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## Chapter 12

### MONEYFLOWS AND BUSINESS FLUCTUATIONS

The tumbling of prices in the panic is in large part due to the fact that the holders either of money or of deposit credit will not buy with it. Physically the money is there — as quantity, as concrete thing; psychologically, as purchasing power, it has vanished. So, also, the deposit credits exist, but they have ceased to exist as demand for products. They are merely hoarded, postponed purchasing power. As present circulating medium, as present demand for anything, they are not. H. J. Davenport, *The Economics of Enterprise* (Macmillan, 1913), p. 318.

Loan funds must be recognized as intangible and incorporeal facts, a sheer matter of intricacy and complexity in business relations — meshes of obligation — a mere scaffolding of promises — a folding back one upon another of successive layers of credit. And because not necessarily representative of an increase of social capital or even of the liquidated total of private capital, it seems necessary to recognize the loan fund as a distinct economic category. H. J. Davenport, *Value and Distribution* (University of Chicago Press, 1908), p. 169.

IN THE FIRST OF THE above quotations Davenport is clearly concerned with the relation between a contraction in moneyflows and a decrease in production. In view of the degree to which he elaborated his loan fund theory one might have expected he would more fully recognize its implications for the relations between moneyflows and production. His account of the processes of business expansion and contraction emphasized the storehouse of value function of money, and he went so far as to note that book credit may to some extent serve as a substitute for bank credit. Thus he tells us that during the acute stage of a crisis "Restriction is proceeding only in certain departments of credit. . . . Side by side with the diminution of bank credit there is taking place an enforced and inevitable expansion of credit relations between producers and consumers, producers and middlemen, and between middlemen and consumers."<sup>1</sup> But he appears to have hesitated to take the further step of incorporating in his explanation of business fluctuations other loanfund balances in addition to bank credit and book credit.

The moneyflows and loanfund accounts presented in preceding pages

<sup>1</sup> *The Economics of Enterprise*, p. 292. In *Value and Distribution* a dominant role in the loan fund concept is assigned to commercial banks. Later, in *The Economics of Enterprise*, the concept is broadened.

were designed to reveal, as well as summary annual figures for a limited time span can, the broader facts of cyclical behavior in moneyflows, in production (in a value-product sense), and in cash and debt and credit balances. We have contrasted the moneyflows account with the cash account (Ch. 10) and found the former far better adapted to such a purpose. And we have distinguished the moneyflows perspective from the accrual and imputation perspective. Both are requisite for an understanding of business cycles, but the former is specially designed to deal with questions such as the one Davenport was concerned about in the first of the two chapter head quotations.

In Chapter 11 we urged the need to recognize other loanfund balances along with cash as helping to perform the cyclical value storage function of money, and we examined the kinds of discretion transactors have over both moneyflows and loanfund balances.

In this chapter and the next we attempt to interpret the moneyflows and loanfund balances accounts, giving particular attention to cyclical expansions and contractions in moneyflows, their relation to expansions and contractions in gross national product, and the role of changes in loanfund balances in these business fluctuations. In the course of this interpretation we offer two groups of proposals looking toward a partial reformulation of monetary theory. In the first group of proposals we believe we are on relatively firm ground, because they are somewhat closely linked to the scheme of accounts. We call them the five key features of the main money circuit and their implications.<sup>2</sup> The other proposals are distinctly tentative; they constitute what we call a discretion hypothesis.

These proposals imply there are propositions concerning the money circuit espoused by some economists that we reject. Various propositions here explicitly rejected seem to us to be associated with the attempt to explain cyclical increases and decreases in moneyflows in terms of an hydraulic analogy. They are considered briefly in Section 2 below and more fully in the note at the end of this chapter.

### 1 *Key Features of the Money Circuit*

Each of the five key features of the main money circuit is a summary statement. Together they constitute a selective recapitulation of our

<sup>2</sup> The view of the money circuit outlined here is on the whole very similar to that taken by J. R. Hicks in his *Value and Capital* (Oxford University Press, 1946). But with the moneyflows accounts for eleven sectors before us we must be specific on many points on which he makes no explicit commitment. His attention is focused on Sector I and on a single business sector (approximately Sectors II, III, and IV combined).

findings up to this point with respect to moneyflows and loanfund balances. The first two characterize the variation of a sources and applications of funds statement we have adopted to portray moneyflows in accounting form, and indicate the types of accounting pattern equation that derive from this approach to the study of the money circuit. We call these two summary statements the two accounting features. The third and fourth features specify two types of transactor discretion that seem to us especially pertinent for monetary theorizing. One cannot deduce discretion from financial statements alone, but one can scarcely interpret them without recognizing that transactors choose among possible alternative transactions and that the figures can tell us a great deal about what choices are and are not open to the transactors. In this wider sense the third and fourth features may be said to follow from the scheme of moneyflows accounts. The fifth feature construes transactors' moneyflows accounts as a quantitative expression of the system of pecuniary incentives that play a major role in organizing economic activity in our private enterprise economy. It indicates the record-keeping function that is essential to the operation of the system of pecuniary incentives and tells how it is carried out. Though a broad interpretation of the accounts, not a deduction from them, this fifth summary statement seems so fundamental a feature of the money circuit and this circuit's place in our private enterprise economy that we set it alongside the other four.

#### FIVE KEY FEATURES OF THE MAIN MONEY CIRCUIT

*First Feature.* Moneyflows are sources and dispositions of money. The main circuit moneyflows account for each transactor is a balancing account that tells where his money comes from and where it goes.

A transactor's sources of money are:

- a) His receipts from customers and other ordinary receipts, and
- b) The money he obtains through financing, i.e., through net decreases in his claims on others (liquidations of his portfolio and other claims he holds), and net increases in his liabilities to others (borrowing and, in the case of corporations, stock flotation).

A transactor's dispositions of money are:

- a) His purchases of gross national product and other ordinary expenditures, and
- b) The money he advances to finance others and the borrowed money he returns, i.e., his net additional investment in claims on others and his net retirements of liabilities.

*Second Feature.* Each moneyflow resulting from a main circuit transaction has two aspects: it is a source of money to someone and it is the disposition of an equal sum by someone else.

The national account that summarizes all the moneyflows between transactors resulting from any particular type of transaction has a double-entry basis. Such a national account for any fiscal period will always balance

(apart from statistical discrepancies and deviations from accounting uniformity).

*Third Feature.* Each household, each branch of government, each industrial corporation, and each other transactor has some discretion over his main circuit moneyflows. Most transactors have more or less discretion over their total ordinary expenditures.

Thus a transactor may elect to obtain money through financial channels and to increase the volume of his expenditures on goods and services;

Or he may decide to become more parsimonious, advancing or returning to other transactors through financial channels the money he does not spend;

Or he may be somewhat passive, merely increasing and decreasing his ordinary expenditures in response to the increases and decreases in his ordinary receipts.

Transactors differ in the degree of discretion they have over their total ordinary expenditures and in the way they exercise that discretion.

*Fourth Feature.* Each transactor has more or less discretion over the composition of his loanfund balance and the size of his cash balance.

He can increase his cash balance by selling loans and securities from his portfolio or by borrowing.

And he can draw down his cash balance to add to his portfolio or to pay off debts.

The range of this kind of discretion depends on the size of the portfolio and the cash balance a transactor holds to begin with and on his credit standing.

*Fifth Feature.* What money does in an economy is to keep the moneyflows accounts. It does this largely today in this country through debits and credits to individual accounts on the books of banks.

But currency outside banks is still a substantial part of nonbank cash balances. To the extent that it keeps the moneyflows accounts it does so in much the same way as poker chips serve as a substitute for a scorepad; transactors whose score is improving get in the chips, others get out of chips. When our monetary and banking system is operating properly a nonbank transactor can convert any part of his score in currency into a score in bank deposits, or conversely, as suits his convenience, and it is only the total (currency plus deposits) that counts. Indeed if the composition of his balance becomes significant for the score-keeping function, we take this to indicate that the system is out of order.

The scorekeeping function for moneyflows is not performed exclusively by currency and deposits. The way nonbank transactors use their own account books makes a minor contribution — through settlements by offset and through book credit. More importantly, other balances help to record the moneyflows score — loans and securities held, and notes, bonds, debentures, and mortgages payable, and (in the case of corporations) paid-in capital. Scorekeeping is primarily a matter of keeping track of the balance between ordinary receipts and ordinary expenditures; what a transactor adds to this score is what he adds to his loanfund balance.

The first two of these features are concerned with accounting patterns. Each such pattern may be stated in the form of an equation. There is an

accounting pattern equation for each economic sector, and one for each type of transaction. Some (but not all) of the component moneyflows in these equations are of such a nature that for each (of the some) we can write a moneyflows, price-volume equation of the form  $F \stackrel{!}{=} \Sigma pq$ . These accounting patterns and price-volume equations may be called the equations of the money circuit. Like the equation of exchange they are intended to supersede, the equations of the money circuit are quite colorless as to causation; they do not identify which variables are active and which passive. But they treat money differently. Money appears in the sector moneyflows accounts on an incremental basis — i.e., the accounts show opening and closing cash balances — instead of treating money as a multiplicand that is multiplied by its rate of turnover. We believe the equations of the money circuit can be investigated empirically more effectively than can the equation of exchange. And if one desires to work with fewer equations, their number can always be decreased by combining sectors or types of transaction.

The moneyflows equations for sectors and for types of transaction are implications of the view of the money circuit summarized in the five key features we have attributed to it, implications that are particularly closely related to the first two features. But there are other implications, too, that follow mainly from these accounting features. We may single out the following:

#### FIVE IMPLICATIONS THAT FOLLOW MAINLY FROM THE ACCOUNTING FEATURES

1) Cash balances consist of currency and deposits. A cash balance is the most liquid of assets to the holder. It is an obligation — chiefly, a demand obligation — of banks and U. S. monetary funds.

For any nonbank transactor an increase in his cash balance, like an increase in his holdings of other liquid assets, is — as we noted in Chapter 8 and explained for the imaginary accounts of the X Manufacturing Company at the end of Chapter 7 — a financial disposition that he makes of his money, i.e., an advance of money. And drawing down his cash balance is a financial source of money, i.e., it is one way of obtaining money through financing.

The currency and deposit liabilities of banks and U. S. monetary funds are their cash balance. The contra entries for bank interest and service charge receipts are debits to this balance and the contra entries for bank out-of-pocket cash expenditures are credits to it. It is a negative balance, but in an algebraic sense it is increased and decreased by cash transactions exactly as are the positive balances of other sectors.

2) A nonbank transactor's cash balance necessarily decreases by the amount of any excess of his total dispositions of money over all his sources of money other than the drawing down of his cash balance. Similarly, his cash balance necessarily increases by the amount of any excess of his total sources of money

over all the other dispositions he makes of his money. Thus total sources of money (including any decrease in the cash balance) equal total dispositions of money (including any increment in cash). The moneyflows account for any nonbank transactor has a double-entry basis; for any fiscal period it is a balancing account. (But we may expect to find statistical discrepancies when we estimate moneyflows accounts for groups of transactors.)

Alternatively we may say that when ordinary receipts exceed ordinary expenditures for any nonbank transactor, the excess is counterbalanced by a financial use of funds, i.e., by an advance (or return) of money to others. This advance (or return) of money may take the form of a retirement of his liabilities, an increase in his holdings of loans, securities, and trade receivables, or an increase in his cash balance. Also, when his ordinary expenditures exceed his ordinary receipts, there is a balancing financial source of money — he obtains money by an increase in his liabilities, by a decrease in his holdings of loans, securities, or trade receivables, or by drawing down his cash balance.

3) The moneyflows account for banks and U. S. monetary funds is similarly a balancing account.

The most significant items in this account are those involving increases and decreases in the cash balances of other transactors and increases and decreases in the claims banks and U. S. monetary funds have upon other transactors.

When the cash balances of nonbank transactors increase, the increase is a source of money for banks and U. S. monetary funds — banks and U. S. monetary funds are obtaining money by financing. The common concomitant of such an increase is a disposition of money — an advance of money to finance others — in the form of an increase in bank credit (loans and securities) or in the monetary gold stock. (The monetary gold stock is regarded as a claim of banks and U. S. monetary funds upon the rest of the world.)

Similarly, the disposition of money by banks and U. S. monetary funds involved in a decrease in their currency and deposit liabilities represents borrowed money returned to others. This is commonly accompanied by a decrease in bank credit or the gold stock, i.e., by a financial source of money to banks and U. S. monetary funds.

The money banks and U. S. monetary funds so obtain and the money they so advance (or return) to others are, for banks and U. S. monetary funds, approximately equal and offsetting. But the money so obtained often comes from one group of nonbank transactors while the money so advanced or returned goes to another.

The money banks and U. S. monetary funds so obtain and the money they so advance (or return) to others are only approximately offsetting for them. The complete, balancing moneyflows account for banks and U. S. monetary funds includes their ordinary receipts, their ordinary expenditures, changes in their holdings of monetary silver and other treasury currency items, and changes in their paid-in capital. It is often convenient but not always safe to neglect the net effect of these other items.

4) We may condense the main circuit moneyflows account of each trans-

actor group into an account summarizing its GNP expenditures and other transactions. For all transactor groups except households this account shows that (apart from the statistical discrepancy) :

- a) Gross national product expenditures (for final purchases of products)
- Plus b) Net transfer expenditures (or minus net transfer receipts)
- Equals c) Net product receipts (total product receipts minus nonfinal product expenditures)
- Plus d) Net money obtained through financing (or minus net money advanced or returned to others).

The condensed moneyflows account of GNP and other transactions for households takes this same form except that in the case of households item (c) becomes distributive share receipts, etc. — it consists very largely of moneyflows to households that are distributive shares.

5) The process of payment is instantaneous in the sense that no paying transactor loses title to a penny of cash until title is acquired by the payee — all the currency and deposit liabilities of the banking sector are always owned by someone.

We have seen with regard to this fifth implication that there is a difference between the bank record of cash and the holder record, viz., the mail-float. This anomaly is due to a deviation from accounting uniformity. The payer records a bill as paid (debits his accounts payable and credits cash) before the payee so records it (debits his cash and credits accounts receivable). Hence, taken collectively, holder records understate the amount banks and U. S. monetary funds owe them and tend to show an excess of due from each other — trade receivables — over due to each other — trade payables — to the extent of their cash understatement.

In addition to these five statements of implications of the first two key features of the money circuit there are three that derive mainly from the two discretionary features and two that follow principally from the fifth feature. Let us take the latter first.

When we look at the money circuit as a whole we speak of the account-keeping or scorekeeping function. But this function has another aspect. Particularly from the viewpoint of the individual transactor we think of this function as the storehouse of value function. And this value storehouse function in turn can be roughly — perhaps quite roughly — subdivided into a shorter term storage function and a longer term storage function. We summarize our conclusions as to these two forms of the value storage function as follows:

#### TWO IMPLICATIONS RELATING TO THE ACCOUNT-KEEPING FUNCTION OF MONEY

6) Money serves as a storehouse of value. But it has never performed this function by itself. Currently — and particularly for transactors other than households — the storehouse of value function is performed primarily by the net loanfund balance — cash, loans, securities, and other negotiable claims



on others plus trade receivables minus trade payables and liabilities to others that they can negotiate.

When ordinary receipts exceed gross national product expenditures plus other ordinary expenditures, the excess is stored up by adding to the net loanfund balance receivable. When ordinary expenditures exceed ordinary receipts, the loanfund balance is drawn down. The net loanfund balance acts as a cushion, taking up slack when ordinary receipts exceed ordinary expenditures and paying out slack when the converse is the case.

7) Money has been called the medium of exchange, and the part of one's cash balance one needs to perform the medium of exchange function, i.e., to do money work, has often been referred to as the active balance, while the remainder is regarded as idle.

Money work consists not so much in making settlements as in taking up or paying out slack when there is imperfect coincidence between ordinary receipts and ordinary expenditures. The medium of exchange function is really a part of the storehouse of value or cushioning function — it is the part occasioned by differences in the seasonal, weekly, and other within-the-year patterns of ordinary receipts and ordinary expenditures and by sporadic deviations from these patterns.

The cash balance plays an especially important role in this within-the-year part of the cushioning function; active cash is the cash that is needed for this role. But even in seasonal cushioning other loanfund balances participate, especially trade receivables and trade payables. We therefore call trade receivables and trade payables active balances.

The third and fourth features of the money circuit were stated from the viewpoint of the individual transactor. They tell us something about the range of choices open to him. But no transactor exercises discretion over his moneyflows and loanfund balances in isolation. What he decides helps to determine the range of choices open to others, and the aggregate effect of their decisions in shaping the range of choices open to him is clearly something we shall need to explore. The discretions exercised by transactors in severalty are mutually conditioning. Nor is this the end of the matter. The decisions transactors make regarding their moneyflows impinge upon the discretion that they have over loanfund balances and vice versa. We summarize these interrelationships as follows:

### THREE IMPLICATIONS RELATING TO DISCRETION

8) Each nonbank transactor can — within limits that vary from one transactor to another — increase (or decrease) his total cash balance through management of the composition of his loanfund balance. Thus he may exchange some other type of claim on other transactors for cash (or exchange cash for some other type of claim) or he may borrow to build up his cash balance (or draw down his cash balance to pay off debts).

Such management does not materially affect the size of a transactor's

total net loanfund balance, i.e., the excess of cash plus trade receivables plus loans and securities over liabilities to others.

Banks and U. S. monetary funds can — within limits — increase (or decrease) the total of their currency and deposit liabilities by acquiring loans and securities (or by selling loans and securities).

This exercise of discretion by banks and U. S. monetary funds and the exercise of discretion by other transactors, particularly with respect to the composition of their net loanfund balances, are mutually conditioning. Thus if cash balances are to expand, banks and U. S. monetary funds must be willing to buy loans and securities on the terms on which other transactors are willing to sell them or to borrow from banks. And if cash balances are to contract, banks and U. S. monetary funds must be willing to sell loans and securities on the terms on which other transactors are willing to buy them or to pay off their bank indebtedness.

9) With the annual data at hand we have not attempted to estimate active cash balances for any sector. But we presume that for most transactors the active cash requirement varies cyclically with the volume of ordinary transactions. If so, we can say that the discretion a transactor has over year-to-year variations in his active cash balance and in the active balances represented by his trade receivables and trade payables is somewhat limited. The variations are largely a reflection of the cyclical increases and decreases in his ordinary transactions.

But the year-to-year variation in the total of other loanfund balances — idle balances — is to a significant degree within the transactor's discretion. He can be parsimonious and hoard idle balances, or he can dishoard and expand his gross national product purchases, or he can follow an intermediate course.

Changes in a transactor's active balances are partly a byproduct of his hoarding versus spending decisions, partly the result of general business conditions and other external circumstances.

10) The amount of money a transactor obtains through financing or advances to others depends only in part upon his own discretion. To some degree year-to-year changes in his ordinary expenditures, and more importantly year-to-year changes in his ordinary receipts, result from decisions made by other transactors.

The most familiar example of mutually conditioning discretions is the theoretically perfect market: Sellers' supply schedules and buyers' demand schedules are thought of as determining the market price, and the market price as determining the amount each seller will supply and the amount each buyer will take. It is tempting to construe the mutually conditioning discretions over moneyflows as one market and the mutually conditioning discretions over loanfund balances as another. But we believe the interrelationships in both cases are too complicated for this. We shall attempt to elaborate Implication 10 in a later section of this chapter and Implication 8 in Chapter 13.

Although we shall not view either instance of mutually conditioning discretions as a single market, some phases of supply and demand analysis apply to each. That analysis means a grouping of transactors into buyers and sellers. Marshall underscored the way buyers' and sellers' discretions interact by comparing supply and demand to the two blades of a pair of scissors, and he warned us against the error of neglecting one of the blades. A similar warning seems in order here. We spelled out the need to take account both of banks and U. S. monetary funds and of other transactors in considering discretion over the composition of loan-fund balances and the size of cash balances (Implication 8). In analyzing discretion over the volume of moneyflows (outlined in the Third Feature and Implication 10) we shall need more than two groups of transactors, and must avoid the error of neglecting any of them.

At several points in the statement of the five key features and their implications we have used terms that presuppose transactions settled by offset are included in the main money circuit while technical transactions are not. If it would not have made the statement somewhat more cumbersome, we would have used language of more general applicability. The five key features and their implications are not restricted to the main money circuit as we have defined it.

Two features and several of the implications assert accounting balance; it does not disturb an accounting balance to add technical transactions to both sides of the account or to subtract offset-settlement transactions from both sides. Transactor accounts would still balance. So would type of transaction accounts, if they could be separately identified. Nor would inclusion of technical transactions and exclusion of offset settlements require any substantial modification in the statements about the account-keeping and storehouse of value functions of money (fifth feature and Implications 6 and 7). And transactors' discretion with respect to cash balances and their range of choice between stinting plus hoarding and dishoarding plus increased spending would remain essentially as they are portrayed in the third and fourth features and Implications 8, 9, and 10.

But in the interests of greater generality we should add a third type of discretion. Many transactors are in a position substantially to change the volumes of their technical transactions, and particularly to change the turnovers of their portfolios of loans and securities. Certainly this type of discretion is exercised and we do not question that its effects on the fluff in debits to individual accounts are extensive. We merely question its importance in relation to ordinary transactions.

Implication 7 has to do with active cash and other balances, and we have proposed that active balances be defined in terms of within the year variations in the cumulative difference between ordinary receipts and ordinary expenditures. Clearly other definitions are possible and we concede they may prove useful. But we urge that active balances in our sense of what cushions within the year variations in the moneyflows arising from ordinary transactions are especially relevant to an analysis of the relations between fluctuations in production moneyflows and fluctuations in moneyflows through financial channels. Basically this way of defining active balances means that we distinguish the short term factors in moneyflows through financial channels from the cyclical and long term factors.

If, then, we wish to make our statement of the features of the money circuit and their implications independent of the definition of the main circuit we have adopted, we must recognize the discretion transactors exercise over the turnovers of their portfolios and concede the possibility of defining active balances in various ways. These two amendments to our statement of features and implications are presumably not the only ones needed to give the statement generality. But we believe they are much the most important ones.

The five features and ten implications do not tell us how cyclical expansions and contractions in moneyflows take place. They constitute only the foundation on which we shall attempt to erect a tentative answer to this question. If it be said that as a mere preliminary to an answer this is somewhat complicated, we reply that the actual money circuit is far more complex than our summary statement about it.

## *2 Physical Analogues of the Money Circuit*

In Chapter 2 we contrasted the social accounting approach to the study of moneyflows — perhaps it should now be referred to as the five key features approach — with what we called the one-sector equation of exchange approach. We also drew a contrast with a conception of the money circuit in terms of an hydraulic analogy. The reader has doubtless surmised that we saw in these contrasting views a common core. And very likely he has wondered why we did not use another term to specify this common core — the quantity theory. We hesitated to do so, because the quantity theory has many forms, and the simplest way to specify the forms we had in mind is in terms of the equation of exchange and the hydraulic analogy. We restricted our reference to the equation of exchange by applying the qualifying adjective, one-sector. To be precise we should also use a qualifying adjective in referring to the hydraulic

analogy. Since it takes various forms, too, let us speak of those intended here as embodying an active liquid view.

The forms of the quantity theory view of the money circuit that stand in contrast to the five key features view we identify then with the one-sector equation of exchange, active liquid ways of thinking of moneyflows. We consider these contrast views further in a note appended to this chapter.

It should suffice at this point to say that we mean by the active liquid forms of the hydraulic analogy (1) thinking of moneyflows as if they were flows of a liquid through a system of conduits; (2) explaining changes in the total volume of flow in terms of changes in the quantity of liquid in the conduits; and (3) explaining changes in the quantity of liquid through (a) inflow from the banking sector into the conduits and outflow from the conduits into the banking sector and (b) withdrawal of liquid by other sectors into individual transactor reservoirs (hoards) and discharge of liquid from these reservoirs into the conduits.

This type of view of the money circuit has had a good many adherents for more than a century. No doubt its users have, as time has gone on, attached an ever increasing number of qualifications. But diagrams of the money circuit along these hydraulic lines are still in use, and a good many economists still attribute to the money circuit features that it would possess — some economists one set of features, others another — if an active liquid view were valid.

This type of view carries a number of implications or at least suggestions to which we take exception. Among them are:

- 1) It implies that the banking sector's discretion over its currency and deposit liabilities and the discretion of other transactors over their cash balances can be exercised independently, and that cash balances are the only loanfund balances involved in the discretion to stint or spend more. For the discretion over the composition of loanfund balances this makes it appear that the two blades of the scissors can cut separately, and it confuses this type of discretion with the discretion to dishoard and spend more or to stint and hoard.
- 2) It suggests that the banking sector, if it pursues a sufficiently vigorous policy, can control and eliminate cyclical fluctuations in moneyflows. On the basis of the five key features we propose to argue in Chapter 13 that this greatly exaggerates the discretion of the banking sector, and in the last section of this chapter that discretion over these cyclical fluctuations lies in the first instance with other sectors of the economy.
- 3) It implies that the banking sector's discretion over cyclical fluctuations in moneyflows is exclusively a discretion over its total currency and deposit liabilities.
- 4) It implies that the banking sector's discretion over cyclical increases in

moneyflows and this sector's discretion over cyclical decreases in those flows are essentially symmetrical.

On the basis of Section 1 above we propose to argue in Chapter 13 that the discretion of the banking sector in these two directions is markedly asymmetrical and that to understand it one must examine the changes in total bank credit (i.e., in the portfolio of loans and securities).

No doubt one who espouses such a form of the hydraulic analogy as we have outlined here can do so while rejecting all four of these implications, and quite possibly while rejecting also all the other implications we shall find in conflict with the five key feature view of the money circuit in the note at the end of this chapter. But it seems to us advisable to propose an analogy that does not imply any of these questionable propositions. Basically we trace them all to the fact that water — or any other liquid — flows so slowly through conduits that we must, in studying the volume of flow, necessarily take account of the finite velocity of flow. Accordingly we propose to replace the liquid in the analogy with electricity, and transform the liquid conduits into wires, the reservoirs into batteries. Let us compare moneyflows to electric currents.

Admittedly the electrical analogy is not a perfect one. The velocity of electrical transmission is not infinite. But it is very great, so great that for many purposes transmission is treated as if it were instantaneous.<sup>3</sup> We are not likely to be misled in this respect.

We propose to compare the dollar volumes of moneyflows to quantities of electric current, i.e., to amperes. But we shall not seek analogues of electrical potential difference or electrical resistance. In this we follow the precedent of the hydraulic analogy. It has not been usual to compare anything in the money circuit to the slopes of the conduits. Nor has it been usual to seek an economic correlate of the frictional resistance they offer.

Flow charts of the money circuit have ordinarily made use of the hydraulic analogy, and the conveniences of this type of graphic presentation in turn have probably helped to keep the hydraulic analogy alive. But the electrical analogy also lends itself to graphic presentation. We may consider some of the implications of the electrical analogy in terms of a wiring diagram for the money circuit.

<sup>3</sup> Of course modern physics has been concerned with the finite velocity of flow in an electric circuit. But modern physics is concerned with microscopic measurements. Economists have done something to provide measures of moneyflows on a monthly, and even a weekly, basis. Conceivably they will provide some daily figures. But they are hardly likely to concern themselves for cyclical purposes with differences in moneyflows in successive intervals of time, each shorter than a thousandth of a second.

Any flow chart for this circuit is likely to be somewhat complicated, because there are so many flow connections to be portrayed. Our most comprehensive tabular presentation of moneyflows is Table 33, but that contains too much detail to handle well graphically. For purposes of a wiring diagram let us boil it down to a four sector basis. And since the diagram is to be a flow chart let us show figures for a single year. In the accompanying diagram we treat industrial corporations, the Federal government, and households as separate sectors; all other transactors are lumped together into a fourth sector. The moneyflows proceed along the wires, passing through the ammeters. The volumes of flow recorded by the ammeter readings are based on data for 1941. As in an electrical wiring diagram, semi-circular notches are used to show where connecting wires pass one another in the line of vision without intersecting. The money circuit consists of three subcircuits, one for product transactions, one for transfer payments, and one for the net flow through financial channels.

The two batteries in the foreground represent industrial corporations and the Federal government; the two batteries in the background households and all other transactors. Moneyflows go out through the debit poles, in at the credit poles.

GNP expenditures of the Federal government (\$16 billion), of industrial corporations (\$10 billion), of households (\$75 billion), and of others (\$18 billion) pass along the heavy overhead wires and into the central production moneyflows meter. Total GNP expenditures were \$119 billion. After the flow passes through the motor it is called net product receipts (or distributive shares in the case of households), \$6 billion goes to the Federal government, \$14 billion to industrial corporations, \$80 billion to households, \$19 billion to others. Total product outflow for all sectors equals total product inflow.

The Federal government had no net transfer flow in 1941. To help finance Federal wartime expenditures the rocker arm switch makes the inflow connection; \$10 billion was obtained through financial channels. Total outflow through the government's debit pole equals total inflow through its credit pole.

The rocker arm switch of the other three sectors all make outflow connections. Industrial corporations advanced \$3 billion, households \$4 billion, others \$3 billion. Money advanced equals money obtained.

Net transfer expenditures of industrial corporations and households (+ zero for the Federal government) equal net transfer receipts of others.

The two-way switch with which each transactor is equipped symbolizes the discretion he exercises to dishoard and spend more or to stint and hoard asserted in the third key feature. But it is a somewhat inadequate symbol, for he can regulate the volume as well as the direction of flow through financial channels (subject of course to the proposition that the total money advanced or returned by transactors with a surplus on ordinary account must balance the total money other transactors obtain).

The wiring diagram illustrates the balance of transactor accounts and of type of transaction accounts asserted in the first and second features. The total outflow through the debit pole and the inflow through the credit pole of each sector will always be equal. The sum total of the outflows from the various sectors entering each central meter will always equal the sum of the inflows to the various sectors from each central meter.

Also since transmission through the wires is assumed to be instantaneous, all cash balances (even the negative balance of the banking sector) are to be regarded as stored in the batteries (along with other loanfund balances). This diagram treats cash balances in the same way as the two implications associated with the fifth feature.

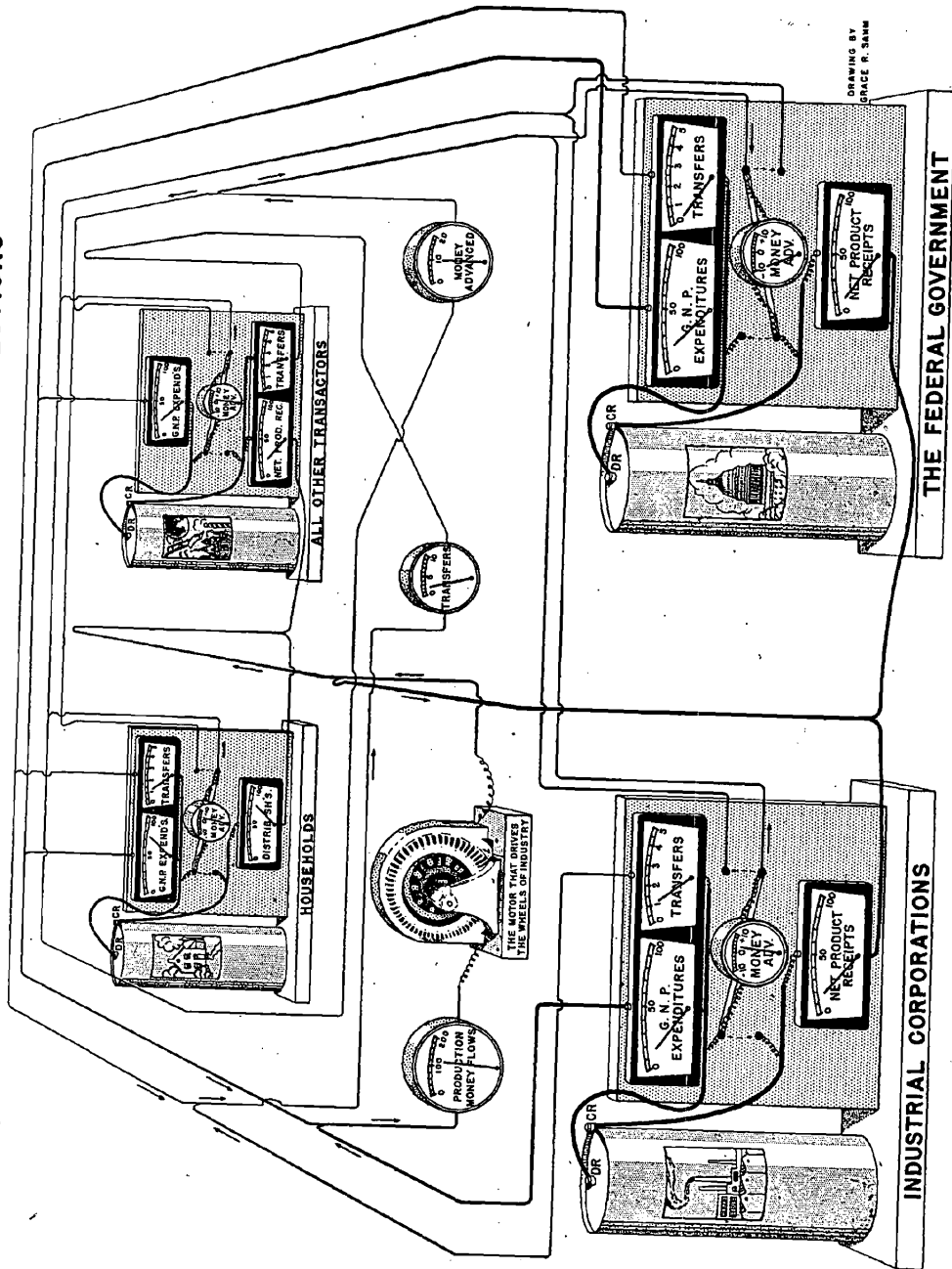
However, it does not show sufficient detail to illustrate the discretion a transactor has over the composition of his loanfund balance. To do this it would have been necessary to add a whole subcircuit (separating out the increments in cash balances from other financial flows) and another sector (separating out the moneyflows of banks and U. S. monetary funds). There would also be need for a double switch hookup on each instrument panel to suggest the two types of discretion. Had we thus elaborated the electrical diagram the principal additional facts it would portray would be a \$7.5 billion financial flow from other transactors to the banking sector a/c the increase in nonbank cash balances and a \$7.0 billion flow the other way through other financial channels a/c the increase in bank credit.

As it stands the wiring diagram illustrates — as well as one can reasonably expect to illustrate with data for a single year — the two accounting features of the money circuit, the scorekeeping or (undifferentiated) value storage function, and the discretion to dishoard and spend or stint and hoard. The diagram also illustrates a number of the implications we have associated with these four key features: Implications 4, 5, 6, and 10 and part of Implication 2. Had we elaborated the diagram in the manner just suggested it would have illustrated all five features and eight of the ten implications.



# THE MAIN MONEY CIRCUIT SHOWING PRODUCTION AND FINANCING CONNECTIONS

Chart 5



DRAWING BY  
GRACE R. SANM

### 3 *On Truisms and Half Truths*

In Chapter 2 we objected to the equation of exchange because *MV* seemed to suggest one set of transactions and *PT* another. Of course *MV* and *PT* can be so defined that they necessarily refer to the same transactions — and they commonly have. So conceived the equation of exchange has frequently been characterized as a truism. This characterization, without qualification, seems to us unjust and inaccurate.

Many current discussions of model analysis confuse two types of equation because both have been designated definitional equations. Consider the two abstract equations:

(1)  $y_t = f(x_t)$ , where we have an empirical determination of each  $x_t$  and no direct empirical knowledge of any  $y_t$  whatever. Taken by itself this equation is a mere truism. The equation is a shorthand way of defining each  $y_t$  separately as equal to the corresponding  $f(x_t)$ . Such an equation may indeed be useful in an empirical investigation of a model, but only if the model includes at least one other equation containing  $y_t$ .

(2)  $y_t = f(x_t) + \mathcal{E}_t$ , where we have one set of rules for determining  $x_t$  empirically and another set for the independent, empirical determination of  $y_t$ , the two sets of rules being so devised that except for statistical discrepancies we expect  $y_t$  to equal  $f(x_t)$ . However, in this equation we must include  $\mathcal{E}_t$  to allow for such discrepancies; without the  $\mathcal{E}_t$  it is seldom, if ever, quite true. Clearly equation (2) is not a mere truism. If well conceived an equation of this type can be an extremely useful tool in empirical economic analysis and a guide in framing and implementing public policy.

Definitional equations of this second type can be devised to describe various economic adjustment processes. The proposition that, in a given market and during a given period the quantity sold = the quantity purchased, may be cited as an illustration. At least in some markets one can effectively investigate separately the factors affecting the quantity sold and those affecting the quantity bought, and must consider the adjustment of prices and other terms of sale needed to clear the market.

The first and second of the key features we attribute to the money circuit assert accounting equations. We have stopped to contrast the two types of definitional equation because we wish to make clear that these money circuit equations are definitional equations of the second type, not mere truisms. The proposition that a transactor's moneyflows account must balance does not, indeed, refer directly to an economic adjustment. Only one transactor's behavior is described. But this proposition tells us more than that one's loanfund balance is necessarily changed by the

amount of the difference between one's ordinary receipts and expenditures. In general it describes an accomplishment by the transactor: Most of the time most transactors succeed in making both ends meet, i.e., so manage their moneyflows accounts as to stay out of bankruptcy.

The proposition that each national type of transaction account must balance does describe an economic adjustment. In fact, to say that the national customer moneyflows account must balance is just another way of saying purchases must equal sales — in commodity markets and in a broad group of service markets. We shall have some occasion to concern ourselves with the processes through which the adjustments described by the national type of transaction accounts are achieved.

The proposition that  $MV = PT$  — when  $MV$  and  $PT$  are so defined as to refer to the same set of transactions — is a definitional equation of the second type.  $MV$  and  $PT$  are separately determinable empirical magnitudes, and it should probably be written  $MV = PT + \mathcal{E}$ .<sup>4</sup> We think it is wrong to discount this equation as a truism. We object to this equation, but not because it is tautologous. It is not. Our objection is that it is too aggregative to be very useful. Let us construe  $MV$  to mean total dispositions of money by all transactors on ordinary account, on account of technical transactions however defined, and on account of all main circuit loanfund transactions except changes in cash balances. Similarly let us construe  $PT$  to mean all sources of money for all transactors on account of ordinary transactions, technical transactions defined in the same way, and all main circuit loanfund transactions except changes in cash balances. Evidently this equation can tell us nothing about the effects of the movement of cash balances from one sector to another. For all transactors taken together — including the banking sector — the net movement — apart from deviations from accounting uniformity and statistical discrepancies — is always zero for any fiscal period. Presumably  $MV$  and  $PT$  refer in turn to each successive fiscal period (whether a year, a quarter, or something else). But the increment in  $M$  during the fiscal period does not enter into the equation.

No doubt the equation of exchange so construed would reflect the total financial dispositions of money (except for changes in cash balances) by all transactors. And, if the accounts were uniform and accurate, it would reflect an equal total of financial sources of money. But it would not tell us which sectors were advancing or returning money

<sup>4</sup> As we noted in Chapter 2 we should prefer to write the right hand member,  $PT + R + \mathcal{E}$ , using  $R$  to denote the sum of those empirical components that cannot well be resolved into  $p \times t$ 's.

through financial channels and which sectors were obtaining money by financing. We propose to argue shortly that to understand cyclical increases and decreases in main circuit moneyflows it is essential to trace the net intersector flows of funds through financial channels. And to trace these flows one must go below the highly aggregative level suggested by the one-sector equation of exchange approach.

An early example of a less aggregative approach to the problem of explaining fluctuations in moneyflows is mercantilism. In the mercantilist answer attention is concentrated on a favorable (or unfavorable) balance of trade with the rest of the world. But the rest of the world is not the only sector that has been singled out in this way. There is the view that we need a favorable balance with government — a positive governmental contribution to community expenditure — when aggregate demand is deficient. Also underconsumption and oversavings theories of business recession can fairly be construed as variants of the unfavorable balance of trade hypothesis applied to households. And in recent times such variants have frequently been enlarged to put some blame for recessions on undistributed corporate earnings. It is not our present purpose to examine in detail any of the various forms this approach has taken. Rather we shall seek only the main implications of our findings concerning moneyflows for this type of answer.

If we do not take a global approach but look at some one transactor group that is believed to play an especially active role in initiating business fluctuations, its ordinary expenditures may exceed its ordinary receipts, or vice versa. Also such a sector's gross national product expenditures may exceed its product receipts minus nonfinal product expenditures, or vice versa. And we may be tempted to think that when the sector's gross national product expenditures exceed its net product receipts it has a favorable balance of trade, that is, a balance favorable to business expansion. But we must remember that for all transactors total ordinary receipts equal total ordinary expenditures, and total gross national product expenditures equal product receipts minus expenditures *n.e.c.* (apart from errors of estimate and deviations from accounting uniformity). If any transactor group has a favorable balance, all other transactors taken together will, in the nature of the case, have an equal unfavorable balance. We cannot find the clue to the expansion or contraction of moneyflows in the absolute level of ordinary receipts in relation to ordinary expenditures for any one transactor group, unless we assign to it a significance different from the significance we attach to the relation between the ordinary receipts and expenditures of the rest of the economy.

We are implying of course that in the money circuit no sector occupies an ultimate position. In this respect the moneyflows perspective contrasts with the national income and product perspective. In the latter households do occupy what may be called a first and a last place. They are final purchasers of products and ultimate claimants to distributive shares.<sup>5</sup> But in the money circuit, precisely because it is a circuit, each sector lies between other sectors. We can attach no peculiarly final significance to an absolute excess of ordinary expenditures over ordinary receipts for any sector.

There is another side to this conclusion. We have been looking at the ordinary transactions portion of the moneyflows account. Economists have talked too in terms of items in the loanfund portion of this account. They have often suggested that dishoarding encourages business expansion and that hoarding encourages contraction.

In its narrower sense hoarding means hoarding cash. As already noted, there are two objections to explaining cyclical fluctuations in moneyflows by hoarding in this narrower sense. First, we cannot, merely from the fact that a transactor has used funds to increase his cash balance, safely conclude that he has advanced or returned money to others rather than obtained money from them; to be sure his ordinary expenditures are less than his ordinary receipts, we need to know the net result of all his loanfund transactions. Second, though one sector can decrease its ordinary expenditures in relation to its ordinary receipts by adding to its cash balances, all nonbank transactors taken together cannot do so, for their use of funds in expanding their cash balances implies an approximately equal financial source of funds (chiefly as a result of additional bank credit).

In its wider sense hoarding means an increase in the total net loanfund balance receivable (or the idle or controllable part of it), not an increase in cash alone; one can hoard loans and securities, or one can hoard by paying off one's debts. An increase in one's net loanfund balance receivable (not due to accounting revaluations) means that one's ordinary expenditures are less than one's ordinary receipts, that in an absolute sense one's balance of trade is unfavorable. But here again we cannot say the same about all transactors taken together. For all transactors the increment in net loanfund balances (apart from errors of estimate and deviations from uniform accounting) should always be zero.

We believe those who have focused their attention on the favorable (or unfavorable) balance of trade of one sector of the economy or on the

<sup>5</sup> Taken merely as a description even the national income perspective is a two sector circuit as we saw in Chapter 4.

dishoarding (or hoarding) of one sector have been on the right track. But when we take account of the precisely offsetting balance of trade and offsetting financial flow of the rest of the economy we must characterize this type of answer to the question, how cyclical fluctuations in moneyflows come about, as not much better than a half truth.

#### 4 *On Perspectives and Levels of Aggregateness*

Keynes saw the difficulty in this type of answer. He saw also that "any level of production is potentially self-financing at any level of prices" and offered an explanation of the actual level in terms of an adjustment between savings and investment and a concurrent adjustment between what in our accounts we call gross national product expenditures and product receipts minus nonfinal product expenditures. We will argue that something very like these two concurrent adjustments is suggested by our moneyflows accounts. But Keynes approached them on a high level of aggregateness and exclusively in terms of the accrual perspective. We believe the nature of these two concurrent adjustment processes is much more clearly revealed in the moneyflows perspective and on a less aggregative level.

The classical approach to general equilibrium theory, though non-aggregative, has commonly been in terms of models designed to fit into the consolidated, accrual perspective of national income and wealth accounting — so much so that attention has been largely concentrated on product transactions among productive enterprises and between them and those from whom they hire the factors of production and to whom they sell the final product, while transfer payments and moneyflows through financial channels have for the most part been slighted. The classical approach to monetary theory has been on the basis of a combined moneyflows account for a single sector that includes all transactors except banks and U. S. monetary funds; banks and U. S. monetary funds are treated as a kind of second sector, so that changes in their currency and deposit liabilities appear in the account and sometimes also equal changes in bank credit plus the gold stock, but the other financial and all the ordinary transactions of banks and U. S. monetary funds have commonly been assumed to be negligible. That the national income and product accounts and the moneyflows accounts refer to different perspectives has not been clearly recognized in the classical approach. With these differences in approach it is little wonder that monetary theory and general equilibrium theory grew apart.

Keynes's general theory is thoroughly classical in perspectives and levels of aggregateness. Yet he attempts a remarriage of monetary and

general equilibrium theory. He does this by making the quantity of money, the rate of interest, and the level of employment major variables in his economic model. But money is the only loanfund account he requires in this model, and this one need not appear as a balancing account. It seems strange to offer a general theory of interest that omits bonds and notes from the model.

Two accounting pattern equations from the accrual perspective play a central role in the Keynesian model — the gross national product (or alternatively the national income) account and the savings and investment account. A serious drawback of the accrual perspective is that the market facts do not stand out. Dealings between transactors are scrambled in the social accounts with intratransactor entries (accrual and imputation items). Particularly is this the case with the savings and investment account. It is difficult to give a concrete interpretation of the equality of savings and investment because in this relationship the accrual items loom so large. Keynes did not think of it empirically as a separate set of market adjustments proceeding concurrently with adjustments in the goods and services markets. Rather for him the equality of savings and investment followed as a matter of definition; the market adjustments on which he focused attention were in the markets for *C* and *I*.<sup>6</sup>

The correlate of the savings and investment account in the moneyflows perspective is the account of moneyflows through financial channels (Table 32 or the financial items in Table 33). This view is very different from that of the gross savings and investment account (*Survey of Current Business*, Supplement, July 1947, Table 5). Table 32 lends itself to interpretation as an economic adjustment. Indeed a substantial portion of the net financial flows arises in the money and capital markets, where the trading is in stocks, bonds, and other negotiable claims. Incidentally we think that the information summarized in Table 32 is a better approach to a general theory of interest than that afforded by a Keynesian model, but we cannot attempt to follow the implications of this point here.<sup>7</sup>

The difficulties inherent in a very high level of aggregateness can be visualized if we attempt to raise the level of our comprehensive summary of moneyflows in Table 33. What happens to this table when we show it on a one-sector basis? In Table 33 as it stands we so revamped the moneyflows account for each of the ten sectors that its gross national

<sup>6</sup> Cf. *General Theory of Employment, Interest, and Money*, Ch. 6, Sec. II.

<sup>7</sup> In Chapter 13, Section 2, we offer a comment on it.

product expenditures are separately identified — also its net product receipts. When we consolidate sector accounts we must presumably continue to show GNP expenditures on an unconsolidated basis (i.e., we must not eliminate intrasector GNP transactions). Also if the account is to balance we must continue to define net product receipts as total product receipts minus nonfinal product expenditures; this is the principle upon which the table was originally set up. But both the transfer flows and the financial flows are shown on a net basis for each sector, i.e., they exclude all intrasector flows. Hence when there is only one sector, the transfer flows and the financial flows disappear. In Table 39 we take

Table 39  
Gross National Product, 1939  
(Billions of Dollars)

<i>Dispositions of Money</i>	<i>Survey of Current Business</i>		<i>Sources of Money</i>	<i>Survey of Current Business</i>	
	<i>Table 33 (1)</i>	<i>(2)</i>		<i>Table 33 (3)</i>	<i>(4)</i>
A By Households . . .	60.7		For Households . . .	60.4	
B (Cf. Personal Consumption Expenditures)		67.5	(Cf. National Income minus Undistributed Corp. Profits & Inventory Valuation Adj.)		72.0
C By Business & Finance <sup>a</sup>	10.6		For Business & Finance <sup>a</sup>	12.3	
D (Cf. Gross Private Domestic Investment)		9.0	(Cf. Capital Consumption Allowances + Inventory Valuation Adj. + Undistributed Corp. Profits)		8.6
E By Governments . . .	13.2		For Governments . . .	12.5	
F (Cf. Govt. Purchases of Goods & Services)		13.1	(Cf. Indirect Business Tax & Non-tax Liability)		9.4
G By the Rest of the World	.9				
H (Cf. Net Foreign Investment)		.9			
J Discrepancy . . .		<sup>b</sup>	Discrepancy (incl. Effect of Net Transfers)		.5
K By all Transactors	85.3		For All Transactors	85.3	
L Total GNP . . .		90.4	Total GNP . . .		90.4

Columns 1 and 3 are from our Table 33; columns 2 and 4 from the *Survey of Current Business*, July 1947, Supplement, Table 1, p. 2.

Because of rounding, lines may not precisely downtown.

<sup>a</sup> Includes industrial corporations, business proprietors and partnerships et al, banks and U. S. monetary funds, private insurance carriers, security and realty firms et al, and farms.

<sup>b</sup> Lies between ± \$50 million.



1939 as an illustrative year. Strictly, of course, on a one-sector basis, Table 33 reduces to line K. But we have retained a partial sector analysis of GNP expenditures and net product receipts in order to make a comparison with the *Survey of Current Business* figures. The detail in columns 1 and 3 is different from that of the accrual perspective, as we anticipated in Chapters 2, 4, 5, and 6, and saw in Chapter 9; but there are roughly comparable categories.<sup>8</sup> On a one-sector level Table 33 becomes the moneyflows version of the gross national product account.

Strictly speaking Table 39 presents a two-sector view of the economy. But the method of bisecting the economy used to define the gross national product cuts across the way we have divided the economy into sectors, because in national income accounting it is frequently necessary to vivisect actual transactors to separate the buyers of the gross national product from the sellers. However, our point is clear. Table 39 is on a level of aggregateness so high that it fails to reveal financial flows and transfer payments.

In the moneyflows perspective, when we have a number of sectors, we can show for each: its expenditures on gross national product; its receipts and its nonfinal expenditures in connection with product transactions; its transfer receipts and expenditures; and the money it has advanced, returned, or obtained through financial channels. The moneyflows perspective brings out the way in which each sector's operations impinge on other sectors; the somewhat less than global level of aggregateness we have adopted enables us to relate product transactions to changes in cash balances and in the debt and credit structure of the economy.

##### 5 *Who Exercises Discretion over Moneyflows?*

Our central question is, How do cyclical fluctuations in moneyflows come about? The foundation on which we propose to erect a tentative answer is given in the five key features and their implications. The structure we will erect on this foundation is not a whole theoretical building, complete in all details. Rather it is a theoretical framework. If it should withstand the tests of time and critical examination, this theoretical framework should eventually be called a theory. But we consider it tentative in a way in which the foundation is not. Following scientific precedent in such a situation we will speak of this framework as an hypothesis, not as a theory. And because we emphasize transactor discretion, the discretion over one's ordinary expenditures (outlined in the third feature) and over

<sup>8</sup> On the expenditures side comparable detail can readily be provided. Except for accruals and imputations, all the detailed components of line L, col. 4, can be identified as components of line K, col. 3.

one's cash balance (specified in the fourth feature) in our tentative answer, we will refer to it as a discretionary hypothesis. Since our discretionary hypothesis is a theoretical framework, a structure the details of which remain to be filled in, it is not an hypothesis in the more specific sense — it is not a theory one can expect to test by some single critical finding of fact.

In outline our hypothesis is this:

- 1) Cyclical increases and decreases in main circuit moneyflows are brought about immediately (i.e., proximately) by the way transactors exercise their discretion to increase or decrease their ordinary expenditures.
- 2) Each transactor is restricted and influenced in this exercise of discretion on the one hand by its consequences for his loanfund account and by what he does about them and on the other hand by the effects of other transactors' decisions on his moneyflows and on his loanfund balances.
- 3) Because we are dealing with a circuit that has no end and no beginning and because every transactor is greatly influenced in his decisions by the decisions of others, all transactors in a sense share responsibility for cyclical increases and decreases in moneyflows. But they do not all share alike. Our discretionary hypothesis includes an effort to discriminate, to find some transactors (not always the same ones) more responsible than others.

A large part of the more detailed statement of the hypothesis consists in spelling out the ways transactors restrict and influence one another in their exercise of discretion. We have said that we would attack the question of how cyclical fluctuations in moneyflows come about in terms of two concurrent general economic adjustments. These two interacting adjustments play a central role in the mutual conditioning of transactor discretions. They are: (a) the adjustments in the markets for goods and services and the adjustments affecting all other ordinary transactions (moneyflows like business taxes that are classified as product transactions but are not what one commonly thinks of as market transactions, and transfer payments as well); (b) the adjustments that affect the moneyflows through financial channels.

We believe these two processes can best be understood, not as adjustments *de novo* in each fiscal period, but as readjustments of the moneyflows of the period immediately preceding. Much has been said about the stickiness of prices. Something like stickiness applies to moneyflows. A good many moneyflows tend to repeat themselves. Thus wherever we find formal budgeting, it starts with figures for the preceding year. In the aggregate this gives the money circuit a kind of inertia. The level of ordinary expenditures tends to continue, subject to upward or downward readjustments.

Since the moneyflows are interrelated in a system of social accounts

increments and decrements in moneyflows must be so distributed as to preserve accounting balances. But this does not mean they must be evenly distributed among transactors. On the contrary, when the volume of ordinary transactions changes, some transactors (not always the same ones) will usually be changing their ordinary expenditures ahead of others.

Consider the case of a cyclical increase. If we think of the economy as temporarily divided into two sectors, Sector A or those who are taking the lead in expanding their ordinary expenditures and Sector B the others, we can indicate how the two concurrent readjustment processes appear in the accounts. They show as four net increments:

$X_{AO}$  = the increment in A's ordinary expenditures minus receipts

$X_{BO}$  = the increment in B's ordinary receipts minus expenditures

$X_{AF}$  = the increment in the net money A obtains through financial channels

$X_{BF}$  = the increment in the net money advanced or returned by B.

The relationships among these four increments are corollaries of the quadruple entry system of moneyflows accounts.  $X_{AF}$  and  $X_{BF}$  are to be understood in an algebraic sense, if money flowed from A to B in the base period.  $X_{AF} = X_{BF}$ . In part at least this increment in flow from B to A is likely to mean intersector transactions in loans and securities. Also  $X_{AO} = X_{BO}$ . Presumably a major part of this moneyflow arises from sales and purchases of commodities, and of labor and other services. Further  $X_{AO} = X_{AF}$  and  $X_{BO} = X_{BF}$ . A's account and B's account must remain in balance.

If the two sets of readjustments  $X_{AF} = X_{BF}$  and  $X_{AO} = X_{BO}$  proceed in large degree in markets that are as separate as the loan and security markets are from the commodity, service, and labor markets, it is natural to ask, How does it happen that an over-all balance in the moneyflows accounts is always achieved? We can think of most of the readjustments affecting ordinary receipts and expenditures as goods and service market readjustments. The readjustments that lead to  $X_{AF} = X_{BF}$  are only partly market readjustments; as far as one type of financial source or disposition of money is concerned — that arising from changes in cash balances — the process is automatic. The change in the cash balance is the balancing item in the moneyflows account. What happens in the commodity and service markets fixes the increments in ordinary receipts and ordinary expenditures, and consequently the changes in the net financial moneyflow. The immediate effect of the net financial flow is on the cash balance. If a transactor's cash balance gets large, he will often

be tempted to supply funds to others through the loan and security markets (or pay off his debts). But he may increase his spending. If his cash balance gets low, any nonbank transactor will have to obtain money from the loan and security markets, or else curtail his spending. Thus what he does (or fails to do) in the loan and security markets has repercussions on his ordinary transactions, and consequently on the commodity and service markets, and his dealings in commodities and services affect what he does in the loan and security markets. The cash balance may be said to provide a mechanism by which the readjustment processes in the commodity and service markets and the readjustments in the loan and security markets are made to keep pace with each other day by day. No doubt the two processes of readjustment are to a large extent directly tied together. Ordinarily a transactor will not elect to dishoard and spend on an extensive scale, unless he can borrow or liquidate his portfolio to finance his increased spending. And often a transactor who sets out to stint and hoard does so in order to pay off debts, less frequently to build up his portfolio. But debt and portfolio transactions on the one hand and ordinary transactions on the other will seldom precisely offset each other. For the most part the cash balance takes up the discrepancy between the two. And for each transactor it is a kind of spring connecting the loan and security markets and the commodity and service markets — and transfer payments. Compressed too far this spring forces a transactor to borrow, liquidate his portfolio, or curtail ordinary expenditures. Expanded far enough it is likely to induce him to repay debts, add to his portfolio, or step up his ordinary expenditures. We will pursue some aspects of this function of the cash balance further in the next chapter.

We may now attempt to incorporate the two concurrent readjustment processes in a partial statement of our hypothesis:

- a) Each of various transactor groups is or may be in a position to increase or decrease its purchases of gross national product somewhat independently of its ordinary receipts and its other ordinary expenditures. (An increase means a  $+X_{AO}$ , a decrease a  $-X_{AO}$ .)
- b) An increase in gross national product expenditures can be financed by obtaining money through financial channels ( $+X_{AF}$ ), and the money released by a decrease in gross national product purchases can be advanced or returned to other transactors ( $-X_{AF}$ ).
- c) When a transactor group so increases or decreases its purchases of gross national product, the extra money required for the increase will necessarily just equal the extra money other transactors advance ( $+X_{BF}$ ), and the money released by a decrease in gross national product

purchases and advanced to others will necessarily just equal the extra money others require ( $-X_{BF}$ ).

d) When a transactor initiates an increase or decrease in gross national product purchases, the volume of his purchases and the money he obtains through financing will tend to move together; but when he is relatively passive, his gross national product expenditures are likely to be more closely correlated with his product receipts minus nonfinal product expenditures.

By way of clarification and qualification several things need to be said about the part of our hypothesis outlined in these four propositions.

First, they are certainly not to be taken as an explanation of the business cycle. They deal with only one phase of the cycle — What happens to moneyflows when they expand and contract? Or, alternatively, How are increased purchases of gross national product financed? Where does the money go that is released by decreased purchases of gross national product?

Conceivably, of course, all transactor groups may act — in either expanding or contracting their ordinary expenditures — so synchronously that no group will need to obtain more money from others through financial channels than it has been getting before. But we cannot presume this to be so in general. The four propositions refer to a situation in which some groups are expanding or contracting ahead of others.

The four propositions imply that, in a sense, all sectors are on a par in the money circuit. There are significant differences too. Cyclical changes in the dollar volume of most transactors' ordinary receipts are due chiefly to decisions made by others. But in the case of governments the power to fix tax rates means the power to influence ordinary receipts. Again, some transactors have a wider range of discretion over cyclical changes in the dollar volume of their ordinary expenditures than others. If a transactor is to be in a position substantially to expand his ordinary expenditures without a compensating expansion in his ordinary receipts, his credit position must be such as to enable him to do the necessary (loanfund) financing. Some of the larger industrial corporations have a fairly strong position in this respect, but the Federal government's credit position is certainly much stronger. Still further, there are major differences among transactor groups in the considerations that influence changes in the volume of ordinary expenditures. Thus the consideration that an expenditure is needed to decrease or to relieve unemployment appeals almost exclusively to government. In other words, although all transactors are, in a significant sense, on a par with respect to their status in the money

circuit, we should not forget that they exhibit different behavior patterns.

Proposition (d) indicates that some transactors take the initiative while others are relatively passive. To determine who is taking the initiative when the volume of moneyflows is changing is bound to be difficult. Nevertheless we believe the question, Who is taking the initiative? is basic for an adequate account of the process by which increases and decreases in moneyflows are brought about.

In Section 3 we considered the suggestion that a transactor whose ordinary expenditures exceeded his ordinary receipts or who was dishoarding in the sense of drawing down his loanfund balance was contributing toward an increase in moneyflows. We noted that it would not do to count an absolute excess of ordinary expenditures as a 'favorable' balance of trade, because if we do the sum of all 'favorable' balances will (apart from errors of estimate and accounting nonuniformities) always be just equaled by the sum of the unfavorable balances.

But we believe there is merit in the idea that 'favorable' and 'unfavorable' balances, or loanfund hoarding and dishoarding, inaugurate changes in the volume of moneyflows. Indeed we contend that this is a sound idea, if only we take the balances not in an absolute sense but in the light of what has gone before. We propose to distinguish between the hoarding that accompanies a greater decrease in ordinary expenditures than in ordinary receipts and the hoarding that accompanies a smaller increase in ordinary expenditures than in ordinary receipts, and to make a similar distinction in the case of dishoarding. Thus we have to take account of four possibilities for any transactor group:<sup>9</sup>

*Active hoarding* — stinting plus hoarding

*Passive hoarding* — the hoarding that accompanies an increase in receipts and a slower increase in expenditures

*Passive dishoarding* — the dishoarding that accompanies a decrease in receipts and a slower decrease in expenditures

*Active dishoarding* — dishoarding plus increased spending

In general the two entries in the right hand column characterize an expansion phase of the business cycle, the two in the left a contraction phase. The two entries on each line specify financial moneyflows that are in the same direction. In the case of each of the two shorter entries the

<sup>9</sup> It may be contended that this language lacks generality, that in the first two possibilities 'hoarding' should be replaced by 'increased hoarding or decreased dishoarding' and that in the other two 'dishoarding' should be replaced by 'increased dishoarding or decreased hoarding'. Technically this contention is valid. But the cost in cumbersomeness of expression that these amendments would entail seems to us far greater than the small gain in increased generality.

transactor ordinarily takes the initiative. In each of the other two the initiative rests for the most part with others.

If we can distinguish these four modes of behavior we may say that dishoarding plus increased spending makes for an expansion in the volume of flow in the main circuit, and that stinting plus hoarding makes for a contraction. But we must say also that the hoarding that results from slowly increased spending and the dishoarding that results from slowly decreased spending do not have these effects.

To explore the implications of these distinctions it is convenient to think of transactors in terms of a three-party system, the three parties being called respectively bulls, bears, and sheep. Bulls are transactors who dishoard to increase their spending. They are active dishoarders. Bears are those who stint and hoard. They are active hoarders.<sup>10</sup> All other transactors are sheep. Ordinarily sheep will be increasing their expenditures so slowly that they hoard when the volume of moneyflows is expanding; and they will be decreasing their expenditures so slowly that they dishoard when the volume of moneyflows is contracting. They are passive hoarders and passive dishoarders. A transactor may change his party affiliation as often as he likes, but we suspect that most transactors will be sheep most of the time.

To the question, How do increases and decreases in moneyflows take

<sup>10</sup> The precise definitions of these types of behavior depend in part on the length of the fiscal period and the transactor groupings. A sector is classed as an active dishoarder when (a) the current year's financial flow is a source of money, and (b) total ordinary expenditures for the current year are larger than in the preceding year. A sector is classed as an active hoarder when (a) the current year's financial flow is a disposition of money and (b) total ordinary expenditures for the current year are less than in the preceding year.

Various possible refinements of these definitions might be suggested. As they stand, when the cost of living is rising more rapidly than wage and salary rates, households may appear as bulls, although they are responding somewhat passively to these changes. Again, as they stand, the definitions draw the line between bulls or bears and sheep at a sector's zero net financial moneyflow. It might be better (a) to distinguish the financial flow in connection with changes in idle balances from that due to changes in active balances and (b) to take as a base line the average flow in say the five preceding years (if data permitted). We revert to this possibility in Chapter 13. Further the rough way of identifying sheep here used may be considered an extension of the Keynesian consumption function idea to other sectors. If  $S$  = GNP expenditures and  $R$  = net product receipts, we assume  $0 < \frac{\Delta S}{\Delta R} \leq 1$  in the case of sheep. The consumption function analogy suggests that one should explore the possibilities of treating  $\Delta S$  as a function of other variables in addition to  $\Delta R$ . An accrual measure (of profits) should clearly be considered in connection with business GNP expenditures.

However, we believe the present definitions are sufficiently precise for most of our analysis. And they make the statement of the case much simpler.

place? we answer then: Mainly and immediately through the decisions of individual transactors about their ordinary expenditures. Each transactor, within the limits set by his net loanfund balance receivable and his credit standing, can elect to increase his ordinary expenditures, even though there is no increase in his ordinary receipts, i.e., can elect to be a bull (active dishoarder). Or he can elect to be a bear (active hoarder).

Our hypothesis implies that changes in active cash balances are a consequence of and a necessary condition to changes in moneyflows, not a cause. The increased spending of a bull results from a decision by the bull. The decision is made possible by his ability to dishoard. His dishoarding may take the form of drawing down his cash balance or borrowing from or selling securities to banks. The hoarding of other transactors may take the form of increased holdings of cash or may take other forms. We shall defer to the next chapter consideration of the forms the net financial flow from other transactors to the bulls (active dishoarders) is likely to take.

Much of the time the question whether moneyflows will increase or decrease is determined by whether the bulls (active dishoarders) or the bears (active hoarders) predominate. But the bulls and the bears alone do not fix the entire amount of the increase or decrease. When a cyclical increase gets under way it tends to become cumulative, i.e., sheep may keep the expansion in their ordinary expenditures nearly abreast of the expansion in their ordinary receipts. On the downswing too we must allow for the influence of the sheep. Contraction of moneyflows is perhaps even more likely to be strongly cumulative than expansion.

The bulls (active dishoarders) may be in evidence throughout an entire cyclical upswing and the bears (active hoarders) throughout an entire downswing, or they may not. But we should probably allow also for the possibility that during both an expansion and a contraction practically all transactors may approximate the status of sheep at the same time, no one taking the initiative either by increasing his expenditures much more rapidly than his receipts increase or by decreasing his expenditures much more rapidly than his receipts decrease. Stinting plus hoarding and dishoarding plus increased spending are particularly likely to be operative at the turning points in the cycle.

If our hypothesis is correct, the different parties should exhibit distinctive moneyflow patterns. Do they? Are they distinctive when we have moneyflows accounts for ten sectors on an annual basis as in Table 33? To the extent that a transactor group includes members of all three parties at the same time we may have trouble; we could reasonably



expect to do better with a larger number of sectors. A more urgent consideration may be that transactors are likely to change parties in mid-year. Quarterly data should help materially. But even in Table 33 there are striking party differences, as can be seen from Charts 6 through 9.

The summary moneyflows account of each sector appears in two parallel grids, dispositions of money at the left, sources at the right. To facilitate comparisons between sectors, transfers are always in the lefthand grid, net receipts appearing as a negative disposition of money. Similarly, the net financial flow is always at the right, and net money advanced or returned to others shows as a negative source. The sum of the two ordinates in the left-hand grid equals the sum of the two ordinates in the right, except for the discrepancy in the account.

We should expect to distinguish the parties that exercise active discretion over moneyflows — the bulls and the bears — chiefly (a) by increments and decrements in gross national product expenditures that are larger than the increments and decrements in product receipts minus expenditures n.e.c.; and (b) by a similarity between the patterns of the curves portraying gross national product expenditures and net money obtained through financing. However, we should be prepared to add in net transfer expenditures for a sector that has a large amount of discretion over this type of moneyflow, and to take cognizance, in locating discretion, of any important discretion a transactor — such as the Federal government — may exercise over its net product receipts (product receipts minus nonfinal product expenditures).

We should expect to distinguish the sheep chiefly by increments and decrements in product receipts minus expenditures n.e.c. that are larger than those in gross national product expenditures, and by a negative relationship between net product receipts and net money obtained through financing. But some allowance may have to be made for the discretion exercised over transfers.

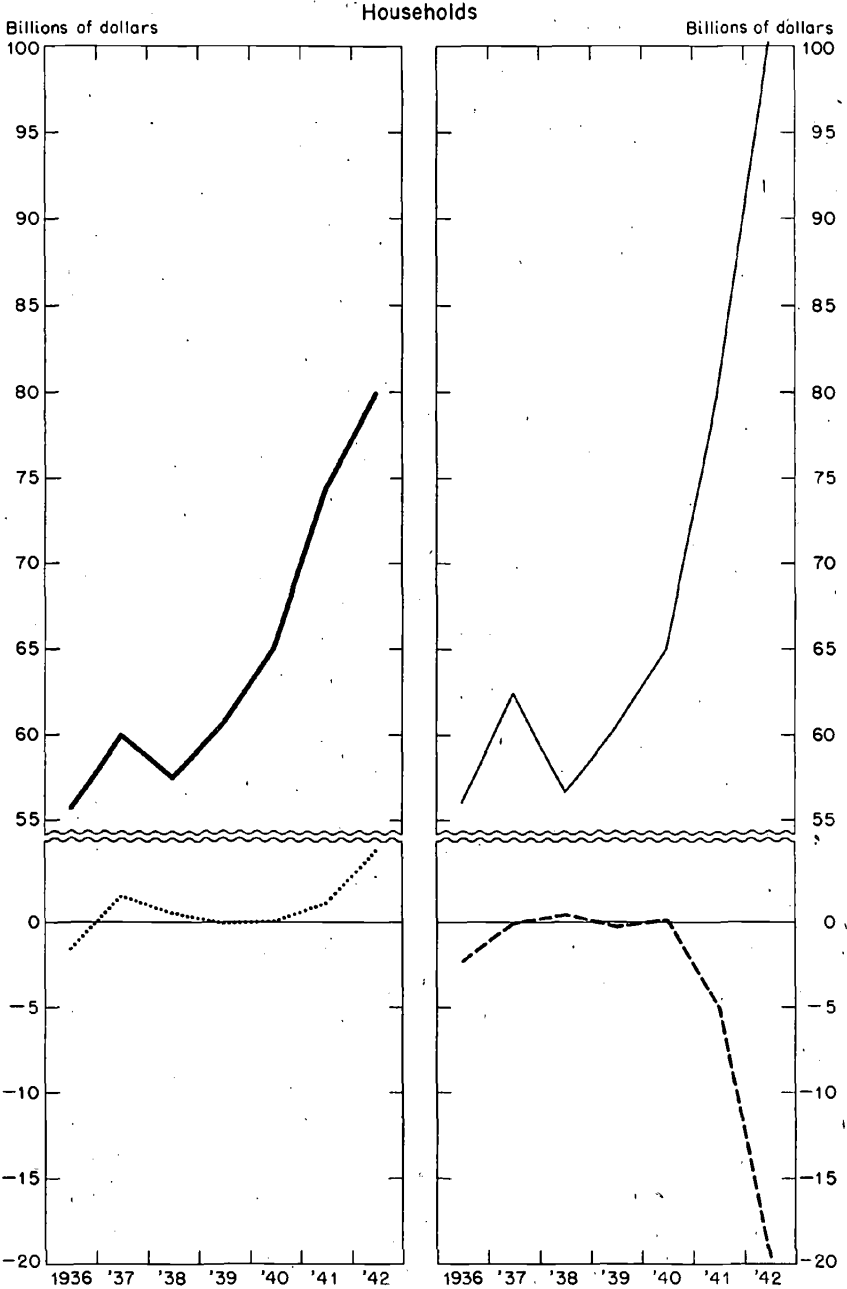
The most striking feature of the charts is that the Federal government stands out clearly as an active discretionary party most of the time. When we take into account that the net transfer payments curve reflects the veterans' bonus in 1936 and declines in 1937 partly because the bonus did not recur and partly because social security tax collections began (only the collections from households affect the transfer curve), we can fairly say the Federal government exercised an active, substantial discretionary influence on moneyflows in each of the seven years.

The case for identifying other sectors in an active discretionary role is less strong. Apparently the rest of the world belongs in this category dur-

Chart 6  
**GNP Expenditures and Other Moneyflows (Net)**

**Disposition of Money**  
 — GNP expenditures  
 ..... Net transfer payments

**Sources of Money**  
 — Distributive share receipts, etc.  
 - - - Net money obtained through financing



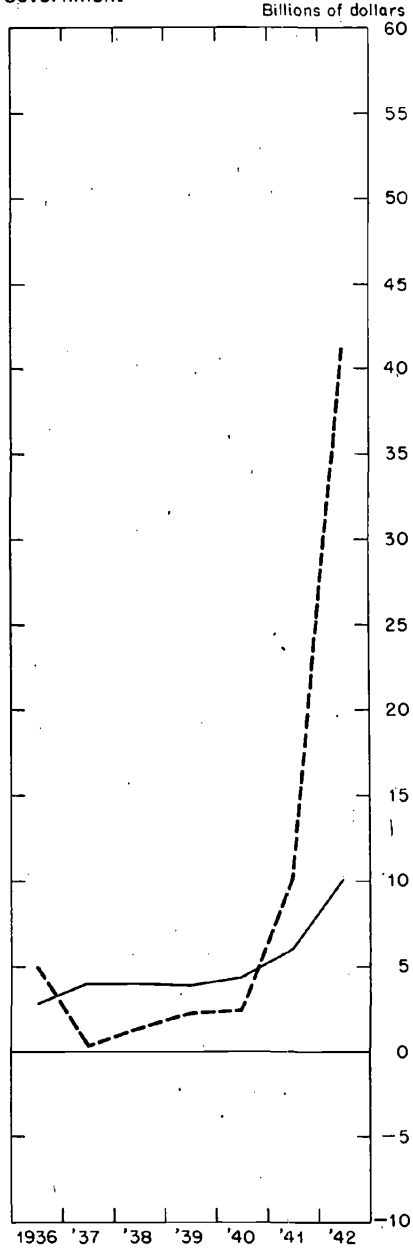
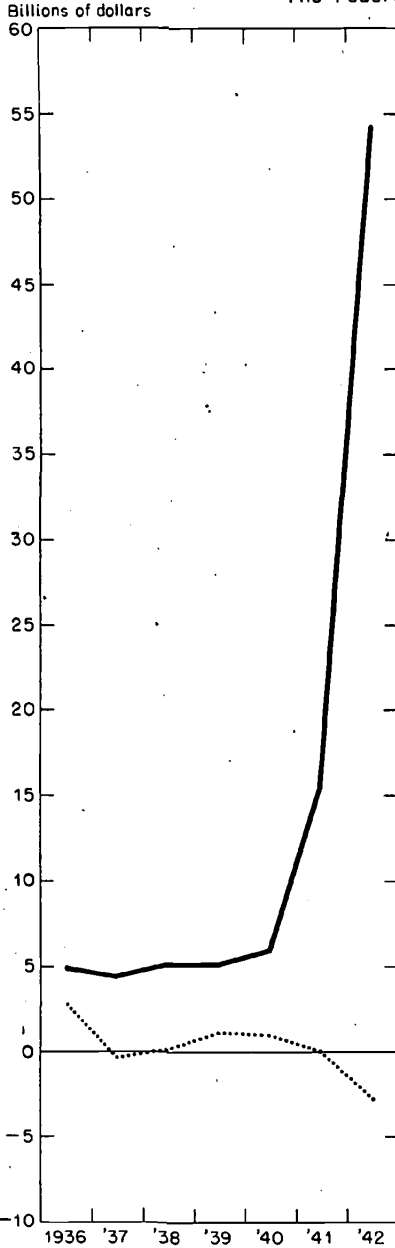
Data from Table 33.

Chart 7  
**GNP Expenditures and Other Moneyflows (Net)**

Disposition of Money  
 — GNP expenditures  
 ..... Net transfer payments

Sources of Money  
 — Product receipts minus expenditures n.e.c.  
 - - - Net money obtained through financing

**The Federal Government**



Data from Table 33.

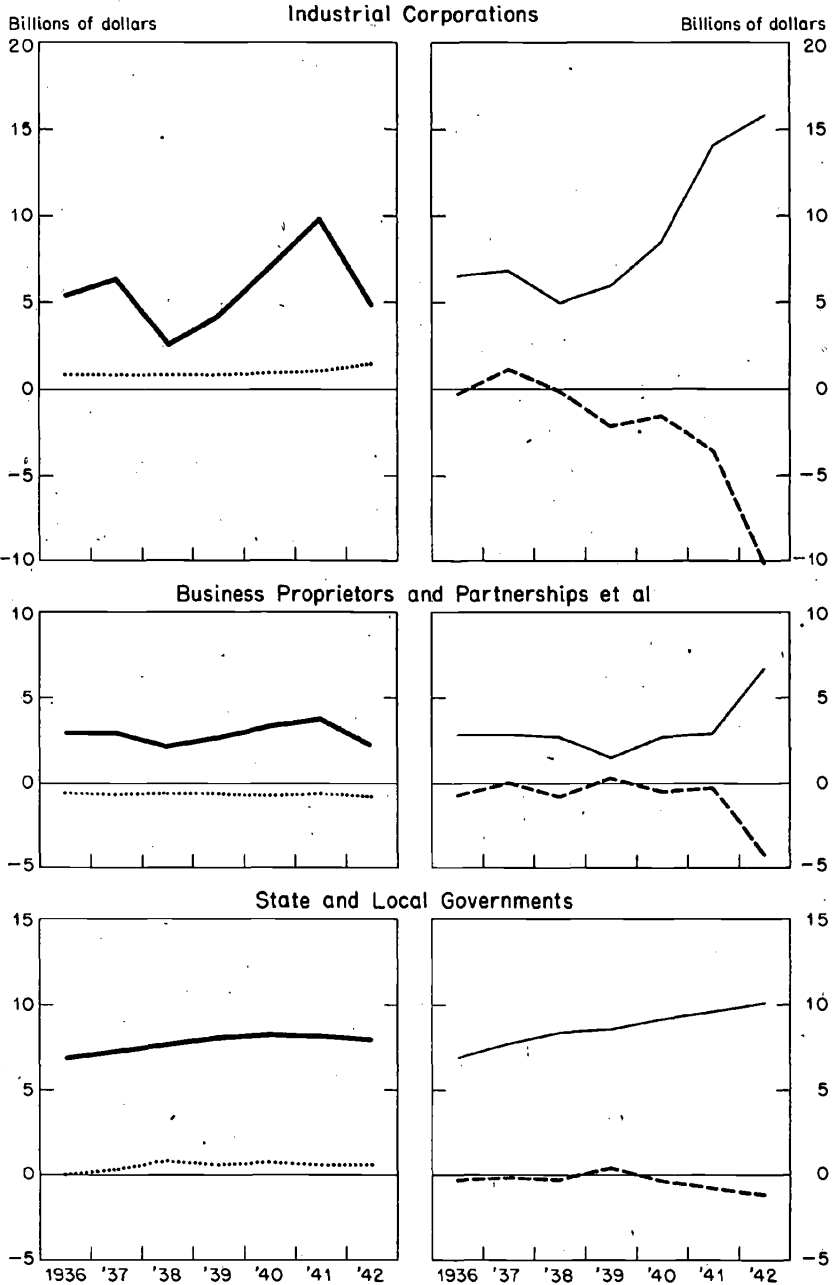
Chart 8  
**GNP Expenditures and Other Moneyflows (Net)**

Disposition of Money

- GNP expenditures
- ..... Net transfer payments

Sources of Money

- Product receipts minus expenditures n. e. c.
- - - Net money obtained through financing



Data from Table 33.

Chart 9

GNP Expenditures and Other Moneyflows (Net)

Disposition of Money

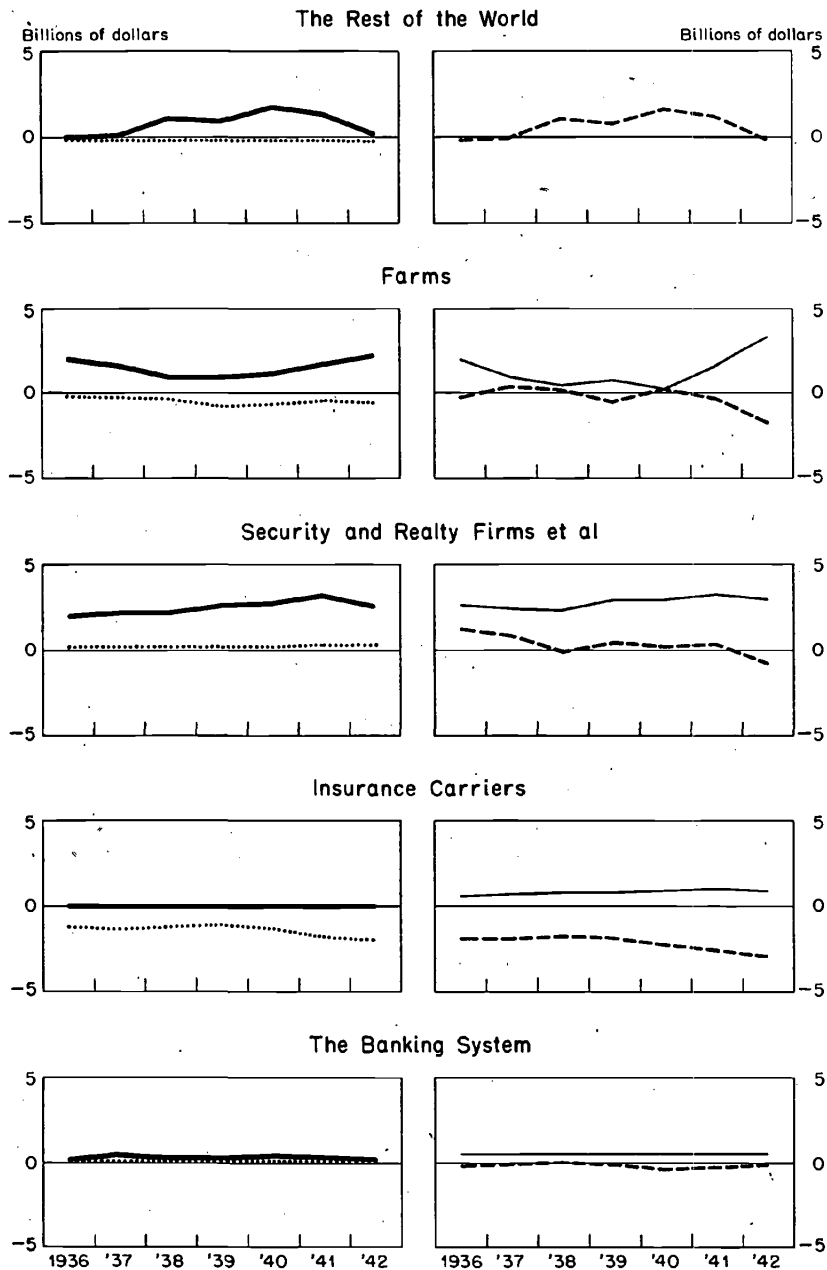
— GNP expenditures

..... Net transfer payments

Sources of Money

— Product receipts minus expenditures n. e. c

- - - Net money obtained through financing



Data from Table 33.

ing most of the seven years, but its influence on our moneyflows is not very great. There is a definite suggestion also that industrial corporations were bulls in 1937 and bears in 1938, but we should certainly need to qualify any such interpretation by the proviso that quarterly data might make the timing in this period look quite different. Table 33, however, does not exhaust the information in our moneyflows accounts; we shall return to this point in the next chapter.

When we try to identify the passive sheep sectors the most obvious case is households. State and local governments also appear to qualify throughout a major portion of the seven years. In general gross national product expenditures move with, but less sharply than, net product receipts. For households most of the time there is a negative relation between distributive share receipts, etc., and net money obtained through financing. During World War II we can identify three other groups as sheep: industrial corporations, business proprietors and partnerships et al, and farms. But in the first two cases we should recall that markets were not free; gross national product (capital formation) expenditures declined in 1942 (contrary to the pattern we have outlined) because of wartime restrictions.

On the whole we believe these charts show that on our hypothesis one can do a good deal even with annual figures to identify those who actively exercise discretion over their moneyflows, insofar as the period under review is concerned. But we concede that it is a rather special period. It remains to be determined whether a longer timespan and greater detail will continue to afford this kind of confirmation for our hypothesis. If it does, the hypothesis may prove an extremely useful tool for current business analysis.

We have said nothing so far about the discretion exercised by banks and U. S. monetary funds, because their ordinary transactions are so small and because we have focused attention on the discretion a transactor exercises over his own moneyflows. We shall take up next the discretion of banks and U. S. monetary funds over the moneyflows of other transactors. This is by no means all we would need to do to trace the various ways transactors condition one another in exercising discretion over moneyflows. But it is the most crucial missing piece in our picture. We shall pass over the rest, including other channels of government influence over the moneyflows of private transactors and including the influences of price changes on cyclical changes in the volume of moneyflows.

## A NOTE ON THE QUANTITY THEORY

We have contrasted the five key features view of the money circuit with those forms of the quantity theory of the circuit that adopt a highly aggregative equation of exchange approach and that seem to derive from an active liquid view. We think it advisable to explore this contrast further, considering first the hydraulic analogy and then the one-sector equation of exchange approach.

To begin with let us give the analogy a much more specific form. Let each nonbank transactor be conceived as a sloping trough with a reservoir and a pump at its lower end, and let the markets, etc., in which transactors deal with each other be conceived also as sloping troughs. (We will call these latter 'channels of trade' to distinguish them from the transactors' troughs). Assume that each nonbank transactor receives liquid into his trough from the 'channels of trade', and that the liquid normally flows down his trough into his pump and is immediately pumped up and out into the 'channels of trade' again. But assume also that each nonbank transactor can draw off liquid from his trough into his reservoir or from his reservoir into his trough. Further, assume that the banking sector can inject additional liquid into the troughs of other transactors or can withdraw liquid from them. Finally let us suppose that main circuit moneyflows are like the flows of liquid through this system of troughs and pumps, and that 'active' cash is like the liquid in the troughs and pumps, 'idle' cash like that in the reservoirs of nonbank transactors.

We maintain that the money circuit has been widely conceived in terms of an active liquid analogy. But this does not mean that any economist ever assumed an analogue very closely resembling the system of troughs, pumps, reservoirs, and connections just outlined. Different economists have attributed different hydraulic features to the circuit. The hydraulic system proposed above was designed to combine all the hydraulic features we have selected for comment here. Our contentions are (1) that each of these features has been attributed to the money circuit by a substantial number of economists (economists who may in various other respects disagree among themselves and who may or may not have used an hydraulic analogy explicitly); (2) that the assumption of one hydraulic feature has frequently been combined with the assumption of one or more others (and presumably with the rejection of still others); and (3) that thinking in hydraulic terms, i.e., assuming various hydraulic features apply to the money circuit, is sufficiently prevalent to make it advisable to examine the features of the flow through the illustrative system of troughs, etc., just outlined and their points of conflict with the five key features we have attributed to the money circuit.

But before proceeding with this examination we may pause to note that the hydraulic analogy does not inevitably lead to an active liquid view of the money circuit. Adam Smith used an hydraulic analogy in developing his theory of commercial banking, but he treated the liquid as passive.<sup>11</sup> He thought in terms of a system of conduits, the capacity of which represented

<sup>11</sup> *Wealth of Nations*, Book II, Chapter 2.

the volume of purchases and sales, and for him this capacity determined the quantity of the liquid in circulation.

To point up the contrast between the active liquid way of thinking of the money circuit and our five key features view we offer a series of paired propositions, theses and antitheses. The theses belong to the latter view; all but one of them is implied by our five features. The antitheses attribute hydraulic characteristics to the money circuit. Apropos of each we give several illustrative citations to economic literature; numerous additional citations of other authors could readily be supplied.

Some of the paired propositions are, in the technical sense, logical contradictions; others mere contraries. Taken together we believe they are sufficiently conflicting to make it advisable to be on one's guard against unwise hydraulic assumptions in monetary theorizing.

*Thesis 1.* Moneyflows occur in simultaneous opposing pairs, sources and dispositions of money, as when an ordinary receipt involves an increment in the transactor's cash balance, or an ordinary expenditure a decrement. But in the moneyflows account we summarize all the changes in a loan-fund balance during the fiscal period in a single net figure (Feature 1 and Implications 2 and 3).

*Antithesis 1.* Money flows in one direction (from buyer to seller); goods and services flow in the other direction (from seller to buyer).<sup>12</sup>

The hydraulic circuit we have assumed suggests a single rather than a double entry system. In the social accounting view a cash sale involves an ordinary moneyflow from buyer to seller and an equal financial flow the other way. Only the former appears in the postulated hydraulic circuit. However, the chief significance of Antithesis 1 is that a sector's inflows are not balanced against its outflows during any short period in the hydraulic view, because the increment (or decrement) in the cash balance is not regarded as a disposition (or source) of money. Changes in cash balances are thought to enter into the money circuit in a way that is radically different from that of portfolio or debt changes.

*Thesis 2.* There is no objective general rule by which the dollar volume of main circuit money inflow for any transactor during a period can be matched or identified with a subsequent dollar volume of money outflow for the transactor.

*Antithesis 2.* Subject to two qualifications noted below, the money inflow to any transactor during a short interval will, if the interval is short enough, necessarily be entirely disposed of after the end of this interval.<sup>13</sup>

<sup>12</sup> Compare, for example: the quotation at the head of Chapter 5; James W. Angell, 51 *Quarterly Journal of Economics* 225-6; *Twenty-fifth Annual Report*, National Bureau of Economic Research, p. 39.

<sup>13</sup> Compare, for example: D. H. Robertson, 43 *Economic Journal* 399, 413; Angell, *loc. cit.*; *Readings in Business Cycle Theory* (Blakiston, 1944), F. A. Lutz, p. 156 note; *idem*, Fritz Machlup, p. 211.



Thesis 2 does not follow from the five features; the moneyflows accounts simply fail to provide any basis for such an identification.

Antithesis 2 implies (a) that there is some sense in which dispositions of money lag behind sources of money, and (b) that the lag relationship is a matching one, the later dispositions must exactly equal the earlier sources of money. In terms of the hydraulic analogy we have outlined this means that the liquid that flows into a transactor's trough from the 'channels of trade' must later flow out through his pump. And the two qualifications are that due allowance must be made for (1) withdrawals into and from transactors' reservoirs (cash hoarding and dishoarding), and (2) injections and withdrawals by the banking sector (increases and decreases in its currency and deposit liabilities).

Thesis 2 and antithesis 2 are not logical contradictories. But matching a credit total with a synchronous debit total is one thing; matching it with a subsequent debit total quite another. We doubt that any accountant would have the temerity to prescribe an accounting rule for the latter. The equality between prior sources and subsequent dispositions of money can, of course, be regarded as a behavioristic equation. But one who has worked with statistical fits to time series is likely to be highly sceptical about finding anything even remotely approaching a precisely matching lag relationship between inflows and (later) outflows.

It has been suggested that one could identify later dispositions of money with earlier sources by colouring coins and bills received and tracing them to their disbursement. But this procedure can readily be shown to be unsatisfactory even for an economy that does not make most of its cash settlements by cheque.

*Thesis 3.* The (negative) cash balance of the banking sector enters (algebraically) into the money circuit just as do the cash balances of other transactors. Increments are dispositions of money; decrements are sources (Implications 1, 2, and 3).

*Antithesis 3.* The money (liquid) held by nonbank transactors includes hoards and active balances. The banking sector has no comparable holding. New flows are originated in the money circuit when money is created; flows are terminated when money is destroyed.<sup>14</sup>

It is difficult to imagine a reservoir holding a negative quantity of a liquid. But it is not hard to imagine doing business with a debit balance

<sup>14</sup> Compare, for example: D. H. Robertson, *op. cit.*, p. 411; Gottfried Haberler, *Studies in Income and Wealth, Volume Two* (National Bureau of Economic Research, 1938), p. 160; Angell, *op. cit.*, pp. 226 ff; Machlup, *op. cit.*, pp. 205 and 216. A number of economists would prefer a different wording for the first sentence of this antithesis. They seem to think of the circuit as if liquid from the channels of trade flowed directly into each transactor's reservoir and as if he controlled the rate of outflow through his pumps (i.e., as if he controlled the "velocity" or turnover rate of his total cash balance directly rather than indirectly through control over the amount of his idle balance). Compare, for example, Kenneth E. Boulding, *Economic Analysis* (Revised edition, Harper, 1948), Chapter 15, and *Reconstruction of Economics* (Wiley, 1950), Chapter 12; Stephen Enke, *Intermediate Economic Theory* (Prentice-Hall, 1950), pp. 95 ff. We are not told by such writers how the concept of "velocity" should be construed in the case of a negative cash balance.

against you on the other fellow's books. Under our present system households are expected to keep credit balances at the bank. But some of them have debit balances with their brokers, and they do business with such debit balances. Quite conceivably we might have a banking system that permitted an extensive use of overdrafts.

The banking sector's cash balance is no less a cash balance because it is negative. Nor is the banking sector the only one that can, under present laws and customs, operate with a negative cash balance. In times past, as we shall note in the next chapter, the rest of the world did business with U. S. transactors on such a basis.

Further, there is no reason, on the social accounting view, to think mere decrements (or increments) in the cash balance of the banking sector originate (or terminate) moneyflows.

In this third pair of propositions there is undoubtedly a contradiction, but the two propositions are not coordinate. Antithesis 3 suggests one of the two hydraulic answers to the question, how cyclical fluctuations in moneyflows originate. But this answer must be considered in conjunction with the next pair of propositions.

*Thesis 4.* An increase in the currency and deposit liabilities of the banking sector is a moneyflow to that sector from others. An increase in bank credit is a disposition of money by the banking sector and a source of money to nonbank transactors (Implications 1 and 3).

*Antithesis 4.* An increase in the currency and deposit liabilities of the banking sector means a flow of money from the banking sector into the main circuit, a source of money for the rest of the economy.<sup>15</sup>

Below this pair of propositions we might spell out another precisely parallel pair about decreases, but they are really implicit in Thesis and Antithesis 4.

The double entry view requires us to bear in mind that there are two equal and opposing flows. Playing down one and focusing attention on the other by calling it money 'creation' (when nonbank cash balances expand) or 'destruction' (when they contract) may not logically require one to picture an increment in nonbank cash balances as new liquid flowing into the conduits of the circuit and adding to the volume of flow. But it is surely conducive to this way of conceiving the origination of moneyflows, and to regarding expenditures financed by money 'creation' as much more inflationary than expenditures financed by borrowing directly from nonbank transactors. The social accounting view requires us to deny that an increase in the dollar volume of ordinary transactions can be originated by a change in the composition of loanfund balances alone.

Incidentally Antithesis 4 is sometimes construed to mean that an increment in nonbank cash balances is a moneyflow from the banking sector to

<sup>15</sup> Compare, for example, J. Brooke Willis, 37 May Supplement *American Economic Review* 227; G. L. Bach, *idem*, 237-8; *Readings in Business Cycle Theory*, Ralph G. Hawtrey, pp. 338 and 341; Boulding, *Reconstruction of Economics*, especially pp. 208, 216, and 218; Enke, *op. cit.*, p. 98 ff.

others. The accountant regards this increment as a use of funds by nonbank transactors and a source for the banking sector.

*Thesis 5.* Each private domestic transactor and each state and local government has discretion over the composition of his loanfund balance and hence over the amount of his total cash balance. He has little direct discretion over the amount of his active cash requirement (Fourth Feature and Implication 9).

*Thesis 6.* Discretion over the composition of the loanfund balance of the banking sector (and over the total of its currency and deposit liabilities) is at present somewhat scattered. Even if vested in a single transactor (a single central bank) this discretion and the discretion of nonbank transactors over the composition of their loanfund balances (and the amount of their cash balances) would still be mutually conditioning (Fourth Feature and Implication 8).

Since any transactor can alter his total cash balance (within the limits of his portfolio and his credit standing) by manipulating the composition of his loanfund balance, we must watch both blades of the pair of scissors as Thesis 6 insists. Antithesis 6 has one blade doing all the cutting.

The implied comparison with supply and demand schedules may suggest to some that if one blade (the banking sector) is sufficiently inelastic and the other blade sufficiently elastic, the former does determine the quantity. We agree the scissors metaphor need not require us in every case to watch both blades. And in Chapter 13 we shall find reason to think there are times when many nonbank transactors somewhat inadvertently permit changes in their cash balances to be brought about by decisions of others. But this does not mean it is right to neglect one blade all the time.

We have chosen to comment on Theses and Antitheses 5 and 6 together

*Antithesis 5.* Private nonbank transactors and state and local governments have little or no discretion over the aggregate total of their several cash balances. But each of them has full discretion over the amount of money he holds in 'idleness'.<sup>16</sup>

*Antithesis 6.* The Federal government has (but often has not chosen to exercise) power to control money 'creation' and money 'destruction' by the banking sector. The Federal government, therefore, has power to control the aggregate of all nonbank cash balances.<sup>17</sup>

<sup>16</sup> In general the citations in connection with Antithesis 3 are applicable here. And in this case, too, some who think in terms of an hydraulic analogy will wish to substitute "his transaction velocity" for "the amount of money he holds in 'idleness'" in Antithesis 5. So amended its conflict with Thesis 5 is less sharp. Since we assume a transactor has, within limits, discretion over both his cash balance and his ordinary expenditures, he evidently has some discretion over the ratio between them. But we insist it is necessary to deal separately with the two types of discretion.

<sup>17</sup> This power is assumed in several of the 100 percent reserve proposals (Fisher's is cited in the next chapter). Compare also, for example: Boulding, *Economic Analysis*, p. 306; M. J. Bowman and G. L. Bach, *Economic Analysis and Public Policy* (Prentice-Hall, 1949), pp. 144 and 160; Theodore Morgan, *Introduction to Economics* (Prentice-Hall, 1950), Chapter 10,

because otherwise we would miss a major conflict between the social accounting viewpoint and the hydraulic.

According to the former the decisions of the banking sector and of other transactors in regard to the composition of their loanfund balances are being continually adjusted to each other, so that together they determine the cash balance of each nonbank sector and its indebtedness to banks. This process of economic adjustment influences and is influenced by various others. To anticipate the next chapter we may say that the main channel of influence of this process of adjustment on the volume of moneyflows is through the loan and security markets, and that we should think of this process as influencing but not as controlling that volume.

As we have outlined the hydraulic circuit there is one set of valve connections between the banking sector and the troughs of other transactors and a separate set of valve connections between nonbank transactors' reservoirs and their respective troughs; in the active liquid view the discretions over money 'creation' and money 'destruction' and over hoarding and dishoarding are usually pictured as separate rather than as mutually conditioning. However, this is not an essential feature of the view. The two sets of valve connections might be interconnected so that money 'creation' and cash hoarding (and money 'destruction' and cash dishoarding) could directly offset each other. In either case the two sets of valves together are assumed to determine the amount of 'active' cash in the troughs and pumps and so the amount of flow.<sup>18</sup>

One objection to this hydraulic conception of the way increases and decreases in moneyflows come about is that it does not distinguish between seasonal variations and cyclical fluctuations.<sup>19</sup> If it were a valid explanation it would seem to be equally applicable to both. But as we noted in Chapter 11 there is wide agreement on the proposition that seasonal variations in moneyflows produce seasonal variations in cash balances, rather than the other way around. It would, indeed, be difficult to find anyone who thinks the banking sector could iron out or moderate seasonal variations in moneyflows by a counter-seasonal-cycle banking policy.

*Thesis 7.* Hoarding is a storing up of value accompanying cyclically curtailed spending or cyclically increased receipts; it means an increment in a transactor's net loanfund balance. Whether this takes the form of an in-

*Antithesis 7.* Hoarding means an increment in 'idle' cash balances that accompanies or precedes curtailed spending. All nonbank transactors can hoard at the same time.<sup>20</sup>

<sup>18</sup> Or, alternatively, the banking sector is assumed to determine the amount of total cash and other transactors the rate of flow.

<sup>19</sup> This paragraph is not applicable to economists like Robertson and Angell who explain the turnover period of active cash in terms of the within-the-year pattern of receipts and expenditures.

<sup>20</sup> Compare, for example, several of the passages cited in connection with Antithesis 3; also, F. D. Newberry, *The American Economic System* (McGraw-Hill, 1950), p. 383; *Readings in Business Cycle Theory*, Howard Ellis, pp. 406 ff; Arthur Dahlberg in Fitch and Taylor, *Planning for Jobs* (Blakiston, 1946), p. 360. For Antithesis 7, as for two of its predecessors, we must note that some economists would move an amendment, they would substitute 'the turnover periods of' for 'idle'.

crease in cash or portfolio or a decrease in debt is largely immaterial, so far as ordinary expenditures are concerned. When some transactors hoard or add to their loanfund balances there must be others who draw down their loanfund balances (Second and Fourth Features and Implication 9).

Here, too, we speak only of hoarding; but we mean to imply parallel propositions about dishoarding. The social accounting concepts of hoarding in Thesis 7 and of dishoarding in its parallel we shall need presently to qualify, but the qualification does not materially affect the following comments.

There is a measure of agreement on the subject of hoarding in Thesis 7 and Antithesis 7. Both connect hoarding with decreased spending and dishoarding with increased spending. Indeed in our tentative answer to the question how cyclical fluctuations in moneyflows come about we associate several points with Thesis 7 that enlarge the area of agreement. Both views of the money circuit in some sense find the origin of an increased ordinary moneyflow in the connection between dishoarding and spending and the termination of an ordinary moneyflow in the connection between stinting and hoarding. Further we include in our tentative hypothesis the proposition that an increased volume of ordinary transaction flows, once originated by decisions to dishoard loanfund balances and spend, tends at least to maintain itself until there are sufficient downward pressures from subsequent stinting and hoarding to induce a recession. Somewhat similarly, we take it Antithesis 7 implies that a quantity of money, once introduced into the main circuit system of troughs and pumps by a decision to dishoard, will continue to circulate (flow around the circuit) so that the volume of flow is at least maintained until someone decides to withdraw some of the money into a reservoir or the banking sector to retire some of it.

So much for the points of agreement. The points of disagreement are:

- a) In the hydraulic view hoarding means a withdrawal of cash from the circuit, a decrease in 'active' cash (or a decrease in the transaction velocity of total cash); in the five key features view it means in general an increase in a transactor's total net loanfund balance.
- b) In the hydraulic view all nonbank transactors can hoard at the same time; in the social accounting view, when someone advances or returns money through financial channels, someone else must obtain it; total hoarding equals total dishoarding.
- c) But perhaps the basic difference is that the active liquid view explains an increase in moneyflows by an increase in total nonbank cash balances or a decrease in the part of such balances that is 'idle'; in the social accounting view an increase in total ordinary expenditures requires a decision by some nonbank transactors to increase spending and the moneyflow increase does not necessarily mean a decrease (or an increase) in their cash balances.

*Thesis 8.* The accounting balance equations asserted in the first two key features hold for any fiscal period, however long or short.

*Antithesis 8.* Cyclical fluctuations in business activity are initiated by imbalances between savings and investment or by imbalances between aggregate supply and aggregate demand.

The imbalances alleged in this antithesis have been variously conceived. Some have thought of them, if not in social accounting terms, at least in a way that implies a direct contradiction of the thesis. Others have proposed habit pattern (imbalance) equations with time lags too short to be detected by the aggregative measurements so far feasible. Still others have postulated imbalances that are partly matters of plans and expectations.

When Antithesis 8 is construed to refer to ex post synchronous magnitudes, its two forms reduce to one, and one that contradicts the thesis. It will be convenient to use the three familiar Keynesian symbols and  $\Delta$  to express this point,  $\Delta$  standing for the imbalance or disturbing influence. If  $S + \Delta = I$ ,  $S + C + \Delta = I + C$ .  $I + C =$  aggregate demand = (except for imputed items) GNP expenditures in Table 33.  $S + C =$  aggregate supply = (except for imputations) net product receipts. According to Thesis 8  $\Delta$  is merely the result of statistical discrepancies and deviations from accounting uniformity. Antithesis 8, on a synchronous ex post construction, assigns casual significance to  $\Delta$ . When  $\Delta = 0$ , the money circuit is in equilibrium. When  $\Delta > 0$  an increase in moneyflows is initiated. A negative  $\Delta$  initiates a decrease.

A number of the older theories of business recessions assume, or at any rate imply, a negative  $\Delta$ .<sup>21</sup> But during the past 25 years, economists have become increasingly loath to deny the validity of social accounting equations. Nonetheless the notion of an accounting imbalance seems still to linger here and there. Anyone who subscribes to Antithesis 4 is necessarily committed implicitly to the proposition that  $\Delta =$  the increment in the currency and deposit liabilities of the banking sector minus the excess of its GNP expenditures over its net product receipts. This would make  $\Delta$  nearly \$12 billion in 1942 according to Table 33. Further, *explicit* contradictions of Thesis 8 have continued to appear occasionally.<sup>22</sup>

The versions of Antithesis 8 that avoid denying the validity of social accounting equations currently have many advocates.<sup>23</sup> We are concerned

<sup>21</sup> See, for example, Foster and Catchings, *op. cit.*, p. 320.

<sup>22</sup> See, for example, Boulding, *Reconstruction of Economics*, Tables 4a or b and 5a in Chapter 12; Willis, *loc. cit.*

<sup>23</sup> In general the Robertsonian and the *ex ante* versions are carefully framed so as not to conflict with Thesis 8. However, some economists who think in terms of a nonaccounting type of imbalance are disposed to deny theoretical significance to empirical equations such as those in Table 33 on the ground that they are (allegedly) tautologous and do not portray economic adjustments. For example, *Survey of Contemporary Economics* (Blakiston, 1948), William Fellner, pp. 54 ff; also J. H. Williams, 38 May Supplement *American Economic Review* 288-9. The charge that social accounting equations lack interpretative significance was dealt with in Section 3 above.

with such versions at this point only to the extent that they conflict with the approach to the study of the money circuit here proposed. The most serious conflict entailed goes deeper than the five key features and their implications. Our approach rests on two basic methodological premises:

- 1) That the quantities with which economists concern themselves should, so far as feasible, be defined operationally in terms of the empirical method of measurement or estimate.
- 2) That economists should aim so to formulate the questions they investigate that such empirical definitions of the quantities involved are, or may become, feasible.

Some of the proponents of Antithesis 8, particularly some of those who emphasize an *ex ante* concept of imbalance, have a different view of scientific method as it applies in economics; they seem to have been careful to avoid any direct conflict with Thesis 8 but in the process to have sacrificed the objective — we consider it a prime scientific objective— of an unambiguous reference to empirically determinable quantitative facts. What is an *ex ante* imbalance? Certainly such imbalances — if the concept is a tenable or workable one — are to be found in the past as well as in the future. How does one identify an *ex ante* imbalance in the statistics for past periods? At present there is no agreed upon empirical meaning for the *ex ante* flows that are supposed not to be in equilibrium. We urge that if the concept of *ex ante* imbalance is to have a useful role in understanding moneyflows the flows involved must be given such an objective meaning (e.g., in terms of contractual commitments, authorized budgets, or recorded statements of intentions). In any case our problem in this study is to find an explanation of cyclical fluctuations in moneyflows that runs in terms of actual measurements and that deals with those measurements as a balancing system of social accounts.

Because hydraulic analogies have implications that conflict in many ways with the social accounting approach, we have proposed an electrical view of the money circuit instead. However, this electrical view may be regarded (mathematically) as a limiting case of the hydraulic, one in which the velocity of flow through the troughs and pumps becomes infinite. In this limiting case the quantity of liquid in the troughs and pumps becomes and remains zero, regardless of inflow from (or outflow to) the banking sector and inflow to (or outflow from) nonbank transactor's reservoirs; the new money (or money retirement) flow and the flow into (or out of) nonbank reservoirs are necessarily equal and mutually conditioning; the total volume of flow is not a function of the constant quantity of liquid in the conduits; aggregate outflows do not lag behind inflows, or vice versa); equality of aggregate inflows and outflows is maintained no matter whether total flow is increasing, constant, or decreasing. (See the context of the wiring diagram.) We may add that, if all the liquid is always in storage, active cash must correspond to one part of what is stored and idle cash to another.

We have proposed the electrical analogy specifically for the money circuit in the United States in recent years. But we believe the substitution of this analogy for an hydraulic one is advisable for other countries and other times as well. However the need to make it is particularly urgent for highly

industrialized and highly financialized countries. Indeed a far more plausible case can be made out for the hydraulic, quantity theory view, if one has in mind some simpler type of economy.

Among the writers cited above both Robertson and Angell seem to have a kind of natural fiscal period in mind, like the crop year for a wheat farm and the pay period for a wage earner. Apparently both assume that in modern England and in the modern United States most transactors operate with natural fiscal periods. We doubt this.

But it is not difficult to think of circumstances which conform more nearly to an hydraulic conception of the money circuit. Let us imagine an economy in which each nonbank transactor's cash balance goes through a marked and somewhat uniform recurring cycle from one to fifty-two times a year, the cash balance rising during one phase of the cycle and falling during the rest of it, much as it does for wheat farmers and wage earners. The within-the-year cycle will constitute a kind of natural fiscal period, ending when the cash balance reaches its low. Let us assume also that the community is such that cash balances remain at the minimum of subsistence level, i.e., that each transactor's balance always goes to zero at the end of each natural fiscal period. Further, let us suppose that we are dealing with an economy in which cash balances consist entirely of gold coin and tokens, and are about the only form of loanfund balances.

Under these conditions it seems reasonable to suppose that the ratio of the average cash balance to the amount of ordinary expenditures for any type of transactor will be fixed, and that there will be no idle cash balances. Further, if money is withdrawn from circulation, say by the destruction of some transactor's cash balance or by an unfavorable balance of trade, it may seem reasonable to infer that the decrease in the quantity of money causes a decrease in moneyflows, the amount of which depends on the turnover rate of money. Similarly if, under the assumed conditions, money is added to the circulation, say by a favorable balance of trade or the discovery of a small deposit of gold, it may seem reasonable to infer that the increase in the quantity of money will cause a corresponding increase in moneyflows.

Our analysis of the short term cushioning function of cash balances thus indicates that a plausible case can be made for the proposition that cyclical changes in cash balances cause cyclical changes in moneyflows in an economy where the conditions just assumed are approximated. But certainly such conditions did not prevail in the United States during the period under review. It is difficult, if not impossible, to identify a clear natural fiscal period for most transactors. Moreover, it seems safe to say that the cash balances of most transactors were materially above the minimum of subsistence level, were even on a high standard of living level. Under these conditions it is not easy to imagine circumstances that would confine the variations in loanfund balances to the short term (within the year) part of the cushioning function. This is so, if for no other reason, because it is so hard to draw a precise line between active cash and cash substitutes on the one hand and idle cash and cash substitutes on the other. Further, the principal method



by which the cash balances of nonbank transactors are increased or decreased is by an exchange of loans and securities for deposits and currency between them and banks. This operation does not, of itself, affect their total net loanfund balances, and there is no reason to assume that, by itself, it necessarily affects moneyflows. Evidently there is a great difference between the way the money circuit may be supposed to operate in a natural fiscal period, mere gold coin economy such as we have been imagining (or in a country that approximates these conditions) and the way the money circuit operates in the United States today.

If we reject the hydraulic forms of the quantity theory, the question naturally arises, How much of the quantity theory remains? What kind of an account can it give of the process of cyclical expansion and contraction of moneyflows when purged of hydraulic implications? Presumably such an account runs in terms of the equation of exchange. To rule out the hydraulic connotation of velocity that attaches to the symbol  $V$ , let us substitute the colorless symbol  $\beta$  for it. And to avoid the needlessly restrictive implications of  $PT$ , let us use instead  $F$  as a symbol for moneyflows. The equation becomes:  $F = \beta M$ , where  $M$  presumably means the cash balances of nonbank transactors.

We venture to indicate the kind of answer this approach suggests.

- 1)  $F$  and  $M$  are empirical economic variables. They are bound together by a habit pattern that can be expressed as an equation — possibly one of the above form.
- 2)  $\beta$  is not a separately measurable empirical variable. It is a parameter and should (if this quantity hypothesis is to be useful) be some function of time. It should be predictable, but it need not be controllable.
- 3)  $M$  can be controlled.  $F$  can be predicted and controlled through  $M$ .

In this nonhydraulic form the quantity theory becomes the hypothesis that  $\beta$  behaves in a known, predetermined way, so that  $F$  can be controlled through  $M$ . If such an hypothesis is to be investigated empirically, four types of control over  $F$  (moneyflows) must be distinguished: (a) control over the secular trend; (b) control over sporadic variations; (c) control over the seasonal pattern; (d) control over cyclical fluctuations. In the first two senses of control this hypothesis does not at present lend itself to statistical investigation. A good deal can be done to probe the seasonal patterns.<sup>24</sup> But we believe the major interest is likely to be in cyclical fluctuations. Assuming that this quantity of money hypothesis refers to cyclical fluctuations we suggest three conditions that a statistical investigation of it should meet.

- 1) It is obviously necessary to discover the pattern of  $\beta$ 's behavior. The equation of exchange has sometimes been called a truism. But if it is to be investigated along the above lines, it is not a truism but an habit pattern. And  $\beta$  cannot be defined as it often has been:  $\beta = F/M$ . The value of  $\beta$  for any period must be known independently of both  $F$  and  $M$  for that period. Nor can one, adopting an independent hypothesis for  $\beta$  as Lutz did for one

<sup>24</sup> Cf. the writer's findings that "so far as present information goes, the seasonal variation of  $PT + R$  shows a lead over  $MV$ ", 43 *Quarterly Journal of Economics* 661.

sector, limit  $M$  to active cash balances defined as  $M = F/\beta$ . In conjunction with the social accounting approach we think this a promising line of inquiry. But for purposes of an answer to our central theoretical question it reduces the equation of exchange to a tautology. If cyclical fluctuations in moneyflows,  $F$ , are to be explained by fluctuations in the quantity of money,  $M$ , both  $M$  and  $F$  must be variables that are empirically determinable independently of  $\beta$ .

All this suggests (a) that one should express  $\beta$  as some analytical function of time and one or more constant parameters,  $A_1, A_2$ , etc., and (b) that one should then find the values of  $A_1$ , etc., which yield a best fit to the observed values of  $M$  and  $F$ . A best fit (with not too many  $A$ 's) will presumably be an imperfect fit. As an habit pattern we might rewrite the equation of exchange thus:

$$F(t) = \beta(t) \cdot M(t) + \mathcal{E}(t)$$

where  $\mathcal{E}(t)$  is the error of estimate of  $F$  for fiscal period  $t$ . Needless to say this best fit will be a best fit only for a limited set of observations. As a prediction formula it will be subject to the usual hazards.  $\mathcal{E}(t)$  may become excessively large if one tries to extrapolate.

2) If the behavior of  $\beta$  is to be independent of the cyclical fluctuations in  $M$  and  $F$ , it seems clear that it must not be cyclically correlated with either. And if  $M$  is to explain fully the cyclical fluctuations in  $F$ , there must be no cyclical variation in the  $\mathcal{E}$ 's. But one must surely admit the possibility that the cyclical patterns of  $M$  and  $F$  may differ. If so the  $F(t) = \beta(t) \cdot M(t)$  formula is too simple. One must substitute  $\phi(M, t)$  for  $\beta(t) \cdot M(t)$ . And  $\phi$  must be so constructed as to have substantially the same cyclical pattern as  $F$ .

3) When one construes the equation of exchange as an habit pattern (rather than a definitional) equation — it is necessary to do this and to take  $M$  as the sole exogenous variable, if one is to explain the cyclical fluctuations of  $F$  in terms of  $M$  — it can fairly be expected that the formula chosen and the parameters selected will give a plausible fit. But this is not enough. An habit pattern equation, to be convincing, must outstrip its competitors — other definitions of  $F$  or  $M$ , other formulas, and other fits, including formulas that use other exogenous variables. In the present instance this requirement has special force.  $M$  can be variously defined. On most current definitions it cannot be controlled directly. Let us assume that  $M$  can be controlled — or at any rate influenced — through some other variable  $R$ .  $R$  might conceivably stand for total Federal Reserve credit, or for some computation of the average yield on Federal government obligations, or for some function of these two and still other variables. But however  $R$  is defined it would seem essential to establish that  $R$  exerts its influence on  $F$  through  $M$ , not directly on  $F$ .

When  $F = \beta M$  is conceived as an habit pattern it appears that there is fair agreement on the form of the function — or at least the form to try as a starter — but a good deal of room left for disagreement on its content. There is need for a consensus on questions such as these: How predict  $\beta$ ? Is  $F$  an annual figure? Is it a debit? Is it on an accrual, a moneyflows, or a settlements basis? Should financial turnover and money-changer transac-

tions be excluded from  $F$ ? Is  $M$  confined to currency and demand deposits? Is it an opening balance? Or is there a lag? What transactor groups are excluded from  $M$  and  $F$ ? (Do both exclude the banking sector? the rest of the world?)

It may well be that some form of equation of exchange habit pattern approach can shed new light on cyclical fluctuations in main circuit money-flows. We raise all these questions not to cast doubt on this possibility but to show that at present this approach provides us merely the potential form of answer to the central theoretical question we posed, not yet a significant answer in fact.

We have stated this answer in terms of the highest level of aggregateness — the whole economy (or all of it except banks and U. S. monetary funds and possibly the rest of the world) is viewed as a single sector. Many economists now believe we can get a more illuminating view if we go below this level to, or at least part way toward, the eleven-sector basis outlined in Chapter 3. And if  $F = \beta M$  is an habit pattern, this seems clearly indicated. But below this highly aggregative level it seems unlikely that many will seek to explain the ordinary expenditures of any sector in terms of the sector cash balance as the sole independent variable.