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COMMERCIAL BANK LIQUIDITY BEHAVIOR DURING THE 1954-1958 BUSINESS CYCLE

by

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INTRODUCTION

Due to the rather unique character of commercial banking as a business, with a very large proportion of liabilities payable on demand, the necessity of maintaining an adequate level of liquidity assumes more importance in banking than in other types of businesses. The obligation which a bank must be prepared to meet above all else is that of depositors' claims for withdrawal of their funds whenever they choose. A bank may temporarily refuse worthwhile requests for credit, or fail occasionally to earn a normal return for its stockholders and still remain in business with the expectation that the situation will improve. But once it finds itself unable to raise the funds with which to meet its depositors' claims for payment, it is liable to face extinction as a business enterprise.

Since a bank must maintain a certain level of liquidity for the normal operation of its business, the size of its holdings of liquid assets in relation to liabilities can act as an important restraint on lending. This suggests that, if an objective of monetary policy is to influence the rate of loan expansion, the objective might be accomplished by establishing some measure of control over bank liquidity.

The basis of bank liquidity at the present time is United States Government debt held in bank securities portfolios, since

these assets can be liquidated rapidly with more certainty regarding their probable market price than almost any other type of asset. Adjustments in holdings of these securities are therefore the principal means available to banks of carrying out changes in their liquidity positions, and the ability of the monetary authorities to induce or inhibit adjustments in bank securities portfolios becomes a major component of monetary control.

Since liquidity is such an important consideration to a bank in decisions pertaining to the employment of its funds in competing uses, a study of bank liquidity policy, and the manner in which the banking system reacts to changes in liquidity during the course of a typical business cycle, should give some insight into possible means of control over banking actions.

In this thesis, such a study will be made of the business cycle which began in late 1954 and ended in early 1958. In the first part of the study, some differing concepts of the basis of bank liquidity will be reviewed, and some of the more important factors which can affect bank liquidity will be discussed. In the main part of the study, the manner in which the banking system carried out portfolio adjustments during the 1954-1958 business cycle will be analyzed, and alternative explanations of bank behavior during this period will be considered. In the last section, conclusions arising from this study regarding ways in which monetary policy could be made more effective will be attempted.

CHAPTER I

CONCEPTS OF LIQUIDITY

Liquidity of Assets

The liquidity of an asset is a somewhat abstract property, but one on which practically all writers are in agreement; the real controversy arises as to the specific types of assets which best furnish liquidity. When applied to an asset, the term liquidity refers to the extent to which the asset approaches equivalence to cash, with the degree of liquidity being a subjective estimate on the part of the holder of the asset of this equivalence to cash. Liquidity therefore entails both a time and a price dimension. On the one hand, the degree of liquidity of an asset refers to the relative ease of effecting a quick exchange of the asset into money, with the important factor in this facet of liquidity being the period of time in which the exchange can be effected. The degree of liquidity is inversely related to the time period in which a "reasonable" price can be realized, that is, the more quickly the asset can be converted into money, the more liquid it is.[1]

The other facet of liquidity involves the price dimension,

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[1]Courtney C. Brown, Liquidity and Instability (New York: Columbia University Press, 1940), p. 3.

and is measured by the ability to exchange the asset into money at a specific price. The price term of liquidity refers to the spread between the low and high price which the holder may expect to receive for the asset, with a smaller spread associated with greater liquidity. In other words, the price term refers to the holders' estimate of the probable dispersion around a mean price. The liquidity of an asset therefore has nothing to do with the existing price of the asset, but rather with the prospects for future price fluctuations.[1] Even though the price of an asset changes suddenly, its liquidity is not changed except to the extent that the price change generates expectations of further fluctuations in the future. That this is the case can be seen by considering a person holding an asset which has historically had a very stable price, and is therefore thought to be highly liquid. Let the asset be some foreign currency, say British pounds, whose price has in the past been extremely stable in terms of the holder's own currency, say dollars. From past experience, the holder knows that pounds have fluctuated within a very narrow price range in terms of dollars. He therefore expects with a high degree of certainty to be able to exchange his pounds for dollars at a price within this very narrow range in the future, and his pound holdings can be said to be highly liquid. Assume now that the British government devalues the pound, at the same time giving an ironclad

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[1] Ibid., p. 8.

guarantee that the pound will maintain its new, lower value. If the holder of pounds believes the assurances that, in the future, the pound will fluctuate in price within a range no wider than that experienced in the past, he is clearly as able to expect to obtain some specified price for his pound holdings in the future as he was in the past, even though the new price is lower, and the total dollar value of his pound holdings is now less than it was previously. The liquidity of pounds has therefore not been changed by the decrease in price.

It should be noted that the liquidity of an asset is not an unvarying property, but one that can change over time. Factors which may operate to change the liquidity of a given asset are changes in the market for the asset which may make it more or less marketable, changes in the credit rating of the issuer, and the mere passage of time, which tends to make an asset more liquid as its maturity date approaches.[1]

Liquidity of Banks

Even though changes in the price of an asset do not necessarily influence its liquidity, they do affect the liquidity of the holder. The reason is that the liquidity of a person or institution must be measured in relation to the probable need of obtaining cash. The liquidity of a bank, then, refers to the ability to exchange its

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[1]Federal Reserve Bank of New York, "Recent Developments in Bank Liquidity," Monthly Review, XLIII (November, 1961), p. 187.

assets for money fast enough to meet the demands on it for payment,[1] and a bank is said to be in a liquid position if it has a high proportion of cash and liquid assets.[2]

Although the properties possessed by liquid assets are fairly well agreed upon, the question of which specific assets[3] furnish liquidity, and consequently, which assets an institution should hold to be considered liquid, has aroused considerable disagreement. Probably the oldest theory is the one held by the qualitative or commercial credit school, which furnished the basis for most banking theory during the earlier history of banking, and which held that an asset possesses liquidity according to the purpose and use of the credit transaction upon which it is based. Later, it was held that any asset was liquid so long as there existed a ready market for it, and could therefore be shifted to another holder within a short period of time at a fairly definite price. Still later, writers of the quantitative school pointed out that, although a single asset could indeed be said to be liquid by virtue of being "shiftable," the total of all assets could not be liquid in this manner, unless some

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[1]Lester V. Chandler, The Economics of Money and Banking (New York: Harper and Brothers, 1948), p. 196.

[2]Charles R. Whittlesey, Principles and Practices of Money and Banking (New York: The Macmillan Company, 1948), p. 156.

[3]Unless otherwise stated, the term "asset" will be used to indicate an asset in the form of a claim to future repayment, or a claim to future wealth, as opposed to real assets, such as goods or real estate.

outside agency stood willing to accept the assets at a specified price.

The volume of literature relating to these various theories, dating back to the controversy between the currency and banking schools in England around the middle of the nineteenth century, is much too large to permit any sort of comprehensive review in this thesis. However, all the main points of view are represented by writings published since 1900, so by way of review, the next section will attempt to summarize briefly the main ideas of these later writers, and to outline the development of the position which is widely accepted, at least in practice, at the present time.

The Qualitative or Commercial-Loan Theory

Before the development of central banking and the modern system of communication between members of the banking system, each bank was a comparatively isolated unit, with little access to the reserves of the whole system. Each bank was therefore almost entirely responsible for its own liquidity position. A bank faced with larger claims for deposit withdrawal than it had available reserves to cover had little opportunity for borrowing reserves to meet the emergency, and would often have no other recourse than to refuse payment of its deposit liabilities, with all the unpleasant consequences such action entailed. Since the principal drain on liquidity arises from large deposit withdrawals, it was recognized that a commercial bank would be able to control its liquidity position if it could control its deposit liabilities. If it could be ensured that deposit withdrawals

would be regular and would correspond with regular inflows of funds from repayment of loans, an adequate liquidity position could be maintained.

It was thought that indirect control over deposit liabilities could be exercised through proper credit policy in the selection of the purposes for which loans were granted. This idea gave rise to the qualitative theory of bank liquidity, according to which bank credit should be granted only for those transactions involving the flow of goods through the economic system; specifically those transactions involving goods which are close to final consumption and which are brought into the economic system by necessity.[1] Because of the rapid movement toward consumption, and therefore toward money convertibility, such goods have a high degree of certainty regarding prospects for conversion into money, and financing the movement of such goods was thought to be "self-liquidating," since the sale of the goods would provide the funds to repay the loan.[2]

Basic to this commercial-loan doctrine is the idea that the owner of goods possesses an inherent ability to borrow, by virtue of ownership of goods which represent purchasing power, but that not all goods are equally capable of entry into the exchange process, or

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[1] Although this is probably the oldest of the theories of liquidity, it has survived until the present time, notably in the writings of colleagues and students of H. Parker Willis at Columbia University.

[2] Arthur Brickner, Liquidity in Commercial Banking (Ph.D. dissertation, Columbia University, 1950; published on microfilm by University Microfilms, Ann Arbor, Michigan), pp. 32-33.

in other words, they are not equally liquid. The function of the commercial banker, then, is merely to recognize the forms of purchasing power which are capable of entering the exchange process within a short period of time, and to issue a more generally acceptable form of purchasing power against them by making a definite volume of bank credit in the form of deposits available to the borrower.[1] The commercial banking system is therefore visualized in the qualitative theory as a more or less passive element in the economic system; a sort of bookkeeping system which exists mainly to facilitate the exchange of goods between persons.

It should be pointed out in passing that the commercial-loan theory was generally accepted at the time of creation of the Federal Reserve System, and was embodied in the Federal Reserve Act of 1913, when the Federal Reserve banks were empowered to expand member bank reserves only by means of rediscounting short-term paper representing "productive" loans.[2]

The "Shiftability" Theory

The qualitative theory came under attack, starting around 1920, by a group of writers who proposed what came to be known as

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[1] Ibid., pp. 93-98; H. Parker Willis and George W. Edwards, Banking and Business (2d ed.; New York: Harper and Brothers, 1925), p. 66.

[2] John P. Lutz, Commercial Bank Reserves and Banking Theory (Ph.D. dissertation, University of Pennsylvania, 1954; published on microfilm by University Microfilms, Ann Arbor, Michigan), p. 378; H. Parker Willis, The Theory and Practice of Central Banking (New York: Harper and Brothers, 1936), pp. 132-135.

the "shiftability" theory of bank liquidity. It was pointed out by some of these writers that, in the period of early capitalism, the principle of self-liquidation for the individual bank was much more important than it is today, due to the lack of central banking facilities and access to the reserves of other banks in the system. Also, whatever liquidity existed at that time was almost wholly due to commercial assets. At that time, therefore, any other theory of bank liquidity would have been unsound.[1]

During the latter part of the nineteenth century, however, business became more continuous in nature, with consequent continuous requirements for working capital. As one loan came due and was paid off, the businessman would immediately need a new loan to carry him for another period. Due to the increasing number of almost automatic loan renewals, banks gradually departed from the practice of making loans for specific transactions, and instead adopted the practice of extending "lines of credit" to borrowers as their business prospects warranted.[2] These more or less continuous loans, therefore, did not in practice provide a steady stream of repayments, even in normal times.

Now, a loan cannot be said to be liquid if it cannot be repaid by the borrower without seriously endangering his business, because

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[1]B. Suviranta, "The Shiftability Theory of Bank Liquidity," Economic Essays in Honor of Gustav Cassel (London: George Allen and Unwin, 1936), p. 633.

[2]Harold G. Moulton, "Commercial Banking and Capital Formation," The Journal of Political Economy, XXVI, 1918, pp. 645, 707.

then he will be forced to curtail purchases from his suppliers, whose loans will then be thrown into danger of default. The process would be cumulative, and if the attempted reduction in loans were not offset by expansion in some other part of the system, the result would be a reduction in the liquidity of outstanding debt.[1] Rather than liquidating loans, the interests of the banking system require that customers be carried during times of financial crisis, and loan extensions granted, since to contract loans on any large scale would merely serve to precipitate a panic.

In the place of the "self-liquidity" theory grew the idea that the truly liquid asset is the one that can be sold to someone else. The basis for the new idea of liquidity was the changed nature of business and the banking system, and the development of highly organized stock exchanges and money markets. The growth of the modern banking system made it possible for banks to depend on one another for borrowing reserves during times of emergency, and the development of stock exchanges made fixed assets more salable, at least indirectly. Although fixed assets such as real estate and machinery may be very unsalable, the collection of these goods in a business organization, and subdivision of property rights by issuance of stock, together with an efficient market for the stock, made ownership of the assets

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[1] Benjamin M. Anderson, The Value of Money (New York: The Macmillan Company, 1917), p. 502.

highly salable.[1] The market value of a share of stock fluctuates too much for inclusion in a banker's portfolio, but a collateral loan against the stock for a conservative percentage of its market value would be highly liquid. It was therefore thought that stock market collateral loans would constitute a highly satisfactory sort of bank loan, from the standpoint of liquidity, since the ready market for the stock would insure the value of the loan.[2]

The shiftability theorists realized that liquidity for the banking system as a whole during a time of crisis could not be guaranteed by shiftable assets, since wholesale liquidation of common stock, as an example, is impossible. However, they pointed out that during a crisis, all assets, including commercial loans, were illiquid. The advantage of shiftable assets over commercial loans came in normal times, for then shiftable assets could be liquidated by individual banks without a disruption of business, which they felt was not the case for commercial loans.[3] To safeguard the liquidity of a bank other than during a crisis, a secondary reserve of assets

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[1] Ibid., pp. 477, 492.

[2] Ibid., p. 514; Moulton, op. cit., p. 722.

[3] Anderson, op. cit., p. 514. A minority point of view was held by Mitchell, who apparently felt that, even in times of crisis, some large banks would remain strong enough to advance the needed funds to weaker banks, accepting shiftable assets as security. See Waldo F. Mitchell, The Uses of Bank Funds (Chicago: The University of Chicago Press, 1925), p. 22.

readily exchangeable for cash would therefore be needed, with such a reserve composed entirely of readily shiftable assets.[1]

The Quantitative Theory

As was pointed out in the preceeding section, a banking system organized along the lines of either the qualitative or shiftability theories could not maintain its own liquidity during times of severe financial stress. However, the shiftability theorists had pointed out that liquidity for the system could be maintained if some outside agency, such as a central bank, was willing to provide a ready market for bank assets and thereby furnish the needed funds.[2] This, of course, was one of the principal reasons for the creation of the Federal Reserve System; that the banking system would have a bank of resort to turn to in times of need. The Federal Reserve was empowered to furnish reserves to member banks by rediscounting eligible paper, with eligibility requirements set up on the basis of qualitative or commercial-loan theory. However, by this time the actual practices of the commercial banks had departed considerably from theory, and they were engaged in large-scale lending for purposes other than those sanctioned by the commercial-loan theory; Anderson estimated that in 1909, commercial loans accounted for only 24 per cent of the total credit granted by commercial banks.[3]

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[1]Suviranta, op. cit., p. 364.

[2]Brickner, op. cit., p. 81.

[3]Anderson, op. cit., p. 510.

With the great bulk of their earning assets in non-commercial loans, banks were hard-pressed for liquidity when the need arose; for reasons given earlier, the market could not furnish liquidity for the banking system as a whole. The Banking Act of 1933 recognized this fact, when the Federal Reserve was empowered to rediscount any bank assets regarded by the authorities as "sound," especially including government securities. With this legislation, it was implicitly recognized that the responsibility of maintaining liquidity was shifted from the market to the Federal Reserve.[1] The liquidity of the commercial banks was then redefined, in practice, in terms of their adherence to the conditions under which the Federal Reserve would make reserves available, and the liquidity problem for the individual bank reduces to determining how much of its funds a bank should hold in assets of guaranteed liquidity.

Underlying this change in monetary policy was a shift in theoretical thinking away from the qualitative and shiftability theories toward the quantitative theory.[2] While the entire quantitative monetary theory is much too complex and far-ranging to be reviewed in this thesis, a few of the points relating to banking policy will be summarized.

Briefly, the modern quantitative theory asserts a causal effect

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[1]Lutz, op. cit., p. 101; Charles R. Whittlesey, "Problems of Our Domestic Money and Banking System," American Economic Review Supplement, XXXIV (March, 1944), p. 255.

[2]Lutz, op. cit., p. 379.

of the money stock on the level of economic activity, and therefore concerns itself mainly with the aggregate level of bank deposits, with less emphasis on the purposes for which the deposits are used. Whereas, under the qualitative theory, the object of banking policy was the maintenance of bank liquidity and the accomodation of trade and commerce, the quantitative theory is concerned with banking policy mainly with regard to how it affects the level of the money supply, and conceives of liquidity in terms of a reserve structure adequate to support whatever expansion in credit the monetary authorities consider to be appropriate.[1] This implies a changed view of the function of the commercial banking system. Under the qualitative theory, the function of commercial banks was conceived to be to facilitate the production of goods and services; they were part of the system for allocating resources among competing uses. Under the quantitative theory, their function is seen as serving as a clearing organization and, by virtue of caring for the community's money supply, as being a means of influencing the level of economic activity.[2] In this sense, the quantitative theory places more importance on the actions of the commercial banks, and elevates banking policies to a position of great importance to the entire economic order.

The mechanism by which banking policy under the quantitative

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[1] Brickner, op. cit., pp. 153-154; Lutz, op. cit., pp. 374-380.

[2] Whittlesey, "Problems of Our Domestic Money and Banking System," p. 251.

doctrine influences the money supply is through operating on the reserves of the commercial banks, and thereby altering their credit-creating power. After the Federal Reserve System assumed greater responsibility for providing member banks with reserves in emergencies, the primary (cash) reserves of the commercial banks declined in importance as a means of furnishing liquidity to meet drains other than the most routine ones. Instead, primary reserves became significant mainly as a lever for influencing the volume of bank credit.[1]

As a closing comment to this chapter, it may be noted that modern legislation and banking policies have effectively disposed of the controversy among the various theories of bank liquidity. While the dispute as to the most desirable means of maintaining liquidity may still be carried on in some quarters, it is clear that, in the real world of the present time, bank liquidity rests on policies set by the monetary authorities, and until their policies are drastically altered, the liquidity of the banking system in general will not be a serious problem. Since the main part of this thesis will be an empirical study of commercial bank liquidity policy during a recent business cycle, the concept of liquidity which reflects the actual situation is the appropriate one to use. Throughout the rest of this thesis, then, the concept of liquidity will be taken to mean liquidity in the quantitative sense, that is, the liquidity of a bank is measured by the proportion of liquid assets it possesses relative to

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[1]Brickner, op. cit., pp. 160-161.

its liabilities, and liquid assets are, for the most part, those assets whose shiftability is guaranteed by the monetary authorities.

CHAPTER II

THE PRESENT ENVIRONMENT OF BANK LIQUIDITY

The Need for Liquidity

The commercial bank's need for liquidity arises from a somewhat unique characteristic of banking, compared to other service types of business. The banker's assets consist predominantly of the debts of businesses and governments, but almost all of his liabilities consist of debts to the public payable on demand. Funds are deposited with banks with the understanding that they can be withdrawn at any time, and the bank must be prepared to honor this obligation; otherwise it will not stay in business very long. At the same time, one of the principal functions of a commercial bank is to meet the credit needs of its customers, since, by virtue of its usual intimate knowledge of business conditions and needs in its community, it occupies a strategic position for lending. The bank should therefore have resources available for meeting its customers' credit needs, if the occasion should arise. The last obligation of the bank is to its stockholders, for it must be able to earn enough profits to attract and hold capital. The need for liquidity therefore encompasses these three obligations, and the objective of liquidity policy may be defined as the arrangement of assets in such a manner as to enable the bank to meet deposit losses without curtailing reasonable requests for

credit, without excessive outside borrowing, and without suffering large capital losses.[1]

The liquidity needs of the commercial banks at the present time are not as great as they were several decades ago, in that a smaller volume of liquid reserves are needed to protect a given volume of deposits. Numerous forces have acted to bring this about, but in any list of such forces, the increasing assumption of responsibility for bank liquidity by the monetary authorities would have to be given a place of importance. The acceptance of the quantitative doctrine of credit control has undoubtedly had much to do with the development of this attitude by the authorities, and is reflected particularly in the policies of support of government securities markets, the various acts empowering the Federal Reserve to rediscount any bank assets regarded as sound, and the revision of bank examination standards to take into account the "intrinsic" value of assets, rather than the current market price.[2] Although it did not necessarily reflect the influence of quantitative doctrine, the creation of the Federal Deposit Insurance Corporation has undoubtedly done much to increase depositors' confidence, and thereby reduced the possibility of bank runs. These policies have contributed to some measure of success of monetary and fiscal policies in dampening cyclical movements. Seasonal

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[1] American Bankers Association, The Problems of Commercial Bank Liquidity (New York: American Bankers Association, 1957), p. 23.

[2] Brickner, op. cit., pp. 286-304; Lutz, op. cit., pp. 44, 98.

fluctuations have been reduced by the defensive policies of the Federal Reserve, along with the Treasury's efforts to minimize the seasonal effects of receipts and disbursements.[1]

The other main forces which have tended to reduce the level of necessary liquid bank reserves in relation to deposits are those which have come about through the development of the banking system itself. Improved communications and check-handling methods have done much toward this end; telegraphic transfers of funds and the increased efficiency and speed of the clearing organizations have been significant developments. The growth of branch banking and the widespread establishment of correspondent relations have enabled the banking system to economize on reserves.[2]

The Conflict Between Liquidity and Earnings

The reasons why a bank must keep a part of its assets in liquid form have been discussed in the preceeding section. To recapitulate, the need arises because of the obligations of the commercial bank; to meet its depositors' claims on demand, to satisfy the reasonable credit needs of its community, and to protect the interests of its stockholders. The obligations to depositors and to borrowers are both likely to lead to a drain of cash away from the bank, so the bank must have on hand sufficient reserves of cash, or assets which can be readily

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[1] Lutz, op. cit., p. 44.

[2] Ibid., pp. 26, 41-42.

converted into cash, to be prepared to meet these obligations.

The ideal position from the standpoint of liquidity, of course, would be the one where all assets consisted of cash. However, this would be a state of almost complete economic inactivity, in which the bank would be reduced to being a mere bookkeeping apparatus for the convenience of its depositors, so a realistic approach to the problem should start from the observation that only that part of a bank's assets which are required to meet essential daily needs should be in cash. The reserves needed to meet reasonably forecastable needs of customers can then be in liquid earning assets.

Since the assets which can be converted most easily into cash are usually those which offer the lowest return, the bank is faced with a conflict of interests, between its customers on the one side and its stockholders on the other side.[1] To hold an unreasonably large volume of liquid assets in order to serve its customers would involve a loss of earnings; to hold too many assets of high yield but low liquidity would be to sacrifice the interests of its customers. The determination of liquidity policy therefore requires a balancing of the need for cash and the need for current income.

A rational portfolio policy should regard the problem as one of long-run profit maximization, since a bank can fail through either an underestimation or overestimation of its future liquidity needs. Liquidity yields a "return" in the long run, in that it provides the

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[1]Albert G. Hart, Money, Debt and Economic Activity (New York: Prentice-Hall, 1948), p. 55.

ability to satisfy the future needs of customers and thereby to keep their good will, but it would be passing up income to maintain this ability at higher levels than would be required by the probability of customers' needs. The method which therefore suggests itself is to array the liquidity of assets against the expected nature of the demands the assets are intended to protect against.[1] Highly liquid assets should be held to meet only those demands which may reasonably be expected in the near future, and the sacrifice of earnings in favor of liquidity will be reduced to the minimum possible amount. Less liquid but higher-yielding assets may then be held against those demands with a lower probability of occurring, or which will occur in the more distant future.

Since the probability of cash drains depends to some extent on the character of a bank's liabilities, so also will its selection of earning assets. If the demand liabilities have a history of instability, the asset portfolio must be weighted on the side of high liquidity, and conversely. The proportion of time deposits in total liabilities has a similar influence; the higher the proportion of time deposits, the less liquidity the bank will need in its portfolio, since time deposits are ordinarily more stable than demand deposits.

The next section will examine more closely the various forces which can give rise to the need for liquidity, and the selection of assets to provide the required degree of liquidity. Since the objective

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[1]Roland I. Robinson, The Management of Bank Funds (New York: McGraw-Hill Company, 1951), p. 4.

of bank liquidity policy is to be able to meet obligations without inconvenience to customers or loss to owners, the probability and magnitude of forces causing a need for liquidity must be estimated so that adequate safeguards may be made against their effects. Once a bank has formed an estimate of the probable effects of these various forces on its liquidity position, it is ready to arrange its assets in such a way that it will be protected against loss or failure to meet its obligations to its customers.

Factors Influencing Bank Liquidity

The various forces which may influence liquidity policy may be grouped broadly into institutional and structural classifications.[1] In the category of institutional factors can be included Federal Reserve open-market operations and reserve requirements, and Treasury debt-management operations. Open-market and debt-management operations affect bank liquidity from the asset side of the balance sheet, since by altering the volume of certain types of government securities on the market, they affect the prices of these securities. To the extent that a bank holds these securities in its portfolio, its liquidity position will be changed, in that its ability to obtain a given amount

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[1]Discussions of factors affecting bank liquidity are to be found in almost any general work dealing with banking. See, for example, Robinson, op. cit., chapter II; Lutz, op. cit., pp. 10-19; J. Marvin Peterson and D. R. Cawthorne, Money and Banking (New York: The Macmillan Company, 1949), pp. 181-191; Milton T. Stokes and Carl T. Arlt, Money, Banking and the Financial System (New York: The Ronald Press, 1955), pp. 261-264.

of cash without loss by selling a given volume of securities is enhanced or impaired, depending on whether securities prices have increased or decreased. Changes in reserve requirements affect directly the volume of reserves available to a bank with which to meet deposit losses or loan demands, and therefore bear directly on bank liquidity.

Other factors which have a bearing on bank liquidity are of a structural nature, and exert their influence mainly on the liabilities side of the balance sheet, by causing deposit losses which must be guarded against. Their effects are not entirely through deposit losses, however, for cash drains can also arise from increased loan demands.

The most common types of deposit losses are those associated with seasonal variations in economic activity. Various factors can cause temporary excesses of payments over receipts for the depositors of a bank to occur at regular intervals during the year, resulting in temporary deposit losses for the bank. Examples of the seasonal type of deposit loss are those associated with the agricultural growing season, tourist seasons in some areas, heavy automobile sales after model changeover dates, retail trade during the Christmas season, and tax payment dates. These seasonal deposit losses do not constitute a serious threat to bank liquidity, because they can be predicted with some accuracy by the bank, and provisions can be made to have adequate reserves on hand with which to meet the expected drains.

More serious than seasonal deposit losses are those which can occur unexpectedly. Certain types of deposits, such as correspondent

balances, public funds accounts and uninvested trust funds, are normally more unstable than the average, and may lead to sudden and unexpected drains of cash. Fluctuations in the business cycle were formerly a significant factor influencing bank liquidity, because a decline in business activity would lead to a contraction of loans, with a corresponding reduction in deposits. However, a large part of bank assets is now in the form of government debt, which tends to remain stable or to increase during recessions, so the volume of deposits is more stable during downturns in business activity than was formerly the case, and the influence on bank liquidity is less. Even though the influence of the business cycle on bank liquidity in general has diminished, the possibility still remains of deposit losses due to a local recession in an industry which represents a large proportion of the total deposits of an individual bank. This problem is faced by banks in agricultural communities or in small towns in which one large company accounts for a large share of the economic activity of the community.

The structural factors bearing on bank liquidity so far discussed have their influence through the loss of deposits. However, there are at least two factors of this nature which have an influence on liquidity through their effects on the demand for loans. The first is the case of a community which is undergoing very rapid business expansion of the sort that results from a natural resource boom or the undertaking of a large defense expenditure program. The second is the existence of large unused lines of credit, such as may be the case

during the initial phase of a business expansion, when customers have not been fully utilizing their borrowing capacity. In either case, to the extent that a bank meets the increased demand for loans, its liquid reserves are reduced, placing it in a less liquid position.

Priorities in the Use of Bank Funds

In preceeding sections of this chapter, the problem facing a commercial bank of allocating its limited assets to meet best its obligations, and the possible sources of cash drains, were discussed. It was suggested that the problem could best be met by attempting to distribute reserves among assets of varying liquidity according to the likelihood of expected cash needs. This section will examine more closely the possible forms in which bank resources can be held, and the optimum distribution of assets for safeguarding the ability of the bank to meet its obligations when cash drains develop without a needless sacrifice of income.[1]

Primary Reserves

By primary reserves are meant cash reserves, which must be kept to meet legal reserve requirements, daily operating needs, and excess reserves which the bank feels it must keep to meet sudden and unexpected cash needs. These cash reserves do not contribute significantly to liquidity. Vault cash, for instance, is held for daily

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[1] Robinson gives a thorough description of the determination of liquidity needs and the arrangement of assets; much of the following discussion draws on his work. See Robinson, op. cit., chapters 3-6.

over-the-counter needs of the community, and will normally be held to the minimum necessary for this purpose. Correspondent balances, usually kept with larger city banks, are used primarily for clearing purposes and are not normally counted on for liquidity needs, other than to meet routine clearing imbalances. Legally-required reserves also cannot contribute very much to liquidity, since they are virtually immobilized by law. Banks are allowed to take a two-week average in computing reserves, so they can be used to the extent that the deficiency can be made up from some other source during the averaging period, but this use is rather limited.

Secondary Reserves

Since cash reserves are not ordinarily kept for meeting liquidity needs other than for routine daily operations, a bank must keep some secondary reserves for meeting cash drains due to deposit losses or increased loan demands.

Cash drains may be divided into two classes, those which occur with sufficient regularity to be predictable, and those which are more remote or unlikely, but still possible. Those which are reasonably easy to predict are mainly those arising from seasonal deposit losses or loan demands, and those due to fluctuations in deposits which have a history of instability. Losses due to unstable deposits may seem to belong more properly in the "unexpected" category, but whereas the movement of any one deposit may be entirely impossible to predict, the movement of the aggregate is usually much smoother and more

regular, and therefore easier to predict.[1]

Since a bank knows that it will have to meet a certain volume of needs at certain times, it must have on hand the necessary volume of assets that can be converted into cash as the need arises, with little or no chance of loss. Banks usually keep this type of reserves in short-dated instruments with maturities arranged so that they will mature as the need for cash arises. The principal instruments of this type are Treasury bills, certificates, notes and bonds maturing within a short time. Other assets that could be included are bankers' acceptances, commercial paper, and short-term, high-grade corporate and state and local government issues. The primary purpose of these assets is to furnish liquidity, so safety of principal is normally the first consideration, with income secondary.

After a bank has made provisions for its expected liquidity needs, there are still the more remote or unlikely needs that must be considered. Examples of this type of needs which cannot be easily predicted are those arising from fluctuations in the business cycle, from local recessions, and from open-market and debt-management operations. A bank can deal with these unpredictable liquidity needs by reviewing its past experience, and determining the proportion of its deposits affected by such factors in the past. The proportion can then be applied to the current volume of deposits to determine the amount of secondary reserves needed for protection against this type

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[1] Ibid., pp. 61-62.

of deposit loss. This class of secondary reserves should consist of securities of unquestioned credit standing, the same as reserves against predictable deposit losses, but the maturities may be longer, making a higher yield available. The longer maturity length is permissible because the forces giving rise to these unpredictable liquidity needs are most likely to occur during the contraction phase of the business cycle, when interest rates are falling and the danger of capital losses from the sale of longer-term issues is slight.

Loans

After a bank has allocated enough of its resources to primary and secondary reserves to meet its liquidity and reserve requirements, it is free to engage in lending. Since the loan account is not needed to provide liquidity, the bank may take a somewhat more liberal attitude toward risk on loans than on liquid assets, but bankers still value safety of principal above yield, even on loans.[1]

Even though bankers feel a responsibility to meet what they regard as the legitimate credit needs of the community, there is a strong pressure to "keep in step" with the system average which limits the volume of loans a bank can safely make.[2] When loans for the system as a whole are expanding, the individual bank must also expand its loans, or it will be foregoing profits by allowing large amounts of non-earning cash reserves to accumulate. At the same time, if the bank is more

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[1] American Bankers Association, Bank Management (New York: American Bankers Association, 1960), p. 113.

[2] Brown, op. cit., pp. 183-185.

liberal in granting loans than the system, its customers will on balance pay out greater amounts of money to customers of other banks than they receive, causing a loss of reserves. The reverse is also true, for when the volume of loans for the system is contracting, the individual bank is compelled to contract also, or it will on balance lose deposits as some of its depositors are forced to draw down their balances to pay off loans to other banks.

Investments

Because of the limitations on the volume of loans which a bank can feel safe in granting without damage to its liquidity position, it is possible that the bank may have funds left over after it has provided for sufficient primary and secondary reserves and made all the loans it can safely make. The surplus funds can then be devoted to residual investment for income.

Commercial banks are not in a particularly strategic position for investment, since their relatively smaller size and less stable deposits place them at a disadvantage compared to other types of financial institutions, such as insurance companies. Also, the average-sized bank cannot afford the extensive analysis that is a prerequisite to large-scale investment for income, so it must rely on the advice of outsiders, such as dealers, city correspondents, and rating services.

As with other types of bank assets, the primary consideration for investments is safety of principal, with yield secondary, because

it is conceivable that the investment may have to be sold before maturity for purposes of liquidity. This consideration effectively limits the choice of securities for bank investment to government issues and very high-quality and well-known corporate and municipal issues that can be readily marketed without taking large capital losses.

The Measurement of Bank Liquidity

The working concept of bank liquidity adopted in this thesis is the ability of a bank to meet deposit withdrawals and loan demands without taking losses on the conversion of assets into cash.[1] Since the ability of a bank to meet deposit losses and loan demands in the short run will differ from the long run, different measurements are appropriate.

The most commonly-used measure of immediate or short-run liquidity is the ratio of short-term liquid assets to liabilities. It is usually measured as the ratio of the sum of vault cash, balances with domestic banks, loans to banks, brokers and dealers, and government securities maturing in less than one year less borrowings to the sum of deposits less cash items in process of collection less reserves held at Federal Reserve banks.[2] This ratio measures the proportion of deposit liabilities which could be withdrawn and paid off without resort to selling less liquid assets.

Movements in the liquid assets/deposits ratio may or not

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[1] Supra, p. 18.

[2] Federal Reserve Bank of New York, op. cit., p. 185.

reflect conscious action on the part of the bank to alter the ratio. Purchases or sales of short-term securities are undertaken as deliberate portfolio adjustments, and changes in the liquidity ratio from this source can be thought of as changes which are desired by the banks. The ratio can also be altered by longer-term securities moving into the short-term class with the passage of time, and this type of change does not necessarily represent a deliberate liquidity adjustment. A similar source of change in the ratio is due to the maturing of securities and the reinvestment of the proceeds in long-terms, or the maturing of loans without reinvesting the proceeds. These changes are more in the nature of desired adjustments, however, since banks could presumably reinvest the cash proceeds in the same type of asset which had matured, and restore the liquidity ratio to its previous value.

Another possible measure of immediate liquidity is the volume of free reserves, which are equal to excess reserves less borrowings from the Federal Reserve. Free reserves are somewhat more indicative of liquidity than are excess reserves, because a bank can have excess reserves but still be in debt to the Federal Reserve, and therefore under pressure to use some of its reserves to repay the debt. Any given level of free reserves cannot be taken as a precise measure of the degree of tightness existing in the money market, however, because excess reserves and borrowings can both remain constant (and free reserves therefore remain constant also) while total and required reserves may be rising or falling at any rate. The money supply can

therefore be either increasing or decreasing while the level of free reserves remains constant.[1] Another defect of free reserves as a measure of bank liquidity is that their level is affected by operating factors such as float and currency in circulation, so it can fluctuate widely within short periods of time when these factors are not offset by defensive Federal Reserve operations.

The ability of a bank to meet deposit withdrawals and loan demands over a prolonged period depends on the volume of its short-term liquid assets and other securities relative to its deposit liabilities. This regards everything on the asset side of the balance sheet except loans as being available for liquidity purposes over the long run. It reflects the idea that the lending function of the commercial bank is of primary importance and that loans should not be regarded as a source of liquidity. In practice, long-run liquidity is measured by the loan/deposit ratio, which is the ratio of total loans adjusted less loans to brokers and dealers to total deposits.[2] Rather than being a direct measure of available liquidity, the loan/deposit ratio measures the amount of liquidity that has been used up in lending.

The significance of the loan/deposit ratio depends to a considerable extent on the view that bankers take regarding an appropriate upper limit for loans relative to deposits. It seems that bankers have

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[1]Milton Friedman, A Program for Monetary Stability (Fordham University Press, 1960), reprinted in Ritter, ed., Money and Economic Activity (Boston: Houghton Mifflin Company, 1961), p. 282.

[2]Federal Reserve Bank of New York, op. cit., p. 185.

revised their estimate of a safe upper limit upward since World War II, because the ratio has generally remained higher since the war than previously.[1] Several factors have been responsible for this change, one of which has been the growing importance of regularly-amortized loans, such as consumer instalment and term loans, which insure a steady inflow of funds to help meet deposit fluctuations. Also, time deposits and small individual deposits have been growing in importance, and are not as subject to sudden withdrawals.[2] These factors tend to reduce the volume of reserves needed as protection for a given volume of deposits, and, as with anything which enables banks to economize on reserves, increase the amount of funds which can be loaned safely.

Any measure of liquidity has its limitations as a precise indicator, especially when it is applied in the aggregate and over prolonged periods of time. One of the principal limitations of both the liquid assets/deposits ratio and the loan/deposit ratio is that the list of assets included in the numerator is somewhat arbitrary. For example, the maturity cut-off date of one year for government securities is completely arbitrary, and is used mainly because some maximum maturity must be established, and one year is convenient. Also, many loans which are close to maturity provide liquidity to the bank holding them, but they are not counted as liquid assets. Also, these loans

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[1] Federal Reserve Bank of Philadelphia, "How Liquid are the Banks?", Business Review, October, 1958, p. 6.

[2] Ibid.

are included in the numerator of the loan/deposit ratio, which causes the ratio to indicate less liquidity than is actually the case. Some other highly liquid assets, such as bankers' acceptances, are not included in the liquid assets/deposits ratio, because they are not separated in bank statements.

Another limitation of these measures as precise indicators of liquidity is that the "deposits" term is only a rough approximation of liquidity needs. Factors besides the volume of deposits which influence the need for liquidity include the relative importance of time deposits, changes in deposit stability due to changes in business conditions, deposit ownership and payment habits, and the extent of commitments to grant loans under lines of credit.

Free reserves are of limited usefulness as a measure of liquidity, because of their wide fluctuations in response to operating factors. Also, they do not take into consideration numerous basic factors which can influence liquidity such as the composition of assets or deposits.

While all the measures of liquidity have defects, a precise indicator is probably impossible to devise. Many of the defects are due to a lack of sufficient detail in bank condition statements, and others are due to the changing character of banking with time, both of which would be difficult to overcome. However, while the measurements may lack preciseness, they are sufficient to give an idea of trends in liquidity, which is enough to make them useful tools.

CHAPTER III

AGGREGATE BANK LIQUIDITY BEHAVIOR DURING THE 1954-1958 BUSINESS CYCLE

The period selected for this study of bank liquidity policy is the business cycle which lasted from 1954 to 1958. It was felt that the selection of a recent cycle would be desirable because, due to the constant evolution in the operating characteristics of commercial banking (the increasing use of the Federal Funds market is an example), liquidity policy during earlier cycles might not be pertinent to present experience. The 1954-1958 cycle was selected for study because the combination of strong loan demands and restrictive monetary policy during this period placed considerable pressure on bank liquidity.

The dates fixed as turning points by the National Bureau of Economic Research were used to delineate the cycle. The recession trough which represents the starting point of the cycle occurred in the third quarter of 1954, the expansion peak was reached in the third quarter of 1957, and the ensuing recession trough which marked the end of the cycle occurred in the second quarter of 1958.[1]

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[1] Geoffrey H. Moore, ed., Business Cycle Indicators, (Princeton, New Jersey: Princeton University Press, 1961), vol. 1, p. 670.

The General Economic Background

At the recession trough in 1954, the banking system was in a highly liquid condition. Interest rates on government securities maturing within one year were less than one per cent, with other rates correspondingly low, so banks had substantial capital gains on securities purchased earlier. Holdings of securities were almost 50 per cent of deposits, and net free reserves amounted to $740 million, so ample funds were available for credit expansion.

Federal Reserve policy at this time was directed toward easier credit, with directives of the Open Market Committee stressing the need to follow

> . . . A policy of supplying or maintaining member bank reserves adequate to promote growth and stability in the economy with emphasis on a program of actively maintaining a condition of ease.[1]

To this end, discount rates had been reduced somewhat, to 1.5 per cent. The Federal Reserve stated that the reductions in the discount rate were undertaken to bring the rate into alignment with short-term market rates as well as to make it less expensive for banks to borrow from the Federal Reserve System.[2] Besides reducing the discount rate, the Federal Reserve reduced reserve requirements in July, releasing about

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[1] Board of Governors of the Federal Reserve System, Annual Report, 1954, pp. 87, 92-93.

[2] Ibid., p. 7.

$1.6 billion of bank reserves,[1] and open-market purchases were made to more than meet seasonal reserve requirements. Overall, monetary policy was definitely on the easy side.

The expansion in economic activity which started in the third quarter of 1954 was characterized in its early stages by strong consumer demand, which was made possible by the maintenance of disposable personal income at high levels. The relative stability of disposable income during the recession was due mainly to the reduction in Federal individual income tax at the beginning of 1954, increased transfer payments for unemployment compensation and old-age programs, larger wage and salary payments, and larger incomes to non-farm proprietors and from dividends and interest. Besides the increase in consumer expenditures, other contributing factors to the economic upturn were a reduction in the rate of inventory liquidation and further expansion in construction and in state and local government expenditures. The rate of decline in national defense outlays and business expenditures for plant and equipment which were among the major forces contributing to the recession, slowed somewhat toward the end of 1954.

With economic expansion started, and with a large supply of loanable funds available, the Federal Reserve officials evidently felt that they could be a little less aggressive in promoting ease in the money market. This did not represent a switch to tight policies, but was merely an indication that the monetary authorities felt that the

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[1] Ibid.

need for vigorous action appropriate to a recession was past. To this end, the word "actively" was dropped from the phrase "actively maintaining a condition of ease in the money market" in the December policy directive of the Open Market Committee. The Committee stated that:

> . . . The developing economic situation did not warrant continuing as active a program of supplying reserves to the market as had been followed during the preceeding year, although it (the Committee) did not feel that a policy of credit restraint was called for at the time.[1]

The expansion in economic activity became very vigorous in 1955. Demand for consumer durables and housing remained strong, with increases in consumer debt and mortgage debt on one-to-four family housing units being the main items in the credit situation. Along with the strong consumer demand, there was a shift from liquidation of business inventories to accumulation, and after a slight lag, business expenditures for plant and equipment increased rapidly. By 1956, business investment had become the major expansive force in the economy, although high levels of consumer spending and increasing expenditures by state and local governments contributed significantly to the expansion. The Federal cash budget had a slight deficit in 1955, but as economic activity increased, larger tax payments led to a sizable surplus in 1956.

These expansive forces continued into 1957, and in addition, the Federal cash budget showed a smaller surplus in the first half of that year compared to 1956, due mainly to increased defense expenditures.

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[1] Ibid., p. 98.

In the early autumn of 1957, however, Federal defense outlays were reduced, and the level of retail trade declined somewhat. Relative to this reduced level of demand, the increased industrial capacity resulting from the investment boom of the preceeding two years appeared large, and new orders for business machinery and equipment declined, with a sharp liquidation of inventories taking place at the same time. The peak in economic activity was reached in the third quarter, and output and employment declined until the second quarter of 1958.

In early 1958, although the economy in general was contracting, certain forces were acting to create a basis for the ensuing recovery. Chief among these expansive factors was increased borrowing and expenditures by all levels of government. The Federal cash budget, which had shown a slight surplus in 1957, shifted to a large deficit, and State and local governments were also continuing to expand their expenditures, mainly for public works projects.

Personal incomes, although declining somewhat, were maintained at fairly high levels by increased transfer payments and reduced tax payments, making it possible for consumer spending to turn up in the second quarter. Although business spending continued to decline, the upturn in consumer spending, plus the continuing high level of government expenditures and an increase in housing construction, was responsible for a cyclical upturn in the economy, with the recession trough being reached in April.

Federal Reserve policy was fairly restrictive during the expansion, with the shift away from a policy of ease occurring in 1955, when

it became apparent that the economy had recovered from the previous recession. In May and August, the Open Market Committee dropped from its policy directives the references to "encouraging recovery" and "fostering growth and stability in the economy." Instead, a clause was substituted directing that transactions should be directed "to restraining inflationary pressures in the interest of sustainable economic growth."[1] The Committee adopted the new policy because it felt that industrial production was nearing capacity in many areas, and that the possibility of inflation had become the main danger.

This restrictive policy continued essentially unchanged until the cyclical peak in 1957, although there were several periods of hesitation in 1956, when the Committee took note of some uncertainties in the agricultural, housing and automobile markets and mentioned the possibility that the economy might be nearing a cyclical peak after a period of prosperity.[2] Open market operations were reinforced during the period of restraint by discount policy, with discount rates being increased from 1.5 per cent at the 1954 recession trough to 3.5 per cent at the 1957 peak.

In September of 1957, although the Open Market Committee noted that pressures in the money market seemed to be slackening, they interpreted this more to mean that a victory over inflation had been

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[1] Ibid., 1955, p. 101.

[2] Ibid., 1956, pp. 19-20.

achieved, rather than that a cyclical peak in economic activity had been reached.[1] They therefore maintained a restrictive policy until November, when it became fairly apparent that the economy was tending downward, at which time the policy directive calling for the restraint of inflation was changed to one directing that operations should be conducted with a view to "fostering sustainable growth in the economy without inflation, by moderating the pressures on bank reserves."[2] Discount rates were reduced in December, and at that time the first mention of recessionary tendencies appeared in the policy directive.

Policy in early 1958 was directed toward promoting recovery by maintaining ease in the money markets. Between January and April, discount rates were reduced from 3 per cent to 1-3/4 per cent and margin requirements for securities loans were reduced from 70 per cent to 50 per cent. During this same period, reserve requirements on demand deposits for Central Reserve City Banks, Reserve City Banks, and County Banks, respectively, were reduced, in several stages, from 20, 18 and 12 per cent to 18, 16½ and 11 per cent, freeing approximately $1.5 billion of reserves.[3] Also, Federal Reserve holdings of United States Government securities were increased during the first quarter.

Interest rates reflected the tightness in the money markets due

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[1] Ibid., 1957, p. 51.

[2] Ibid., p. 55.

[3] Ibid., 1958, p. 30.

to strong loan demands and restrictive monetary policy during the economic expansion. The bill rate increased from a low of about 0.80 per cent at the 1954 recession trough to 3.35 per cent at the 1957 expansion peak. Other rates also moved strongly upward, but the differential between long and short rates narrowed as the expansion progressed. With easier monetary policy and lessened loan demands during the 1957-1958 recession, rates declined sharply, with the bill rate falling to less than one per cent. With low levels of interest rates and the easing of pressure on bank reserves during the first half of 1958, monetary conditions tended to increase bank liquidity, placing banks in a position to expand credit during the ensuing recovery.

Response of the Banking System to Liquidity Changes

On balance, the various forces influencing bank liquidity during the expansion phase of the business cycle operated to reduce bank liquidity. The individual factors tending to reduce bank liquidity were strong loan demands by both consumers and businesses, restrictive monetary policy, increasing interest rates, and surpluses in the Federal budget. Factors which tended to offset partially the decline in bank liquidity were the Treasury debt management policy, under which the maturity of the outstanding public debt was shortened, and the relative increase in time deposits.

During the contraction of late 1957-early 1958, bank liquidity was increased by a slackening in loan demand, more expansionary fiscal

policy, a sharp decrease in interest rates, easier monetary policy, and a continued increase in deposits. The only major factor tending to decrease liquidity was the Treasury debt management policy under which the major part of new issues were of longer maturities.

Besides the large increase in loan demands, there were large increases in debt and equity financing competing in the credit market for loanable funds. The principal items during the two phases of the business cycle are shown in Table 1 below.

TABLE 1. Growth in major types of debt and equity financing, 1954-1958. ($Billions of dollars)

Type	Increase 1954-1958 Expansion	1957-1958 Contraction
Federal cash borrowing from the public	-8.1	2.6
State and local issues (net)	10.1	4.3
Real estate mortgages	40.6	8.2
Corporate stock and bond issues (net)	21.9	8.2
Consumer credit	14.0	0.0

Source: Federal Reserve Bulletin.

Faced with strong credit demands, commercial banks arranged their portfolios by increasing loans at the expense of their holdings of securities. The principal items in their portfolio adjustment are shown below in Table 2.

TABLE 2. Loans and investments of commercial banks, 1954-1958.
($Billions of dollars, data for member banks only)

Item	Net Increase 1954-1957 Expansion	1957-1958 Contraction
Total Loans and Investments	13.3	11.5
Total investments	-11.0	9.5
U. S. Government securities	-11.2	7.0
Other securities	0.2	2.5
Total loans	24.3	2.0
Business	13.2	-1.4
Real estate	4.8	0.6
Agricultural	0.0	0.4
Security Loans	0.0	1.7
Consumer Loans	4.8	-0.1
Other	1.5	0.9

Source: Federal Reserve, Call Reports of Member Banks.

As Figure 1 shows, commercial banks increased their loans steadily during almost the entire expansion phase, with some leveling off in 1957. The increase at member banks amounted to approximately $24 billion, or about 41 per cent with the largest increases being in business, consumer and real estate loans.

Commercial banks obtained the funds with which to meet the increased loan demands from a relative increase in time deposits, borrowing at the Federal Reserve and from the sale of securities. The increase in deposits is shown in Figure 2. Fourth quarter data for demand and total deposits are not shown connected with the rest of the curve, in order to remove the large seasonal movement. It can be seen that deposits increased fairly steadily throughout the expansion, with time deposits showing the largest increase, on both a relative and absolute

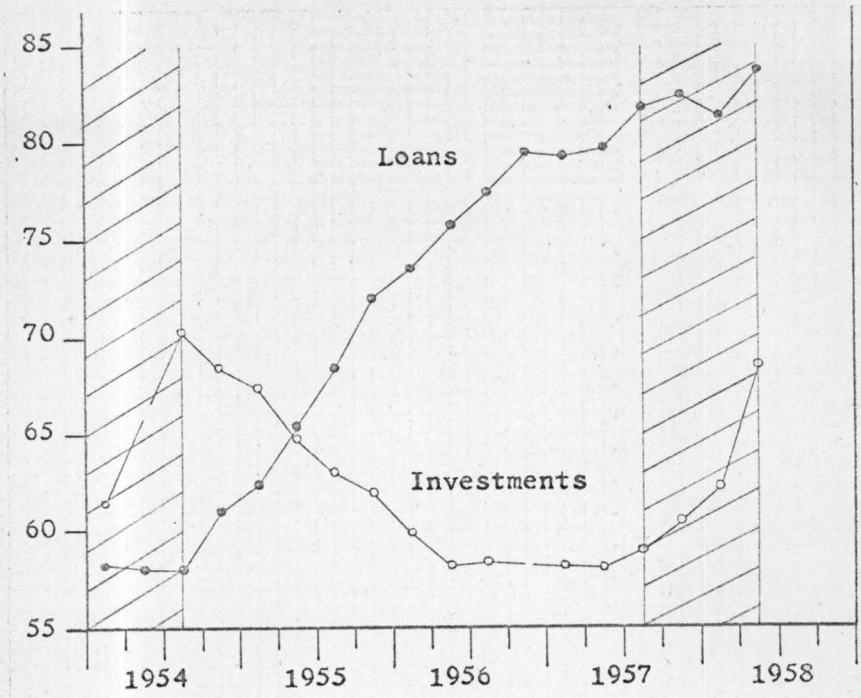
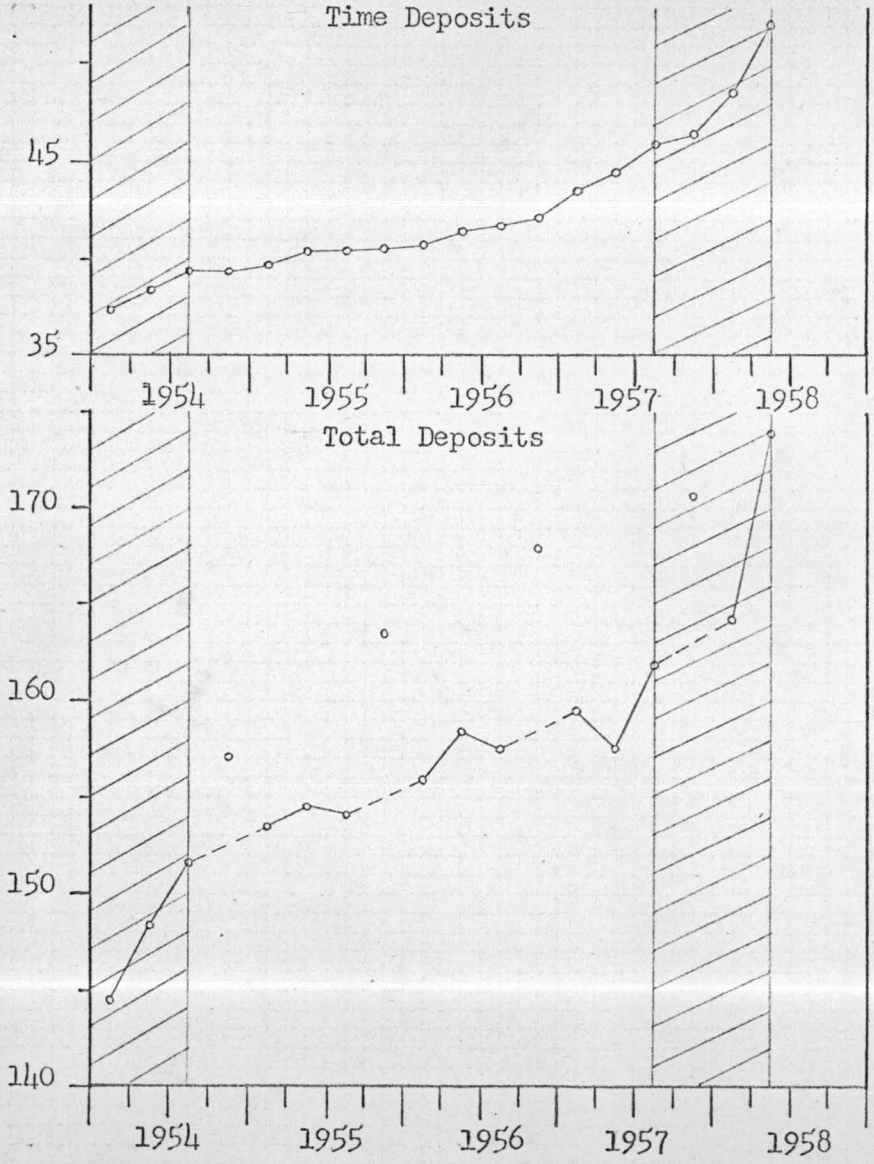


Fig. 1. Loans and Investments of Member Banks. ($Billions)

Source: Federal Reserve, Call Reports of Member Banks. Data are for call dates, which coincide approximately with ends of quarters. Shaded areas represent contractions of business cycles.

basis. Time deposits increased from 25.9 per cent of total deposits at the recession trough to 28.4 per cent at the peak. Due to the lower reserve requirement against time deposits, this had the effect of increasing considerably the possible loan expansion.

During the 1957-1958 downturn in the business cycle, banks were not faced with a need for liquidity due to deposit losses such as those which occurred during recessions in the past. On the contrary, total deposits increased by $12 billion during the recession, with the



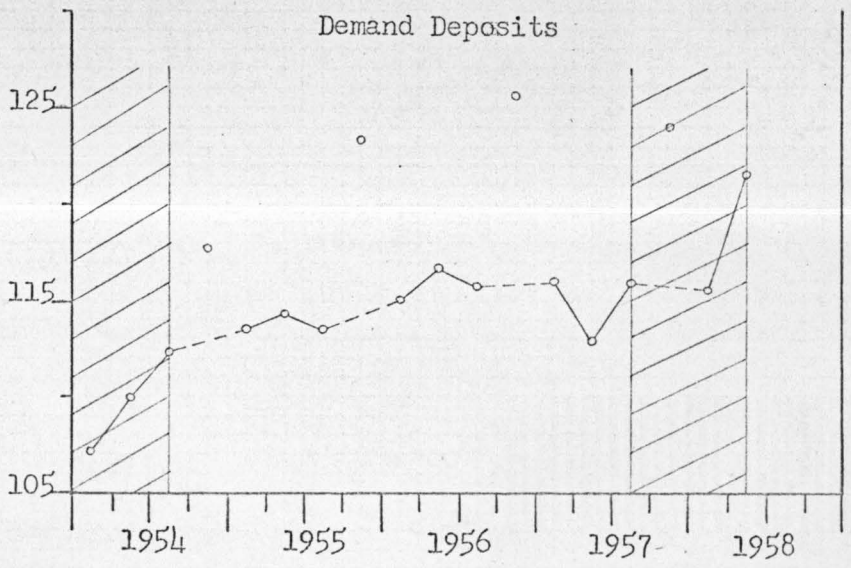


Fig. 2. Deposits of Member Banks ($Billions)

Source: Federal Reserve, Call Reports of Member Banks.

increase being split almost equally between time and demand deposits. The reason why deposits did not decrease during the recession can be seen from Figure 1. Banks did not need to contract their loans outstanding during the recession, and in fact found outlets for almost $2 billion in additional loans. At the same time, the high level of interest rates at the cyclical peak furnished opportunities to buy additional investments and take advantage of the capital gains created by the subsequent sharp drop in rates. The combined influence of these two factors allowed bank deposits to increase substantially during the recession.

Approximately $1.2 billion of reserves were obtained by member banks through borrowing at the Federal Reserve (see Figure 3), as free reserves fell from about $.75 billion to $-.45 billion. It can be seen that member bank borrowing was quite sensitive to the differential between the bill rate and the discount rate. From the recession trough until the fourth quarter of 1955, during which time the differential was narrowing, member banks borrowed substantially, as borrowing became a less expensive method of obtaining reserves than formerly, compared to the alternative of selling securities. From this period until the fourth quarter of 1956, when the differential was increasing, borrowing became relatively more expensive, and the volume of borrowing declined somewhat. During the brief period near the end of the expansion when the bill rate temporarily rose above the discount rate, borrowing increased once more.

This behavior is a good example of the main point made by

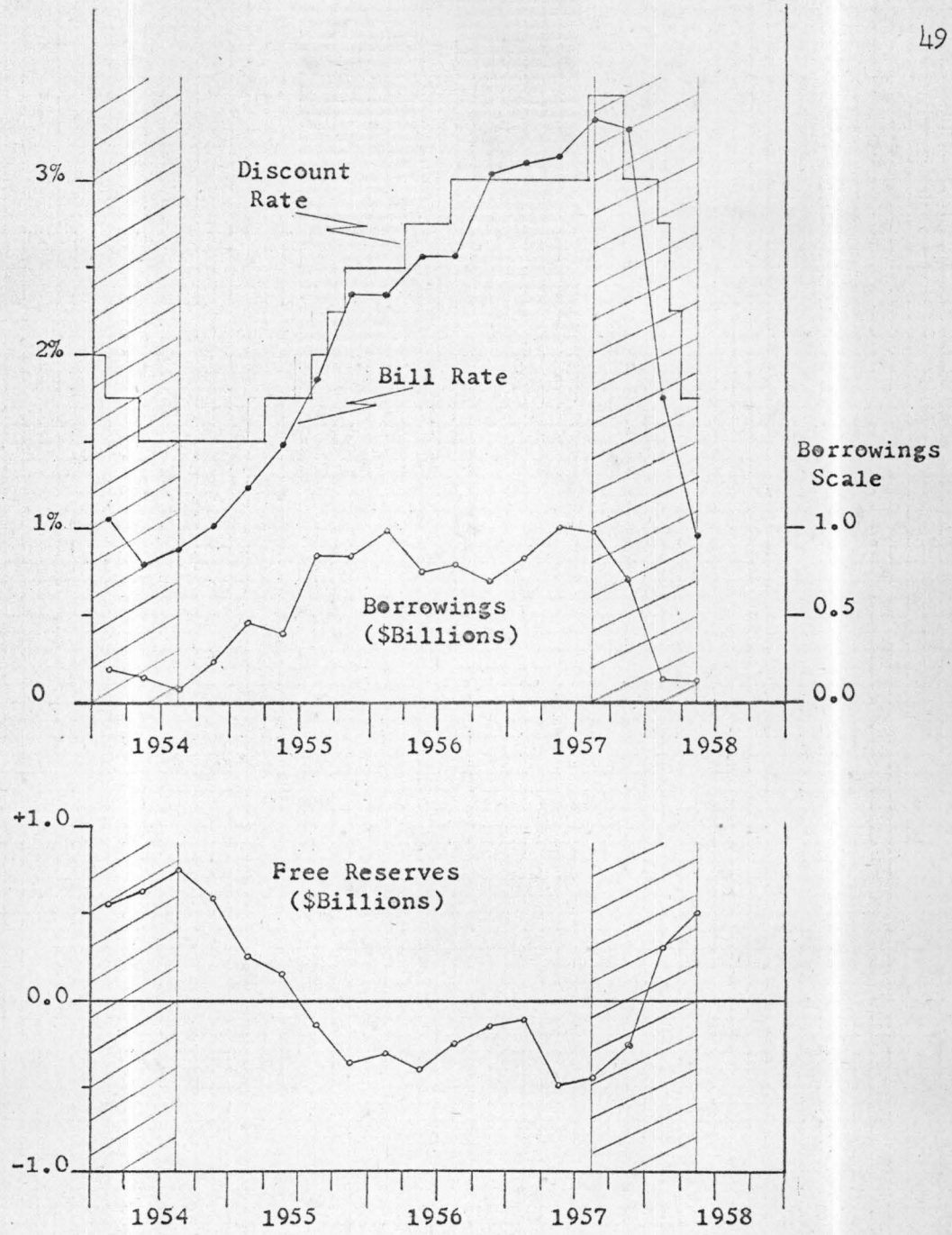


Fig. 3. Interest Rates, Member Bank Borrowings from the Federal Reserve and Member Bank Free Reserves

Sources: Federal Reserve Bulletin and Call Reports of Member Banks.

Milton Friedman in his criticism of discount policy as a means of credit control.[1] Briefly, the criticism is that, in order to maintain a constant degree of credit restraint, discount rates must be continually changed, since it is the relation of the discount rate to market rates which influences the incentive to discount, and not the absolute level of the discount rate. As market rates approach the discount rate, it becomes more advantageous for banks to obtain funds for credit expansion through borrowing, since the disadvantage in cost becomes less, and at the same time, banks can retain their holdings of short-term securities, giving them an advantage in liquidity.[2] A given level of the discount rate is therefore not uniquely correlated with a given degree of restraint, unless market rates happen to remain constant. Thus, during the period from 1955 to the cyclical turning point in 1957, the discount rate was raised a total of 1-3/4 per cent in six steps, yet the overall influence on the incentive to borrow was evidently quite small, since the level of bank borrowings did not fluctuate more than $200 million in either direction from the level that existed at the beginning of 1956.

That the Federal Reserve was in fact trying to maintain a constant degree of restraint while discount rates were being steadily raised is shown by their policy directives, which did not change

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[1] Friedman, op. cit., pp. 281-282.

[2] Opposing this tendency to make unlimited liquidity adjustments by borrowing is the official policy of discouraging borrowing for purposes other than meeting temporary needs.

substantially during this period. The Open Market Committee stated several times during the period that increases in the discount rate were being made primarily for the purpose of bringing it into alignment with market rates, and not to increase restraint.[1]

The main source of funds which banks utilized for credit creation during the 1954-1957 expansion was from the sale of U. S. Government securities. As Figure 1 shows, member banks reduced their total investments by approximately $11 billion. The entire decrease in investments was accounted for by reductions in holdings of government securities, since member banks increased their holdings of other securities during this period. For a considerable part of the expansion, banks were able to realize capital gains on their securities holdings, since interest rates did not regain their previous cyclical peak until about the second quarter of 1956.

The pattern of bank liquidity over the business cycle is shown in Figure 4. It will be recalled from Chapter II that the loan/deposit ratio is a measure of the amount of liquidity "used up" in making loans, and that it indicates the proportion of deposits which would be withdrawn and paid off by the banking system by converting assets other than loans to cash. Since use of this ratio regards all bank assets other than loans as available for meeting deposit losses, it is only appropriate in a longer-run sense, due to the fact that a longer period of time may be necessary to liquidate some classes of bank assets, such as longer-term securities.

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[1]Board of Governors of the Federal Reserve System, Annual Report, 1957, p. 17, 1958, p. 50.

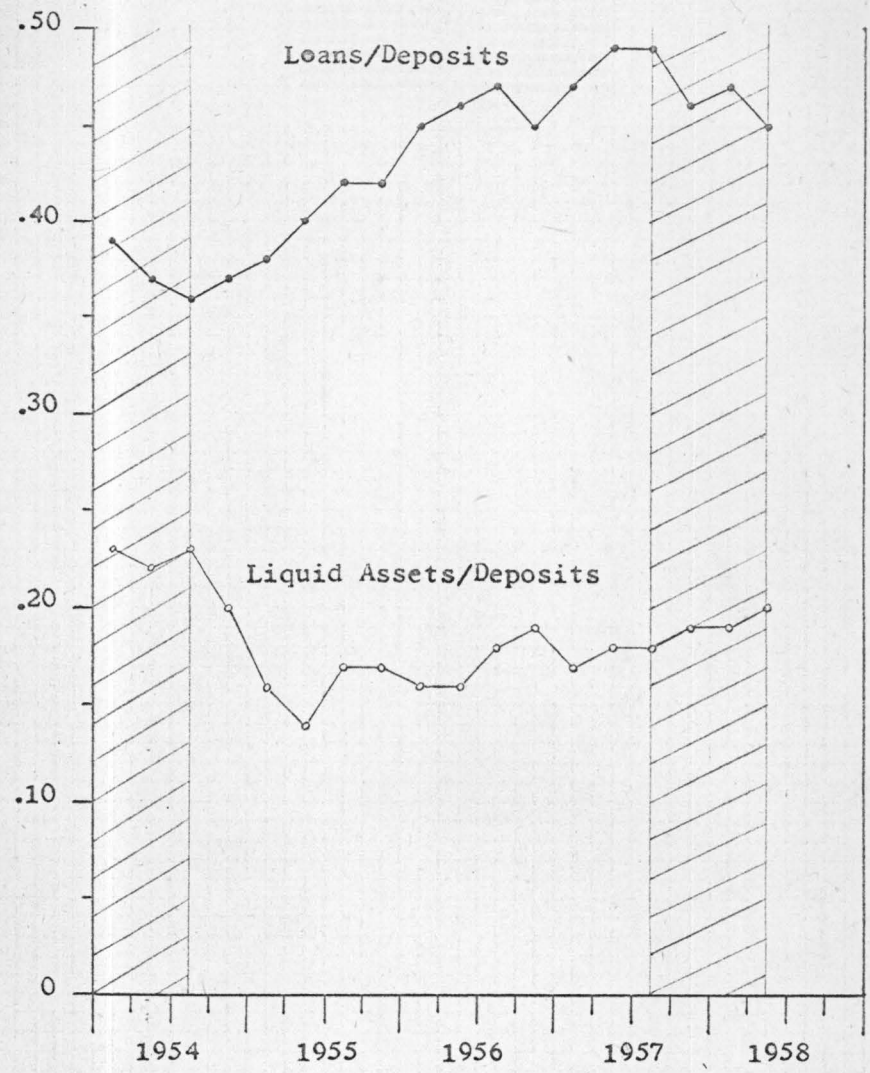

Fig. 4. Member Bank Liquidity Ratios.

Sources: Compiled from data in the Federal Reserve Bulletin and Call Reports of Member Banks and the Treasury Bulletin.

The loan/deposit ratio rose almost steadily throughout the expansion phase, except for a slight drop in the fourth quarter of 1956. This indicates that banks were willing to accomodate a substantial increase in loan demands relative to their deposits in this particular business cycle, and that the proportion of 49 per cent reached at the 1957 peak was probably not regarded as a "ceiling" for safe loan expansion by bankers. This in turn implies the acceptance of a steady loss of liquidity. The loss of liquidity was not without compensation, however, for bank rates on short-term business loans increased from 3.56 per cent at the recession trough to 4.83 per cent at the expansion peak.[1]

Although banks were willing to shift an increasing proportion of their assets to loans during this period, they were evidently unwilling to meet a constant proportion of the demands made on them. For example, during the first four quarters after the recession trough, bank loans to businesses amounted to an average of 16 per cent of business plant and equipment expenditures, but for the last four quarters before the cyclical peak, they averaged only 8 per cent[2] of such expenditures, although the interest rate differential of business loans over the corporate Aaa bond rate increased slightly, from 0.58 per cent

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[1]Federal Reserve Bulletin. The rates cited are quarterly averages at 19 important cities.

[2]Federal Reserve Bulletin and Call Reports of Member Banks.

to 0.69 per cent.[1] Additional evidence that commercial banks were engaging in rationing credit during the later stages of the expansion is furnished by a survey made by the American Bankers Association in 1957, covering 1400 banks whose combined assets were approximately two-thirds of the total assets of the commercial banking system. The replies indicated that 80 per cent of all commercial banks had become more selective in their lending policies, by means of stricter credit review, more consideration of past relations with applicants, compensating balance requirements, and shorter maturities. The credit tightening seemed to be concentrated mainly at medium-sized and large banks, with longer-term, capital-expansion type loans affected most, such as business and real estate loans and housing mortgages.[2]

The liquid assets/deposits ratio in Figure 4 shows that member banks started from the recession trough with holdings of liquid assets equal to 23 per cent of deposits. This represented a highly liquid position, since it would seem highly unlikely that deposit losses or loan demands could amount to 23 per cent of deposits in the short run. As strong loan demands were met with the beginning of the recovery, however, member banks allowed their short-term assets to decline rather abruptly relative to deposits for the first three-quarters, denoting a decline in liquidity. After this point, it appears that banks had

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[1] Federal Reserve Bulletin.

[2] E. Sherman Adams, "Monetary Restraint and Bank Credit," Banking, (September, 1957), pp. 69-71.

reached a lower limit of desired short-run liquidity, because from this point on, liquidity increased gradually during the rest of the expansion.

During the first three quarters, when the ratio was declining, loans were being increased rapidly, and deposits were also increasing. The increase in deposits by itself would tend to lower the liquid assets/deposits ratio, but so also would the increase in loans, if short-term securities were being sold to obtain the necessary funds. This is the generally-accepted reaction, since it is usually stated that the primary source of funds for making loans is the short-term securities portfolio. The reason, of course, is that there always exists a ready market for short-term securities, and even though their yield may fluctuate widely, their price stays fairly stable, due to the short time to maturity. The bank can therefore always be assured of obtaining funds by selling these securities with little chance of capital loss. A bank which did this would be, in effect, accepting lower liquidity in return for a higher income. This behavior has been pointed out as a means whereby banks can escape the effects of restrictive monetary policy.[1]

The gradual increase in short-run liquidity during the remainder of the cycle, however, is contrary to the generally-accepted behavior. Since deposits were increasing throughout this period (see Figure 2), the increase in short-run liquidity means that holdings of liquid assets

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[1]See Warren L. Smith, "On the Effectiveness of Monetary Policy," American Economic Review, XLVI (September, 1956), pp. 595,596.

were also being increased, and at a faster rate than deposits. Loans were being increased at the same time faster than deposits, so this could only mean that holdings of longer-term securities were being reduced in order to meet loan demands. That this was in fact the case is shown by Figure 5. This chart shows changes in securities holdings for all commercial banks and is therefore not strictly comparable with previous data presented, which were for member banks only. Data for all commercial banks had to be used in this case, because similar data for member banks only were not available. However, it seems a reasonable assumption that member bank behavior was roughly comparable to that for all commercial banks.

The chart shows that, as previously mentioned, banks reduced their holdings of short-term securities[1] during the first three quarters of expansion to obtain funds for making loans. During the rest of the expansion, however, holdings of securities maturing within one year were on balance increased. Holdings of securities maturing within one to five years increased during the first three quarters following the 1954 recession trough, and were on balance essentially neutral for the rest of the expansion, with increases approximately offsetting reductions.

The largest reductions in securities holdings may be seen to have occurred in the five-to-ten-year maturity class. After increasing for two quarters, changes in holdings of these securities were decidedly

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[1]It should be remembered that "short-term" securities in the liquid assets/deposits ratio are securities maturing within one year.

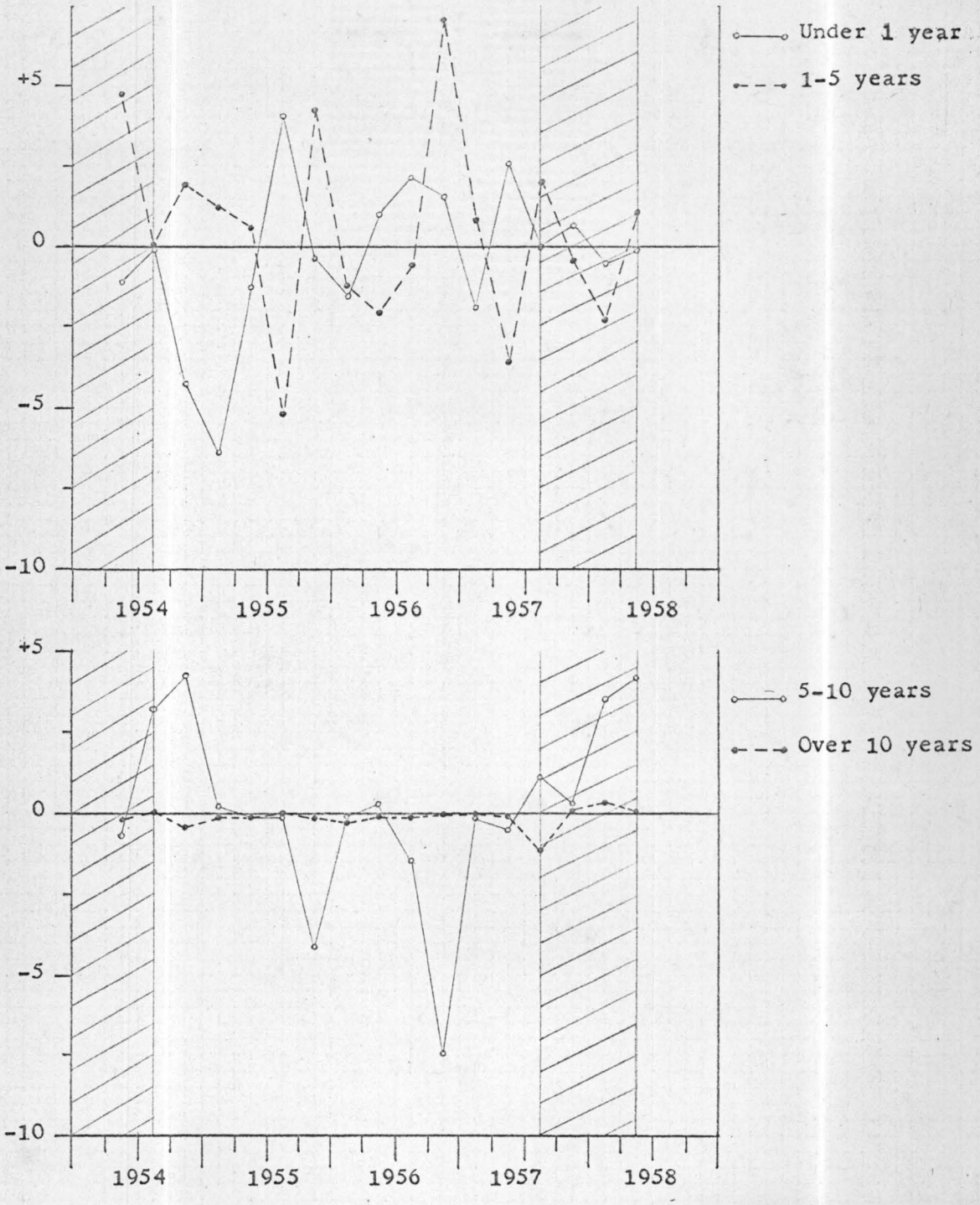

Fig. 5. Changes in Holdings of U.S. Government Securities, All Commercial Banks. ($Billions)

Source: Treasury Bulletin.

negative until the following cyclical peak. Holdings of securities maturing in over ten years did not change significantly during the course of the expansion, except for a reduction of about one billion dollars in the last quarter.

During the 1957-1958 recession, the largest change in securities holdings once again occurred in the five-to-ten-year class. Total holdings in the one-year and over-ten-year maturity classes were essentially unchanged, and a slight net reduction occurred in the one-to-five-year class. Changes in the various maturity classes for the two phases of the business cycle are summarized in Table 3 below.

TABLE 3. Changes in holdings of United States Government securities for all commercial banks, 1954-1958.
($Billions)

Phase	Maturity Class	Net Change
Expansion	Under one year	-3.9
	1 to 5 years	5.1
	5 to 10 years	-7.8
	Over 10 years	-2.4
Contraction	Under one year	0.0
	1 to 5 years	-1.6
	5 to 10 years	8.0
	Over 10 years	0.5

Source: Treasury Bulletin.

Together with the increase in loans which occurred throughout the business cycle, the changes in holdings of the various classes of securities just described led to a sharp reduction in short-run

liquidity during the first three quarters of expansion, and a gradual increase from then until the subsequent cyclical peak was reached. Increases in other types of liquid assets, such as vault cash, balances with domestic banks, and loans to banks, brokers and dealers, together with a reduction in indebtedness to the Federal Reserve, were sufficient to cause a further slight increase in short-run liquidity during the 1957-1958 recession, even though deposits increased sharply in this period.

It was pointed out earlier that bank behavior in expanding loans through reductions in holdings of long-term securities seemed to be contrary to what is ordinarily considered to be normal behavior. An explanation of this seemingly irrational behavior has been suggested by Luckett,[1] who approaches the problem by considering long-run compared to short-run profit maximization on the part of commercial banks. According to his argument, the idea that banks obtain additional reserves to increase loans by selling bills rather than longer-term bonds during periods of tight money assumes that banks are interested mainly in maximizing short-run profits. However, profits and liquidity are conflicting short-run goals, as was pointed out earlier in Chapter II. If a bank substitutes loans, which are the least liquid earning assets, for bills, which are the most liquid assets, its liquidity position has suffered the maximum decline, but if it sells bonds, the decrease in its liquidity position is lessened. Luckett feels that the

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[1]Dudley G. Luckett, "Compensatory Cyclical Bank Asset Adjustments," The Journal of Finance, XVII (March, 1962), pp. 54-62.

desire to avoid capital losses is probably weaker than the desire to maintain liquidity, because the capital loss can be made up by charging higher rates on loans, and also because of tax options which tend to reduce the reluctance to incur capital losses. The desire for liquidity is given overriding importance because

> . . . The long-run profitability of a bank depends on the maintenance of good customer relations, and a bank may consequently be more willing to tolerate a non-maximization of its short-run profits than a decline in its short-run liquidity position.[1]

Somewhat the same argument has been advanced by other writers, but usually not explicitly. For example, Lyon states:

> If, as the result of a sizable loan portfolio, the risk ratio of a bank is such as to preclude the use of risk investments in the securities portfolio, it seems logical to assume that whatever remains in the government position after the secondary reserve requirement i.e., liquid assets to meet cash drains has been met should be employed in the investment reserve, with little if any use being made of longer maturities.[2]

He therefore seems to imply the same idea that Luckett states; that the choice should be between the two illiquid assets, loans and longer-term securities, with holdings of liquid short-term assets left undisturbed.

The question of which assets are sold to obtain additional reserves therefore depends on the relative strengths of the desire for liquidity and the desire to avoid capital losses. The strength of the

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[1] Ibid., p. 57.

[2] Roger A. Lyon, Investment Portfolio Management in the Commercial Bank (New Brunswick, New Jersey: Rutgers University Press, 1960), p. 137.

latter desire is given differing importance by different writers. Warren Smith is inclined to believe that this "lock-in" effect is rather weak, because in order to make up the capital loss resulting from the sale of a long-term security, the interest rate differential between the security and a loan of equal maturity must be increased by only a relatively small amount. Assume, for instance, that the yield on a government security rises from 2.5 per cent to 3 per cent, and that the normal risk differential between a government security and a private loan is 0.25 per cent. Then the normal yield for new investment in a private loan would rise to 3.25 per cent. The interest rate on a private loan necessary to compensate the holder of government securities for the capital loss involved in switching from governments to private loans of equal maturity would be as follows:[1]

Maturity (years)	Necessary interest rate on private loans (per cent)
1	3.251
5	3.259
10	3.265
20	3.278
30	3.287
Perpetuity	3.300

A very small rise in the differential yield, then, may be sufficient to compensate the holder for the capital loss resulting from switching, which tends to cast some doubt on the strength of the lock-in effect in deterring banks from shifting from government securities into private loans.

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[1] Smith, op. cit., p. 591.

An opposite conclusion was reached by Samuel Chase as a result of am empirical study of the behavior of banks in the Tenth Federal Reserve District. Starting from the premise that features in the tax laws relating to capital losses realized by banks on sales of securities can make liquidation of securities at a loss attractive, especially when higher-yielding loans are available, he argues that banks which establish such losses for tax purposes are not "locked in." From data submitted by Tenth District banks for 1959, when loan demands were strong, he concluded that the majority of banks were reluctant to establish losses on securities, and that the lock-in effect was an important influence on the willingness of banks to sell securities in order to extend additional loan credit.[1]

In his study of bank liquidity policy, Luckett arrived at the same conclusion that was presented earlier in this chapter, that funds for expanding loans came mainly from reductions in holdings of longer-term issues, and holdings of short-term issues were increased, resulting in increased short-run liquidity while long-run liquidity as measured by the loan/deposit ratio was decreasing. To moderate the influence of abrupt shifts in liquidity ratios due to a large block of securities in one maturity class moving into the next shorter class, he used a six-month moving average of bank securities holding. This was done because it was recognized that changes in liquidity ratios

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[1]Samuel B. Chase, Jr., "The Lock-In Effect: Bank Reactions to Securities Losses," Monthly Review, Federal Reserve Bank of Kansas City, June, 1960, pp. 11-13, 16.

may be due to actual purchases or sales of securities, and also may be due to groups of securities moving from one maturity class to another with the passage of time. Purchases or sales of course reflect conscious actions on the part of banks, but the second type of change, that due to maturities shortening with time, may be, in a sense, involuntary. The six-month moving average was used by Luckett because he felt that this was a reasonable length of time for banks to replace shortened maturities if they wished, and the results would therefore be indicative of the liquidity changes which were actually desired by banks.[1]

A more direct measure of desired changes would be to compute the quarterly changes in each individual Treasury issue held by banks, and combine the results in maturity classes. This was done, with the results shown in Figure 6. The changes represent actual purchases and sales for each maturity class, and exclude security issues moving into different maturity classes with the passage of time, with one exception. Maturing issues were included as sales of securities maturing in less than one year. This was done because it was felt that banks could, if they wished, reinvest the proceeds from maturing issues in other short-term securities, and that changes arising from this source would therefore represent desired changes.

Computed in this manner, changes in holdings of securities show a somewhat different pattern than do total changes. The outstanding

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[1] Luckett, op. cit., p. 58.

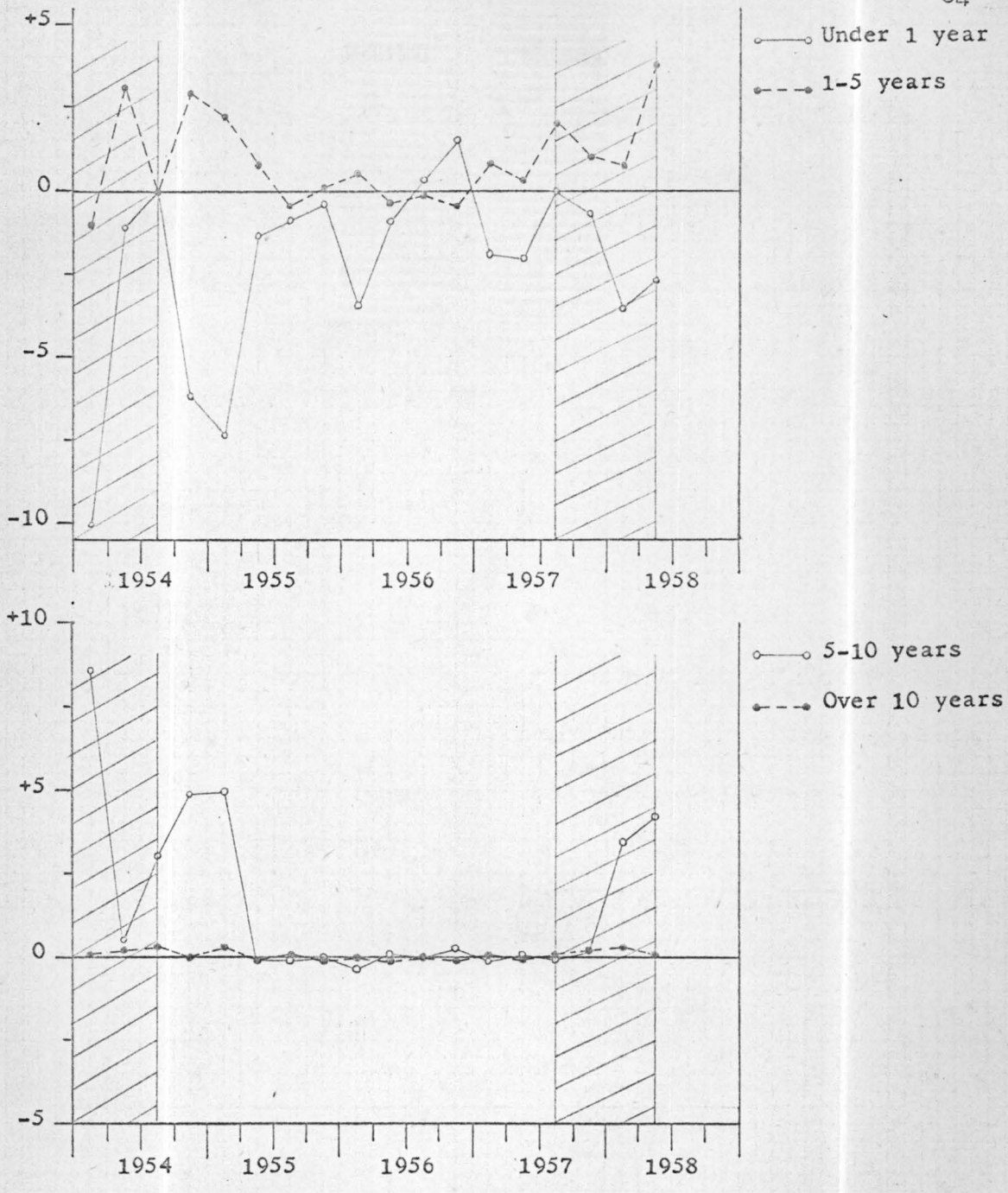

Fig. 6. Purchases or Sales of U.S. Government Securities by all Commercial Banks. ($Billions)

Source: Compiled from data in the Treasury Bulletin.

differences are in the under-one-year and the five-to-ten-year classes. Fairly large net sales occurred in the under-one-year class during the period when total holdings of these securities were increasing, indicating that the increase in total holdings was due to securities moving into this class from the one-to-five-year class. Similarly, the large reduction in holdings of securities in the five-to-ten-year class was accounted for by securities moving out of this class into the one-to-five-year class, since actual purchases or sales after the first two quarters of economic expansion were insignificant.

During the recession of 1957-1958, fairly sizable sales of short-term securities continued, although the effect of securities moving down into this class from the one-to-five-year class was sufficiently large to keep total holdings approximately constant. Purchases during this period were confined almost entirely to issues ranging in maturity from one to ten years. The fairly large purchases of these maturities appears to have been an attempt on the part of banks to replenish holdings of longer terms to levels roughly comparable to those which prevailed during the previous recession, possibly in the expectation of once more allowing the maturity of their holdings to shorten in the next period of recovery and loan expansion. The net purchases by maturity classes for the two main phases of the business cycle are summarized in Table 4 (compare with Table 3).

TABLE 4. Net purchases of United States Government securities by all commercial banks, 1954-1958.
($Billions)

Cycle Phase	Maturity Class	Net Purchases
Expansion	Under one year	-22.3
	1 to 5 years	8.3
	5 to 10 years	4.6
	Over 10 years	0.0
Contraction	Under one year	-7.0
	1 to 5 years	5.4
	5 to 10 years	7.8
	Over 10 years	0.6

Source: Computed from data in the Treasury Bulletin.

These results are more in agreement with the usual explanation of bank portfolio arrangement, since it is apparent that banks did not engage in large-scale selling of long-term securities at capital losses in order to expand their loan portfolios. Instead, they allowed the whole maturity structure of their securities portfolios to shorten, and obtained funds for loan expansion from the short end of their portfolios, through the proceeds of maturing issues.

However, the line of reasoning taken by Luckett, that banks would rationally substitute loans for long-term securities, still seems valid. The reason is that, during this period, banks willingly allowed the maturities of their portfolios to shorten, and in effect they substituted one type of illiquid asset (loans) for another (long-term securities). If they had desired to maintain a certain level of holdings of long-term securities, they presumably could have done so. This

reaction by banks during this period appears to have been entirely rational, since in this manner they were able to maintain their short-run liquidity positions while meeting increased loan demands, and at the same time, they avoided the capital losses that would have been incurred by market sales of longer-term securities at reduced prices.

From the evidence presented in this chapter, it appears that the liquid assets/deposits ratio of 14 per cent which was reached early in the economic recovery was regarded by bankers as a lower limit to short-run liquidity, since for the rest of the expansion, the maturity length of their securities portfolios was allowed to shorten, causing the short-run liquidity ratio to move upward. It therefore appears that banks were reluctant to substitute income for liquidity past a certain point, and when that point was reached, further portfolio arrangement took the form of shifting between two types of relatively high-yielding, illiquid assets, namely loans and longer-term securities.

CHAPTER IV

LIQUIDITY BEHAVIOR BY CLASS OF BANK DURING THE 1954-1958 BUSINESS CYCLE

The Possibility of Structural Changes

In the last chapter, the liquidity behavior of the banking system as a whole during the 1954-1958 business cycle was examined, and it was concluded that banks in general tended to build up their short-run liquidity as long-run liquidity declined. This was explained as a behavioral phenomenon, based on the hypothesis that banks were not willing to sacrifice without limit liquidity needed for short-run demands in favor of higher yields, and instead reacted to the possibility of illiquidity by consciously allowing the maturity of their securities portfolios to shorten at the same time that they were increasing loans. An alternative explanation might be that the pattern of liquidity changes was due to structural causes, in the form of deposit shifts. Specifically, if deposit shifts from city banks to country banks occurred, this could lead to a higher liquid assets/deposits ratio, because country banks typically devote a larger share of their funds to very liquid assets than do city banks. Since, at the same time, loans were being expanded in relation to deposits by the banking system in general, increasing the loan/deposit ratio, this type

of shift could account in large part for the results noted in the last chapter. Another type of structural shift which could explain the combination of increasing short-run and decreasing long-run liquidity is a shift from time deposits into demand deposits, since demand deposits are ordinarily considered to be more volatile and require larger holdings of liquid assets as a precautionary measure against deposit losses.

In this chapter, the possibility of structural changes of the types just mentioned will be examined for the period under consideration, to see if they could account for the liquidity behavior discussed in the previous chapter. To this end, the aggregate data of the previous chapter will be broken down according to class of bank, so that any structural shifts which may have occurred may be detected. Liquidity ratios for the different classes will also be presented, and differences in liquidity policy among classes of banks will be briefly discussed.

The Influence of Structural Changes During the 1954-1958 Business Cycle

Deposits for each class of bank during the 1954-1958 business cycle are shown in Figure 7b. It can be seen that deposits at Central Reserve City banks remained essentially unchanged throughout the business expansion, except for seasonal movements. Deposits at Reserve City and Country banks, on the other hand, increased by 9.2 per cent and 13.3 per cent, respectively. This differential deposit growth

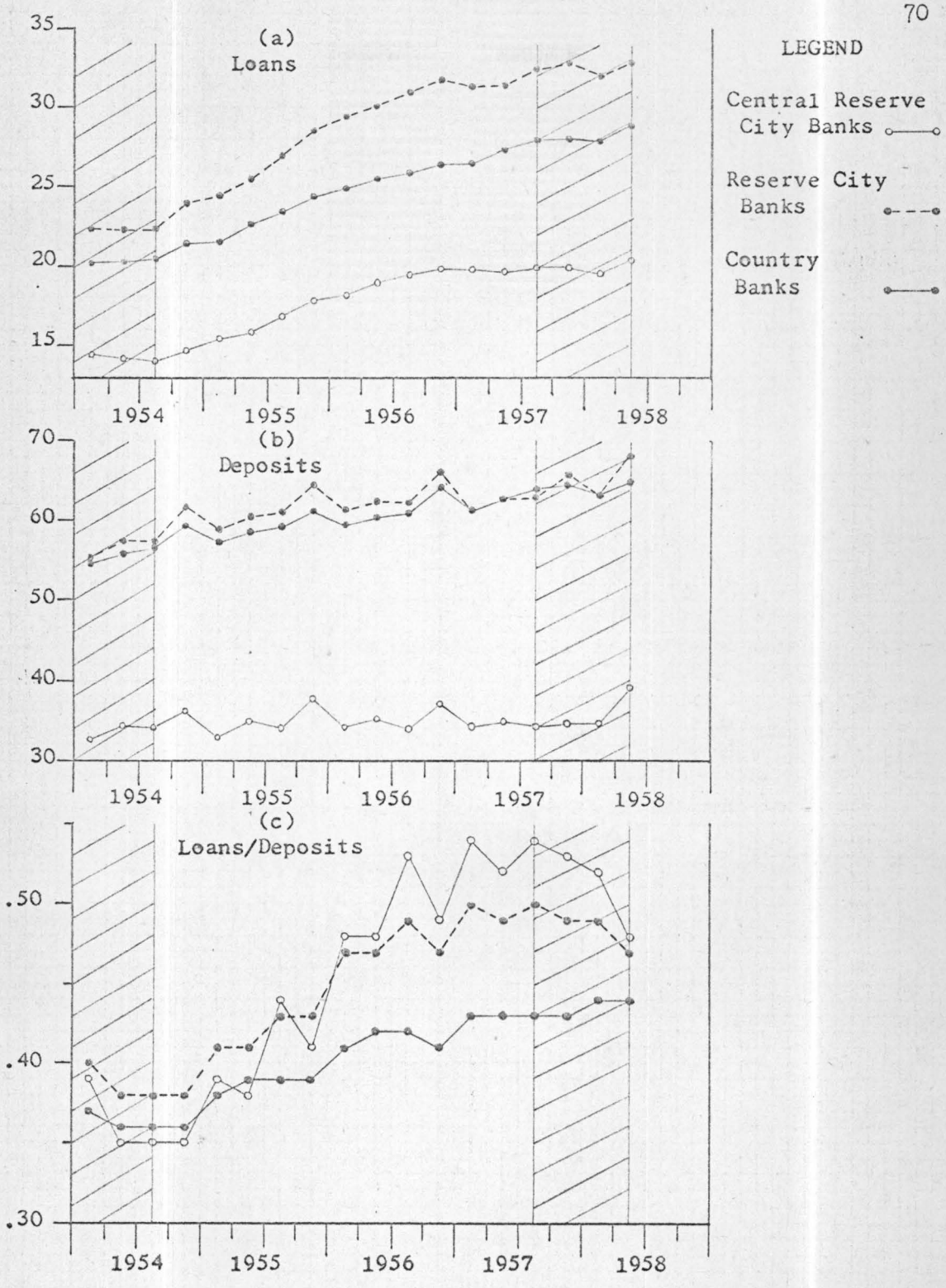

Fig. 7. Loans, Deposits and Loan/Deposit Ratios, by Class of Bank.

Source: Federal Reserve, Call Reports of Member Banks.

might by itself change short-run liquidity, since different classes of banks tend to hold different proportions of liquid assets.

The change in short-run liquidity due to this type of differential deposit growth would not be the same as that noted in the previous chapter, however. It will be recalled that the abnormal behavior was the increase in short-run liquidity which started after the expansion had been in progress for three quarters, and continued until the expansion peak. At the trough in short-run liquidity three quarters after the expansion had started, the ratios for Central Reserve City and Country banks were equal at about 16.2 per cent, and the ratio for Reserve City banks was 11.4 per cent. If it is assumed for the moment that each class of bank maintained the same proportion of liquid assets for the rest of the expansion, the change in the aggregate liquidity ratio due solely to the differential deposit growth can be computed. Since deposits at the expansion peak were $34.3 billion, $63.0 billion, and $64.0 billion for Central Reserve City, Reserve City and Country banks, respectively, the aggregate liquidity ratio that would have resulted at this point if individual ratios had remained constant would be $\frac{(.162)(34.3) + (.162)(64.0) + (.114)(63.0)}{161.3} = 14.3$ per cent. Since the aggregate ratio which actually existed at the cyclical peak was 18 per cent, it can be seen that the increase in short-run liquidity which occurred cannot be explained by differential deposit growth among differing classes of banks.

The other type of structural shift mentioned, that of demand

deposits increasing relative to time deposits, also does not offer an explanation of the changes which were observed in the short-run liquidity ratio. In order for such a shift between demand and time deposits to account for an increase in the short-run liquidity ratio, demand deposits would have to increase relative to time deposits, because of the higher liquidity requirements for demand deposits. However, as Figure 2 in Chapter III shows, the differential growth was in favor of time deposits. The growth in time deposits for the expansion phase amounted to 17.0 per cent, compared to a mere 3.1 per cent for demand deposits.

The weight of the evidence regarding liquidity changes during the 1954-1958 business cycle therefore seems to favor the behavioral explanation presented in Chapter III. Movements in the aggregate ratio, however, are more meaningful when broken down into components according to the different classes of banks. In the next section, the behavioral patterns of the different classes will be discussed briefly.

Portfolio Adjustment by Class of Bank

Figure 7a shows that the loan behavior of all three classes of banks was very similar, with loans increasing at a fairly uniform rate throughout the economic expansion. This resulted in increasing loan/deposit ratios, with all three components showing the same general pattern as the aggregate loan/deposit ratio pointed out in Chapter III. The only significant difference in behavior occurred at Central Reserve City banks, where the loan/deposit ratio increased considerably

more than at the other two classes. This greater increase was due mainly to the lack of deposit growth at Central Reserve City banks.

When short-run liquidity ratios are computed for the individual classes of banks, as in Figure 8,[1] the case for the behavioral explanation presented in Chapter III is strengthened, since liquidity ratios for Reserve City and Country banks behaved in the same manner as the aggregate ratio did. This implies that the somewhat abnormal movement in the aggregate ratio was due to similar movements in the ratios of Reserve City and Country banks, reflecting a presumably conscious arrangement of assets, not merely a structural shift of importance in favor of these two classes of banks. Central Reserve City banks, on the other hand, reacted in what is usually considered to be a more normal manner throughout the business cycle, in that they allowed their short-run liquidity to decrease during the expansion, with only minor exceptions, and to increase sharply during the recession. Due to the fact that Central Reserve City banks constitute a relatively small proportion of the entire banking system, however, their more "normal" behavior was not sufficient to cause the aggregate ratio to move in a similar manner.

That the liquidity ratios of individual classes of banks

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[1]Data for holdings of U. S. Government securities maturing within one year broken down by class of bank were not available for the first and third quarters of each year, so these figures had to be estimated in computing short-run liquidity ratios. The error of estimation is probably not large, because the total figure was known, and these securities usually represent less than 50 per cent of total liquid asset holdings.

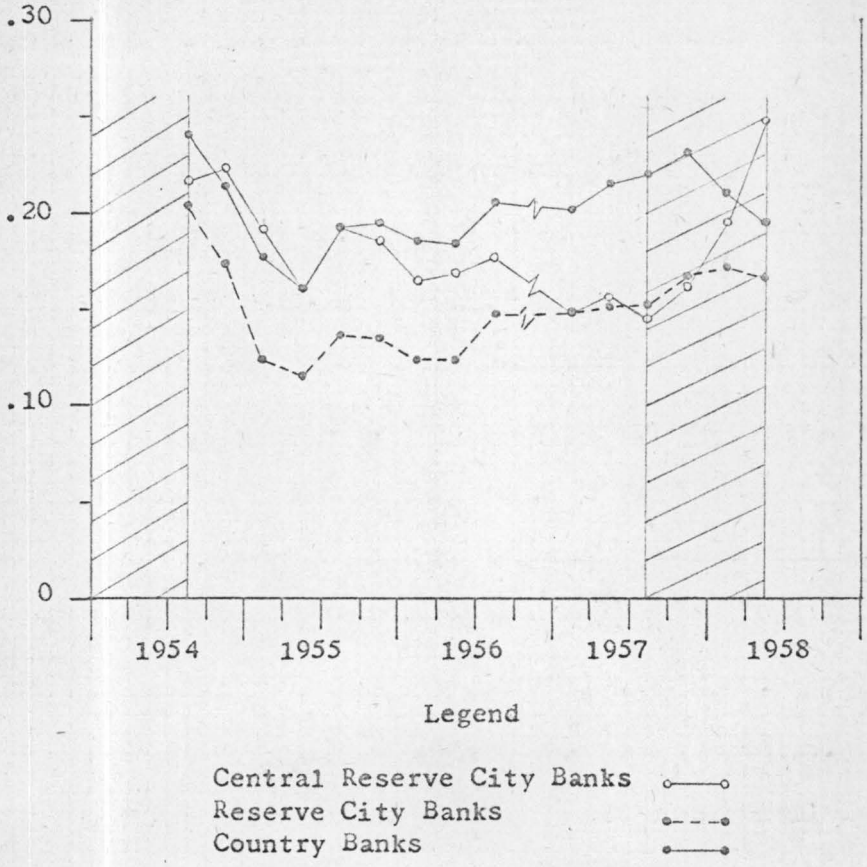

Fig. 8. Liquid Assets/Deposits Ratios, by Class of Bank

Source: Federal Reserve, Call Reports of Member Banks.

reflected voluntary portfolio arrangement is shown by Figure 9. Although data for holdings of United States Government securities maturing within one year were not available, the available data still show that, during the latter part of the expansion, Reserve City and Country banks built up their holdings of shorter-term securities, at the same time allowing their holdings of securities in the five to ten year maturity class to decline. This in turn was probably a main reason for the increase which occurred in their liquid assets/deposits ratios. This supports the behavioral explanation which was presented earlier, since these two classes of banks were apparently unwilling to sustain a loss of liquidity in favor of income past a certain point.

Central Reserve City banks, on the other hand, allowed their holdings of shorter-term securities to fall throughout most of the expansion, and although they increased such holdings near the end of the expansion, the increase was slight. This was reflected in a generally falling liquidity ratio throughout the expansion. It is possible that, due to their closeness to the markets for emergency funds and to the relatively high level of liquidity from which they started the expansion, Central Reserve City banks were able to sustain a fairly steady loss of liquidity in favor of loans throughout the expansion, without ever reaching a level of liquidity which they felt to be unsafe.

As a summary to this chapter, it has been shown that the somewhat abnormal liquidity behavior of the banking system during the 1954-1958 business cycle was probably not due to structural deposit shifts within the system, but was rather due to Reserve City and Country

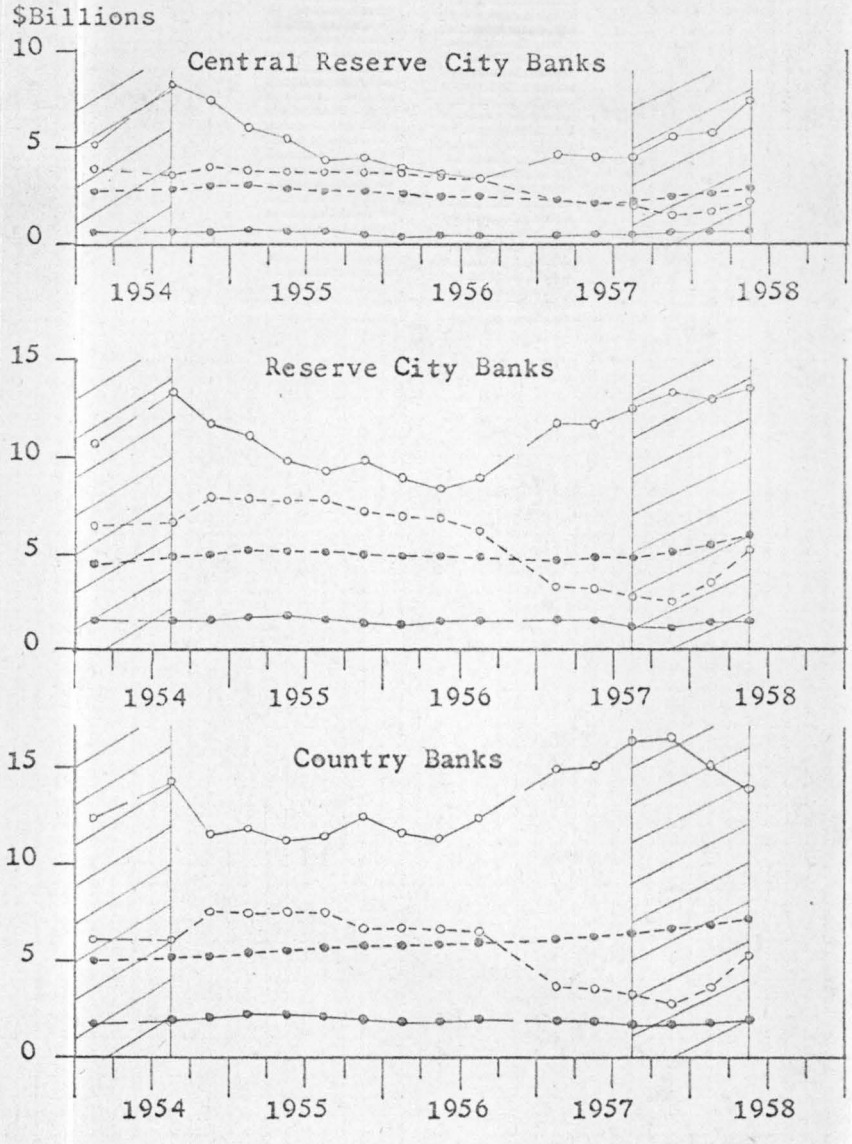

Fig. 9. Securities Holdings, by Class of Bank.

Source: Federal Reserve, Call Reports of Member Banks.

banks adjusting their securities portfolios in such a manner that their liquidity ratios moved in the same way that the aggregate ratio did. Central Reserve City banks pursued a more "normal" policy of portfolio adjustment, but their importance was not great enough to be reflected in the aggregate liquidity ratio. It therefore appears that the behavioral explanation presented in Chapter III is a more adequate explanation of the pattern of bank liquidity which prevailed during the business cycle under consideration than is furnished by the possibility of structural changes.

CHAPTER V

IMPLICATIONS FOR MONETARY POLICY

The reactions of the banking system to liquidity changes discussed earlier in this thesis point up a weakness in the ability of the monetary authorities effectively to pursue restrictive monetary policy. This weakness arises from the maturity distribution of the Federal debt, which resulted, at least during the 1954-1958 business cycle, in large blocks of longer-term securities moving into the shorter-term, more liquid class with the passage of time. A large volume of securities of intermediate maturities held by the banks at the start of the economic recovery in 1954 moved into the more liquid class before the expansion had run its course, which built up short-run bank liquidity while maturing issues were furnishing funds with which to expand loans.

Since the shortening of maturity lengths with the passage of time allowed banks to build up their short-run liquidity at the same time that they were expanding loans, banks were not faced with the choice of either suffering a loss of short-run liquidity or refusing requests for loans. Also, since maturing issues furnished funds for loan expansion, banks were not faced with the necessity of selling long-term issues, and thereby sustaining capital losses, in order to

both expand their loans and maintain their short-run liquidity. In other words, they were not exposed to the lock-in effect to any great extent. Commercial banks were therefore in the fortunate position, for them, of being able to gain the higher income made possible by the expansion of higher-yielding loans without any substantial sacrifice of liquidity and without significant capital losses. A restrictive monetary policy must influence bank lending behavior by forcing upon them the unfavorable consequences of either reduced liquidity or capital losses, but in this case, banks were able to escape both of these constraints to a large degree. This was a weakness of monetary policy during the business cycle under consideration.

Before considering possible solutions to the problem posed for monetary policy by the above phenomenon, the limitations of this study should be pointed out. The period studied is only one business cycle, covering a relatively short period of time, and it must be admitted that the results of this study may not be applicable to all cycles. The maturity distribution of commercial bank securities portfolios studied here may have been peculiar to the 1954-1958 business cycle, in which case the results noted in this study would not apply in general. A more thorough study covering all recent business cycles would have to be made before these results could be generalized. However, the study by Luckett indicates that this type of bank behavior was not confined to the 1954-1958 business cycle alone. Specifically, his data show a similar behavior during the tight-money period from mid-1958 to the end of 1959, when bank loans increased by $18.5 billion and the

major portfolio adjustment was made in holdings of securities maturing in over five years. Holdings of these securities fell by $7.5 billion, one-to-five-year maturities rose by $3.0 billion, and under-one-year maturities fell by about $2.0 billion.[1]

The ability of commercial banks partially to escape the effects of restrictive monetary policy by making compensating liquidity adjustments in their securities portfolios might be overcome either by shortening the Federal debt substantially, or by lengthening it in such a way that the maturity of large blocks of securities would not shorten enough during the course of a business expansion to furnish extra liquidity to the banks. The alternative of lengthening the debt is presented in its most extreme form by Henry Simons, who proposes that the Federal debt should consist entirely of currency and consols.[2] In his proposal, the only objective of debt management policy would be stabilization of the price level, and this would be the determining factor in the composition of the debt between fully-supported currency and non-supported consols.[3] When deflationary pressure was desired, money would be converted into consols, and the reverse process would be carried out when upward pressure on the price level was desired.

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[1] Luckett, op. cit., p. 58.

[2] Henry C. Simons, "On Debt Policy," The Journal of Political Economy, LII (September, 1944), p. 357.

[3] Ibid., p. 358.

Such a debt policy would confront banks with the choice of either holding consols and losing liquidity, or holding money and passing up income. If such a policy were followed, banks would presumably keep only such non-earning cash balances as were required for expected liquidity needs, and after satisfying normal credit needs, they would probably invest the rest of their funds in consols. During an expansionary period, as the demand for credit increased, banks would have to liquidate part of their holdings of consols to obtain funds for loan expansion, and would be exposed to the full force of the lock-in effect arising from increasing interest rates. The extent of credit expansion would then be controlled by the degree of official support for consols, together with discount policy and reserve requirement adjustments. Under this type of policy, then, the increased effectiveness of restrictive monetary policy over that which was followed in the 1954-1958 expansion would be gained through a greater exposure of banks to the lock-in effect.[1]

Even if the policy of lengthening the maturity of the bank-held debt were adopted to prevent banks from making compensating liquidity

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[1]Simons would supplement his debt-management program with 100% reserve requirements for those banks holding their funds in cash, thereby forcing those institutions to derive their income from service charges. For banks electing to hold consols, he would recommend equity requirements of 100%, which would transform those banks into investment trusts. This part of his program, of course, would be unnecessary in a program of debt management designed to prevent banks from making compensating liquidity changes by converting the interest-bearing Federal debt entirely to consols. See Ibid., p. 361.

adjustments and expanding loans too rapidly, such an extreme policy as that advocated by Simons would not be necessary. Securities with maturity lengths of over, say, ten years are not normally regarded as furnishing a great deal of liquidity for meeting loan demands because their price is likely to fall considerably in periods of rising interest rates. If the maturity of the long-term component of bank-held Federal debt were kept greater than a certain figure, ten years for example, banks would be able to expand loans by selling short-term securities only until they had reached what they regarded as a lower limit to their short-run liquidity; they would then be forced to sell their long-terms at capital losses in order to expand loans any further. The maturity of the long-term component could be kept longer than some selected figure by selling only securities of longer maturities, and refunding them as they approached the selected figure.

A policy of lengthening the Federal debt was favored by the Committee for Economic Development in their 1954 study of debt management. The Committee felt that the banking system could manage with less liquidity than is available from the outstanding volume of short-term debt, and that the effectiveness of open-market operations would be increased by lengthening the maturity of the debt.[1]

The objective of limiting the ability of commercial banks to make liquidity adjustments might possibly also be accomplished by a

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[1]The Research and Policy Committee of the Committee for Economic Development, Managing the Federal Debt (New York: Committee for Economic Development, 1954), pp. 20, 24.

substantial shortening of the Federal debt. If banks held predominantly short-terms in their securities portfolio, they would be forced to give up liquidity to expand loans, and their ability to expand loans would depend on the amount of short-terms they could sell and still maintain an adequate liquidity position. Once loan expansion at the expense of liquid asset holdings had proceeded to the point where banks felt vulnerable to the threat of sudden deposit losses, their short-run liquidity position would act as a restraint on further lending.[1] Data for the past decade indicate that a secular decline in bank-held long-term government securities might be occurring.[2] If this is actually happening, it would tend to prevent banks from making portfolio adjustments in holdings of these securities. The trouble with the alternative of shortening the debt, however, is that if the present bank portfolios of government securities were converted entirely to short-terms, the normal level of bank liquidity would be much higher than it is with the present structure of the Federal debt. This would permit a much larger loan expansion than is possible at the present without approaching an unsafe level of liquidity. Another factor which would offset the effects of a reduction in bank holdings of long-term U. S. Government debt is the growing volume of State and Local government debt, much of which is longer-term. These issues could replace long-

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[1] Luckett, op. cit., pp. 61-62.

[2] Ibid., p. 62.

term Federal debt as the basis for bank liquidity adjustments of the type described previously. The growth of these various types of debt is shown in Table 5 below.

TABLE 5. Growth of State and Local debt compared to intermediate- and long-term U. S. Government securities.
($Billions)

Year	New State and Local Issues	Net Change, U. S. Government Securities 5-10 Years	Over 10 Years
1951	3.2	1.5	0.0
1952	4.1	13.9	4.9
1953	5.6	-14.5	-5.7
1954	7.0	26.0	21.6
1955	6.0	-16.0	7.0
1956	5.4	-2.2	0.0
1957	7.2	-6.7	-0.8
1958	7.8	7.4	-0.3
1959	7.9	4.9	-7.3
1960	7.5	-4.9	-0.4
Total Change	61.7	9.4	19.0

Sources: Federal Reserve Bulletin and Treasury Bulletin.

The data in Table 6 below indicate that State and Local issues have in fact become an increasingly important part of commercial bank securities portfolios as long-term Federal issues have declined in importance.

TABLE 6. State and Local Government debt in commercial bank securities portfolios.
($Billions)

Year	State and Local Debt Held by Commercial Banks	Total Commercial Bank Securities Holdings	Ratio, State and Local Issues to Total Securities Holdings (per cent)
1951	9.0	73.7	12.2
1952	10.0	76.3	13.1
1953	10.6	76.9	13.8
1954	12.4	84.1	14.7
1955	12.5	77.4	16.1
1956	12.7	74.0	17.1
1957	13.7	75.3	18.2
1958	16.3	86.1	18.9
1959	16.8	78.6	21.3
1960	17.3	81.0	21.4

Source: Federal Deposit Insurance Corporation, Annual Reports. Data are for commercial banks insured with the FDIC, which account for over 98 per cent of commercial bank deposits.

It has been pointed out that the effectiveness of monetary policy in preventing banks from carrying out compensating liquidity adjustments might possibly be increased by either lengthening or shortening the Federal debt. On the one hand, lengthening the debt would rely on the threat of capital losses as a restraint on lending; on the other hand, a shortening of the debt would rely on changes in the short-run liquidity of banks. It has been mentioned that the alternative of shortening the debt might be offset by the growing volume of State and Local debt eligible for inclusion in bank portfolios. Leaving this consideration aside for the moment, the choice between the two alternatives rests on several factors concerning the relative advantages of

long and short debt.[1] If larger amounts of long-term debt are issued, the Federal debt becomes a stronger influence on the long-term interest rate. This would have countercyclical effects in two ways; first, the greater fluctuations in interest rates would tend to restrict private investment during prosperity and encourage it during recession, and second, the willingness of banks to lend would be influenced by greater fluctuations in the market value of their securities portfolios. Another advantage of long-term debt is that it would avoid the necessity of frequent refundings.

Among the disadvantages of issuing more long-term debt is that the increased demand in the market for long-term funds might force private borrowers into short-term borrowing, and would thereby tend to increase the danger of forced liquidation of private debt during recessions. Also, heavier reliance on long-term debt would involve higher interest costs to the Treasury and possible difficulties of marketing new issues, especially during periods of prosperity. The higher interest costs of long-term Federal debt poses the question of whether the extra money spent on interest costs would not have a greater stimulating effect on the economy if applied elsewhere.

Short-term debt would have the advantages of lower interest costs, and the maintenance of the present liquidity structure of the economy. Since the short-term Federal debt at present plays so large

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[1]The relative advantages of short and long debt are summarized in the Research and Policy Committee of the Committee for Economic Development, op. cit., pp. 16-20.

a part in the liquidity of corporations and financial institutions, besides banks, a shift away from the present structure might be difficult to achieve.

The choice between longer and shorter Federal debt therefore involves a number of factors other than the main consideration of this study, such as the effects of higher interest costs and the desirability of closer control over the long-term interest rate. The objective of increasing the effectiveness of monetary policy by preventing compensating bank portfolio adjustments in intermediate-and long-term securities of the type previously discussed is only one of the relevant factors which should be considered in formulating a program of debt management. It appears that the growing importance of State and Local government debt might largely negate the advantages on this point of shorter-term debt, so the weight of the evidence presented here would seem to provide an additional argument for lengthening the maturity of the Federal debt.

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