made at the initial instant, there is never a liquidity problem. Everything appears to be equally liquid, although nothing is really liquid, for these are barter economies.

[13]Friedman's transmission mechanism, however, as well as Tobin's portfolio balance approach, assumes that illiquid assets are held for the same reasons as money (see discussion *infra*).

(Davidson, 1978, p. 87). Thus even spot prices need not respond with perfect flexibility to every change in the demand or supply of the good on the part of the public. Orderliness (i.e., sticky spot prices over time) is maintained by means of reservation demands by the market makers. Orderliness in spot prices merely requires the existence of buffer stocks and the willingness of the holders of such stocks to utilize them to assure a continuity in market price over time (according to the rules of the games adopted by the market so organized).

If there is a market maker who deals with the public as both the residual buyer and seller of a specific durable in economy A while no similar market-maker institution exists for the same item in economy B, then the same durable will be a liquid asset in A but not in B. In the most developed monetary economies, large private sector market makers have evolved in many spot markets (e.g., security specialists and jobbers, bond houses, foreign exchange dealers, etc.) so that in such economies there is a large spectrum of financial assets besides money that are highly liquid. Often formal or even informal financing arrangements exist between these private market makers and the banking system (and hence either directly or indirectly with the central bank). The public recognizes that such financial arrangements imply that, in any macroliquidity crisis, these private market makers will not experience undue financial pressure which would otherwise force them to liquidate their "position" completely in a short period of time, causing the spot price to drop precipitously. Consequently, the continuity and orderliness of such spot markets appear assured — as long as the central banker ultimately acts as the lender of last resort and the community continues to use the "money" of the system to denominate its contractual obligations.[14] If, however, these financial arrangements prove inadequate in a liquidity crisis, perhaps because the chain from the private market maker to the central bank is weak and therefore the latter does not (or cannot) respond as lender of last resort swiftly enough, then some large private sector market maker could collapse. This can in turn induce a chain reaction in other liquid spot markets as the financial structure of debt layering (as Minsky has eloquently described it) collapses like a house of cards.

In this era of central banks, it is their decisions and activities that ultimately provide the liquidity of any ongoing monetary economy which relies on the institution of forward contracting in money terms to organize its productive activities. And it is only in such an economic system that money matters and central banks matter!

[14]Only in the case of a "flight from domestic money," i.e., when the economic agents of the domestic economy refuse to enter into forward contracts denominated in the domestic money of the economy, will the monetary system break down. In such cases, even money loses its attribute of liquidity and normally a foreign asset or currency will (at least temporarily) become the "money" of the economy.

Fully liquid assets are money (i.e., that which discharges contractual obligations) plus any asset that can be converted into money in a spot market where the market maker "guarantees" a fixed and unchanging net spot money price. Since ultimately only the central bank (in modern economies) can provide such guarantees, either the central bank or a market-maker institution with ready and direct access to the central bank can create the fully liquid assets of a modern economy.

The importance of the existence of a market maker to provide liquidity for many durables has been ignored by Friedman in his attempt to differentiate his monetary analysis from that of Keynes and the Keynesians. The difference, according to Friedman (1974, p. 28), "is in the transmission mechanism that is assumed to connect a change in the quantity of money with a change in total nominal income"; for Keynes only financial assets traded on well-organized spot markets are good substitutes for money, while Friedman insists that a far wider range of assets, including furniture, appliances, clothes, etc., are substituted for money by wealth owners in their portfolios as they attempt "to restore or attain a desired balance sheet after an unexpected increase in the quantity of money."

Tobin (1974, p. 89), on the other hand, believes that Friedman's claim that "he is more catholic than nonmonetarists in the list of assets he includes in portfolios — in particular his inclusion of *durable goods for which there are not good organized markets*" [italics added] — does not do justice to Tobin's own conception of a portfolio that "has always included consumer durables."

In Keynes' original model, however, portfolio choice is associated with *liquidity preference*. Keynes (1936, p. 211) specifies that "the act of saving implies . . . a desire for 'wealth' as such, that is for a potentiality of consuming an unspecified article at an unspecified time." Consequently it would be foolish for savers to hold a specific physical durable that is not traded in a well-organized spot market, i.e., an illiquid asset, in their portfolio as a store of value. Instead Keynes (p. 166) insists that a saver must decide to store his wealth either

> in the form of immediate liquid command (i.e. money or its equivalent) . . . [or] to part with immediate command for a specified or indefinite period, leaving it to future [spot] market conditions to determine on what terms he can, if necessary, convert deferred command over specific goods into immediate command over goods in general. . . . In other words, what is the degree of *liquidity-preference*.

If wealth owners are saving for an unspecified expenditure at an unspecified future date, then portfolio choices can only be between fully liquid assets and liquid assets. Illiquid assets such as capital goods and consumer durables will never be a good substitute for money as an uncommitted store of value as long as well-organized, orderly spot markets for such goods do not exist. It is obvious that in the real world most fixed

capital goods and consumer durables are not traded in well-organized spot markets and no market maker has come forth to organize such markets. Accordingly, such reproducible goods cannot satisfy liquidity demands.

Keynes (1936, ch. 17) insisted that the essential properties of money and other assets which possess the attribute of liquidity in large degree were zero or negligible elasticities of production (i.e., the asset could not be readily reproduced through the exertion of labor in response to an increase in demand), and a zero or negligible elasticity of substitution between liquid assets and goods that are readily reproducible through the exertion of labor.[15]

Rightly or wrongly, Keynes (1936, p. 241) asserted that the "attribute of liquidity is by no means independent of the presence of these two characteristics." Fixed capital goods and consumer durables are normally not held as stores of value for liquidity purposes because they do not possess the characteristics which encourage the development of active, well-organized spot markets for their exchange (Davidson, 1978, ch. 4). Thus, in contrast to Friedman, Keynes insists that one of the basic "peculiarities" of a monetary economy is that easily reproducible, labor-resource-using durables are illiquid and that such illiquid assets are never good substitutes for money. Consequently Say's law is inapplicable and unemployment equilibrium is possible.

These peculiar elasticity properties do not mean that the quantity of money is unalterable. In a bank money economy, the money supply can be changed either exogenously (via open market operations) or endogenously, as the banks respond to an increased demand for money due to the finance motive — including the need to meet increased payrolls if the contractual money wage rate increases (Davidson, 1977b). Nevertheless, in an economy where liquidity is associated with these peculiar properties, an increased demand for money for precautionary or speculative purposes at the expense of planned transactions will, all other things being equal, reduce employment, while an exogenous increase in the money supply will not have a direct impact on spending on reproducible goods via portfolio adjustments. (This latter result is in direct conflict with Friedman's [1974, pp. 28-29] assumed transmission mechanism.)

Friedman, and to some extent Tobin, on the other hand, because of their GE approach implicitly assume that, at least in a GE long-run system, all markets are *well* organized (via the Walrasian auctioneer) and, therefore, all goods are ultimately gross substitutes. By ignoring the institutional

[15]For a complete discussion of these two elasticity conditions, see Davidson (1978, chs. 6, 9). Keynes insisted that if demand is redirected from producible goods towards money, "labour cannot be employed in producing more money and . . . there is no mitigation at any point through some other factor being capable, if it is sufficiently cheap, of doing money's duty equally well" (1936, p. 234). Of course, other liquid assets that possess a zero or negligible elasticity of production may be good substitutes for money (e.g. financial assets, foreign exchange) (see Davidson, 1977a).

questions of (a) market organization and market makers, (b) the nonuniversality of the gross substitution maxim, and (c) the essential properties of money, both Friedman and Tobin are to different degrees neglecting some of the most fundamental problems of real world economies. Consequently, the debate between Friedman's monetarism and Tobin's Keynesianism has shunted economic theory onto a wrong line and has therefore retarded the development of what Arrow and Hahn have labeled "a serious monetary theory."

General Equilibrium vs. Keynesian Equilibrium

In the search for a microfoundation that is consistent with Keynesian macroeconomics, some theorists have attempted to "alter" their basic GE models to permit a "Keynesian" underemployment solution. What is happening in this search process is another example of Robertson's "hunted hare" cycle since, consciously or otherwise, these GE theorists are rediscovering the elasticity properties Keynes labeled as essential to the concept of money.

Grandmont and Laroque (1976, p. 54), for example, have formulated a "temporary Keynesian equilibrium" model which has (a) fiat money as the only store of value, and (b) only one producible commodity that is nonstorable over time. Hence, without acknowledgement (or recognition?), Grandmont and Laroque have assumed a money that possesses zero elasticities of production and substitution (between money and the producible, perishable commodity). Unfortunately these authors have not focused on this money concept; rather, they claim (1976, p. 53) to achieve a "temporary Keynesian" underemployment equilibrium by making rigid money wages and/or monopolistic competition (fix prices) "a central feature of the Keynesian model."

Keynes would not deny the existence or the importance of monopoly power and money wage rigidities, but he did argue that these were not central features of underemployment equilibrium. A reduction in money wages (or prices) would not, *ceteris paribus*, have a direct tendency to increase employment (Keynes, 1936, pp. 260-62). "Unemployment develops . . . because people want the moon; men cannot be employed when the object of desire (i.e., money) is something which cannot be produced and the demand for which can not be readily chocked off" (p. 235). Thus for Keynes, if not for Grandmont and Laroque, it is the elasticity properties and not the existence of monopoly power which permits underemployment equilibrium[16] (Keynes, 1936, pp. 229-35).

Professor Hahn (1977, p. 25) has recently noted that the view that "Keynesian economics deals with important relevant problems and General Equilibrium theory deals with no relevant problems at all . . . has, alas,

[16]For a more complete critique of the Grandmont-Laroque model, see Davidson (1977a).

an element of truth." Hahn, however, vainly tries to restore the usefulness of his GE research program by simultaneously introducing the first of Keynes' "essential properties" of money into a GE model while removing this property from its association with money. Hahn (p. 27) assumes an economy "which can produce a single good by the aid of this good and labour. This good is perfectly durable if not consumed." He (p. 31) claims that underemployment equilibrium can exist in his GE model as long as there are "resting places for savings other than reproducible assets. In our model, this is money. But Land, as to his credit Keynes understood, would have the same consequences and so would Old Masters. It is, therefore, not money which is required to do away with a Say's Law-like proposition that the supply of labour is the demand for goods produced by labour. Any nonreproducible asset will do."[17]

Nonreproducibility alone, however, will not do in the real world! A second elasticity property is essential if Say's law is to be inapplicable when income earners increase the demand for this nonreproducible good (which we may call stones) for liquidity purposes at the expense of the durable producible good (which we may call furniture). As the market price of stones rises, if furniture is a substitute (as both Friedman and Tobin explicitly suggest and the gross substitution maxim of Hahn's GE model requires), then the increased demand for stones spills over into a demand for furniture. The greater the elasticity of substitution between stones and furniture, the less the price of stones has to rise to resuscitate Say's law in Hahn's model. Because Hahn has rediscovered only the first of Keynes' elasticity properties, his analysis is flawed.

Money, unlike the pure rent factors of Hahn's GE model, possesses a second elasticity property. "The second *differentia* of money is that it has an elasticity of substitution equal, or nearly equal, to zero. . . . Thus not only is it impossible to turn more labour on to producing money . . . money is a bottomless sink for purchasing power when the demand for it increases, since there is no value for it at which demand is diverted — so as to slop over into a demand for other things" (Keynes, 1936, p. 231).

In a world of uncertainty, where the institution of forward contracting in money terms for labor and other materials is an essential aspect of production decisions, a money that possesses these two elasticity properties enhances the expectations of sticky efficiency wages (Keynes, 1936, p. 238; Davidson, 1978, chs. 6, 9). It is a combination of these properties and real world contracting institutions and economic organizations that can inhibit neoclassical "natural market forces" from bringing about a full employment equilibrium (Keynes, 1936, p. 235).

Explicit acceptance of the second elasticity property by Hahn, however,

[17]At other places in his paper, Hahn indicates that underemployment equilibrium can also be attributed to fixed money wages and/or the absence of perfect competition when wages or prices are changed. As already indicated above and developed in detail elsewhere (Davidson, 1977a) these latter aspects are not the central features of Keynes' world. Even in their absence, underemployment equilibrium is possible.

would violate the fundamental gross substitutability tenet (the most important sufficient condition for demonstrating the uniqueness and stability of the general equilibrium position). Thus, there is a fundamental logical incompatibility between the "serious monetary theory" developed by Keynes and the neoclassical GE approach of Hahn (and Friedman and Tobin as well). As Keynes noted, such neoclassical theory has as much relevance to the real world as Euclidean propositions regarding parallel lines has to a non-Euclidean world.[18]

CONCLUSION

Economic theory in general and monetary theory in particular are completing another "hunted hare" cycle. We have not advanced much further than when Keynes was formulating his theory of a monetary economy in the late 1920s and early 1930s. Nevertheless, the role of and need for national and international central banks has increased as economies have become more developed, more interdependent, and more monetized.

Events have not stood still in the last fifty years. The growth of labor power under the protection of governmental full employment policies and the growth of multinational corporations since World War II had already created problems that by 1970 were threatening the basic monetary institutions of free market economies and were creating the first major crisis for capitalist economies since the Great Depression. In the last few years, the sudden development of OPEC's economic power and the resulting rapid changes in national and international monetary flows and asset holdings further threaten the stability and, perhaps, even the viability of many monetary institutions and organizations that have evolved slowly over decades of a different environment. Mainstream neoclassical monetary theory has little advice to offer as to how these monetary institutions should adapt to these tremendous stresses and strains except that, if we maintain a steady increase in the money supply *in the long run*, though we are all dead, the monetary waters will again be calm.

Keynes, on the other hand, never lost focus on the interrelations between the money supply and the money wage unit (or, in a larger context, the cost unit including imports). Keynes' monetary analysis (1936, p. 239) led him to the fundamental conclusion: that "money-wages should be more stable than real wages is a [necessary] condition of the system possessing inherent stability" (Keynes, 1936, p. 239). In both his *Treatise* and his *General Theory*, Keynes emphasized the money wage-money supply nexus. He noted that if we have control of both the earnings system (incomes policy)

[18]"The classical theorists resemble Euclidean geometers in a non-Euclidean world who, discovering that in experience straight lines apparently parallel often meet, rebuke the lines for not keeping straight — as the only remedy for the unfortunate collisions which are occurring. Yet in truth, there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required today in economics" (Keynes, 1936, p. 16).

and monetary system (monetary policy) and can control the rate of investment, we can "stabilise the purchasing power of money, its labour power, or anything else — without running the risk of setting up social and economic frictions or of causing waste" (1930a, p. 169). Moreover, Keynes maintained that "if there are strong social or political forces causing spontaneous changes in the money-rates of efficiency wages [or in a modern context, the money costs of energy] the control of the price level may pass beyond the power of the banking system" (1930b, p. 351).

Let us hope that, having come full circle in monetary theory, we can now break the "hunted hare" syndrome and advance our theories so that we can minimize the deleterious effects of the inevitable future fluctuations and disruptions of a monetary economy moving through time. Except in the long-run neoclassical models, human thought can never bring about the long-run calm waters of a state of economic bliss, but we can strive to modify and improve our economic environment in the short run by minimizing the economic waves generated by real world monetary economies when exposed to ever-changing pressures over time. The first prerequisite to such an advance, however, is an understanding of how a real world monetary economy behaves in the short run as it moves through time. Keynes provided such a basic framework. Let us advance from there.[19]

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[19]For those who find disconcerting the absence of any extended explicit discussion of inflation in this paper, let me indicate that my reason for not examining this aspect was twofold. First, I have just published a paper entitled "Post Keynes Monetary Theory and Inflation" (Davidson, 1977b) and did not wish to repeat those arguments here; and, second, in Keynes' model the connection between money and the price level is indirect and occurs via money wage magnitudes.

Keynes did recognize two types of inflation: (i) a commodity inflation, i.e., rising spot prices; and (ii) an incomes inflation, i.e., rising production costs (forward prices). Keynes (1930a, p. 169) believed that the latter was the most threatening and even in the 1930s recognized the importance of what in modern parlance is called an incomes policy for dealing with an incomes inflation. Moreover, it follows from our analysis that a buffer stock policy is a method of fighting a commodity inflation if that is required.

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