This essay seeks to expand macroeconomics to take more explicit account of the market for non-monetary assets. It uses a "circuit" terminology. The income-expenditure flow is one circuit; the flow of savings and credits through the money market, a second; the flow of savings and capital gains through the asset market, a third. Flows through these circuits can be related either sympathetically or antagonistically. Switches between them, particularly switches between the first circuit and either of the others, can be important elements in economic fluctuations. Furthermore, policies planned to stimulate or to sedate one market tend to be diverted into one or more others.
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INTRODUCTION

In his 1927 “Cambridge Economic Handbook” on Money, D. H. Robertson drew a distinction between “Money Sitting,” with a near-zero velocity of circulation, and “Money on the Wing,” with a velocity significantly positive. I propose a similar distinction for saving or hoarding. “Sitting,” the term denotes holding of income unspent for an indefinite period, usually but not necessarily in monetary form. By “hoarding on the wing” I propose to mean the purchase and sale of pre-existing assets, perhaps at high velocity but always by-passing the markets for current output. It is my contention that in domestic macroeconomics, the markets for existing assets are relatively neglected; in international macroeconomics this is much less true.

Consider three individuals, A, B, and C. Instead of buying a new car (consumption good) or a new truck (investment good) from B, a dealer, A buys a used car or truck from C. A thinks of himself as consuming or investing, C as dis-consuming or disinvesting—possibly also as saving, and B as not involved. But in terms of the source and use equations for current output in a closed economy:

\[ Y = C + I + G \quad \text{and} \quad Y = C + S + T \]

(unintended) investment in unsold inventory (presumably by B) is balanced by A’s (unconscious) saving. A and C have engaged in “hoarding on the wing.” An asset market has been activated, and a market for current output has stagnated. Incidentally, asset-market activity has increased the velocity of circulation of goods, whose importance one of my teachers, the late Arthur Marget, was
emphasizing in the monetary literature of the 1920s.

POINTS OF INTEREST

One obvious "real world" point of interest has just been mentioned—the relation between the markets for current output, alias "the economic fundamentals," and the markets for capital assets. The prices of one set of assets—common stocks of industrial concerns—are included in a short list of "leading indicators" published by the (American) National Bureau of Economic Research, presumably on an accelerationist hypothesis that security prices respond to anticipated changes in economic activity, by which is meant markets for current output, rather than to levels of such activity. This hypothesis is plausible on rational-expectations grounds; we shall say more about it later in this paper.

On the theoretical side, we have mentioned one point of interest already, the relation of hoarding on the wing to the velocity of circulation of goods—the "Marget" problem. Of more nearly contemporary interest, let us consider the Hicks-Hansen or IS-LM version of Lord Keynes's General Theory and inquire, under what conditions are the IS and the LM functions really independent?

Suppose first an increase in expenditures for current output (the IS side), and inquire how it is financed. If by a simple increase in saving, i.e., decreased expenditure on something else, the IS function does not change, contrary to our hypothesis. If the increase in IS is financed by an expansion of credit or a decrease in the demand for money in any combination of its "transaction," "precautionary," and "speculative" categories, there is movement in LM and the two key functions are mutually determined. Only if the financing of the IS shift is by a sale on an asset market is LM unaffected and IS-LM independence retained.

The argument also holds in reverse. Suppose an increase in the real money supply; how is the increase absorbed in the economy? Should there be a balancing rise in the demand for money in any or all of its categories, LM does not change and there has been the "pushing on a string" that Hansen feared in the late 1930s. If the increased money is spent for current output, whether for consumption, investment, or public services, the IS function is affected and the key functions are mutually dependent once more. Only if the increased money supply is absorbed in the asset markets by increased asset prices is independence maintained.

Before leaving the land of IS-LM, we might also note that in the above cases, interest rates move in the directions indicated in standard textbook diagrams. If an IS expansion (contraction) is financed by the sale (purchase) of existing assets, asset prices tend to fall (rise) and therefore interest rates to rise (fall).

A THREE-RING CIRCUS

The relation between the markets for current output, for money, and for non-monetary existing assets can be presented by a set of three money-flow circuits...
among four participant groups; the result is a simple flow-of-funds diagram (our Fig. 1).  

The four nodes or foci of Fig. 1 are firms (including public agencies, households-as-enterprises, and likewise money—and asset—market participants as ordinary “offices”), households, financial institutions (banks) and asset-market institutions (exchanges and brokerages).

The three circuits on Fig. 1 are:

Circuit I—Between firms and households. This comprises the market for current output. It corresponds, I think, to the late Morris Copeland’s “main money circuit.” The volume of flow through this circuit in any time period is a not-very-close approximation to the period’s GNP.

Circuit II—Also between and among firms and households, with financial institutions as intermediaries. “Saving” and “credit” represent flows in opposite directions. Money “sitting” is represented by additions to reserves of the financial intermediaries (but not shown in Fig. 1). (This usage is somewhat unconventional; the term “money market” often includes markets for non-monetary financial assets (bonds, equities, foreign exchange, etc.).)

Circuit III—Still between and among firms and households, with the brokerage institutions of the asset markets as the frequent but not necessary intermediaries. The markets cover assets both financial (discussed above) and non-financial (real estate, commodity inventories, “collectibles,” etc.). The capital gains (and losses) shown in the diagram may be realized in cash or merely anticipated rationally or otherwise. The point is that the unrealized gains, like the realized ones, affect the

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1 In “money” I am including assets whose prices rise when there is a shift in demand to money from “capital assets”; in general. These “near-money” assets are generally liquid short-term securities domestic and foreign, not included in the domestic money supply as estimated conventionally. (Vice versa, of course, when the demand shift is from money to capital assets.)
spending and saving patterns of their “recipients.”

Figure 1 shows no direct connections between the money and the asset markets. I see these as connected only indirectly, through the decisions of firms and households to transfer funds between them. The algebraic analysis which follows will permit this assumption to be modified to allow for direct connections between these markets, but the diagram itself would have to be enlarged.

ALGEBRAIC INTERLUDE

Let us denote the size (analogous to the amperage) of the flow in Circuit $i$ by $F_i$ ($i=1,2,3$). The size of flows switching from Circuit $j$ is denoted $a_{ij}F_i$; $a_{ii}F_i$ terms indicate funds circulating within a single circuit if at all. The $a_{ij}$ terms may not be negative, and we have:

\[
F_1 = a_{11}F_1 + a_{12}F_2 + a_{13}F_3 \\
F_2 = a_{21}F_1 + a_{22}F_2 + a_{23}F_3 \\
F_3 = a_{31}F_1 + a_{32}F_2 + a_{33}F_3
\]

with $\sum a_{ij} = 1$ for all $j$.

As Fig. 1 is drawn, $a_{23} = a_{32} = 0$. The role of $a_{23}$ (a switch from Circuit III to Circuit II) is taken by the product of two coefficients ($a_{13}a_{21}$) and the role of $a_{32}$ (a switch from Circuit II to Circuit III) by the product ($a_{12}a_{31}$). The economic meanings of ($a_{22}, a_{33}$) may also be explained. They may be simple re-investments of property income and capital gains, and shorthands for ($a_{12}a_{21}$) and ($a_{13}a_{31}$) respectively. Or they may represent shifts from one segment of a market to another, as from a saving account to a certificate of deposit or from stocks to bonds. Neither “money sitting” nor “hoarding sitting” are treated as flows; they do not enter importantly into the analysis, but “hoarding on the wing” includes terms in both $a_{33}$ and $a_{31}$.

We can take derivatives with respect to time (denoted by dots) for both the $F_i$ and the $a_{ij}$ terms in equations (1). We can express the results in matrix form, and solve the resulting equation for the vector of changes in of flow sizes:

\[
(1-a_{11})\dot{F}_1 - a_{12}\dot{F}_2 - a_{13}\dot{F}_3 = 0 \\
-a_{21}\dot{F}_1 + (1-a_{22})\dot{F}_2 - a_{23}\dot{F}_3 = 0 \\
-a_{31}\dot{F}_1 - a_{32}\dot{F}_2 + (1-a_{33})\dot{F}_3 = 0
\]

\[
[(1-a_{11})\dot{F}_1 - a_{12}\dot{F}_2 - \dot{a}_{11}F_1] - (a_{12}\dot{F}_2 + a_{12}\dot{F}_3) - (a_{13}\dot{F}_3 + a_{13}F_3) = 0 \\
-(a_{21}\dot{F}_1 + a_{21}\dot{F}_1) + [(1-a_{22})\dot{F}_2 - a_{22}\dot{F}_2] - (a_{23}\dot{F}_3 + a_{23}F_3) = 0 \\
-(a_{31}\dot{F}_1 + a_{31}\dot{F}_1) - (a_{32}\dot{F}_2 + a_{32}\dot{F}_3) + [(1-a_{33})\dot{F}_3 - a_{33}F_3] = 0
\]

(2)

\[
(1-A_{1i})\dot{F} - A_{ij}\dot{F} = 0
\]

(3)
In equations (3) and (4), \((F, \hat{F})\) are vectors of the \((F_i, \hat{F}_i)\) respectively, while \((A_{ij}, \hat{A}_{ij})\) are matrices of the \((a_{ij}, \hat{a}_{ij})\) respectively. Also, \(\sum_j a_{ij} = 1\) implies \(\sum_j \hat{a}_{ij} = 0\).

Like many similar ventures into general cases involving \(n\) variables, equation (4) seems both unwieldy and opaque. To render it somewhat more manageable and meaningful, let us concentrate on the effects in one circuit of an increase in the flow of another circuit, while ignoring the indirect and intermediate effects through other circuits. Let the change be an increase in \(F_3\) (a flow of funds into the asset markets),

and let us explore the effects on Circuit I (the market for current output), ignoring side-effects through Circuit II (the money markets). We analyze the first equation of (2), ignoring terms in \((F_2, \hat{F}_2)\):

\[
(a_{13} \hat{F}_3 + \hat{a}_{13} F_3) = (1 - a_{11}) \hat{F}_1 - \hat{a}_{11} F_1 - (a_{13} \hat{F}_3 + \hat{a}_{13} F_3) = 0
\]

The solution for \(\hat{F}_1\), the change in the flow through the current-output Circuit I, is approximated by

\[
\hat{F}_1 = \frac{\hat{a}_{11} F_1 + (a_{13} \hat{F}_3 + \hat{a}_{13} F_3)}{1 - a_{11}} 
\]

Both the denominator of (5) and the middle term of the numerator are positive for an increase in \(F_3\), but \(\hat{F}_1\) may be negative for sufficiently large negative values of \(\hat{a}_{11}\) and/or \(\hat{a}_{13}\). In economic terms, negative \((\hat{a}_{11}, \hat{a}_{13})\) mean declines in the proportions of income from current production and capital gains from asset markets which are cycled or recycled to current production. In other words, they point to shifts in favor of saving or hoarding, including "hoarding on the wing."

SWITCHES, SYMPATHETIC AND ANTAGNOSTIC

In dealing with switches from one circuit to another, it is convenient to use the notion, which I owe to my teacher Oskar Lange (in his "Keynesian" interlude) of "sympathetic" and "antagonistic" shifts in demand. To distinguish such shifts form conventional relationships of complementarity, let us consider two commodities \((x, y)\) with demand functions:

\[
x = D_x(p_x, p_y, Y, A) \quad \text{and} \quad y = D_y(p_x, p_y, Y, A)
\]

where \(A\) is a mixed bag of tastes, techniques, and "rules of the game," all subject to exogenous changes. If \(x\) and \(y\) are sympathetic in demand, a change in the parameter \(A\), with prices and incomes unchanged, will affect \(D_x\) and \(D_y\) in the same

---

2 In this model only the \(a_{ij}\) can be strictly exogenous—the \(F_i\) cannot—and so the positive \(\hat{F}_3\) must be assumed to result from exogenous increases \(a_{31}\) and/or \(a_{33}\), \(a_{32}\) being zero. Thus, if the government is a firm writ large, easier monetary and fiscal policy may be reflected in positive values of both \(a_{31}\) and \(a_{33}\), although the purpose of such a policy may have been limited to a positive \(a_{11}\).
MARTIN BRONFENBRENNER

direction, though not usually to the same extent. If \(x\) and \(y\) are antagonistic in demand, a change in \(A\) will affect \(D_x\) and \(D_y\) in opposite directions. If one or both of \((D_x, D_y)\) are unaffected by the change in \(A\), we conclude that \((x, y)\) are neutral in demand. (It is quite possible for \((D_x, D_y)\) to react sympathetically to one exogenous shock \(dA_1\) and antagonistically to another exogenous shock \(dA_2\).)

It is my conjecture that the switches between the markets for current output (Circuit I), for monetary assets (Circuit II), and for capital assets (Circuit III) change their character over the typical business cycle, as between sympathy and antagonism. I should maintain this whether we mean by “the business cycle” a traditional pattern (with national income falling during depression) or a “growth-cycle” pattern (with only the growth rate falling in recessions.)

Let us confront simultaneously the Modigliani-Miller theorem of the 1960s and the rational-expectations developments of the 1970s with the soo-plus years' history of “bubbles, crashes, and panics” on asset markets from tulip bulbs in Holland to pork-bellies in Chicago. The question: Whether we should regard changes in the switching pattern of inter-circuit relations as reflecting the set of considerations conventionally considered rational—portfolio balancing, estate planning, and so on—or whether they are fundamentally subjective and non-rational disturbances, like the typical shift in consumer preference among fashion goods.

Without attempting to answer this question with any generality, perhaps I may offer a suggestion. The suggestion is that the degree of rationality, however measured, may depend upon the size and nature of the contemporaneous changes occurring in the economy. If an inter-sector switch is part of a pattern of change reasonably familiar from recent experience—a typical inventory or Kitchin-cycle upswing or downturn—the inter-sector switch can be regarded usefully as rational. But if the contemporaneous macroeconomy is something new and strange—Black Thursday in 1929, Black Monday 58 years later, the OPEC oil shock of 1973—switches may rather be regarded as products of guesswork, hunches, and extrasensory perceptions (ESP). I label the first sort of movement “Here We Go Again” and the second “Oh, My God!” while noting that the first of these may become the second on short notice. (My former colleague Herbert Simon prefers to speak of rationality as being “bounded.”)

THE UNRULY ASSET MARKETS

In the beginning of this essay, I had four possible applications in mind:
1. The relation between securities-market credit and capital formation.
2. The desirability of direct control (rationing) of asset-market credit.
3. Inter-circuit relations of asset and product markets in prosperity and recession.

The first two of the above are treated together in this section.

Can the stock market, in particular, raise the rate of capital formation on the
current-output market? Our answer is that it can, by offering an additional path for firms to finance their purchases of capital equipment—even though the bulk of stock-market activity consists of the buying and selling of “old” securities with no current connection with real capital formation.

This is conventional enough, but does it follow that increased stock-market credit encourages capital formation? My answer is that it can do so, but not that it must or will do so. A credit flow to an asset market is in our notation \(a_{12}a_{31}F_2\); the connection between the asset market and the market for current output is \(a_{12}F_3\); there is many a slip between the cup and the lip, in this case between \(a_{13}\) and \(F_1\). When all of our three circuits are in sympathetic relationship, positive \(F_2\) induces positive \(F_3\), but even in this case it is somewhat risky to assume a positive relation between the asset market as a whole and the current-output market as a whole, if strategic \(a_{ij}\) coefficients in (5) may be negative. It is much riskier to assume a positive relation between credit to a specific asset market (the stock exchange, real estate) and a specific current-output market (capital formation, residential construction) in view of the diversions suggested by our \((a_{11},a_{33})\) terms, between one output market and another or one asset market and another.

It frequently happens, nevertheless, that a government program plans to raise or lower the flow of credit to a particular asset market in aid to a particular current-output market. An American example: The Hoover Administration, worried about Wall Street’s absorption of funds “needed” for new machinery and equipment, attempted to divert credit from the securities market by tightening both margin requirements and call-money rates. A Japanese example: The Nakasone and Takeshita Cabinets, worried about rising urban land prices as causes for public dissatisfaction with wealth “maldistribution,” seek to cut off credit to real-estate speculators by “administrative guidance” to banks, insurance companies, and other lending institutions. Such moves as these signal governmental concerns and anxieties to “do something” about the public’s problems, but one hesitates to assign much more than the random 50-50 to the probability of such policies doing more good than harm.

Digression: This skepticism about “stock-market credit and capital formation” proceeds on different grounds from the “Austrian” objectives by, e.g., Friedrich Hayek and Fritz Machlup to the feeble “Hoover” intervention of early 1929. We have doubted the efficiency of stock-market credit restriction to re-direct the flow of funds to “real” investment. The Austrian writers, as I understand them, believed rather that monetary expansion and monetary non-neutrality had already led to over-investment in capital goods rather than consumption goods, and that the Wall Street boom was only an epiphenomenal symptom of generalized over-investment and misinvestment. We need to discuss this issue here.

**ASSET MARKETS AND BUSINESS FLUCTUATIONS**

Many writers have noticed the obstinate tendencies for one or more asset
markets to proceed for relatively long periods in apparent disregard of the markets for current output, alias "the economic fundamentals." Even better known is the tendency for asset-market shocks to react upon current-output markets in the typical "market crash" pattern. Can a single relationship explain both of these effects in any consistent manner?

My hypothesis is that no such universal solvent exists, and that two relationships (at least) are operating simultaneously, with neither one excluding the other but only overshadowing it.

The first of the relationships is the well-known uni-directional one, from current-output market expectations to the asset markets, particularly the stock market. We have nothing to add here to this accelerationist "leading indicator" theory, developed in the National Bureau of Economic Research and widely used in the United States and elsewhere.

Our second relationship may run either direction—from Circuit I to Circuit III, or vice versa. It is a relationship of sympathy or antagonism between and among our three circuits. This relation, moreover, shifts with the state of the economy; the shifts may or may not be "rational" as distinguished from "animal-spirited."

Both during the downswing of a business recession and at what is perceived as the peak of a fragile prosperity, Circuits I and III turn antagonistic, and each is sympathetic to Circuit II. People are afraid of both real investment and asset speculation, and turn for safety to the money markets. But during, or immediately before, a business upswing seen as durable with no early end in sight, this pattern is reversed in favor of the more "normal" one. It is now Circuits I and II which are sympathetic, each being antagonistic to Circuit II. There is a switch from monetary assets to both real investment (including "consumers’ capital") and asset speculation.

Consider, for example, two minor "up-ticks" during a recession, one in a current-output market segment and the other in an asset-market segment. The incremental gain, if not re-cycled to the same segment, is more likely to be saved—switched to Circuit II—than to be switched to the "other" non-monetary circuit. And if the fortunate entrepreneur or speculator is encouraged to increase his output or his holdings in the up-ticking sector, he is more apt to sell other assets, or to seek a loan, than to issue equities or draw his remaining nest-egg of savings.3

Now repeat our little though-experiment in better times. The incremental gain is more apt to be spent in the "other" active circuit than saved passively in Circuit II. And when the gainer is prompted to expand his activities in the sector which is doing well by him, he is more apt to issue securities or withdraw monetary savings than to reduce other expenditures on current output or to sell other assets. The argument of Note 3 also applies here, but in reverse.

3 Or better, the entrepreneur or speculator is apt to finance an unusually large part of his activities by the sale of assets or by bank loans, and an unusually small part by issuing securities or drawing down monetary savings.
Kaizōron, Reaganomics, and (Perhaps) Perestroika

Let us now turn to a political-economic problem, the diversion of ambitious public plans for major economic restructuring into hoarding on the wing in an asset-markets. Securities and real estate, especially the latter, can play the role of "conscience" at the close of Hamlet's best-known soliloquy:

With this regard their currents turn away
And lose the name of action.

This essay is written in America, but the initiating theme of this section has been primarily Japanese. Two successive Cabinets have devised grandiose plane called Naiju Kakudai (expansion of domestic demand) to wean the Japanese economy from "undue" or "dangerous" dependence of its current-outlet market upon export and current-account surpluses. The 1986 blue-ribbon Maekawa Report (of a committee chaired by Maekawa Haruo, retired Governor of the Bank of Japan) has been a manifesto of this position, although unavoidably hazy in its micro-economics. The reactions have included, admittedly, a significant expansion of domestic demand for current output, inclusive of imports (in our notation, \( \dot{a}_{11} F_1 + a_{11} \dot{F}_1 \)). But the most spectacular advances have been in the stock exchange of Kabuto-cho and above all in urban real estate (\( \sum_j \dot{a}_{31} F_1 + \sum_j a_{31} \dot{F}_1 \)); apparently also \( a_{31} > a_{11} \) for all values of \( i \). This should have been no surprise, in terms of the foregoing analysis. Moreover, the Tanaka Cabinet, 15 years before, had sought a similar expansion aimed this time at generalizing the postwar "Japanese miracle" to the traditionally "backward" regions of the country. (The manifesto at that time had been Premier Tanaka Kakuei's own Ninon Retto Kaizōron (Rebuilding the Japanese Economy).) The immediate consequence had been a major land boom in the areas selected for development, well before the Tanaka Plan was to go into operation. (In fact it never did go into operation; the Tanaka Cabinet fell, under corruption charges aimed at the Prime Minister himself, and then came the OPEC Oil Shock.)

The Reagan tax cuts in the United States were expected (by the Reagan Administration) to spark a boom in real investment (Circuit I). They seem to have sparked two other booms instead, one in current consumption with particular emphasis on imports,—which Keynesian economists have analyzed along orthodox Keynesian lines,—and the other in securities and real estate. Hoarding on the wing, it seems to me, balanced in some degree by sympathetic movements of the consumption rather than the investment segment of the current-output market (\( \dot{a}_{11}, \dot{a}_{31} \) positive, \( \dot{a}_{21} \) negative; Circuits I–III sympathetic to each other and antagonistic to Circuit II).

General Secretary Gorbachev's Perestroika (Restructuring) applies to an economy quite different from the economies in which Kaizōron and Reaganomics have been diverted to asset markets by hoarding on the wing. Existing assets, including land, are publicly owned when used for commodity production. Capital
gains from the sale of even consumers’ capital (especially residential housing) are
likewise legally taboo under Soviet Socialism. Penalties for “economic crimes” are
severe, and extend to capital punishment. Once accused of crime, it is extraor-
dinarily difficult for an individual to secure a definitive acquittal under Soviet legal
institutions, particularly since the prosecution has broad rights of appeal. And
yet—and yet—it is conceivable that the underworld of economic criminality in the
U.S.S.R. has become sufficiently large and powerful for our analysis of hoarding
on the wing to be significant even there, not to mention in China with its parallel
“Modernization” program. Certainly the General Secretary complains enough
about such “corruption” as an obstacle to his plans, and blames it on prior
regimes less sympathetic than his own to “New Economic Policies” of any kind.

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