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Chapter 11

The Quantitative Functions of Money

Thus if a guinea be the weekly pension of a particular person, he can in the course of the week purchase with it a certain quantity of subsistence, conveniences, and amusement. In proportion as this quantity is great or small, so are his real riches, his real weekly revenue. . . . If the pension of such a person was paid to him, not in gold, but in a weekly bill for a guinea, his revenue surely would not so properly consist in the piece of paper, as in what he could get for it. A guinea may be considered as a bill for a certain quantity of necessaries and conveniences upon all the tradesmen in the neighborhood. The revenue of the person to whom it is paid does not so properly consist in the piece of gold, as in what he can get for it, or in what he can exchange it for. If it could be exchanged for nothing, it would, like a bill upon a bankrupt, be of no more value than the most useless piece of paper. Adam Smith, *The Wealth of Nations,* Book II, Chapter II.

Mill found in this passage support for his version of the quantity theory. Since Smith was not a good quantity theorist, we are skeptical of Mill's interpretation. We see in it a definite suggestion of how money helps to coordinate economic activity, and incidentally a recognition that money is a form of credit.

In this chapter we shall not be directly concerned with the moneyflows estimates presented above. Indeed we shall go somewhat afield. But our purpose is to develop a background for the tentative interpretations of these estimates that are offered in the next two chapters. We propose here to reconsider the functions of money, and incidentally to take up the question, What kinds of discretion do transactors exercise over their moneyflows?

Money is commonly said to have four functions. It serves as a standard of value and as a standard of deferred payments. We may call these two functions nonquantitative. They refer to the existence of money rather than to its quantity, to the fact that valuing many things in terms of money has become a very general practice in an economy. The other two functions commonly attributed to money are that it acts as a medium of exchange and as a storehouse of value. For these two functions the quantity of money is in some sense of the essence of the case. We may call them the quantitative functions of money. In this chapter we shall be largely concerned with these quantitative functions and their implications for transactor discretion.

1 *The Role of Money in Exchange Coordination*

It will help us toward a better understanding of the quantitative functions of money to sketch first our answer to the question, How does our highly specialized and highly complicated economy get along as well as it does without a general economic manager? How do we determine: What each person is to do? What goods and services are to be produced? How our plant, equipment, and natural resources are to be used? Who is to get what? What is to be added to our stock of wealth?

Broadly our answer is, Institutions serve in lieu of a general manager, and one of these institutions is money.

At bottom our system of economic coordination rests on legal foundations: on the law of property, of contract and negotiable instruments, of torts, of bankruptcy, and of association, and on various legal regulations and restraints, including restraints on monopolistic combination and conspiracy, and on products and practices regarded as inimical to public welfare.

Erected on this legal foundation we have a pervasive practice of buying and selling goods and services for money and of producing for sale, a system of prices, a system of moneyflows, and a system of pecuniary incentives. Within the limits imposed by these systems and by their legal foundations, individual transactors make choices, but in large measure their choices are mutually conditioning. The adjustments of these mutually conditioning choices determine what is to be produced, who is to do what, who is to get what, etc. There is also a legally fostered institution of competition which helps to regulate what is sold and the terms of sale by determining the ways in which the decisions of individual transactors mutually condition one another.

But we must not suppose that the mutually conditioning choices that are made during any period such as a year or less alone determine the allocation of resources during that period, the amount and nature of what is to be produced in it, and who gets what. Each period necessarily inherits the cumulative results of the mutual conditioning of choices during preceding periods. The adjustment of choices during any limited period is not a process of adjustment *de novo;*[1] it is a process of readjustment of and to what has gone before. It starts with an established scheme

[1] Probably no one has taken this process to be strictly *de novo*. But as we see it classical and neoclassical equilibrium theory has often too closely approached such a view. This is part of what has been meant by calling such theory static. And the development of a more dynamic approach that has long been in process has meant in part an increasing recognition of the ways in which the adjustment in each period is conditioned by what has preceded.

of personal relationships, with organizations that are going concerns, with trade practices, trade connections, etc. And, what is of more immediate concern, it starts with a set of expectations regarding business prospects, with a set of ownerships and outstanding obligations that can be summarized in balance sheets, and with an existing volume and composition of moneyflows to be modified.

The system of moneyflows, i.e., the complex made up of all the various outflows and inflows of all the various transactors we have summarized in the main circuit moneyflows accounts, plays an important role in the pecuniary institutional coordination of economic activity. Each transactor has some discretion to readjust his previous sources of money, although for many this discretion is rather limited. Each transactor has also somewhat more discretion to readjust his previous dispositions of money. But the system of moneyflows imposes two pervasive restrictions: The moneyflows account of each transactor must always be in balance. And there must be another party to each moneyflow transaction, in most cases a party that wittingly concurs in entering into it.

With some exceptions, our economy requires each household to contribute labor or the services of its property to help in producing the gross national product, if the household is to have a share of that product. This requirement is imposed through the system of moneyflows. Each household must make both ends meet. The household moneyflows account must balance. Again, subject to various qualifications, our economy imposes on each business a requirement that its contribution to the gross national product measured in terms of the dollars it is able to get for it should cover its dollar cost (including a reasonable return to the proprietors). This requirement too takes the form that the moneyflows account must balance.

Inevitably such an institutional arrangement for inducing cooperation has its imperfections. Indeed it offers transactors an ever present inducement to find new ways to add to their moneyflows score without really cooperating. Certainly making goods has not always been the only way to make money. The problem of loopholes in the institutional scheme for coordinating economic activity and how to plug them is an important one, and is likely to continue to be so. But this problem is not our present concern.

We are concerned with the necessity that each transactor's moneyflows account must balance and the part it plays in the pecuniary institutional coordination of economic activity. Clearly this necessity implies some arrangement for keeping track of moneyflows. How are moneyflows kept track of?

Our answer is that money — aided in some degree by money substitutes — keeps track of moneyflows. In various times and places this function has been performed in large part by coined precious metals. Gold coin can keep the score of moneyflows much as poker chips keep the score in a game of poker. Those who are doing well for themselves (and — we speak less certainly here — are giving others their money's worth) get in the chips; those who are not holding their own get out of chips. We see in the passage cited from *The Wealth of Nations* a clear suggestion that money serves to keep the score of moneyflows.

It would carry us too far afield to attempt here to determine, in an historical sense, the role played by the system of moneyflows and other pecuniary institutions in an economy that relies largely on precious metals (or other tangible property) to keep the score of moneyflows. We can only surmise that such a situation ordinarily occurs when the role pecuniary institutions play in organizing economic activity is distinctly minor, and possibly of much more consequence between communities than within any one of them.

Once pecuniary institutions assume a central place in coordinating economic activity within a community, transactors are likely to perceive that it is not necessary to play the game exclusively with golden chips. Various forms of token coin appear. And there may be a gradual development of a law of negotiable instruments and of a practice of using such instruments to help keep the score of moneyflows. Token coin and paper serve just as well, as long as they are convertible into golden chips. And they are much cheaper.

As the system of moneyflows has come to assume a dominant role — along with the system of prices and other pecuniary institutions — in the institutional coordination of economic activity, it has been discovered that the function of keeping the score of moneyflows can be performed not only by gold, subsidiary coin, and specialized variants of negotiable instruments but also in other ways. One of them is by keeping accounts. In our present economy bank records of debits and credits to individual (and Federal) deposit accounts have taken over a major portion of the scorekeeping function of money. And a minor additional part has been taken over by the records of other transactors (book credit and the nonbank transactor accounts that record offset settlements).

Nor is this the end of the matter. Adding to one's money circuit score for the most part means in the first instance adding to one's cash balance, to the coin and paper currency one has on hand or to one's bank account. But this is not the only form in which a transactor can keep his score. As we have already noted or implied at various points, especially in

Chapter 8, each transactor in our economy has discretion — within limits — to convert cash into loans and securities or to use his cash balance to pay off debts. And conversely, of course, he can convert loans and securities into cash, or, so far as his credit standing permits, borrow to add to his cash balance.

From these considerations two significant propositions follow:

First, each transactor has discretion over the composition of his net loanfund balance. We have not yet fully specified the nature and limits of this discretion, but it is one of the two broad types of discretion a transactor has over his moneyflows account to which we will give special attention.

Second, this discretion makes it clear that various loanfund balances help to perform the scorekeeping function for the money circuit, including the receivables we call Federal obligations and other loans and securities, and the Federal debt and the accounts that we have called other debts payable and corporate paid-in capital.

We have been discussing the scorekeeping function in the system of moneyflows. Although other loanfund balances participate in it, we regard this function as a monetary one, and clearly it is of a quantitative nature. The quantities receivable and payable are of the essence of the case. But we set out to consider the quantitative functions of money, the medium of exchange function and the value storage function. What is the relation between these and keeping the score of moneyflows?

First we may note that what we have said implies a close connection between scorekeeping and value storage. When a transactor adds to his moneyflows score, his store of value increases *pari passu;* when his score goes down, he draws on his store of value *pari passu.* This statement makes the connection so close that the reader is bound to ask, Aren't value storage and scorekeeping just two different names for the same function? The answer is, Yes, so far as our present economic organization in this country is concerned. From the point of view of the individual transactor we may call it value storage. Looking at the economy as a whole — and having in mind the problem of coordinating economic activity — we may call it scorekeeping.

But a qualification attaches to this identification. Value storage can theoretically occur — and surely has in fact occurred — in societies not organized into economies by a system of moneyflows and other pecuniary institutions. Presumably the practice of using certain forms of tangible property as storehouses of value developed independently of and before the pecuniary institutional coordination of economic activity became of material consequence within any economy. We need not stop to inquire

to what extent this value storing practice may, here and there, have grown up as a method of keeping score in an intereconomy game of barter, piracy, and trade. But we do wish to deny that our money economy could have evolved from a premoney (barter) society with all the institutions of pecuniary coordination except money itself. To assume such a society is to perpetrate an anachronism.

We suggest instead that a pre-existing practice of accumulating treasures may well have been a condition favorable to the development of a system of pecuniary institutional coordination, since such a practice could provide the means to perform the necessary scorekeeping function for incipient moneyflows. If so, we must suppose that the gradual development of pecuniary coordination and the gradual conversion of the value storage function into the scorekeeping function were simultaneous not successive processes.

If we are right in these quasi-historical speculations there is still one question relating to the scorekeeping, value storage function we ought sooner or later to face: In our present economy is this function performed exclusively by loanfund balances, and, if not, does this mean our moneyflows accounts are not properly set up? The answer to the first part of this question is clearly that some part of the value storage function is still performed by jewelry and various other tangibles, although we believe this part to be a small one, and particularly small for transactors other than households. Now our moneyflows accounts treat all loanfund balances as stores of value. They do not treat any assets except loanfunds in this way. On the whole this seems to us the most reasonable procedure. While most loanfund balances other than cash have a twofold significance in the moneyflows accounts — they perform part of the storehouse of value function and they involve interest (or dividends) as a source or disposition of money — the interest involved appears separately in the accounts. But in the case of the use of jewelry (or other tangibles) as a storehouse of value there is a twofold significance that cannot so readily be handled in this way. It is difficult to draw a clear line between those transactions that serve the value storage purpose and those that do not. When we include transactions in jewelry and other durables that still sometimes serve the value storage purpose in the moneyflows accounts, we do not attempt to apportion their volume by such purpose. We shall take up in Chapter 13 the question whether the failure to identify these tangibles as storehouses of value has materially influenced our conclusions.

2 *What is an Active Cash Balance?*

Let us turn next to the question: What is the nature of the medium of exchange function? Or, What is the nature of 'money work'? At first glance its nature seems so obviously just the settlement of accounts that it has too seldom been subjected to careful examination. But in a penetrating inquiry into the determinants of what he calls "circular velocity" Angell makes such an examination.[2] In the portion of his paper here referred to he is avowedly concerned with active balances, not with all money in the hands of the public (that is, he excludes hoards); consequently, this portion of his velocity analysis is in effect also an analysis of the medium of exchange function.

Angell apparently conceives this function as having to do not with all cash transactions but with a total not widely different from main circuit transactions as we have defined them.[3] We may designate the transactions he includes as his 'main circuit transactions'. He reasons that with a given level of net national product and a given price situation the time-shape of a transactor's total 'main circuit' money inflows and the time-shape of his 'main circuit' money outflows are determined by the organization and payment habits of the economy.[4] Under the heading of organization and payment habits he includes:

a) "Intervals between successive payments" (for example, wages may be paid weekly or half monthly);
b) The "relative timing, of the several payments schedules", or the way they "overlap";
c) "The delay or friction involved in the operation of the payment-transfer mechanism" (the mail float may be regarded as a result of this aspect of payment habits);
d) The forms of business organization or degree of vertical integration.

Angell argues that organization and payment habits have a high degree of stability.[5] Becaues the time-shapes of the 'main circuit' gross inflow and gross outflow are determined by organization and payment habits, the time-shape of net inflow or outflow each week and each day, perhaps each hour and each minute, is also determined.

The fluctuations in the amount by which the 'main circuit' money inflow exceeds the 'main circuit' outflow are said to determine changes in the active cash balance of a transactor; thus the time-shape of the

[2] James W. Angell, 51 *Quarterly Journal of Economics,* especially pp. 226-51.

[3] He specifically excludes most technical transactions and also net payments for real estate transfers. He specifically includes some net loanfund transactions, pp. 225 and 254. See also the quotation in Chapter 2 above.

[4] *Idem,* pp. 243 and 257-8.

[5] *Idem,* p. 241.

active cash balance curve, but not its level, is fixed. Now Angell argues that the active part of a transactor's total cash balance is the part that is needed to compensate the fluctuations in the net 'main circuit' inflow. If we knew his minimum cash balance during a given fiscal period we might (under static conditions for the transactor) regard this amount as being idle during the entire period.[6] In effect this is saying that the active balance or medium of exchange function of money, insofar as it calls for a given quantity of money, is a cushioning function. The active cash balance cushions the discrepancies between the time-shape of money inflows and the time-shape of money outflows, expanding to take up a net inflow and contracting to permit a net outflow.[7]

We must consider two implications of this time-shape of net receipts analysis of the medium of exchange function. One relates to the length of the fiscal period. It poses a basic question regarding the pertinence of the analysis to which we shall need to give attention. The other implication has to do with the type of balance that performs the medium of exchange cushioning function.

First, if the line between an active and an idle balance is drawn by determining the size of the balance at the moment it reaches its minimum during a fiscal period, this line will obviously be drawn in a way that depends on the length of the fiscal period.

Conceivably we might take as a fiscal period one business cycle. Doubtless for many transactors the payment habits of the economy impart a cyclical pattern to Angell's 'main circuit' net money inflow, so that at some stage of the cycle the cash balance reaches a cyclical minimum and at some other stage a cyclical peak. Thus from a cyclical point of view, as well as from the viewpoint of an annual, monthly, weekly, or daily pattern, cash balances perform a cushioning function. Are we

[6] Angell assumes that none of the cash balance is active at the instant the cash balance reaches its minimum. If receipt and payment schedules are viewed ex ante and allowance is made for uncertainty, it would seem that some portion of the balance, even at the instant it reaches its minimum, ought to be regarded as active.

For a similar view of the active cash balance see J. R. Hicks *Value and Capital,* Second Edition, Oxford University Press, 1939, Chapter XIX. Hicks emphasizes the ex ante view and the need for some minimum balance above zero. See also F. A. Lutz's discussion of the 'precautionary motive' in his *Corporate Cash Balances, 1914-43* (National Bureau of Economic Research, 1945), p. 39.

[7] Angell notes that since some cash receipts may be paid out almost as soon as they are received, money as a medium of exchange performs (as far as there is 'coincidence') a kind of offset settlement function. This aspect of the medium of exchange function can, he tells us, be discharged with a negligible cash balance; *op. cit.,* p. 232, note 8. We shall shortly, in discussing the length of the fiscal period, have occasion to criticize this view as true but not the whole truth.

to say then that, if the payment habits of the economy lead a transactor to accumulate a large cash balance when trade is slack, the entire amount by which the cyclical peak of his cash balance exceeds the cyclical trough represents an active balance? We think most economists, including Angell, would say 'no'.

But this is not the end of the matter, for we might take a still longer fiscal period. If the time-shape of net receipts analysis accounts for *changes* in the level of the cash balance, it accounts also, if we take a long enough period (that it, go back to the transactor's beginning), for the level itself. If active balances are defined as balances that perform the cushioning function, we cannot well distinguish active from idle balances, unless we impose a limit on the length of the fiscal period. Further, lengthening the fiscal period changes the subject. We were talking about the medium of exchange function. With a longer fiscal period we find ourselves talking about the storehouse of value function.

The fiscal period Angell has in mind — his 'normal maximum income-expenditure period' — is presumably different for different transactors: it may be the payroll period for many wage earner households, a crop year for wheat and cotton farmers. In general he appears to think of his 'normal maximum income-expenditure period' as lasting 12 months or less. It cannot be as long as a business cycle, for he regards the accumulation of cash during a depression as an accumulation of idle balances.

To us the conclusion to be inferred from Angell's analysis seems clear. Active balances perform a cushioning function, but so do idle balances. The cushioning function is the value storage function. The line between the cushioning or value storage function performed by active balances and that performed by idle balances must be drawn in terms of the length of the fiscal period. The fiscal period to be used for defining active cash balances should presumably be somewhat shorter than one business cycle. We propose that it be defined in terms of an annual fiscal period. Therefore we assign to active balances the function of cushioning the seasonal, daily, and other within-the-year discrepancies between receipts and expenditures. And there is precedent in existing usage for including also in this short term value storage function any provision that is felt *ex ante* to be necessary for cushioning the discrepancies that arise from sporadic variations in receipts and expenditures. This means that the longer term value storage function we assign to idle cash balances has to do with discrepancies of a cyclical or secular character.

So much for the need to specify the length of the fiscal period. But the reader may well ask at this point, what has become of the medium

of exchange function of money? We have approached the questions posed at the beginning of this section on three assumptions: (1) That the medium of exchange function is a quantitative function; (2) that the performance of this quantitative function is appropriately designated doing money work; and (3) that it is active cash balances that do money work. In the light of our comments on the time-shape of net receipts analysis we see no reason to modify the second and third of these assumptions. We believe it is useful to define money work as the cushioning of short-time variations in the time-shape of cumulative net receipts and to define active balances as balances that do such money work. But we propose a restatement of the first assumption as follows: The medium of exchange function is really two functions in one — the short term cushioning function of which we have been speaking and the debt settlement or legal tender function. The former is quantitative in nature; the latter nonquantitative in somewhat the same sense as the standard of value function. The two are complementary. Angell seems to have had the dual nature of the medium of exchange function clearly in mind in the footnote passage just cited.[7] He tells us that under some circumstances the legal tender function can be performed with a very small (positive) balance — the circumstances he has in mind are those in which the quantitative requirement for the complementary short term cushioning function is negligible. Our objection to this statement of the case is that he does not go far enough. The properties of a specified type of loanfund balance that make it uniquely able to perform the debt settlement function — to be generally acceptable — are not necessarily quantitative. They are matters of law and custom. We can rephrase Angell's point by saying that the debt settlement function in theory can be — and, as we shall point out in Chapter 13, it currently is — performed by a negative as well as by a positive balance.

The need to specify the fiscal period is our first implication point with respect to the cushioning function view of money work. Our second point is that, given the fiscal period, we have an explanation of the turnover of some kind of active balance — an explanation that is scientifically satisfying in the sense that it suggests a possible line of empirical investigation in terms of the amplitude of variation within the period — but it is not necessarily an active *cash* balance whose turnover is explained. Obviously if we use the difference between the receipts and the payments involved in a certain class of transactions to explain changes in an active balance, the balance we so explain depends on the class of transactions we select. Thus if we apply the time-shape-of-net-receipts analysis to our category, total ordinary transactions, we uniquely

define the time-shape of variations in a balance. But this balance is not the cash balance; it is the balance of net loanfunds receivable (a balance that for some transactors is typically negative).

This point is not an objection to excluding what Angell calls "whirlpools at the side of the main flow" in determining money work. As we saw in Chapter 10, it is awkward to count the cash disbursements involved in budget borrowing as money work. We believe that it is advisable to use ordinary receipts and ordinary expenditures — at least as a first approximation — in the time-shape-of-net-receipts analysis, and that it is advisable to recognize that other balances (e.g., indebtedness to banks) in some degree help to perform the short term cushioning function.

Lutz in his *Corporate Cash Balances, 1914-43* supports the view that other balances help do money work, although he includes various financial dispositions of money in what he calls "cash payments". He adopts Angell's idea that money work consists in cushioning the discrepancies in the time-shapes of receipts and payments, but he has given this type of analysis a formulation more amenable to empirical investigation.[8] He focuses his attention on the ratio of the average closing cash balance (conceivably but not actually in his data observed daily) to "cash payments" (approximately our ordinary expenditures + the increment in loans and securities held + the decrement in current liabilities + retirement of long term debt and stock).[9] He tells us, "Such a ratio is an index of the work the cash balance does", i.e., of money work. He assumes that the quantity of money required to perform this medium of exchange cushioning function varies roughly in proportion to the volume of "cash payments", i.e., in effect that the amplitude of the seasonal, daily, and other within-the-year variations to be cushioned varies with business volume. He further assumes that "the average ratio of cash to payments" during the "boom period" 1922-29 measures "the amount of cash normally required for the transaction purpose".[10] On these assumptions he divides the year end cash balances into "transaction cash" and "free cash" (he prefers these terms to active and idle balances). The time-shape of his "transaction cash" curve is thus identical

[8] See also Avram Kisselgoff, Liquidity Preference of Large Manufacturing Corporations, 13 *Econometrica* 334-44. Angell tentatively employs (*op. cit.*, p. 262) the technique more fully worked out by Lutz and Kisselgoff described above.

[9] *Op. cit.*, pp. 110-11. The excess of his "cash receipts" over his "cash payments" does not agree with either the increment in the total cash balance or the increment in what he calls "transaction cash".

[10] *Idem*, p. 40. Since his investigation is confined to annual data he is precluded from a more direct approach to the cushioning function.

on a semilog chart with that for "cash payments", and his average "free cash" balance, 1922-29, is taken as zero. This division, though admittedly rough and ready, makes possible a very illuminating interpretation of the behavior of corporate cash balances.

With regard to this interpretation we pause merely to note his emphasis on the cyclical aspect, as far as the behavior of "free cash" is concerned, and his clear recognition of other loanfund balances as money substitutes. With respect to large manufacturing corporations he says: " 'Free' cash in the 'thirties has a definite (inverse) cyclical pattern." "The relatively large amount of bank debt before the depression of 1920-21, in contrast, resulted in practically no accumulation of 'free' cash in 1921." With respect to cash substitutes he says:

"If the lack of coincidence of receipts and expenditures were the only factor determining the size of cash balances, both cash balances and the ratio of cash to payments would fluctuate rather widely, because of seasonal and cyclical influences. However, such fluctuations are largely avoided if the company takes advantage of the existence of a credit market,"[11] either through investment in short term loans and marketable securities or through short term borrowing.

Thus while Lutz assumes that much of the short term cushioning function is performed by the cash balance, he clearly recognizes that other loanfund balances help do money work.

In one area, that of international moneyflows, the loanfund substitutes for money — or rather in this case for gold — have long been recognized. Taussig, speaking of "the influence of dealings in foreign exchange, and the somewhat similar influence of the international movement of securities" says:

"What is important for our purpose is that the general effect is to reduce the flow of gold to the minimum."[12]

As will be recalled, the statement of payments and balances is in the nature of an adaptation of the balance of payments statement for the rest of the world (i.e., an adaptation of this general form of statement to other transactor groups). It is not strange that when we look at intersector moneyflows much as international moneyflows have long been looked at, we are led to conclude (a conclusion long recognized in connection with the balance of payments) that the cushioning functions of money, both longer and short term are in some measure performed by loanfund transactions, i.e., such transactions economize on the quantity

[11] *Idem*, pp. 44, 54, and 38.

[12] F. W. Taussig, *International Trade* (Macmillan, 1927), p. 216.

of money required to do money work or to serve as a longer term storehouse of value.

In Chapter 7 we referred to a number of economists who have been particularly explicit about their conceptions of the sector moneyflows account and who appear to have conceived it as a kind of intersector balance of payments statement, which is to say in technical language that they have thought in terms of a sources and applications of funds statement (rather than a cash account). No doubt some of these economists have had in mind a gross form of statement, one that would include financial turnover transactions. But others have thought something like the degree of netting we have adopted for financial transactions to be appropriate. Angell is emphatic on this point. Lutz spells out his corporate account in detail and it is very similar to Part One of the statement of payments and balances for industrial corporations.

If it be agreed that the active cash function, while performed largely by the cash balance, is to some extent participated in by other loanfund balances, it should be agreed also that we ought in general to regard ordinary receipts and ordinary expenditures as determining the active cash requirement; we cannot properly treat loanfund transactions both as helping to do the job of money work and as being part of the job.[13]

Such assets as short term paper and marketable securities and such liabilities as loans from banks help to perform the short term cushioning function. Loanfunds serve also in somewhat larger degree as substitutes for idle cash. With the information at our disposal, we cannot well determine what portions of these balances are to be regarded as active and what portions idle. We shall not even attempt estimates of active cash balances. Lutz's technique, though highly suggestive, is not satisfactory for revealing year-to-year changes in idle cash. Relating the year end cash balance to the annual volume in a period such as 1936-38 would be distinctly misleading. For such a period there is need for some other device or else for quarterly figures.

But it is convenient to treat some loanfund balances, trade receivables and trade payables, as wholly active. There is no reason to think that these balances participate extensively in the cyclical and secular value storage function; they are closely related to the volume of business

[13] But we should not rule out the possibility that some loanfund transactions (e.g., maturing debts) might, for purposes of a more detailed analysis, be counted as adding to the job to be done. And we should recognize that in applying the time-shape-of-net-receipts analysis to an individual transactor we would probably have to exclude capital outlays for real estate, plant, and equipment in computing the discrepancy between the seasonal patterns of receipts and expenditures.

(ordinary receipts and ordinary expenditures). They help perform the short term cushioning function, and we will argue in Section 3 that they have somewhat the same relation to transactor discretion as does active cash. We propose to treat them as active balances.[14]

Although with annual data the separate identification of active cash balances is difficult, we can make several comments on the behavior of these balances that may be useful.

First, Angell's analysis would lead us to expect that a given dollar volume of ordinary transactions would call for quite different amounts of money work in different kinds of business, and would accordingly require different amounts of active cash. We can gain some light on whether this is so from a kind of business comparison of the year end total cash of corporations with their total compiled receipts. Admittedly such a comparison is open to two serious objections: the year end balances in different industries may be differently related to the annual average balances, and they may include different proportions of idle cash. Further, in such a comparison of cash-to-receipts ratios we must in effect assume that total compiled receipts as reported on the corporate income tax return are a fair index of what we call total ordinary receipts. This is not an entirely accurate assumption, but we believe it involves no material errors in the present connection. In spite of qualifications the wide dispersion among the 1939 ratios of cash to total compiled receipts (in percentage form) seems suggestive.[15] Among the industrial groups toward the lower end of the array are:

Dealers in autos and auto accessories (retail)	1.43%
Filling stations	3.21
Hardware (retail)	3.33
Auto repair service	3.37
Furniture and house furnishing (retail)	3.52
Wholesale trade (of all kinds)	3.55

Toward the upper end of the array are:

Petroleum extraction	13.43%
Public utilities (except transportation and communication)	13.82
Nonmetallic mining	16.78
Forestry	22.26
Metal mining	22.39

[14] On discretionary grounds we might logically classify investments in affiliates as active balances. The discretion a transactor exercises over this portion of his portfolio, like a decision to shift from a credit-and-delivery to a cash-and-carry basis, bears more on the structure of industry and trade than on cyclical and secular changes in the volume of moneyflows and in the level of business activity. Although with existing data we might have attempted an approximate segregation of these investments from the rest of portfolios, it was thought that such segregation would not add materially to the usefulness of the detail here provided for the purposes of the analysis in Chapters 12 and 13.

[15] The ratios are based on *Statistics of Income, 1939,* Part 2, Table 4.

These ratios are at least consistent with the assumption that a given dollar volume of business may call for widely different quantities of money work in different kinds of business.

We qualified this comparison of cash-to-receipts ratio in two chief ways: the ratio of the year end cash balance to the average cash balance may vary from industry to industry, and the proportion of idle cash also may vary. There is another ratio comparison from the same statistical source — a comparison of the cash-to-receipts ratios by size of firm for fairly homogeneous firms — that takes a good deal of the edge off both qualifications and is consequently more significant. As fairly homogeneous groups we select general merchandise retailers and food retailers (Table 38). In both cases there is an apparent systematic increase in the ratio of cash balances to total compiled receipts as the size of the firm increases. The most striking exception is provided by the two general merchandise concerns with assets of over a hundred million.

It is obvious that these ratio comparisons only scratch the surface of the mine of information on cash balances contained on corporate income tax returns. We offer them mainly by way of suggesting further investigation.

When Angell tells us that the active cash balance carried over from one 'normal maximum income-expenditure period' to another must be zero, he is speaking *ex post* and in effect is neglecting the importance of the 'precautionary motive' in connection with sporadic variations in

Table 38

Ratio of Year End Cash to Total Compiled Receipts by Size of Firm, 1939; General Merchandise and Food Retailers

Total Assets ($000)	DEPARTMENT STORES & GENERAL MERCHANDISE DRY GOODS RETAILERS		FOOD RETAILERS	
	Ratio: Cash to Compiled Receipts, % (1)	No. of Returns (2)	Ratio: Cash to Compiled Receipts, % (3)	No. of Returns (4)
1- 50	3.76	3,057	1.59	4,055
50- 100	3.96	840	1.87	417
100- 250	3.78	720	1.95	276
250- 500	4.57	280	2.57	154
500- 1,000	3.72	183	2.86	98
1,000- 5,000	4.30	209	3.17	93
5,000- 10,000	4.93	36	4.68	10
10,000- 50,000	4.16	29	3.42	12
50,000-100,000	5.89	6	5.12	1
Over 100,000	2.15	2	5.45	1

Source: *Statistics of Income, 1939,* Part 2, Table 6.

moneyflows. Moreover, we incline to class balances held in order to comply with bank requirements as active. It seems extremely doubtful that active cash should be thought of as going to zero at least once a year. We can characterize Angell's theory of active cash balances only as a minimum of subsistence theory. And we would be at a loss to interpret Table 38 except on a standard of living theory of active balances.

The smaller firms play it close to the margin, but as firms get larger they are able — and in 1939 found it advisable — to live on a more comfortable active cash basis. Consequently we see no marked suggestion of economy in the cash balance with increasing size until firms get very large, and quite possibly even the 2.15 percent ratio for the two large firms in column 1 reflects a marked difference in type of operation rather than economy with size.

We have commented — although not adequately — on two aspects of the behavior of the ratio of active cash balances to total compiled receipts, the probable wide variation in this ratio from industry to industry, and its apparently systematic variation with size of firm. It remains to comment briefly on the behavior of this ratio for a given group of firms from time to time. This takes us into the subject of the next section.

3 *Active Balances and Transactor Discretion*

In Section 1 we identified one important type of discretion a transactor has over his moneyflows account, discretion over the composition of his loanfund balance. In Chapter 8 we suggested another. Most transactors have more discretion over their ordinary expenditures than over their ordinary receipts. They need not spend just what they receive — so far as ordinary transactions are concerned. They can, to a greater or less extent, step up expenditures more than receipts can be counted on to increase by drawing down their loanfund balances. They may even be able to spend more when receipts are declining. Also many transactors can so sharply curtail expenditures that — despite any decreases that may take place in receipts — their loanfund balances will accumulate. No doubt a great many transactors will prefer as a rule to pursue a course that lies between these extremes. When their ordinary receipts are increasing they will increase expenditures but more slowly. When their ordinary receipts are declining, they will curtail but not drastically enough to accumulate funds.

But the language we have used is language that is too general accurately to specify this discretion to dishoard loanfund balances and spend more or to stint and hoard. When we spoke of ordinary receipts and

expenditures we should have said ordinary receipts and expenditures after the elimination of seasonal and other regular within-the-year variations and sporadic variations. As we noted in the previous section by and large the within-the-year patterns of ordinary transactions are imposed on the individual transactor by the payment habits of the community. And sporadic variations lie for the most part outside the scope of a transactor's discretion. The type of discretion just described is pretty much discretion over cyclical plus secular variations in ordinary expenditures.

This is the ordinary transactions side of the story. It has a loanfund counterpart. We have been at some pains to elaborate the distinction between active and idle balances. This distinction we can now take to be essentially one between the cash and related balances over which the individual transactor has relatively little discretion and those over which his discretion is substantial. Active balances are balances that actively impose themselves upon the transactor who holds them;[16] the transactor has relatively little discretion over their size. Idle balances are passive in that the transactor has a substantial measure of discretion over them.

Over a portion of his financial moneyflow — of the money he obtains through financing or advances or returns to others — a transactor has little discretion except insofar as he can decide the scale or the character of his operations or decide to go out of business. Over another portion of his financial moneyflow he has a good deal of discretion. As the general level of business activity rises during an expansion, the trade receivables and trade payables of an individual business and its requirement for active cash increase. Its net advance of money on account of these increases is a kind of forced saving. This involuntary outflow of its funds may continue into the early stages of a recession. Later, as its trade receivables, trade payables, and active cash all decrease with the declining general level of activity, it enjoys a net involuntary source of money. The active balance portion of financial moneyflows is in large measure imposed on transactors by the payment habits of the economy. But over changes in the rest of their loanfund balances — their idle funds — some transactors have a wide range of discretion.

The exercise of this discretion over idle funds is merely another aspect of the transactor's exercise of discretion over the volume of his ordinary expenditures.

Both the type of discretion we have just been discussing and the type we singled out in Section 1 for special attention affect the loanfund accounts. In general the latter affects the composition but not the size

[16] With respect to cash balances compare Angell, *op. cit.*, p. 259.

of the net loanfund balance. The choice between stinting plus hoarding and dishoarding plus forward buying affects the size of the net loanfund balance.

Neither type of discretion is absolute. In both cases we must recognize that the decisions of various transactors are mutually conditioning. The range of choice open to any transactor is limited by the choices others are making. But we may defer to the following chapters consideration of the complications to which this mutual conditioning gives rise.

We have singled out these two types of transactor discretion for examination because it is essential to see how they affect moneyflows if we are to understand the way cyclical expansions and contractions of moneyflows come about. Transactors exercise, of course, another and very important type of discretion: discretion with respect to the detailed composition of their moneyflows and to the other transactors with whom they do business. Since this type of discretion has been extensively considered elsewhere and is not directly pertinent to an understanding of the cyclical fluctuations in total main circuit moneyflows, we shall not attempt to examine it here. We shall pass over also a part of the discretion a transactor has over the composition of his loanfund balance, viz., discretion over the form in which he holds his cash. Although this type of discretion has doubtless been important at times when our monetary and banking system was not functioning properly, we believe we can afford to neglect it during the seven years under consideration.

In moneyflows the questions, Where does discretion lie? and Where does causation lie? are closely intertwined. It is natural to suppose that what we have said about discretion and about the lack of transactors' discretion over cyclical variations in their active balances has implications for causation. Does it? For example, if the time-shape of the cumulative within-the-year discrepancy between ordinary receipts and ordinary expenditures determines the active balance of cash and cash substitutes required to conduct business, does this imply any commitment on the question whether changes in active cash balances cause changes in the volume of moneyflows or moneyflows changes cause changes in active cash balances? The answer is, Yes, but we can only indicate a minor part of the nature of the implication at this point.

We have purposely stated this question, as it has often been stated by others, without specifying what sort of changes we mean. When the question is put in this general way we must conclude that there is a causal implication in the theory of active cash balances elaborated in Section 2. There are marked daily, seasonal, and other within-the-year

patterns in moneyflows. This theory clearly implies that changes in the within-the-year patterns of moneyflows can cause changes in active cash balances. It implies also that we could not expect to bring about, say, an increase in moneyflows on Sundays by week-end increases in the total cash balances of nonbank transactors.

Though they have often failed to say so, those who hold that changes in cash balances cause changes in moneyflows have ordinarily had in mind, we believe, changes from which seasonal and other within-the-year variations and sporadic variations have been eliminated. Indeed we believe most economists will agree that, so far as seasonal and other within-the-year patterns go, causation runs from moneyflows to cash balances rather than the other way around.

When the question of causation is restricted to cyclical variations and secular changes, does the theory of active cash balances elaborated in Section 2 have any implications for the answer? To this our reply is, Yes, but these implications are more complicated. We shall attempt to pursue them in the next two chapters.