

[SUBCOMMITTEE PRINT]

SOME GENERAL FEATURES OF THE  
FEDERAL RESERVE'S APPROACH  
TO POLICY

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A STAFF ANALYSIS

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SUBCOMMITTEE ON DOMESTIC FINANCE  
COMMITTEE ON BANKING AND CURRENCY  
HOUSE OF REPRESENTATIVES  
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## LETTER OF TRANSMITTAL

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FEBRUARY 7, 1964.

*To the Members of the Subcommittee on Domestic Finance:*

Transmitted herewith for the use of the subcommittee is a staff analysis of Federal Reserve policy action. More specifically, it examines the basic notions that guide the Open Market Committee in its transactions which, of course, are fundamental in determining the volume of the money and credit.

Although part of a larger study which is expected to be available for printing in the near future, this analysis, dealing as it does with the Open Market Committee and the fundamental monetary functions that it performs, is being made available separately at this time because of its relevance to the current hearings on the Federal Reserve System.

Sincerely yours,

WRIGHT PATMAN, *Chairman.*



## LETTER OF TRANSMITTAL

JANUARY 30, 1964.

HON. WRIGHT PATMAN,  
*Chairman, Committee on Banking and Currency,  
House of Representatives, Washington, D.C.*

DEAR MR. CHAIRMAN: Transmitted herewith is one chapter of the study entitled "An Analysis of Federal Reserve Monetary Policy-making" that is being prepared for the committee. The following chapter, "Some General Features of the Federal Reserve's Approach to Policy," contains an evaluation of some of the basic notions that guide the Federal Reserve in determining the nature and extent of policy actions. The role of this chapter in the study can best be understood by a brief description of the total study, the general guidelines along which our analysis has proceeded, and the main conclusions that emerge from our analysis.

As you know, 50 years have passed since the Congress established the Federal Reserve System and delegated to it, under a broad mandate, the constitutional powers vested in Congress under article I, section 8. In the ensuing years, the original mandate was modified in a major way by congressional approval of the Banking Acts of 1933 and 1935, the Employment Act of 1946, and of international agreements. Along with these changes and the social and political changes that they reflect, there have been major modifications in the powers and structure of the Federal Reserve System, in the scope and complexity of credit and financial markets, in the institutional arrangements that transmit Federal Reserve policy operations to businesses and households, and in the mechanisms on which the Federal Reserve relies to carry out the mandates or directions given by the Congress.

This study attempts to appraise Federal Reserve operations in the light of the congressional mandate. It will be concerned with four basic questions: (1) What are the Federal Reserve's conceptions of the mechanism transmitting its policy actions to the monetary system? (2) What are the principal ideas composing the Federal Reserve's conceptions? (3) How do these ideas affect the observable policy behavior of the Federal Reserve authorities? How do they shape their objectives and the manner of operating the available policy instruments? (4) What relevance can be assigned to the conceptions guiding the Federal Reserve's policy behavior? Has the Federal Reserve based its ruling conceptions on a systematic body of tested propositions about the nature of the monetary process? Are the dominant notions guiding policy actions sufficiently well conceived and adequately appraised to carry the heavy burden of policy actions induced by their pervasive and entrenched influence?

Our understanding of the prevailing notions and viewpoints of the Federal Reserve is based on a careful reading of the published record, the statements made by members of the Federal Open Market Committee, and by members of the research staff of the Board of Governors

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and the Reserve banks. Our knowledge has been enhanced by detailed discussions with members of the research and operating staffs and by members of the Federal Open Market Committee, and by responses to a set of questions mailed to the Presidents of the 12 Reserve banks and to each member of the Board of Governors.

The study attempts to use the information obtained from the varied sources to develop what we believe is the prevailing state of Federal Reserve understanding of the process connecting policy actions with the money supply. Chapter I will summarize the material in the study and indicate the main findings. The enclosed chapter II, discusses some of the fragments that represent a large part of the Federal Reserve conception of the monetary process. Most of these fragments are based on judgment, personal experience or direct observation; few, if any, have been critically examined, fully articulated, or compared to alternative conceptions. We find that the failure of the Federal Reserve to develop and test a frame of reference has led to inappropriate policy decisions, incorrect evaluation of events occurring in the money and financial markets, and the choice of inadequate instruments or targets for policy actions. Further, we find that these failures render monetary policy less successful in carrying out the congressional mandate than it would otherwise be.

In this chapter, an attempt is made to explicate concepts, such as "tone," "feel," "credit," and "liquidity," that play a dominant role in Federal Reserve thinking and discussion of the monetary mechanism. We find that these concepts are inadequately defined in Federal Reserve discussions and often have meanings that vary from context to context. Moreover, we suggest that the repeated use of these vague and elusive concepts has hindered the development of an adequate explanation of the response of the money supply to changes in the rediscount rates, reserve requirements against time and demand deposits, and open market operations.

Further, we suggest that two basic features of the System's orientation help to explain the failure of the Federal Reserve to develop a coherent explanation of the monetary process or a rational foundation for policy action. (1) The Federal Reserve is organized and operated in a way that places overriding importance and focuses principal attention on week-to-week, day-to-day, and even hour-to-hour changes in the money and securities markets. (2) The viewpoint of the System is frequently that of an individual banker rather than that of a regulating authority for the monetary system and for the economy as a whole. We find that these two features help to clarify a number of prevailing Federal Reserve views and actions; e.g., the System's explanation of the effect of member bank borrowing, the concern with essentially random and often self-reversing changes in the money market, the importance attached to daily changes in reserve positions, the concern about temporary redistributions of reserves from one class of banks to another, and similar features that pervade and shape the System's policies.

While there are many loose or disconnected strands that appear in Federal Reserve discussions of the monetary mechanism, one conception appears to have dominated Federal Reserve policy operations in the postwar, postaccord era. We refer to this conception as the "modified free reserves doctrine" or "the doctrine centered on free reserves." Chapters III and IV will trace the development of this

doctrine from its origin in an older frame of analysis and will provide evidence that it has dominated Federal Reserve thinking in the past decade.

Two principal sources of evidence furnish the dividing line between the two chapters. Chapter III is entitled "The Federal Reserve's Attachment to the Free Reserve Concept: Evidence From Published Statements." Published sources and responses to the Committee's questionnaire are used in our attempt to explain the role assigned within the System to the magnitude free reserves and its relation to bank credit expansion. These interpretations are buttressed by the evidence in the following chapter, "The Federal Reserve's Attachment to the Free Reserve Concept: Evidence From Announced Changes in Policy." The latter chapter considers the evidence from the published Record of Policy Actions and compares indicated changes in policy to a moving average of free reserves. We find that there is a close correspondence between decisions to change or modify policy and the moving average of free reserves.

A principal conclusion of this portion of the study is that movements of free reserve quite frequently precede rather than follow decisions of the Federal Open Market Committee. The published records that we have examined strongly suggest that decisions to change or modify policy are often ratified by the Federal Open Market Committee rather than determined by that body. This finding is quite consistent with our view that the Federal Reserve has failed to develop an adequate understanding of the process connecting policy actions with the money supply. As a result, members of the Committee are heavily dependent on the Manager of the System Open Market Account for interpretations of the events occurring on the market and are unable to assess adequately his operations or appraise their meaning.

The evidence generally supports our contention that the Federal Reserve has relied primarily on the "modified free reserve doctrine" during the postaccord period. In chapter V, we attempt to assess the extent to which policy operating according to the modified free reserve doctrine exercises a decisive or an important influence on the money supply or on bank credit. Our findings are largely negative. We find very little correspondence between the Federal Reserve view of the factors influencing the money supply and the monthly or annual changes in the stock of money. Further, our evidence suggests that the "degree of control" exercised over bank credit by the Federal Reserve is smaller than for the money stock. Again, the evidence strongly supports our contention that the Federal Reserve has failed to develop an adequate framework for the policy actions required to carry out the congressional mandate.

Our findings from the test of the Federal Reserve conception are sufficiently negative that they raise questions about the existence of adequate control of the money supply, useful for policy purposes. Partly for this reason, we present the outline of an alternative conception of the monetary process in chapter VI. We attempt to show that several important features of the monetary mechanism are excluded from, or incorrectly incorporated in, prevailing Federal Reserve views. We then test the proposed alternative conception and show that it exhibits substantially closer relation between policy operations and changes in the supply of money.

Chapter VII concludes our study with suggestions for changes in the administrative arrangements for policymaking and in the nature of the policy operations themselves. Our suggestions are designed to retain many of the excellent features of present Federal Reserve operations, particularly their remarkable, demonstrated ability to judge promptly postaccord turning points. But such judgments must be accompanied by appropriate action, if they are to have an important influence on the monetary and economic system. To correct some of the recorded deficiencies in Federal Reserve operations, we will suggest for consideration a reorganization of the Federal Open Market Committee and some changes in policymaking procedures.

It is not novel to criticize policymakers, particularly Federal Reserve policymakers. With hindsight, one can frequently, if not always ask: Why did they not move faster? Why did they increase this or that measure by only a few percent rather than by a few more or a few less percent? This study is not directly concerned with criticism of particular actions. It is focused instead on the deficiencies and triumphs of present policy arrangements. We have not asked the question: "Was monetary policy adequate in the postwar, postaccord period?" We believe that there is a more important series of questions that has not been asked very often: Are the procedures for making monetary policy adequate? Does the Federal Reserve have adequate information in sufficient time to make appropriate decisions? Does the Federal Open Market Committee or the Board of Governors have an adequate understanding of the mechanism connecting monetary policy operations with the money supply? It is to these questions that this report is primarily addressed. As we have noted, chapter II sets out the main lines of this inquiry. Chapters I and III to VII will be mailed to you in the near future.

In completing this study, we wish to acknowledge a large debt to Clark Warburton whose published descriptions of Federal Reserve policy and its consequences are in many ways unique. We were often heartened, on arriving at an interpretation of the reasons for Federal Reserve procedures, to find that he had arrived at the same interpretation much earlier and that his detailed studies of policymaking in the prewar and preaccord periods interpreted the often puzzling behavior or remarks of the Federal Reserve in much the same way as our studies of the postwar and postaccord periods. We would particularly like to mention his papers "Monetary Control Under the Federal Reserve Act," *Political Science Quarterly*, December 1946, and "Monetary Difficulties and the Structure of the Monetary System," *Journal of Finance*, 1952.

We also wish to publicly thank Miss Thelma Johnson for her fine cooperation in preparing this manuscript for publication.

Finally, we want to thank the members of the Board of Governors, of the Federal Open Market Committee, and those members of the staffs that we interviewed or who responded to our questions. Although our report is at times severely critical of the manner in which policy decisions are made, these criticisms should in no case be interpreted as a personal reflection on any of the individuals involved. We have been deeply impressed with the integrity of the individuals that we met, the forthright answers that we have received and the courtesy that was granted to us at all levels of the Federal Reserve System.

with which we have had contact. Our criticisms are intended only as a statement of our belief, supported by evidence, that the analysis that currently furnishes the foundation for monetary policymaking is seriously deficient in many important respects, and that after 50 years, the Federal Reserve has not yet provided a rational foundation for policymaking. Indeed, that is the chief finding of our study.

KARL BRUNNER.  
ALLAN H. MELTZER.

## THE FEDERAL RESERVE'S APPROACH TO POLICY

Monetary policy operates directly on the discount rate, reserve requirements against demand and time deposits and the Federal Reserve Banks' portfolio of securities. The administration of the discount window and the supervision of banks are, at times, included as part of monetary policymaking. These policy instruments are expected to modify the money supply and to alter the level of interest rates and other magnitudes on the credit market. The effect that actually emerges from the use of policy instruments by the Federal Reserve depends crucially on the nature of the process through which these instruments operate.

The interacting behavior patterns of banks and the public are the central elements in the process connecting particular monetary policy actions with the money supply or the credit markets. Only an appropriate knowledge about the structure of this process enables us to state with some confidence what the actual outcome of any policy action will be. Similarly, an adequate understanding of the nature of monetary processes is required to interpret the events that are recorded in the form of interest rates, the position of the banking system, or the supply of money. Such understanding not only permits evaluation of the consequences of Federal Reserve operations in the context of prevailing institutional arrangements, but also forms the foundation for analysis of the effect on the monetary process of changes in institutional arrangements. An understanding of the central features of the monetary process is required to evaluate the desirability and the effects of changes in the legal and institutional arrangements that presently prevail.

Whatever understanding we may possess about the nature of monetary processes and the operations of credit markets is reflected in a more or less clearly articulated frame of reference, conception, or theory. Such conceptions may be shaped by personal experience and directly related to personal observations that have occurred frequently in the past. Still, long and persistent exposure to "experience" does not guarantee the relevance of the conception or its usefulness for analysis of events or policy actions. "Personal experience" is not an agglomeration of brute facts; it is a set of selective impressions shaped by ideas and notions or a vague frame of reference that has been acquired previously. Such ideas or notions operate like a filter on the stream of accruing impressions that we call experience. Some impressions are disregarded while others are admitted to enlarge our "personal experience." Even the most articulate conceptions "based upon" long personal experience require a critical examination to judge their relevance and validity.

The requirement for a critical evaluation holds quite generally for all conceptions about the structure of our environment whether they are based on the most abstract theory, on personal experience, or on some other foundation. A particular frame or view must show

its mettle by repeated exposure to observations in competition with rival conceptions. Such competitive evaluation will eventually decide the comparative validity of any particular frame of reference under consideration. This is the only reliable procedure for obtaining a rational foundation for policy decisions.

In this chapter, we consider some of the fragments that represent a large part of the Federal Reserve conception of the monetary process. Most of these fragments are based on judgment, personal experience, or direct observation; few, if any, have been critically examined, fully articulated, or compared to alternative conceptions. Failure to develop and test a frame of reference has led to inappropriate policy decisions, incorrect evaluation of events occurring in the money and financial markets, and the choice of inadequate instruments or targets for policy actions. These failures render monetary policy less successful in carrying out the congressional mandates than it would otherwise be.

It is not our intention to survey completely the inadequacies of the Federal Reserve conception. Nor is it our concern to point to particular periods in order to suggest that policy should have been a little bit "tighter" here, a little bit "easier" there. Our principal interest is the development of a systematic frame of reference that represents the principal guidelines for policy action that have emerged within the Federal Reserve after 50 years of judgment and experience. We can then test this frame of reference or conception by exposure to data and by comparison with an alternative conception. Moreover, we can consider the extent to which inadequacies and errors in the Federal Reserve conception have been the source of major mistakes in policy and in the interpretation of events in the money and credit markets.

First, brief consideration is given to the Federal Reserve's stated view of its role in the monetary system. Then an attempt is made to show how some particular features of the Federal Reserve's frame of reference have been the cause of major errors in analysis and have prevented the development of an adequate conception. Finally, some consequences of the Federal Reserve's misconceptions are discussed in the context of some particularly unfortunate policy decisions.

#### THE SYSTEM'S VIEW OF ITS ROLE

The Federal Reserve authorities described in a well-known report to a congressional committee how they view their position and obligations. The Board of Governors is presented as a rulemaking and quasi-judicial agency of Congress. It was established by Congress "to regulate the volume, availability, and cost of money in the public interest." Furthermore, Congress recognized "the need for independence of judgment in the exercise of these functions." The Board and the Federal Open Market Committee are expected to act "according to their own best judgment." The Federal Reserve authorities align their position to a clarifying statement concerning the Federal Trade Commission made by the Supreme Court. Under this interpretation the Federal Reserve authorities acknowledge "the congressional intent to create a body of experts who shall gain experience by length of service." The Board of Governors further acknowledged that "it has an obligation through educational work to foster public

understanding of monetary policies and the relation of money and credit to economic conditions and development."<sup>1</sup>

In summary, we note that policy should be based on the best judgment of policymakers acquiring knowledge about the structure of the process to be manipulated and conveying their accumulated knowledge to the public. In view of the requirements of rational policymaking, it is reasonable to interpret the Federal Reserve's position as an obligation to provide a coherent conception describing the causal nature of monetary mechanisms. We find it therefore surprising indeed that the Board has played a minor role in developing the necessary understanding of our monetary system and in supplying a comparatively reliable foundation for its assessments of evolving situations and decisions.

There is a relatively large research organization at the Board of Governors and in each of the Reserve banks, and there are 13 regular monthly or bimonthly publications reporting current news or factual discussions of a number of financial topics. In addition, numerous publications on special topics are issued, yet neither the policymaking officials nor any of the staffs have provided a fully articulated statement of the relation of policy actions to the money supply or the pace of economic activity. Although spokesmen for the System have shown an occasional awareness of the importance of the causal factors affecting the supply of money, there has never been a detailed analysis of the mechanism through which open-market operations, changes in the discount rate, or changes in reserve requirements modify the state of the monetary system. The Board's research division has undoubtedly collected much information about banks and credit markets. But the relevance of this mass of data cannot be judged in the absence of a coherent conception systematically weaving this information into a meaningful pattern. Collection and preparation of data not guided by an explicit analytical frame often leads to a pointless accumulation of data.<sup>2</sup>

#### SOME EVIDENCE OF THE ABSENCE OF A SYSTEMATIC FRAMEWORK

That the Federal Reserve has furnished the public with information about many of its operations can hardly be denied. It has clearly been more faithful to this view of its role than to the requirement to provide a systematic frame of analysis with which the information could be interpreted. This fundamental fact associated with Federal Reserve policymaking can be recognized through diverse clues occurring in discussions, in the public record, and in numerous statements bearing on the nature of policy actions and the assessment of monetary events. To our knowledge, Riefler's discussion, published

<sup>1</sup> "Monetary Policy and the Management of Public Debt" (Washington, D.C.: Joint Committee on the Economic Report, 1952), pt. I, pp. 242, 246, and 265. This study will be referred to as the "Patman report." It should be noted that at least one high-ranking Federal Reserve official considers this report as the best statement describing the Federal Reserve's views and positions.

<sup>2</sup> Two examples may illustrate this point. The Federal Reserve Bulletin for July 1963 contained an article "Measures of Member Bank Reserves." A series of seasonally adjusted data on required reserves is presented in this article. The data are computed on the assumption that reserve requirements prevailing around July 1963 were applicable to the period covered by the data. As a result, the series reflects primarily the movements of total deposits and variations in their distributional patterns. It is difficult to visualize how this series can be meaningfully used to represent the behavior of required reserves as an ingredient of a systematic analysis. Of course, such utilization is not impossible, but there is no indication of how these data can be meaningfully exploited. A second example is drawn from the flow of funds study. Great efforts went into the collection and preparation of data with no clear notion about the questions that could be answered with the data. Important questions about the response of the monetary system to policy actions might have been asked and answered had resources been employed in that direction.

more than 30 years ago, remains the most coherent notion ever formulated by anyone closely related to the policymaking bodies.<sup>3</sup> Residues and strands of this notion are still found in the collection of ideas used in Federal Reserve discussions. But they are accompanied by other fragments not clearly related to Riefler's work or to any other systematic consideration of monetary processes.

The variety of conceptions or frames of reference are reflected in the abundance of "criteria" for monetary policy that are offered at meetings of the Federal Open Market Committee. These criteria refer to a variety of magnitudes or entities reflecting the behavior of banks or the operations on credit markets. Some refer to free reserves, some to short-term rates; others point to reserves, required reserves, "credit," long-term yields, short-term yields, liquid assets, et cetera. Even the supply of money is mentioned on occasion.<sup>4</sup> This collection of criteria presented at meetings of the Federal Open Market Committee may well cover important aspects of the monetary process, but the very mixed nature of these criteria reveals the absence of a coherent conception.

The character of the Federal Reserve's notions is also reflected in numerous statements made by high officials or their representatives. We note, for example, the perennial phrase that Federal Reserve policy is concerned with "the volume, availability, and cost of money and credit." On other occasions we read that the "most important functions of the Board are those affecting the money supply."<sup>5</sup> Of course, Federal Reserve officials also declare that "monetary policy is concerned with the overall availability of credit."<sup>6</sup> This apparent confusion about the Federal Reserve's basic purpose is apparently clarified by assertions that "credit" and "money" are essentially the same or behave in an identical manner. This, very problem, namely, the Federal Reserve's inclination to confuse credit and money, will be considered in a later section in some detail.

Another aspect may be selected for attention at this point. A critical reader of the Federal Reserve's publications and pronouncements will find it very difficult to learn what "credit" and "availability" mean. In spite of the frequent usage of the term "credit," explicit indications of the many meanings assigned to the term are rare. Scanning the occurrences of this term and the context for clues of meaning, we gathered the following list of possible meanings attached to the term by Federal Reserve officials: the commercial banks' loan portfolio, the rate of change per time unit of this loan portfolio, the commercial banks' total portfolio of earning assets, the rate of change per time unit of this asset portfolio, the total loan portfolio of all financial institutions, the rate of change per time unit of this inclusive loan portfolio, total earning assets of all financial institutions or its rate of change per time unit, and lastly, the rate of change of financial claims occurring in the balance sheet of any economic unit in our economy. With such an abundance of meanings at one's disposal a careless usage of the term easily slips in the context of an argument

<sup>3</sup> W. W. Riefler, "Money Rates and Money Markets in the United States" (New York: Harper & Bros., 1930).

<sup>4</sup> At least one member of the Board regards any relation between growth in the money supply and growth in gross national product as "erroneous." See the 49th Annual Report of the Board of Governors for the year 1962, p. 71.

<sup>5</sup> Patman report, p. 246.

<sup>6</sup> See the answer of the Presidents of the Federal Reserve banks to question I of the questionnaire in the appendix.

from one meaning to the other. But statements which hold for one meaning of the term often do not hold for another.

The ambivalence surrounding the term "availability," typically associated with money and credit in Federal Reserve discourse, is more fundamental. It is a matching counterpart of the ambiguous term "needs" occurring in statements assuring us that Federal Reserve policy is concerned with the "accommodation of the needs of business." Both terms are usually used in a context that ignores many of the better validated portions of contemporary economics. In particular, the terms are usually associated with notions that deny the relevant operation of cost and yield factors, or prices and interest rates, as an important element in market responses. Once we have recognized the structure of such responses the danger posed by a careless use of the "needs-availability" terminology is quite apparent. The persistent usage of these terms in the Federal Reserve's pronouncements reveals a confused undercurrent of notions, which could not survive the persistent presence of a deliberate attitude to base policy decisions on a coherent and critically examined frame; that is, on validated theory.<sup>7</sup>

#### *Discussion of the monetary process*

Among the notions comprising the Federal Reserve's view some emerge with great force and frequency. Foremost among these is the central role attributed to bank indebtedness in the 1920's and to free reserves or net reserve positions in more recent decades. The clues provided in Federal Reserve statements and publications are sufficiently definite to permit the development of a detailed analytical framework capable of explicating a number of vague assertions that have never been adequately developed or appraised.<sup>8</sup> In particular, it becomes possible to evaluate the assertion that free reserves have only very short-run operational significance while total reserves have a longer run significance for the monetary process. This statement can be reconciled with other assertions that systematically associate the rate of "credit expansion" with the prevailing level of free reserves. The dominating influence of the free reserve notion of the monetary process justifies a more detailed discussion. We will present, discuss, and test the monetary framework that is centered on free reserves in several chapters. At this stage our interest is in other features of the Federal Reserve's conception.

Other items of the Federal Reserve's "idea bag" reveal quite clearly the fragmented, unsupported nature of the views held by the policy-making officials. We have noted that the Federal Reserve authorities acknowledged in the 1952 Patman report that the Board's most important functions are "those affecting the money supply." This view rationally requires understanding of the mechanism determining the behavior of the money supply. Intelligent policy decisions require a knowledge of the structure of monetary processes at least

<sup>7</sup> The answers to question I provided by both the Board and the Presidents still operate with the old formula of "needs accommodation." (See appendix.) But both answers also reveal a partial awareness of the operation of relative prices: i.e., of appropriate cost and yield factors, in the supply and allocation of "credit." But there appears no realization that such awareness renders the "availability-needs" connotation pointless. Numerous references to "accommodation of needs" occur also in the Federal Reserve's answer to question A.1 published in the Patman report. The context definitely suggests to the reader that the formula assumes meaning to the Federal Reserve authorities—but, this meaning is never revealed to the uninitiated.

<sup>8</sup> Our forthcoming paper, "Evolving Federal Reserve Conceptions of the Money Supply Process," provides an analytical underpinning for a number of assertions made in this study.

sufficient to permit reliable expectations concerning the response of the money supply to policy actions.

The Board was asked in the Patman report to discuss this essential question and to state its view of the process by which changes in the money supply are brought about. Specifically, they were asked to "discuss the factors that determine the quantity of money."<sup>9</sup> The answer shows little awareness or understanding of the money supply mechanism. Among the opening sentences we find the assertion that "the supply of money is responsive in the main to the needs of commerce, industry, agriculture, and government \* \* \* and to the desire of business and individuals to hold cash balances." The intrusion of an "accommodation" and "needs" terminology renders the statement ambivalent and obscure. But it does suggest a translation under which the public's loan demand and money demand behavior dominate the behavior of the money supply. The remainder of the opening passage in the Federal Reserve's answer offers no clarification. There follows a passage of two pages of text under the subtitle "Factors Affecting the Supply of Money." This passage is understood as an attempt to elaborate the sentence quoted. We read in the opening paragraph:

In general, the most important determinant of the aggregate supply of money is the lending or investing activity of commercial banks, which itself reflects the current demand for credit by private and public borrowers, the public's desire to hold cash balances, the available supply of bank reserves and attitude of banks toward lending and investing.

The opening paragraph thus presents a classificatory listing of determining factors: (i) loan-demand, (ii) volume of reserves, (iii) the banks' desired partition of total assets among cash assets and earning assets, (iv) the public's desired stock of money.

Two more sections complete the Federal Reserve's description of the "factors affecting the money supply." One deals with "bank lending and the money supply" and describes some elementary textbook material exhibiting the connection between the assets and liabilities of banks. Loan extension is shown to create new deposits and loan-repayment to destroy deposits. The other section considers "the influence of bank reserves." These reserves, together with the public's demand for "credit" are introduced as factors shaping the commercial banks' portfolio of earning assets. There follows a discussion of required reserves and reserve requirements in the manner of an elementary textbook and finally an enumeration of "domestic and international factors affecting the volume of reserves."

An elementary classification combined with an elementary discourse in textbook style constitutes the Federal Reserve's whole answer to a question that, according to its own previously stated idea, bears on the basic functions it is supposed to perform. There is no indication of the detailed nature of the "factors" listed, their behavior patterns, how they operate in the money supply process and how their interaction determines the money stock. Moreover, it is impossible to use the framework provided to analyze the response of the money stock to open market operations, changes in the discount rate or

<sup>9</sup> Question 23, p. 388.

changes in reserve requirements.<sup>10</sup> Furthermore, according to this conception, variations in the public's division of money holdings between currency and checking deposits play no significant role in the money supply process. The events occurring in the last months of 1930, repeated in subsequent years, and climaxing in March 1933 are simply irrelevant from the viewpoint of the Federal Reserve's descriptions developed in the Patman report.<sup>11</sup>

A more recent example may be drawn from the Board's answer to the questionnaire appended to this study. Under part 6 of question I we read:

Changes in the money supply result from the prevailing posture of monetary policy as well as many other factors: Among the most important of these other factors are the economy's demands for bank credit, public preferences for holding liquid assets in particular forms, and the incentives for banks to make loans and purchase investments.

Again, all we obtain is a classificatory listing which could not possibly yield any explanation of the responses to policy actions. As a listing however, it is potentially superior to the previous listing. The admission of the public's desire to hold liquid assets in particular forms could open the way to the full realization of the importance in the money supply process of the public's allocation of deposits between demand and time accounts and of its allocation of payment money between currency and demand deposits. But similar to the previous listing, this statement furnishes a vague impression that the public's "credit" demand and money demand dominate the determination of the money stock. The discussion developed in later chapters will show that an evaluation of this assertion in the context of an explicit analytic frame yields no support for this view. On the contrary, we will indicate that the accumulated evidence assigns a comparatively small import to the public's demand for loans or credit and emphasizes the weight of policy actions and the public's desired currency holdings as the essential features in the monetary process.<sup>12</sup>

#### *The leverage provided by fractional reserve requirements*

The previous section discussed some features of the Federal Reserve's understanding of the money supply process as a whole. One topic that recurs frequently in Federal Reserve and textbook discussions of the process is the multiple expansion of bank deposits by the banking system as a whole. The manner in which this issue is discussed furnishes additional evidence of the absence of a systematic

<sup>10</sup> The second section contains a passage that appears on a casual reading to convey information about some response patterns: "Since total reserve requirements of member banks actually average about 16 percent, member bank deposits can expand \* \* \* by about 6 times the amount of any increase in bank reserves." But closer reading should reveal the meagerness of the information conveyed. It only asserts that the deposit multiplier does not exceed the reciprocal of average reserve requirements (stated as a decimal). The discussion in the text will subsequently resume this point.

<sup>11</sup> This is consistent with the Federal Reserve's "policy postures" during these events. The Federal Reserve is prone to refer to "large" open market purchases made during this period of the early thirties, but seems oblivious to the fact that these purchases only modified, but did not offset, the dramatic deflationary impact of the public's currency demand. It should also be noted that in the Federal Reserve's account of past policies and monetary history, the effect of currency patterns on the monetary system is treated as primarily a seasonal problem.

<sup>12</sup> The Board's answer to question I contains another passage that is noteworthy in the present context. After mentioning a number of factors to be considered in evaluating "credit needs," the Board notes: "All of these factors are weighed in arriving at judgments as to whether the credit needs of commerce and industry are being met adequately \* \* \*." No doubt they are weighed. The important question is how they are weighed. How can relevance be assigned to the weighing in the absence of a coherent, validated frame of reference? How is it decided that some things are relatively important and others relatively unimportant?

analysis of factors affecting the money supply. We consider the question briefly here and return to it in a later chapter.

The reciprocal of the member banks' average reserve requirements is used by the Federal Reserve authorities as an indicator of the order of magnitude of the System's response to open market operations or changes in reserve requirements. The Federal Reserve's linguistic practices are rather ambiguous on this issue. It rarely is very clear whether the reciprocal mentioned indicates only the maximal response possible in a given environment, or whether it indicates the response reasonably to be expected.<sup>13</sup> Both versions occur. The second version was encountered frequently in oral discussions with Federal Reserve officials.

The first version is rather innocuous. One may easily accept it, and even grant that it does convey some meager information. It is not an empty formula; it excludes possible response patterns from practical consideration. But the meagerness of the information, that makes discussion very safe, also renders it almost useless as a guide for policy decisions. From a policy standpoint, it is important to know how much the money supply is likely to expand in response to open market operations. Unless the maximal response is regarded as likely to occur, the knowledge that it is the reciprocal of the average reserve requirements is not very helpful an indicator of the expected change in the supply of money.

We submit that the actual response of the money supply to variations in reserve requirements and open market operations can be reliably ascertained with sufficient precision to yield valuable information for policy purposes. The Federal Reserve authorities have ample resources at their disposal to improve their knowledge on this important issue. If they direct their research staff to supply a firmer foundation for policy decisions, they will appreciate that the weight of evidence renders the estimates of a sixfold or sevenfold expansion<sup>14</sup> quite unreasonable. Our studies suggest that the appropriate multiplier for policy operations is no more than one-half the size of the multiplier suggested.

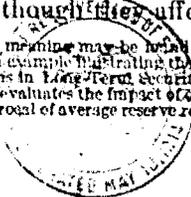
The concentration of Federal Reserve attention on the reciprocal of average reserve requirements as an "indicator" of the response of the monetary system to policy actions is closely allied to the kind of currency patterns recognized and discussed. A disregard or denial of the public's desire to allocate assets between currency, demand, and time deposits leads to the omission of these factors when considering the magnitude of the response of the money supply to changes in policy action. The principal remaining factor, the average reserve position of the banking system, is then treated as the only factor worthy of consideration.

The position of the Board with respect to currency patterns is quite clear.

The forms in which the aggregate money supply is held reflect the preferences and conveniences of individuals and businesses, and although they affect materially the structure

<sup>13</sup> An example with ambiguous meaning may be found in the "Reply of William McC. Martin, Jr." Patman hearing, pp. 328-341. An example illustrating the second version can be found in an article by W. Rieder, "Open Market Operations in Long-Term Securities," Federal Reserve Bulletin, vol. 44, No. 11, pp. 1269-1270, footnote 2. Rieder evaluates the impact of open market operations on interest rates. In the context of his argument, the reciprocal of average reserve requirements is used to measure the response that typically occurs.

<sup>14</sup> Rieder, *ibid.*



and operations of our financial institutions; they do not ordinarily have great significance from the standpoint of the adequacy of the overall supply of money.<sup>15</sup>

A statement of more recent vintage reaffirms the Board's view. Part 5 of the Board's answer to question I (see appendix) elaborates on the role of currency in the monetary mechanism. The only references are to seasonal fluctuations and "secular growth." One may easily grant the Board's fullest awareness of random flows of currency between the public and the banks. But there appear no clues to signal an awareness that the public's division of money balances between currency and checking deposits is neither accidental nor a purely seasonal process. Most importantly, there is no awareness of the cyclical component in the public's currency behavior. Nor is there recognition that the currency patterns have (1) persistently and quite decisively contributed to shape the cyclic behavior of the money supply, (2) that in the early thirties, and (3) again in the early postwar period, these currency patterns dominated the behavior of the money supply.

Finally, the Federal Reserve's usage of the reciprocal of average reserve requirements as an "indicator" of system response, combined with its truncated views about the currency patterns, prevent any recognition of the important role of "currency spillovers." Such spillovers of currency to the public occur as typical and persistent features of the response mechanism triggered by changes in reserve requirements and open-market operations. And these spillovers are a major reason why the response of the money supply to open-market operations (or changes in reserve requirements) has been on the average less than 50 percent of the reciprocal of average reserve requirements.<sup>16</sup>

We could go on to discuss other features of the general Federal Reserve conception and furnish additional support for the view that the Federal Reserve has failed to develop a clear or systematic understanding of the money supply mechanism. But such discussion raises, but does not answer, fundamental questions about the system. Why has the Federal Reserve failed to develop a coherent notion of the monetary process? Why does its knowledge of the response of the money supply to policy operations remain inchoate? Why has the Federal Reserve, aided by its large research staff, failed to recognize the importance of detailed evaluations of the notions that guide its policies?

#### SOME REASONS FOR THE SYSTEM'S FAILURE TO UNDERSTAND THE MECHANISM

An explanation for the absence of deliberate and systematic evaluation of the monetary mechanism by the Federal Reserve is not hard to find. Two factors appear to be of paramount importance: (1) The Federal Reserve is organized and operated in a way that places overriding importance and focuses principal attention on week-to-week, day-to-day, and even hour-to-hour changes in the money and securities markets, (2) the viewpoint of the System is frequently that of an individual banker rather than that of a regulating authority for the monetary system and for the economy as a whole. This attitude

<sup>15</sup> Palman report, p. 338.

<sup>16</sup> The problems arising from failure to incorporate the public's desired holdings of currency in the money supply mechanism will be discussed in ch. 6.

is reflected in a number of prevailing views; e.g., the System's explanation of the effect of member bank borrowing, the concern with essentially random and often self-reversing changes in the money market, the importance attached to daily changes in reserve position, the concern about temporary redistributions of reserves from one class of banks to another, and similar features that pervade and shape the System's policies.

These statements should not suggest that there is no concern or interest in longer range problems. On the contrary, we will later detail the excellent record of the Federal Open Market Committee in recognizing changes in economic conditions in the postwar period. But we will present evidence to support the view that the absence of an explanation of the behavior of the money supply and its response to Federal Reserve policy often prevents the System from taking appropriate action to reverse the inflationary or deflationary forces that it so clearly recognizes.

The Federal Reserve is an organization and like many other organizations it is likely to devote attention to those tasks that must be done within a particular time period. In the pressure to solve day-to-day operating problems, extensive research into the monetary mechanism has been given low priority. Moreover, the efforts of the research staff have been focused principally on those tasks that are of concern for the solution of operating problems, e.g., the development of procedures to more accurately estimate daily float or the demand for currency on holidays.<sup>17</sup> Again, like other organizations "Gresham's law of planning" has been operative: Concern with daily routine has driven out longer range research activity.<sup>18</sup>

#### *Concern with daily operations*

No clearer illustration of this point can be found than Roosa's description of the work of the trading desk at the Federal Reserve Bank of New York.<sup>19</sup> A distinction is made between "defensive" and "dynamic" operations. The former are concerned with the "avoidance of mechanical disturbances"; the latter are a means of promoting "economic growth within a pattern of sustained stability."<sup>20</sup> To accomplish the former, there must be projections of daily float, conferences with the Treasury about the actual or projected balance, during the next few days, discussions with commercial bankers, dealers in Government securities and Federal funds about movements of money into and out of New York, and a host of similar facts about currency, bank positions, etc.

In marked contrast, we are told almost nothing about the "dynamic" operations other than that somehow they "emerge from the day's confusion as a dominating force \* \* \* that it has long since become second nature to the operating personnel to handle each with its defensive and its dynamic aspects joined together."<sup>21</sup> We are not told clearly what emerges, but the context suggests that some measure of reserves has been kept within a desired range. We are never told

<sup>17</sup> Cf. "Bank Reserves: Some Major Factors Affecting Them" (New York: Federal Reserve Bank of New York, 1953). This is not to suggest that the Federal Reserve should not be concerned at all with short-range problems, but that the Federal Reserve research staff has focused almost exclusively on such problems.

<sup>18</sup> March, J. O. and Herbert A. Simon, "Organizations" (New York: John Wiley & Sons, 1956), p. 185.

<sup>19</sup> R. V. Roosa, "Federal Reserve Operations in the Money and Government Securities Market" (New York: Federal Reserve Bank of New York, 1956). See also the statement of R. G. Rouse in "Review of the Annual Report of the Federal Reserve System for the Year 1960," hearing before the Joint Economic Committee (Washington: U.S. Government Printing Office, 1961, p. 7).

<sup>20</sup> *Ibid.*, p. 105.

<sup>21</sup> *Ibid.*, p. 105.

how the System judges the adequacy of the growth of the money supply, if indeed that judgment is made.

Although the words "dynamic" and "defensive" are not used, the published reports of the meetings of the Federal Open Market Committee (FOMC) reflect much the same spirit. Unlike the trading desk, the FOMC does consider the operation of longer term factors. However, much of the discussion centers on the problems of extremely short run variations and the need for "defensive" operations to counteract taxpayments, float, gold and currency drains. Decisions are made about operations for the next few weeks and are taken relative to the position of the monetary system and money market during the preceding 3 weeks. Very little discussion is devoted to the longer term prospects of the economy and even less attention is apparently paid to the specific monetary actions that could achieve a higher level of employment and real income at the end of a given 6-month or 1-year period.

The reasons for the absence of discussion and plans to implement a longer range monetary policy are probably varied. But the undeveloped state of knowledge about the relation of money to the pace of economic activity and the relation of Federal Reserve policy to the behavior of the money stock contributes to the neglect of longer range policy. If there is no estimate of the magnitude and timing of changes in the money supply in response to open-market operations or changes in reserve requirements, there can be no fruitful discussion of the desired policy actions over any sustained period.

Thus policy decisions are made with a very short-run focus. The bulk of Federal Reserve operations are conducted to adjust the reserve positions of banks to temporary market conditions. In the process, policy changes are introduced. But there is no mechanism presently in use that attempts to make certain that the sum of all of the changes—the "defensive" plus the "dynamic" changes—will produce the desired supply of money or anything closely approximating that sum.

However complex the relation that connects bank reserves with the supply of money, monetary policy must be predicated on the notion that changes in reserves do produce changes in the stock of money. Whether the changes in reserves arise because of "defensive" or "dynamic" operations is not the issue. A change in reserves, whatever name or reason is attached to it, alters an important determinant of the money supply. The result of the almost continuous variation in the rate of change of the reserve base is reflected in an almost continuous variation in the rate of change in the stock of money. Some of these variations are of course seasonal and reflect the conscious policy of reducing seasonal variations in interest rates by introducing seasonal variations in the reserve base. But one need only study the month-to-month changes in the stock of money or in the stock of credit to become convinced that month-to-month variations reflect more than seasonal adjustments.

Table II-1 displays the variations that have occurred in the rate of change of some selected money and credit magnitudes. The information is divided into the 108 monthly changes during periods when the economy was moving from a recession trough to a peak of prosperity and the 46 monthly changes from peak to trough. The dating of peaks and troughs follows that of the National Bureau of Economic

Research and begins with the peak in November 1948. The measure that we have selected to summarize variability, the coefficient of variation, is commonly used for this purpose. Its meaning can be made clear quite easily. If the change in money or credit is approximately the same from month to month, the coefficient of variation will be quite small, almost zero. But if the changes in money and credit during periods of recession or periods of recovery are made up of a series of alternating positive and negative (or large and small changes), the coefficient of variation will be quite large. If the number is larger than 1, the month-to-month variations are larger than the average monthly change.

TABLE II-1.—Measures of variation in the rate of growth of money and credit during postwar cycles

Item	Peaks to troughs, coefficient of variation	Troughs to peaks, coefficient of variation
Monthly change in money supply.....	5.3	2.3
Monthly change in member bank loans and investments.....	2.1	2.8
Monthly percent change in money supply.....	5.5	1.8
Monthly percent change in member bank loans and investments.....	2.0	2.6
Monthly change in money supply plus time deposits.....	1.4	1.2
Monthly average value of free reserves.....	.95	6.6

The statistics in the table tell us something about the variability of the money supply (demand deposits and currency) and member bank credit (loans and investments of member banks). For comparative purposes, we have provided a similar measure for the level of free reserves, one of the primary tools of System policy as we shall note later in this study. It appears that the level of free reserves has substantially less variation during periods of recession or declining activity and substantially greater variation than the other measures during periods of recovery or rising economic activity. There seems to be little correspondence between the variability of the level of free reserves and the variability of the measures of money and credit.

Before accepting the above conclusion, we must look behind the statistical data and consider the economic behavior that they reflect. First, the monetary mechanism does not operate without lags. The market response, that is initiated today, based on a misinterpretation of Federal Reserve policy, is not completely reversed in the following week when the weekly Federal Reserve statement suggests that the action that the market interpreted as a "dynamic" change last week was really "defensive." The "defensive reserves" that are supplied to the market pass out of the hands of the initial recipients and may lead to increases in the supply of money or the stock of credit despite the fact that some "defensive" action has restored free reserves to approximately the level prevailing several weeks earlier. Time is required for the money supply to fall to its previous level. Second, perceived changes in System policy have some effects on the desired composition of bank assets between loans and investments. Experienced bankers, suspecting that they observe a change in System policy, may attempt to shorten or lengthen the average maturity of their investments, thus inducing changes in interest rates. These in

turn alter the rate of change of the money supply.<sup>22</sup> Third, changes in bank reserves are often used to repay borrowing from Federal Reserve banks during periods of recession or declining activity. This tends to dampen month-to-month variations in the level of free reserves. During periods of rising activity, banks borrow to replace some of the reserves that are withdrawn through open market operations. The Federal Reserve may introduce additional variability by attempting to offset the borrowings of member banks. Finally, the level of free reserves for all member banks has been positive in both downswings and upswings, but it is larger in downswings than in upswings. This accounts for much of the difference in the two coefficients of variation for free reserves.

Whatever the reason for the differences in variability, it seems clear that the rates of change in the money supply and in the level of bank credit are highly variable. Moreover, the rate of change of the money supply is the more variable of the two in periods of downswing, while the opposite is true in periods of rising economic activity. This difference in the behavior of the two stocks cannot be explained with the information that has been introduced thus far, but it will be of concern in a later chapter.

However, one important reason for the difference is worth noting. The measure of member bank credit chosen rises on the average at a greater rate in months of declining activity than in months of recovery; the money supply behaves in precisely the opposite manner.<sup>23</sup> Indeed the monthly increase in the money supply is almost twice as large during periods of postwar recovery than in periods of postwar recession. But the monthly change in member bank credit is almost 50 percent larger on the average in the months of recession than in the months of recovery. This striking difference in behavior will be of importance in distinguishing between the credit and the money doctrine.

### *The feel of the market*

The Federal Reserve's discussion of current developments on the credit markets typically refers to the "feel" and "tone" of the market. These entities seem to supply the guiding rationale for many decisions. "Defensive" and "dynamic" actions are said to be welded into a coherent pattern in response to the "feel" of the market. Indeed, Roosa tells us that "the trading desk and the money market are operating largely on the basis of \* \* \* the 'feel' of each day's market \* \* \*."<sup>24</sup> Much the same impression about the importance of "feel" is obtained from the statements of the 12 Federal Reserve bank Presidents; e.g., in their reply to question II in the appendix.

The primary reliance on "feel" is something of a retrogression in Federal Reserve operations. Burgess, writing in 1936, conveys the impression that observable market forces are more important than "feel."

<sup>22</sup> The first two reasons are generally recognized. Indeed spokesmen for the System have used them as a major reason for justifying the use of dealer repurchase agreements. For example, cf., Roosa, *op. cit.*, pp. 81-86.

<sup>23</sup> The fact that we have used loans and investments for member banks rather than for all commercial banks is not the major source of the difference in rates of growth of bank credit and money. It can be shown that the difference between the rate of growth of money and of member bank loans and investments has depended principally on variations in currency, Treasury deposits, and foreign balances.

<sup>24</sup> Data on the average monthly changes are presented in table 11-2. See page 33.  
<sup>25</sup> Roosa, *op. cit.*, p. 104. See also p. 65 and pp. 76-79. On p. 79 Roosa tells us that "the 'feel' of each day's situation provides the *final cues* to action or inaction" in the sense that they modify the information obtained from the statistical projections. The italics have been added to convey our interpretation that "feel" is dominant over other factors.

If one could set up a balance sheet for the banks in New York City as a whole \* \* \* a summary of the balance sheets on the desks of the executives in the principal banks, one would know from hour to hour and from day to day the principle forces which were moving in the money market.<sup>25</sup>

It should be noted that Burgess, like Roosa, places heavy emphasis on the importance of "hour-to-hour and day-to-day" changes in the money market. The difference between them is not about the importance of "defensive" operations, but about the information that is most useful for decisionmaking. There appears to be unanimity among writers experienced in the operations of the System that extremely short-run operations both should, and do, receive more attention than the longer run considerations.

Reliance on "tone" or "feel" of the money market as a guide to System policy are also an important base for decisions at the Federal Open Market Committee meetings. References to these entities are an integral part of the discussion that is said to give an indication of the thinking of the Committee members and to assist the Manager in interpreting a directive that is typically vague. Not all of the background suggestions are in terms of "tone" or "feel," but it is not uncommon for particular FOMC members to advise the Manager to maintain about the same "tone" that prevailed in the preceding 3 weeks.<sup>26</sup> This may help to explain the emphasis that is placed on "feel" in the Roosa booklet. The management of the System's account in effect may be assuring the FOMC members that their instructions are being carried out. But the broader issue is the question: Are instructions about "tone" or "feel" helpful?

It is surely possible and it may even be correct to argue that the factors determining the stock of money, or credit, or the degree of ease and restraint are so complex that, despite Burgess, no single factor or set of factors can describe the "tone" or "feel" of the market. Further, any appropriate measure of "tone" may be temporary; the measure may have to change from week to week, or from year to year. Daily judgments may be the only appropriate guide to policy. This in essence is the position taken by some members of the FOMC.<sup>27</sup> Our interpretation of the answers of the 12 Presidents, and our interviews with some members of the FOMC, suggest that this is an important prevailing view.

Whatever the factors determining the degree of ease or restraint, most students would agree that ease and restraint change. What is involved is a much more fundamental point: Can the FOMC guide the Manager of the System open market account in deciding the degree of ease or restraint that should prevail at a particular time or over a particular period? Reference to "tone" or "feel" without any clear indication of the meaning attached to these words cannot serve as a guide. The Manager must make a judgment about what the Committee members had in mind if he is to follow the advice of the members. This means that the Manager is left with the crucially important job of determining the appropriate policy, perhaps by correctly translating FOMC statements into statements about observable entities. Why? Because there exists no market counter-

<sup>25</sup> W. R. Burgess, *The Reserve Banks and the Money Market* (New York: Harper & Bros., 1936), p. 186. See also p. 192.

<sup>26</sup> See the last paragraph of the reply of the 12 Presidents to question II, pt. 1.

part that can be bought or sold that is called "tone." There are interest rates, securities, bank reserves, etc. Actual policymaking must operate in these or similar terms.

The position of the 12 Presidents is that the Manager knows what they mean because he has participated in the discussion, heard their remarks, and understood the interpretations. Moreover, the argument runs, the reference to "tone" or "feel" occurs in the context of a particular set of events. Reference is made to the action taken in the past 3 weeks or in some prior period. Thus the Manager knows the meaning attached to "tone."

This argument is misleading. Further, it places responsibility on the Manager or on those members of the FOMC who are willing to offer guidelines to the Manager in terms of observable market phenomena or on those whose views are given greater weight by the Manager. Since we will shortly see that the discussion at the FOMC does not give a clear interpretation of the directive and may often give a series of conflicting goals, decisions are in fact left to the Manager to a much larger extent than has been suggested in official or semiofficial statements.

The inherent obscurity of the entities denoted by "feel" and "tone" renders any judgment about these entities very dubious. It is difficult to determine the direction of change or to challenge a statement that the "tone" has become "firmer." Even the consensus of a group of "experience men" adds little if Congress and the public cannot appraise the validity of the consensus. In practice one member of the FOMC may suggest that the Manager has not maintained the "tone" during the past few weeks. He interprets all of the changes that have taken place as a different "tone"; another member will disagree; he interprets the "tone" as substantially the same. Coupled with the fact, discussed more fully below, that the suggestions to the Manager may conflict when the attempt is made to apply them, much discretion is left to the Manager. This is particularly the case if the Manager is the one who interprets the "tone." Even the use of regular morning conferences between FOMC members and the Manager does not eliminate the exercise of discretion by the Manager.<sup>27</sup>

The foregoing should not suggest that the grant of discretion to the Manager is necessarily evil. Our concern here is with the reasoning that gives rise to the allocation of authority and with the correction of possibly misleading impressions that may have been obtained from official or semiofficial statements. We believe that the primary reason for the prevailing system is the emphasis placed on extremely short-run considerations—the emphasis placed throughout the Federal Reserve on "defensive" operations. An explanation of some reasons for this concern is the subject of a following section. But it should be noted that even if short-run problems are important, it does not

<sup>27</sup> Cf. the testimony of Mr. Alfred Hayes, President of the Federal Reserve Bank of New York: "We do not reach a decision that we are going to go out and buy such and such an issue. We reach a decision that we are going to try to maintain a certain degree of pressure, a certain general atmosphere of restraint or ease . . . . So that we have not reached a decision in terms of actual purchases or sales." . . . "The tone of the market is a very difficult thing to describe *unless you are actually sitting at this trading desk* . . . . "But I would say that it is a compound of all kinds of impressions that you get from the volume of trading, the speed of trading, what is happening to prices . . . ." [Italic added.] Review of the Annual Report of the Federal Reserve System for the Year 1960, Hearings before the Joint Economic Committee (Washington: USGPO, 1961), p. 55. See also, the testimony of Mr. Robert Rouse, former Manager of the System Open Market Account, *Ibid.*, pp. 7 and 31. Since it is the Manager who is "sitting at the trading desk," it is the Manager who interprets the tone and decides whether or not action is required.

necessarily follow that a major policymaking body, the FOMC, must be concerned with these details. One alternative would be the explicit delegation of authority for extremely short-run operations to the Manager. This would help to overcome the effect of "Gresham's law of planning." The FOMC would then be free to focus on the longer range problems of monetary policy embodied in the goals of the Employment Act.

*A suggested interpretation of feel and tone*

Emphasis on "feel" and "tone" result from the very short time horizon considered by Federal Reserve policymakers. These entities appear to designate phenomena that become important because of the choice of time period; that is, because of the overconcentration on daily or hourly events. If a longer time horizon is taken, the relative importance of these entities diminishes or vanishes.

Fluctuations in bank reserve positions and the related variability in the Federal funds market can be looked upon as a series of events that respond to systematic market forces. Mingled with these systematic events are occurrences that are primarily random or chance events. If a particular buyer wishes to purchase or sell \$20 million in long-term Government bonds, bond prices will change temporarily. If the calendar requires that all member banks settle their reserve deficiencies on the date of a Treasury new issue, the Federal funds market, the market for governments, and the Federal Reserve wire service are all taxed to handle the existing situation. Market professionals do not interpret price changes that occur at such times as meaningful indicators of the prices that are likely to occur on the next day or during the next week. Such price changes are essentially random events.

The random component in the observations summarizing reserve positions and the Federal funds market is often such a large part of the total situation that it is quite difficult to separate random and systematic events. This is particularly true if we look at daily and hourly observations. As the time horizon lengthens, the relative importance of random events dwindles. The systematic component dominates the observations in the longer run. But the managers of the banks' money positions, bill traders, and the Manager of the System Open Market Account must make judgments based upon the changes that are occurring almost continuously. They must read the clues and indicators to infer the nature of the events observed. In our terminology, they must separate the random from the systematic; that is, they must decide whether the market is moving to a new level or is fluctuating around its old level in response to a series of chance events. The interpretation reached by the market professionals decisively affects the portfolio decisions made at the commercial banks and at the Federal Reserve bank.

There is no doubt that most of the men making these decisions are extremely capable professionals who grasp the essential features of the evolving situation and translate them into a decision or a series of decisions. But they are rarely required to articulate the procedures that they use to separate the random from the systematic. It is sufficient for the bank that they respond appropriately to the hourly and daily perturbations and that they do not make frequent,

serious misjudgments. The successful discharge of their functions does not generate any pressure, therefore, to channel attention toward an explicit analysis of the random process or to articulate the resulting information. The terms "tone" and "feel" emerge in this context to convey a total impression, on a comparatively inarticulate and nonanalytic level, of the concatenation of random and systematic events. The term "feel" is used to suggest the complex set of clues and behavior indicators observed by market professionals in forming their judgments about the relative importance of systematic and random elements. The term "tone" might usefully refer to the systematic position underlying the total market situation.

These considerations can also be applied to the market for Government securities. Changes in demand and supply conditions emanate from both systematic and random sources. In either case, the shifting market conditions disrupt established market patterns and create a situation that requires adjustments in the prevailing prices. But no market adjusts instantaneously. Time must elapse before information filters through the market. Resources, particularly the labor of skilled professionals, must be used to assess this information. "Discontinuities" in pricing, mostly of minor proportion, emerge in the period of market adjustment. For example, dealers may "shop the market" for a particular issue and thereby generate slight changes in the existing prices. Market participants watch the pattern of evolving "discontinuities," combine this information with other clues about the condition of the securities markets to interpret the meaning of the observations. The interpretation made determines the kind of action subsequently taken. Again, "feel" summarizes the clues justifying the given interpretation, and "tone" refers to the central, systematic position of the ever-changing situation.

The "feel" and "tone" terminology can thus be explained as a nonanalytic response to a situation typically containing a large random element. Such situations regularly confront the Manager of the System Open Market Account. He deals directly on the securities market and is exposed to the continuous impact of signals that require an evaluation. His preoccupation with "defensive" operations puts him in much the same position as the money deskmen or the bill traders. The very nature of "defensive" operations imposes on the Manager the same judgments and decisions; namely, to separate systematic and random events in the total situation.

If one accepts "defensive" operations as a part of monetary policy, it would appear useful to grant general authority to the account manager to engage in such operations. Such authority should be combined with the responsibility to report regularly to the FOMC on the scope of these operations and their relation to the "dynamic" operations. The grant of authority would not radically change prevailing practice, but it might contribute to the removal of lengthy discussions about temporary changes in market conditions, float, currency drains, et cetera, from the meetings of the FOMC. And it would direct attention toward what is perhaps the greatest single weakness in the present operation—the failure to develop an adequate

understanding of the relation between operations affecting bank reserves and changes in the stock of money.<sup>28</sup>

#### A BANKER VIEW OF OPERATIONS

We suggested earlier that a second major reason for the failure of the System to develop an adequate understanding of the monetary mechanism was the System's frequent use of a banker's view of monetary processes. In this section, we will discuss the issue in more detail, particularly as it relates to the Federal Reserve's discussion of "liquidity" and to the question of money versus credit as a measure of monetary policy. These subjects will be considered in the light of the statements that have been made in Federal Reserve publications. Before doing so, however, it should be noted that our contention regarding the Federal Reserve's tendency to operate in the manner of a single bank does not affect all of its operations. For example, it seems clear that the Federal Reserve does not attempt to maximize net income.<sup>29</sup>

#### *The concept of liquidity*

The deposits and the reserve position of an individual bank fluctuate greatly from day to day. Withdrawals of deposits in the form of currency, the failure of checks drawn by the bank's depositors to be perfectly matched by checks deposited in the bank, and other factors contribute to the variations in the reserve position of a particular bank. An important duty of the management of the bank is to smooth the fluctuations in reserve position by borrowing reserves through the Federal funds market or from the Federal Reserve banks when the reserve position is deficient, by lending reserves or repaying indebtedness when the bank holds reserves in excess of the amount that is required and desired.

The prevailing arrangements require that a member bank, classified as a Reserve city bank or Central Reserve city bank, must have on hand each Wednesday at the close of business, an amount of reserves equal to a fixed proportion of the level of deposits held on the average at the opening of business on each day of the preceding week. For country member banks, a biweekly period is used for computation of the average of reserves and deposits. The end of the weekly or bi-weekly period is referred to as the "settlement day." Saturdays, Sundays, and holidays are included in the computation of the average reserves and deposits; i.e., the average is computed for a 7-day period in the case of Reserve city or Central Reserve city banks. Penalties *may* be charged if a bank fails to meet these requirements, and penalties have, in fact, been collected from some banks. However, a bank may fail to meet its required reserves on a particular settlement day by 2 percent of the amount of required reserves without penalty. But it may not use this option at two successive settlement dates.<sup>30</sup>

<sup>28</sup> For a similar view and some detailed evidence to support it see Clark Warburton, "Monetary Difficulties and the Structure of the Monetary System" *Journal of Finance*, 1952. " \* \* \* The great errors in monetary policy in the United States since establishment of the Federal Reserve System seem to me to have been due more to *inadequate economic information and analysis* than to any other single factor," p. 544. [Italic supplied.]

This should not suggest lack of concern with overall objectives—employment, income, and prices. To achieve these ends, the Federal Reserve must operate through monetary policy. Improvement in operations should have a salutary effect on achievement of goals.

<sup>29</sup> See the discussion of the use of open market operations in lieu of reductions in reserve requirements as a means of increasing the money supply. "Review of the Annual Report," *op. cit.*, pp. 70-71.

<sup>30</sup> The following discussion will be in terms of weekly settlements, but the general principles will apply to all member banks.

Purchases and sales of Federal funds are a means by which individual banks that have surplus reserves can attain a more fully invested position and higher earnings. Their willingness to do so permits the existing volume of reserves to be distributed in such a way that banks with actual or expected reserve deficiencies positions can acquire reserves to cover their shortage. But the willingness to sell or buy reserves depends upon the price prevailing in the Federal funds market relative to the prices prevailing on other assets that the individual bank can buy or sell to reduce its surplus reserves or to eliminate the deficiency. It is not necessary to have access to the Federal funds market to redistribute reserves. Redistribution can be—and is—accomplished by the sale of assets, e.g., Treasury bills, by banks with reserve deficiencies. For example, a bank with a short reserve position can sell bills to a securities dealer. The dealer may then borrow from a bank with a temporary surplus. Such transactions are generally made in Federal funds and accomplish the redistribution in much the same way as a direct purchase and sale in the Federal funds market.

The choice between using the Federal funds market or the bill market depends upon several factors: (1) the cost of making transactions, (2) the time expected to elapse before the banker plans to reverse the transaction, (3) the prevailing market interest rates on Federal funds and Treasury bills, (4) the amount of securities that the banker holds above those required as collateral for Government deposits and actual or expected borrowing from the Federal Reserve bank, and (5) the supply of Federal funds, particularly when the Federal funds rate is at the discount rate. Thus a bank that expects the reserve deficiency to be a 1- or 2-day problem will prefer to purchase Federal funds rather than sell Treasury bills, unless the Treasury bill rate is substantially below the Federal funds rate. The cost of buying and selling Treasury bills, if bill rates remain unchanged, is approximately four basis points. This difference generally prevails between dealer buying and selling prices. Even if the administrative costs of buying and selling bills are the same as the costs of buying and selling Federal funds, it is cheaper for the bank to pay the prevailing Federal funds rate rather than to lose the interest on the Treasury bill and pay the difference between bid and asked prices. If the reserve deficiency is expected to persist for a period of weeks (i.e., the change has been judged to be systematic) there are continuing costs of renewing the Federal funds transaction. These cost and yield factors are reflected in the choices made by individual banks concerning the method used to adjust their reserve position.

Cost and yield considerations are reflected in another way. A bank facing a given expected loss of reserves during the course of the week can elect to wait until late in the settlement period to acquire reserves. If yields on assets are comparatively high, many banks will prefer to wait as long as possible before acquiring reserves, i.e., to take a larger chance that they will be required to borrow from their Reserve bank or on the Federal funds market. Under the stated conditions, fewer banks will have surplus reserves, and those that do will hold smaller amounts. Bankers will attempt to squeeze just a few more income-yielding assets into their portfolios as the prevailing rates. Given the many random factors affecting the reserve position, more banks will be running the risk of a deficient reserve position near the end of the

settlement period. Fewer banks will have Federal funds for sale and the amounts offered will be smaller. At such times more banks will desire to buy Federal funds in order to retain their invested positions. The Federal funds rate will rise, but the discount rate sets a ceiling above which bankers are unwilling to purchase Federal funds.<sup>31</sup> More banks borrow at the Federal Reserve to maintain their portfolio positions.

Larger banks are usually more fully invested than smaller banks and may even speculate on the Federal funds rate during the reserve computation period. Excess reserves of larger banks are substantially less per dollar of deposits than excess reserves of smaller banks. Larger banks rely to a major extent on rapid readjustments in their portfolio of short-term assets or liabilities to cover deficiencies in reserve position arising from the granting of loans, the movements of deposits, and the purchase of securities. Several reasons account for these differences in reserve patterns between larger and smaller banks. But the comparatively low marginal cost per dollar of transaction of the larger bank's operations on the short-term markets appears to be an important reason. Smaller banks substitute larger holdings of excess reserves for an allocation of high-priced resources (skilled professional managers) to produce the rapid rescheduling and reshuffling of short-term portfolios required by a more tightly adjusted reserve position.

Monthly average free reserves for Central Reserve and Reserve city banks are generally negative. For the entire 14-year period, 1949-62, the average of monthly borrowings by all such banks has been larger than their average measured excess reserves. On the average, therefore, these banks as a group, borrowed from the Reserve banks to make their reserve settlement during the 14-year period.

Statistics for country banks show that measured excess reserves exceed borrowings on the average for the period. Indeed, reported monthly free reserves of country banks have not been negative during the entire postwar period. The monthly average free reserves of country banks were approximately \$400 million during 1949-62. Again, operation of cost-and-yield factors helps to explain the behavior of individual banks that the statistics reflect. Federal funds transactions and Treasury bill purchases are generally made for a minimum of \$1 million. Smaller banks may frequently find the standard lot beyond the scale of their surplus reserves. Furthermore, when opportunities for small lot transactions emerge, the associated return is quite small. At a 3-percent Federal funds rate, a \$100,000 sale would yield a gross income of \$8.33 per day to the seller. At this point the marginal return of the transaction may not cover the marginal cost. Legal restrictions on loans to individual borrowers limit the amount of Federal funds that a small bank can sell to a single buyer without collateral. The preparation of collateral in order to avoid these restrictions substantially increases the cost to buyer and seller of making the transaction. Nevertheless, there is substantial cyclical variability in the free reserves of country banks.

<sup>31</sup> On occasion a bank may not have sufficient collateral on deposit at a Federal Reserve bank to borrow the amount required to meet its reserve deficiency. On such occasions some banks have paid one-eighth of 1 percent above the discount rate for Federal funds. The additional cost for 1 day is probably less than the cost of moving securities to the Reserve bank, particularly if the bank and the Reserve bank are not located in the same city. Examination of the records of daily price ranges supplied by the leading Federal funds broker, Garvin, Bantel & Co., reveals very few examples in the 15 years, 1949-62.

When interest rates on Treasury bills and Federal funds are high, the free reserves of country banks become relatively small. In fact, weekly free reserves of country banks have been negative during periods of relatively high bill yields, as in 1959.

Neither an individual bank, nor the banking system as a whole can create reserves. That is a privilege granted by Congress to the Federal Reserve System as an exclusive right. Individual banks can and do distribute the available reserves among themselves. The extent to which the redistribution takes place reflects the operation of cost-and-yield factors as they affect individual banks and bankers.

The foregoing discussion can be summarized by saying that banks have a demand function for cash assets or reserves that is dependent on cost-and-yield factors. At any particular point in time, the measured amount of excess reserves that an individual bank holds reflects the expectations of the banker about forthcoming reserve drains and the relation of the costs to the revenues that will accrue if more assets are acquired and more reserves are lost through the clearing mechanism.<sup>32</sup>

We have perhaps belabored these points but they are essential to an understanding of the problem of bank "liquidity." Spokesmen for the Federal Reserve System often talk about measures of liquidity for the banking system as if they were independent of monetary policy operations and unrelated to prevailing market conditions. At times, similar references are made to the "liquidity of the economy." As an example consider the statement by Mr. Robert Stone, Manager of the System Open Market Account, describing operations during the year 1962.

Moreover, attention began to focus on the size of the expansion in bank credit and total liquidity that had already occurred. It appeared that monetary policy had reached the limit of its usefulness as a stimulus to economic activity. Consequently, \* \* \* the System shifted \* \* \* toward slightly less ease.<sup>33</sup>

This conclusion ignores the effect of Federal Reserve policy as a major factor shaping interest rates on time deposits, Treasury bills, and other short-term assets and thereby encouraging individuals and businesses to hold their liquid assets in time or savings deposits rather than in some other form. Furthermore, the statement suggests that further increases in member bank reserves would have no effect on interest rates or on the public's demand for money and other assets. It suggests that as a consequence, it did no harm to move in toward an allegedly "tighter" monetary policy. This is in part a result of viewing the effect of monetary policy in terms of broad measures of liquidity rather than in terms of currency plus demand deposits. Such broad measures hide within their sum the redistributions of the public's assets in response to interest rate changes.

The public's reallocation of deposits between demand and time accounts affects the volume of total deposits, the money supply, and interest rates on assets typically acquired by banks. The public's allocation pattern is also sensitively responsive to variations in

<sup>32</sup> Some further discussion of these points may be found in A. H. Meltzer, "The Behavior of the French Money Supply: 1935-54" *Journal of Political Economy*, June 1959; Karl Brunner, "A Scheme for the Supply Theory of Money," *International Economic Review*, January 1961; and A. J. Meigs, *Free Reserves and the Money Supply* (Chicago: University of Chicago Press, 1962).

<sup>33</sup> "Federal Reserve Open Market Operations in 1962," *Federal Reserve Bulletin*, April 1963, p. 431.

interest rates, in particular the rate offered on time deposits, the bill rate, and bond yields. Relatively high interest rates on time and savings deposits encourage individuals and corporations to maintain deposits in that form rather than in the form of demand deposits. Recent actions of the Federal Reserve authorities operated directly on this interest mechanism, with important consequences for money supply, "liquid assets" and the structure of interest rates. The modification of regulation Q in January 1962 enabled commercial banks to adjust their time deposit rates to prevailing market conditions. The public responded to this relative rise in the time deposit rate with a large conversion of demand into time deposits. This in turn encouraged banks to acquire longer term assets; (municipal bonds and mortgages) rather than to seek loans by lowering interest rates to business borrowers. And this is reflected in the composition of bank portfolios at the end of 1962. The sharp rise in total deposits, the hesitant movement of the money supply, and the relative decline in mortgage yields and other longer term yields are the reflections of the response by banks and the public to the events described. The Federal Reserve's policy was thus the decisive factor shaping both the growth in "liquid assets" and the realignment in the structure of interest rates.

The confusion generated by the references to measures of bank liquidity without references to the effect of interest rates is amply demonstrated by other publications of the System. For example, one of the monthly publications of the System,<sup>34</sup> recently discussed the liquidity of weekly reporting member banks at the end of June 1963. One measure of liquidity, the ratio of total deposits to total loans declined during the first 6 months of 1963. This fall in liquidity reflects the banks' adjustment of their asset structure to evolving market conditions and particularly to prevailing interest rate levels. Another measure of bank liquidity that is cited, the ratio of U.S. Government securities maturing in 1 year to total deposits, declined also. The report finds this decline "less encouraging." The accompanying table strongly suggests that the reporting banks sold Treasury securities and acquired "other securities," largely tax-exempt municipal bonds, loans to foreign banks, and mortgage loans.

At other times,<sup>35</sup> liquidity of banks is defined as:

- (1) The ratio of short-term loans to long-term loans, and
- (2) The ratio of Government securities to loans.

The components of total earning assets or of total deposits do not expand and contract at a uniform rate. The composition of both assets and deposits responds to the prevailing structure of interest rates. And these interest rates are not independent of Federal Reserve policy. Quite different signals are given by the various liquidity ratios at different times. Without a well-conceived frame of reference, the meaning of the host of liquidity measures remains opaque. To eliminate the confusion caused by differences in signals, studies of the effects of interest rates and other market phenomena on the quantity of particular types of assets demanded by banks and

<sup>34</sup> "Somewhat Less Ease," Monthly Review of the Federal Reserve Bank of San Francisco, August 1963.  
<sup>35</sup> "The Significance and Limitations of Free Reserves," Monthly Review of the Federal Reserve Bank of New York, November 1958. Problems that arise with these definitions are reflected in the discussions within the Federal Reserve System. See the testimony on the shifting meaning of the words "short-term" and "long-term" and the differences in interpretation within the Federal Reserve System at various times, and by different individuals. Review of the Annual Report \* \* \*, op. cit., pp. 20-22.

by nonbanks are required. After 50 years, the Federal Reserve has only recently recognized the importance of this point.<sup>36</sup>

#### *Meanings assigned to liquidity*

"Liquidity," like credit, does not always have the same meaning when it is used in System publications. At least three separate notions seem to be conveyed. First, liquidity is used to suggest a position of the monetary system or the economy which is likely to induce expansive action at some future date. Second, liquidity is used to describe a condition that seems to be directly opposed to the first position. When this meaning is assigned, excessive liquidity is said to hinder or prevent the effectiveness of monetary policy designed to expand the economy. The third meaning of liquidity seems to be inversely related to the risk of capital losses or default losses that are expected to occur. This notion seems to be closely tied to "sound credit." We consider each in turn.

When the first meaning is assigned to "liquidity," the discussion may refer either to the monetary system or to the economy. A highly "liquid" economy is considered more likely to experience an increase or acceleration of aggregate demand. The prevalence of high liquidity in the monetary system appears to be an influential factor in determining the rate at which bankers add to their portfolios. When either the economy or the monetary system is said to be highly liquid, inflation is often regarded as a likely consequence.

This view of liquidity seems to result from two characteristic features of the Federal Reserve conception: (1) the concentration of attention on extremely short-run events and (2) the failure to recognize behavior patterns and market responses that economists refer to in the concept of demand. The Federal Reserve authorities have acquired detailed experience about the immediate impact of their policy action on a bank's reserve position. An initial effect of an open market purchase by the Federal Reserve is an increase in the reserves of some group of banks; i.e., bank liquidity is increased. The particular banks respond to the increased "liquidity" by making suitable adjustments in their portfolio of earning assets. The magnitude and the type of response depend on the individual banker's judgment about the nature of the event and on the prevailing market yields.

Bankers do not respond in the same way to systematic and random changes in reserves, as we noted in the section on "tone" and "feel." Given the level of market interest rates, a larger part of the increase in reserves will be offered on the Federal funds market if the increase in reserves is regarded as a random change. Moreover, when yields are low, an individual bank chooses to hold a larger portion of the addition to reserves, whether the change is systematic or random. The volume of earning assets acquired is smaller for any given injection of reserves under these conditions. This is a reflection of two basic influences operating on a bank's adjustment process. One is the marginal cost schedule associated with acquisitions of earning assets and the reshuffling of portfolios on settlement dates. This schedule remains unchanged when interest rates decline. The second major influence shaping the response is the marginal revenue schedule.

<sup>36</sup> "Excess Reserves," *Review of the Federal Reserve Bank of St. Louis*, April 1963. "Evidence suggests that each bank attempts to keep excess reserves at a practical minimum in view of all the pertinent circumstances. For practical purposes, these reserves are excess in a legal sense only, since the bulk of them seem to be needed for smaller banks to operate efficiently." p. 15. [Italic added.] See also the discussion on p. 14 *ibid.* that clearly indicates that this question is regarded as an unresolved issue within the System.

The fall in interest rates lowers the marginal returns to be expected from investments and loans.

When the individual bank expands its earning assets under the impact of a systematic change in reserves, some reserves are generally lost to other banks. In the Federal Reserve terminology, an increase in "liquidity" has generated an increase in "bank credit." Other banks acquire reserves and become "more liquid." If these reserve acquisitions are regarded as systematic changes, additional expansion of bank portfolios results. The process continues until the reserves originally injected have been absorbed in required reserves and in the banks' *desired* holdings of excess reserves.

At every stage of the process, the "liquidity" of some banks is increased. This is followed by an expansion of "bank credit." These observations of the extremely short-run dynamics of the monetary process suggest the meaning of the first, or "overhang," notion of liquidity, viz, that greater liquidity means a larger potential increase in the money supply and bank credit. When the "overhanging liquidity" is large, the authorities appear to move cautiously and hesitantly. Further bank expansion is expected to occur eventually. An additional supply of "liquidity" will add to the rate of potential expansion and perhaps generate inflationary pressures. Judgment calls for consideration of restraint by the monetary authorities to prevent "loose money markets."

This interpretation of "bank liquidity" is seriously misleading. The error does not occur in the description of events that associates a systematic increase in reserves with the expansion of bank portfolios. In the very short run, variations in the supply of reserves are correlated positively with changes in bank portfolios. This typical occurrence has been correctly observed by the monetary authorities. But, the day-to-day view of the monetary process that the authorities take inhibits further consideration of the adjustment process.

Once we acknowledge that banks have a demand for reserves that responds to changes in the yield of portfolio assets, we are no longer free to associate a given amount of "liquidity" with a given change in money supply or bank portfolios. Assume that banks are holding the amount of reserves that they desire to hold at present yields on assets. An increase in reserves, that is judged to be systematic, raises the supply of reserves above the amount that banks desire to hold. The resulting surplus reserves, the difference between actual and desired reserves, will lead to an expansion of bank earning assets and deposits that absorbs the surplus reserves into required and desired reserve holdings. This process takes time; it is not observable in the very short-run movements that play an important role in shaping the Federal Reserve's understanding of the monetary system.

Recognition of increased surplus reserves rather than an increase in the supply of reserves as the driving force in the portfolio expansion process leads to a major modification of the Federal Reserve view. In their terminology, we would say that increased "liquidity" leads to an increase in "credit" only if surplus reserves increase. If desired reserves increase step by step with actual reserves, there are no additions to surplus reserves and no expansion in bank portfolios. Further, if desired reserves increase by more than actual reserves, banks will reduce earning assets no matter what the measure of "overhang liquidity" may be.

The first notion of liquidity as a factor generating a potential expansion of credit suffers from a complete disregard of the banks' demand for reserves and the position of cost-and-yield factors in the determination of desired reserve positions or of surplus reserves. The misinterpretation of the very short-run relation between "liquidity" and portfolio adjustment for a single bank is matched on the aggregate level by assigning a significant role in the process of monetary expansion to some measure of aggregate "liquidity." Variations in "liquidity," however, mean nothing by themselves. Their meaning depends on a frame of reference usefully explaining the behavior of the monetary system. A highly "liquid" banking system frequently occurs during periods of recession when low interest rates lead to an increase in the desired reserve positions of the banks. In the absence of additional reserves, banks reduce earning assets and deposits until actual and desired reserve positions coincide. In this case, large "liquidity" is the result of a process of *contraction* and is without the inflationary significance attributed by the Federal Reserve. Additional increases in reserves, at such times, avoid the contractive process and permit the banks to adjust desired to actual reserves.

The interaction of the banks' demand for reserves with the supply of reserves plays a central role in the monetary mechanism. Disregard of the demand for reserves makes it impossible for the Federal Reserve to understand and learn from the events of the great depression, leads to the notion that "overhanging liquidity" is inflationary, and prevents the development of a more thorough understanding of the monetary process. In particular, the Federal Reserve fails to recognize that a bank's desired reserve position moves more slowly than the actual supply of reserves in response to evolving market conditions and the random and systematic forces operating on the monetary system.

The second strand composing the liquidity notion may be inconsistent with the first. In the second view, the prevailing level of "liquidity" is either an indicator of the effectiveness of monetary policy or a causal factor making monetary policy effective or ineffective. Large liquidity is said to indicate or contribute toward ineffectiveness, and conversely. It is conceivable that the first notion, "overhanging liquidity," and the second are compatible in Federal Reserve thinking. Increased "liquidity" might contribute to future inflation and to present "ineffectiveness." Such a view might help to explain the concern about "loose money markets." However, speculation along these lines is rarely fruitful. It serves only to indicate once again that there is an absence of clarity and of an explicit statement of the position occupied by words like "liquidity" in the Federal Reserve's frame of reference.

One possible frame of reference that was developed within the Federal Reserve System helps to clarify the second view of liquidity. Statements like the one made by the present Manager—that liquidity had reached a level in mid-1962 that made expansive policy actions useless—may be a residue of some notions developed by W. W. Riefler more than 30 years ago. Various fragments of Riefler's conception continue to pervade Federal Reserve thinking<sup>37</sup> about liquidity and other parts of the monetary mechanism. We will discuss this con-

<sup>37</sup> The reader is referred again to our forthcoming paper for a more analytic treatment of this material.

ception in more detail in the following chapter. Here we wish to point out that an admitted shift in the Federal Reserve's policy position was justified with an assertion for which the Federal Reserve has not developed a coherent frame of reference and consequently could not possibly have relevant supporting evidence. An alternative conception, discussed in chapter VI, implies the continued effectiveness of monetary policy in the context considered by Mr. Stone. According to the alternative conception, a given policy operation is more stimulative when interest rates are high than when rates are low. But in either case, appropriate policy is "effective," if "effective" means that open market purchases lead to increases in the money supply.

A third version of "liquidity" appears to indicate the opposite of risk. Assets with low probabilities of default or of capital loss are referred to as "liquid" assets. This definition of liquidity is implicit in statements that interpret an increase in the ratio of long-term to short-term assets as an increase in "illiquidity."

Currency and Federal Reserve deposits are not subject to either default losses or losses of nominal values. But such losses do affect the value of loans and investments and hence the value of bank portfolios. A liquid portfolio; that is, a portfolio containing a large proportion of cash assets and short-term Treasury securities, is associated with smaller risk. A smaller probability is assigned to the occurrence of any particular capital or default loss. In this manner, expected portfolio losses are inversely related to the prevailing level of liquidity. A high level of liquidity is thus supposed to lower the expected loss, reduce the risk.

The Federal Reserve authorities traditionally have been concerned with the "soundness of credit"; that is, the probability of capital and default losses by banks. Bank supervision was designed, in the Federal Reserve view, to impose some standards of "sound credit" on banks. The intention of bank supervision is to hold expected default losses and capital losses below some preassigned, critical level.

According to the third strand in the Federal Reserve's views on "liquidity" there exists a negative correlation between the level of liquidity and the capital losses experienced on the average by commercial banks. The deflationary consequences of substantial losses spurs the Federal Reserve's concern with the "liquidity" of the banking system. This concern appears at times to dominate the Federal Reserve's interest in the money supply. On occasion it has misled the Federal Reserve authorities and encouraged inappropriate contractive action. This occurred under the combined effect of the first and the third strand. Expansionary policy would have raised "liquidity," induced banks to modify portfolios in a direction involving more risk and greater expected loss. In order to protect "sound credit" and eliminate deflationary capital losses, a hesitant attitude concerning open market purchases has prevailed at times.

We submit that the Federal Reserve's concern with "liquidity" in order to prevent the occurrence of deflationary capital losses absorbs the attention of policymakers in a wrong direction. It has misled the Federal Reserve authorities to justify measures intended to protect the banks against "unsound credit." But such protection of individual banks against the consequences of their own poor judgment should not be the concern of an agency instructed by Congress, according to the Board, to "control the money supply" and

adjust monetary policy in accordance with the goals of employment policy.

Monetary policy must unavoidably be concerned about deflationary impulses initiated by defaults of bank loans and capital losses on bank's investment portfolios. But the successful elimination of such impulses does not require protection of individual banks against their poor judgment. It does involve, however, the protection of depositors. A well constructed monetary system appears to require protection of depositors against the consequences of "unsound credit," but there is no good reason to protect bank management from such consequences. Protection of depositors and protection of individual banks are not the same thing and can be clearly separated by appropriate institutional arrangements. With such institutions successfully operating, the Federal Reserve authorities could usefully disregard the "quality of bank credit" and the concern for "liquidity" as an expression of the expected loss associated with a particular portfolio composition.

### *The concept of liquidity and the effect of borrowing*

The confusion engendered within the Federal Reserve by the term "liquidity" is observed most readily in connection with their discussions of member bank borrowing. As noted above, an individual bank borrows from the Federal Reserve bank in connection with the maintenance of its required reserves at the end of the settlement period. A bank may of course anticipate a shortage and borrow in advance of the settlement date. Banks may also borrow for emergency reasons; e.g., crop failures. But most of the dollar volume of member bank borrowing is made as a part of the process by which individual banks meet their reserve requirements.

The Federal Reserve regards member bank borrowing as "a negative element of primary liquidity."<sup>39</sup> An individual bank must shortly repay the amount that it borrows from a Federal Reserve bank. But the banking system can be, and has been, indebted to the Federal Reserve System for long periods of time. Evidence of continuous borrowing by groups of member banks was presented in our discussion above. We indicated there that on the average for the period 1949-62, Reserve city and Central Reserve city banks had negative free reserves. All member banks as a group have borrowed for prolonged periods also. For example, member bank borrowing exceeded \$400 million in every month from April 1925 to February 1930, with one exception. More recently, borrowing has exceeded \$500 million in every month but one from March 1955 to December 1957 and from December 1958 to April 1960. Other periods of expanding or high-level economic activity show similar borrowing behavior for banks as a group.

Why then should member bank borrowing be regarded as an element of negative liquidity? The reasoning is straightforward for an individual bank. Whenever a bank must repay the funds bor-

<sup>39</sup> Commission on Money and Credit, "The Federal Reserve and the Treasury: Answers to Questions from the Commission on Money and Credit" (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962) p. 7. See also, "Measures of Member Bank Reserves," Federal Reserve Bulletin, July 1963, p. 893, where it is noted that "Member bank borrowing at Federal Reserve banks is generally regarded as a temporary source of reserves both by the borrowing bank and by the Federal Reserve officials who administer discount operations. This transitory or emergency nature . . . tends to limit the volume of credit that can be supported by such reserves." "Borrowed funds are different from other factors affecting reserves. A reserve expansion resulting from an increase in member bank borrowing cannot exist for long because borrowings are temporary sources of funds," Monthly Review, Federal Reserve Bank of Atlanta, September 1963. Additional references to this point will be provided below in the discussion of free reserves.

rowed from Federal Reserve banks, it acquires the necessary reserves by retarding the expansion rate of its portfolio of earning assets. In one way or the other, the bank must readjust its assets and liabilities to generate surplus reserves sufficient to repay the loan from a Federal Reserve bank. Such readjustment may be accomplished by unloading securities and calling short loans. On other occasions it may mean that a portion of the reserves acquired after a settlement day is applied to the repayment of the amount borrowed. Whatever the precise form of a bank's adjustment to facilitate the repayment of its debt, the expansion rate of its deposits and earning assets is reduced. The larger the bank's indebtedness, the greater will be the subsequent (relative) retardation of its expansion rate.

This association was carefully observed and properly noted by the Federal Reserve authorities. But the authorities seriously erred in the interpretation of this observed association. This error occurred at two distinct stages; one pertains to the behavior and position of individual banks, the other to the behavior of the banking system. The Federal Reserve authorities have traditionally asserted the existence of a "tradition among commercial banks against borrowing." Banks were said to borrow only reluctantly. It is quite true that banks rarely borrow repetitively over sequences of succeeding settlement days. But this behavior does not necessarily reflect a tradition against borrowing. Economic analysis suggests an alternative explanation. The pecuniary discouragement to borrow exerted by the discount rate is supplemented in Federal Reserve practice by a nonpecuniary—or indirectly pecuniary—discouragement by means of administrative procedures and pressures. At least, there are continuous suggestions that such pressures might become operative. These pecuniary and nonpecuniary costs of borrowing are important features in the individual bank's borrowing behavior. Moreover, this explanation also suggests that the "tradition against borrowing" is not the result of an inherent reluctance on the part of banks, but the consequence of Federal Reserve policy bearing on discounts and advances. This tradition must be understood as the result of the Federal Reserve's administrative procedures designed to shape the desired attitudes and behavior of commercial banks concerning borrowing from Federal Reserve banks.

Having observed the association between accumulated indebtedness and subsequent retardation of the expansion rate of individual banks, the Federal Reserve authorities asserted the existence of this association for the banking *system*. Many pronouncements have been made by Federal Reserve officials declaring that a larger indebtedness of commercial banks retards the expansion rate of "bank credit."<sup>39</sup> On occasion we may also read that an expansion of reserves based on growing indebtedness is "not sustainable." The latter notion has never been clarified, and its relation to the asserted negative association between the System's indebtedness and the System's expansion rate remains quite unclear. We suspect that the two statements reflect different and independent notions about the working of the discount mechanism.

The first statement about the System must be recognized as a fallacy of composition. The Federal Reserve authorities extend to the whole system of banks a pattern that has been observed to hold

<sup>39</sup> References will be given in the following chapter.

for the short-run adjustment of individual banks. But this pattern does *not* hold for the System, however prevalent it is for individual banks. Whenever an individual bank retards its expansion rates—either by contracting earning assets or channeling reserve accruals into repayments of indebtedness—the position of other banks is affected. When one bank unloads assets on the market, the reserves of other banks decline. The reduction of assets by a single bank induces a transfer of reserves from other banks to the bank that is reducing assets. Similarly, a bank's deposits and portfolio will expand by smaller amounts if newly acquired reserves are used to repay indebtedness. Consequently, some of the reserves lost by other expanding banks will not be used for asset expansion. The loan repaying bank will use them instead to repay indebtedness to the Reserve banks. The retardation of the bank's expansion rate thus transfers pressure to the reserve positions of other banks and to other sections of the country. In this way, the pressure is distributed over the banking system. Other banks replace the adjusting bank at the discount window on the next settlement day, and there is a turnover in the lineup at the discount window. But the borrowing by other banks replaces the reserves repaid by the adjusting bank. The new borrowings permit a (relative) acceleration in the expansion rate of the newly indebted banks; this offsets the (relative) retardation of the repaying banks. The observed association of an individual bank's indebtedness with the subsequent (relative) deceleration of its portfolio movements therefore does not imply that borrowing has a contractive effect on the banking system.

For the banking system, it is the total amount of reserves supplied by the Federal Reserve and the demand for reserves by member banks that is important in judging the market for bank reserves. The fact that the banking system remains in debt to the Federal Reserve for long periods means that some of the reserves supplied at the discount window will remain available and will permit bankers as a group to issue more deposits. In fact, the reserves supplied through the discount window to the banking system may increase the amount of total reserves available to the banking system.

Like any other method of supplying reserves, borrowed reserves permit member banks to supply a larger volume of deposits. An increase in borrowing, other sources of reserves unchanged, has a positive, not a negative, effect on the monetary system, since it increases the reserves in the banking system. An increase in reserves attributable to a growing volume of borrowing from the Reserve banks implies that the (relative) acceleration in expansion rates of borrowing banks dominates the (relative) deceleration of repaying banks. Only confusion between individual bank behavior and the behavior of the system as a whole could lead to the conclusion that increases in member bank borrowing have a negative effect on the banking system.

The first statement about the system has thus been shown to emanate from fallaciously attributing properties to the system which truly hold for individual members. Our discussion indicated that an increase in reserves, independent of its source, is expansionary. This view is quite consistent with the second statement sometimes made by Federal Reserve officials. The second statement may be interpreted to mean that indebtedness of banks to Federal Reserve banks cannot grow at a constant rate. In particular, expanding indebtedness cannot assure a maintained growth rate of reserves.

The growth rate of reserves attributable to expanding indebtedness must eventually decline. This proposition has a radically different import than the previous assertion considered. In the context of the Federal Reserve's prevailing views about the operation of the discount window, the proposition is most likely correct. Growing indebtedness emanates from two sources, viz, more banks borrow and they may borrow larger amounts. With an increasing number of banks appearing at the discount window, the probability of more frequent applications by a particular bank increases. Increasing indebtedness thus implies that both the probability of larger loans and more frequent applications becomes larger. Consequently, the probability of rising administrative pressure applied by the Federal Reserve banks to indebted and borrowing banks rises. This rising pressure may be expected to retard the growth of indebtedness. Still, past observations about the behavior of bank indebtedness would suggest that substantial expansions in bank borrowing occurred without decisive evidence of a retardation attributable to rising administrative pressure. But we do not doubt that under prevailing conceptions about the administration of the discount window, a retardation generated by administrative pressure would emerge at *some* point of a continuously expanding portfolio of discounts and advances. The truth of the second proposition asserted by Federal Reserve authorities is thus dependent on its own practices.

The Federal Reserve's misconceived interpretation of the effect of borrowing on the banking system has important implications. It is a major part of the free reserve concept, one of the primary tools that the Federal Reserve uses to judge the state of the market. By definition, an increase in borrowing reduces free reserves. A reduction in free reserves caused by an increase in borrowing is said to have a negative effect on the rate of change of "bank credit." Conversely, an increase in free reserves caused by a decrease in borrowing is said to have an expansive effect on bank credit.

In short, the Federal Reserve contends that in periods of rapid expansion in the demand for loans, an increase in member bank borrowing reduces free reserves and thus "tightens" the banking system, while an increase in total reserves through purchases in the open market, borrowing unchanged, eases the banking system because it increases free reserves. But if the total reserves available to the banking system are the same in both cases, the total volume of member bank deposits that can be supported will be the same in both cases. Only if the effect of reserve operations, particularly borrowing, on individual banks are confused with the effect on the banking system as a whole can analysis lead to the opposite conclusion.<sup>40</sup>

The pernicious effect of this error in the interpretation of borrowing will become clearer when we compare the effects of the free reserves doctrine to an alternative view of the monetary mechanism below.

#### *The banker approach and the Federal Reserve portfolio*

The Federal Reserve's view of the liquidity of the banking system affects its own operations in other ways. This is demonstrated in the testimony of President Hayes before the Joint Economic Committee.<sup>41</sup> The view is expressed that since banks are holders of short-term securities as a part of their "secondary liquidity," the Federal Reserve

<sup>40</sup> Commission on Money and Credit, "Answers to Questions," op. cit., pp. 117-118.

<sup>41</sup> "Review of the Annual Report \* \* \*," op. cit., pp. 69, 75.

must hold similar securities as a means of affecting the reserve positions of banks.

In fact, the Federal Reserve does not generally buy securities from and sell securities to member banks other than the dealer banks. It buys from and sells to dealers in Government securities (including dealer departments of member banks). In the process, it absorbs or creates member bank reserves and increases or decreases the volume of securities outstanding in the market. This operation changes both member bank reserves and the outstanding stock of securities that banks and nonbanks hold.

Federal Reserve buying or selling changes interest rates on the securities bought and sold by increasing or decreasing the stock of securities that the banks and the public must hold and by increasing or decreasing the reserves supplied. It remains for the market to distribute the effect of an open market operation over a wide range of securities. The origin of the securities that the Federal Reserve purchases—whether they are initially sold to dealers by banks or nonbanks—has no effect on the outcome. If the Federal Reserve had purchased a particular security that was not held by any bank in the system, the effect would be similar. The reserves of member banks would be increased and a particular type of security would have a slightly lower yield and slightly higher price. Other securities are more attractive to buyers relative to the security used in the open market operation. A relative increase in the demand for all other securities lowers their yield until no one wishes to exchange the security used in the open market operation for any other security. In the process, the prices and yields of securities with longer or shorter maturity are affected. The amount of new securities offered and the amount of bank loans demanded are also changed. Both magnitudes respond to the variations in the structure of interest rates induced by changes in bank reserves and in the stock of securities to be absorbed by the market. In this way the effect of open market operations begins to be transmitted to the pace of economic activity.

It may be true that the speed of transmission is influenced by the particular type of security that the Federal Reserve uses in its operations. For that reason, the particular security that the Federal Reserve uses may be of some importance. This problem has not been studied empirically, so no judgment can be reached. The point of the discussion here is to suggest that the Federal Reserve is not like any other purchaser or seller in the security market, though it often seems to regard itself in that way.

#### *The money versus credit doctrine*

Another major fallacy associated with the failure to distinguish between effects of policy on individual banks and on the banking system as a whole can best be summarized in the words of a spokesman for the Federal Reserve responding to a written question:<sup>42</sup>

No difference was meant by the two terms "bank credit expansion" as used in the May 24 revision of the Federal Open Market Committee's policy directive and "monetary expansion" as used in the August 16 revision.

The term "bank credit expansion" refers more precisely to an increase in the total loans and investments of commer-

<sup>42</sup> "Review of the Annual Report \* \* \*", op. cit., p. 147.

cial banks; that is, in their principal assets. "Monetary expansion" relates to an increase in the Nation's money supply, usually defined to include demand deposits of banks and currency in circulation. Technically speaking, the terms differ in that "bank credit expansion" approaches the problem from the bank asset side, while "monetary expansion" approaches it from the bank liability side. Since demand deposits are at the same time the major component of the money supply and the main, although not the sole, offsetting liability to bank assets, bank credit expansion and monetary expansion are essentially two sides of the same coin.

An individual bank receiving an increase in reserves resulting, let us assume, from an open market purchase by the Federal Reserve is faced with the task of allocating the increase in reserves between earning and nonearning assets. We have previously discussed the effect of interest rates on this decision. And we have noted that in the process of acquiring earning assets banks lose reserves to other banks. From the viewpoint of the individual bank, reserves are used to expand assets. In the process, money is created because the loan that the bank makes to a customer is balanced by a new liability, the deposit of the individual borrower.

Generally the loan remains on the books of the lending bank, but most of the deposit balance is withdrawn. The prevailing structure of interest rates will be an important determinant of the use that is made of the money by those receiving checks written by the initial borrower. When interest rates on time deposits are relatively high, a larger proportion of the money that was created will be placed in time deposits or savings deposits.

The decisions that are made by individuals receiving increases in their cash balances or their deposit accounts have an effect on the type of assets that banks will purchase and the rate of expansion of the money supply and the stock of credit. If the newly created money is exchanged for commercial bank time deposits, the increase in required reserves induced by the asset expansion is smaller. The system can, therefore, acquire additional assets at a much greater rate than if the newly created money is held as demand deposits. Moreover, the average time or savings deposit remains in the bank for a longer period of time than the average demand deposit. For the individual bank, the risk of reserve deficiencies is thereby reduced when time deposits increase relative to demand deposits. The bank is able to "reach for yield," i.e., to acquire a larger proportion of assets that carry higher market yields, have longer maturities, and are not traded in markets as highly organized as the market for Treasury bills. Long-term municipal bonds and mortgages are examples of the types of assets acquired by banks when the composition of their deposits between time and demand deposits changes in favor of time deposits.

Thus, while it is true that for a single bank the process of expanding credit is part and parcel of the process of expanding the money supply, it is not true for the banking system as a whole or for the economy. The stock of credit and the stock of money may change at very different rates.

Furthermore, the *desired* reserve position of an individual bank and of the banking system as a whole changes during periods of expansion and contraction in the economy. As we have noted repeatedly, such changes in the demand for reserves by banks are a part of the response to the interest rate changes that occur during periods of economic expansion and contraction. A given volume of reserves may be used to support a larger or smaller stock of money depending on the demand by banks for reserves in excess of requirements.

Table II-2 shows the mean or average change in (1) the money supply, (2) the money supply plus time deposits, and (3) the total loans and investments of member banks, bank credit. The table clearly reflects the fact that the substantial differences in the rate of change of the money supply and the stock of "credit" that we have just described are not simply possibilities but occur in practice.

TABLE II-2.—Average rates of monthly change in money and "credit" during postwar cycles, November 1948 through February 1961

[Millions of dollars]

Item	Peaks to troughs	Troughs to peaks
Change in money supply.....	120	229
Change in money supply plus time deposits.....	533	457
Change in bank credit.....	714	491

Suppose that two individuals are judging Federal Reserve policy to decide how expansionary the policy has been during a particular period. If one chooses the rate of change of the money supply and the other chooses the rate of change of bank credit, they are likely to reach opposite conclusions. During periods of contraction in the economy, the credit measure and the money supply plus time deposits suggest that on the average, the System is permitting or encouraging a relatively rapid rate of recovery. However, the money supply suggests the opposite conclusion. During periods of expanding economic activity, the reverse is the case. Judging the effects of Federal Reserve policy by the changes in the stock of credit would suggest a relatively "tight policy." Judgments based on the stock of money would suggest that policy was somewhat easier during the period of expansion than during the period of contraction.

The fact that the two rates differ does not immediately tell us which is the better measure. Nor does it tell us anything about the extent to which Federal Reserve policy has contributed adequately to the goals of the Employment Act or the congressional mandate. But it does help to explain some of the differences between those who judge monetary policy in terms of the stock of money and Federal Reserve officials who most often refer to the stock of bank credit, total loans and investments. For if we continue to ignore the demand factors in the present discussion, it is clear that the Federal Reserve has permitted on the average a larger expansion in the supply of money during months of expansion than during the months of contraction in the economy.

Since the rate of change of the money stock and the bank credit stock are not the same in periods of economic expansion and contrac-

tion, it is not a matter of opinion or indifference whether we use one or the other. It is a substantive issue that has important consequences for the understanding of Federal Reserve policy. Only if we are wedded to the "banker fallacy" and view the banking system in much the same way that the individual banker views his own operations, are we likely to regard increases in credit and money as the same. If the Federal Reserve had studied the data on the rates of change in the supply of money and the stock of credit, they could not have reached the conclusion that "monetary expansion" and "credit expansion" are "two sides of the same coin."

Moreover, we have seen in previous sections that the desired reserve position of commercial banks reflects interest rates prevailing in the market. And we have argued that the response of the supply of money to a given change in reserves is affected by prevailing interest rates. With higher interest rates, the demand for cash balances, or for excess surplus reserves by banks, is smaller, and the increase in the money supply resulting from an increase in the reserves made available by the Federal Reserve is larger.

Once we recognize that the banking system may desire to hold larger or smaller ratios of reserves to deposits, we can understand why the rate of expansion of earning assets (credit expansion) is not the same as the rate of monetary expansion. It is therefore incorrect to say that the changes in earnings assets or credit are approximately equal to the changes in demand deposits. By doing so the Federal Reserve ignores the change in banks' desired reserves because it implicitly assumes that desired reserves remain unchanged and can be forgotten. It is the sum of earning assets plus reserves that is approximately equal to total demand and time deposits, not the earning assets alone. Changes in desired reserves by the banking system are accompanied by changes in the relative rates of growth of earning assets and deposits. Failure to distinguish between the desired reserve position of the banking system and the amount of measured excess reserves available leads to the erroneous conclusion noted above—that adding to the available reserves by Federal policy would have little or no effect on the rate of *monetary* expansion.

Furthermore, a given volume of total reserves can support vastly different totals of demand plus time deposits at commercial banks depending on the distribution between demand and time deposits that the public chooses to make. Higher interest rates on time deposits induce the public to hold a larger fraction of liquid assets in time deposits. Whatever the given total of reserves supplied to the banking system by the Federal Reserve, the fraction of reserves that must be held as required reserves is smaller. Banks can increase credit; that is, loans and investments, at a much greater rate than demand deposits if the public chooses to acquire time deposits by surrendering demand deposits.

The prevailing structure of interest rates on assets must be considered in the analysis of the monetary process. While interest rates are not the only determinant of the distribution of liquid assets into demand and time deposits, they are an important determinant.<sup>48</sup>

<sup>48</sup> E. Feige, "The Demand for Liquid Assets: A Temporal Cross Section Analysis," unpublished Ph. D. thesis, University of Chicago, 1962; Allan H. Meltzer, "The Demand for Money: The Evidence From the Time Series," *Journal of Political Economy*, June 1963; Karl Brunner, "The Structure of the Monetary System and the Aggregate Money Supply Function," presented at the winter meetings of the Econometric Society, December 1960. To be published as a chapter in our forthcoming book on monetary theory.

Failure to recognize the importance of interest rates for the distribution of total deposit balances overlooks an important element in the monetary mechanism. Recognition of the variation in the ratio of time to demand deposits as a part of the operation of interest rates leads immediately to the recognition of an important source explaining the difference between the rates of change in the stock of money and credit.

The data in table II-2 clearly indicate the importance of choosing between monetary and credit expansion. Variations in the public's distribution of money balances between currency and demand deposits and reallocations of deposits between demand and time accounts generate substantially different responses in total earning assets and the money supply. These factors are of major importance in explaining the marked differences in the rate of change of the stock of money relative to the rate of change of credit during periods of recession and recovery.

If we are to choose a single indicator from these two measures of "ease and restraint," we want to choose that measure that best reflects the position of the monetary system. The above discussion suggests that it is the rate of monetary expansion that is the better measure. Failure of the Federal Reserve (1) to distinguish between the different rates of growth, (2) to analyze the determinants of desired reserve positions, and (3) to analyze the behavior of and the factors affecting the demand for time deposits and the demand for money has led to the use of an inappropriate measure.<sup>4</sup>

#### SOME OTHER CONCEPTIONS AND MISCONCEPTIONS

To conclude this lengthy, introductory discussion, four policy decisions have been chosen to illustrate some prevailing notions of the Federal Reserve. Our purpose is to show that important policy actions and interpretations of events are based on conceptions that have not been validated. This does not mean that the conceptions are invalid or incorrect, though much of the evidence that we have collected strongly suggests that they are. We are convinced that the failure to assess the relevance and validity of the underlying notions had important consequences for the economy and for the ability of the Federal Reserve to carry out the congressional mandate. In this section, we attempt to provide some documentation for that conviction.

The events chosen here are illustrative only. Others could have been used for the same purpose. Our intention is not to suggest that policy was "easy" when it should have been "tight" or "tight" when it should have been "easy." "Ease and restraint" do not have self-evident meaning, as was implicit in our consideration of "credit" versus money as an indicator of monetary policy. Such terms can only be usefully applied within a particular frame of reference. If that frame of reference or conception is inappropriate, actions taken to ease the monetary system may have precisely the opposite result. Had the Federal Reserve continuously attempted to assess their understanding of the monetary process, many of the misconceptions might well have been discarded long ago.

<sup>4</sup> See the appendix for a compact statement of the analytic issues underlying this discussion.

*Changes in reserve requirements, 1936-37*

In the summer of 1936, the Board raised reserve requirements by 50 percent and again in January 1937 raised them to the limit permitted under the law. Unemployment was above 10 percent at the time, and economic activity was running at a pace substantially below any reasonable measure of full utilization of resources. Nevertheless, the Board of Governors raised reserve requirements by 100 percent within 6 months. Why was this action taken when the economy had only partially recovered from a major depression? Did the notion of "overhanging liquidity," discussed above, lead the Federal Reserve to believe that this action would prevent some possible future inflation?

The rationale for the action can be inferred from statements made by Federal Reserve officials. One of the clearest clues is offered by Goldenweiser writing after the events.<sup>45</sup>

After the autumn of 1933 these instruments (i.e., discount rate and open market operations) were not usable, because the banks were out of debt and had a large volume of excess reserves. The banks were, therefore, largely independent of the Federal Reserve System and could not be influenced by the System's traditional methods of credit regulation. In an attempt once more to reestablish contact with the money market, the System, under authority acquired in 1933 and 1935, increased reserve requirements in 1936 and 1937 \* \* \*.

\* \* \* the Board made it clear that this was not a reversal of the policy of monetary ease pursued since the beginning of the depression \* \* \*. The Board's action was precautionary in character and placed the System in a position where an injurious credit expansion, *if it should occur*, could be controlled by open market operations and discount policy.

This argument presumes that the situation evolving after 1933 broke a crucial link in the chain connecting the behavior of the money supply or "credit" with policy actions exercised by open-market operations or variations in the discount rate. The restoration of an effectively operating policy required substantial elimination of excess reserves. This was accomplished by doubling the requirement ratios. Furthermore, this action was viewed as an attempt to restore the operational significance of traditional policy instruments without inducing a contraction in economic activity.

The Federal Reserve's interpretation of the events and of their actions is an immediate consequence of a peculiar notion concerning the structure of monetary processes. Under the conception developed in some detail by Riefler,<sup>46</sup> a prominent Federal Reserve official, the behavior of the banks' volume of indebtedness to Federal Reserve banks operates as a centerpiece of the whole monetary mechanism. It can be shown that an appropriate explication of Riefler's notion does imply that the loss of the Federal Reserve's "contact with the market," resulting from a vanishing volume of indebtedness, rendered monetary policy inoperative. According to this conception, the policy pursued in 1936-37 was well conceived and quite rational. It was excellently designed to restore an effective connection between policy and the

<sup>45</sup> E. A. Goldenweiser, "Instruments of Federal Reserve Policy," *Banking Studies* (Washington: Board of Governors, 1941) pp. 391 and 410. [Italics added.]

<sup>46</sup> W. W. Riefler, "Money Rates \* \* \*," *op. cit.*

behavior of the monetary system. The ruling conception also implied the nondeflationary character of the rise in reserve requirements under the circumstances.<sup>47</sup> In their view, "overhang liquidity" was eliminated to prevent future inflation.

The appropriateness and relevance of the policies pursued hinges completely on the validity of the underlying conceptions about the causal structure of the monetary system. The conception ruling at the time of the Federal Reserve's action was neither preordained nor obviously true. No record shows that this conception had been critically assessed. Alternative conceptions yielding a radically different interpretation of the same situation appear to be better founded. One such conception, for which there is much more evidence, implies that no restoration of policy effectiveness was necessary in 1936, and that policy continued to be effectively linked with the monetary system.

The alternative frame of reference implies that "contact with the market," as understood by the Federal Reserve authorities, is neither a necessary nor a sufficient condition for policy actions to be effectively transmitted. This notion has no meaning and relevance within the alternative frame. Moreover, the increase in reserve requirements, in addition to being unnecessary, generated a serious deflationary impulse in a situation still dominated by unemployment. The Federal Reserve's policy in 1936-37 was not necessarily inappropriate. But its appropriateness depends on the validity of the underlying conception guiding the Federal Reserve's actions. They have not attempted validation. Yet a major change in policy was introduced and later justified in terms of a conception that has little validity or relevance and appears to be incorrect.

#### *The appraisal of policy in 1949*

The annual report published by the Board of Governors for the year 1949 noted that because "the System had not been in a position to exert greater monetary restraint it had less scope for reversal of policy when the time came to relax credit restraint."<sup>48</sup> This appraisal of the policy situation confronting the Federal Reserve authorities in 1949 must be accepted as an appropriate interpretation, provided the underlying conception of the monetary process is justified. The frame of reference, noted in the previous case, appears to have dominated the policy appraisal in 1949. Again, the volume of bank indebtedness is recognized as a critical link in the chain. Restraining policy effects are conceived to be positively associated with the magnitude of this indebtedness. It follows then, that the scope for a policy reversal, replacing "restraint," with "ease," is directly linked to the preceding "degree of restraint." And the alleged absence of a seriously restraining policy before 1949 made it impossible, in the Federal Reserve's view of things, to generate substantial monetary expansion. Once more we note how an untested, and very questionable conception of the monetary process had to bear a heavy burden. A policy attitude emerged which can only be defended if the underlying conception was justified.

<sup>47</sup> A detailed analysis of this conception, which has powerfully influenced interpretations and decisions of the Federal Reserve authorities will be developed in our forthcoming paper "Evolving Federal Reserve Conceptions About the Structure of the Money Supply Process."

<sup>48</sup> Annual report, 1949, p. 4.

*Ease in 1949*

The Federal Reserve's interpretation of the events occurring after the peak in November 1948 provides a third example. Their interpretation, and the associated action, is reflected in the following quote:

Holdings of securities by Federal Reserve banks were reduced somewhat to meet very strong market demand resulting from decreases in reserve requirements, but not in sufficient volume to modify a policy of monetary ease.<sup>49</sup>

Beginning in May 1949, the Board lowered reserve requirements in successive steps by a substantial margin. Commercial banks responded immediately with an expansion of their desired portfolios of earning assets. Their response raised the demand for Government securities and consequently lowered market rates of interest. In order to prevent a sizable reduction of market rates, the Federal Reserve unloaded securities from its portfolio. These open-market sales have been interpreted by the Board as a modifying element in the context of a basically "easy policy." The assertions quoted from the "Patman report" are repeated in the annual report of the Board for the year 1949 and in an answer by the Presidents of the 12 Federal Reserve banks to the questionnaire reproduced as an appendix to this study. Both the answer and the annual report clearly convey the impression that the Federal Reserve authorities engaged in "positively stimulating" actions to counter the deflationary pressures gathering in the economy.

A totally different appraisal emerges under a conception of the monetary process to be outlined in a later section of this study. Under this alternative conception, the monetary base adjusted for the cumulated sum of reserves liberated (or impounded) by changes in reserve requirements occurs as a magnitude of decisive importance.<sup>50</sup> It can also be shown that this concept, the "extended monetary base," appropriately summarizes the net effect of the Federal Reserve's "policy posture." It is therefore noteworthy that for every month in 1949 this magnitude was substantially lower than for the corresponding month in the previous year. On the average for 1949 the extended base was at least \$500 million lower than in 1948. The effect of the reserves released by the successive reductions in reserve requirements was thus more than offset by the open-market sales. The alternative conception implies that these open-market sales were not just modifying a basically "easy policy," but actually injecting additional deflationary impulses into the economy. The behavior of the money supply (see charts in the appendix) clearly reveals that no "positive stimulus" was exerted. The money supply was lower throughout 1949 than in the corresponding months of 1948, reflecting the contractive action exerted by the decline in the base. Also, a moving 3-month average of relative changes between adjacent months shows strongly marked declines in the early months of 1949, a clear break in the deflationary trend in April and May and a subsequent acceleration of the deflationary trend until October 1949. Thereafter a sharp reversal occurred, and there was an accelerated upsurge.

<sup>49</sup> The Patman report, p. 292.

<sup>50</sup> The monetary base and the extended monetary base are described in more detail in ch. VI. The base is obtained from the table "Member Bank Reserves, Reserve Bank Credit, and Related Items" that appears in every issue of the Federal Reserve Bulletin. To compute the base we add Federal Reserve bank credit to the monetary gold stock and Treasury currency outstanding and subtract the sum of Treasury deposits at the Federal Reserve banks, and other deposits at Federal Reserve banks, foreign deposits at Federal Reserve banks, Treasury cash, and "other accounts" of Federal Reserve banks.

Further investigations reveal that the *highly* deflationary policy of the Federal Reserve authorities was somewhat attenuated by the persistent conversion of currency into demand deposits by the public. This reallocation of the public's money balances in favor of checking deposits reduced the substantial deflationary effects of Federal Reserve policy. But this offsetting influence was not sufficient to compensate fully for an inappropriate policy in a period of recession.

Our interpretation of the events in 1949 follows from the alternative conception of the structure of monetary processes. Our conception may be completely false, and the Federal Reserve's views may be completely correct. But this remains to be shown. The large volume of open-market sales made by the Federal Reserve authorities and the decline in the money supply during a period in which policy is described as "stimulating" seem at first glance to speak against their conception.

#### *Policy in 1953-54*

The answer supplied by the Presidents of the Federal Reserve banks to the second question in the questionnaire appended to this study contains a reference to the recession terminating in 1954. Attention is drawn to the free reserves of commercial banks, a dominant concept in the Federal Reserve's frame of reference during most of the postwar period. The Presidents quite clearly convey the notion that free reserves above a critical range must be interpreted as an indication of an expansionary policy. In particular, free reserves in the range of \$500 to \$600 million must be understood to reflect an expansive policy.<sup>51</sup>

These views emerge from a conception focusing on the causal role of free reserves with respect to the rate of "credit expansion." It follows quite naturally that the large increase in free reserves observed in 1953 and 1954 was understood by the Presidents as part of a policy of "aggressive" ease.<sup>52</sup> When this statement is combined with other appraisals made by Federal Reserve authorities that bear on developments before the peak of 1953, one obtains the impression that Federal Reserve policy acted decisively after the peak to dampen and counteract the deflationary pressures. Data show that toward the close of 1952 free reserves reached a postwar minimum of approximately minus \$1 billion. At the beginning of 1953 free reserves moved up rapidly and oscillated around minus \$600 million for several months. Toward midyear a large jump occurred. The gravitational center of the movement of free reserves increased to approximately \$200 million. According to one of the Federal Reserve's standard interpretations a "policy posture" of "active ease" was counteracting the spreading recessionary tendencies.

At the start of 1954, free reserves increased again, moved during 1954 to the \$600 million level, and for several months remained about that level. Thus we note that from the beginning of 1953 to the beginning of 1954 there was a rise in free reserves of over \$1½ billion.

It is therefore quite understandable that the Federal Reserve authorities, interpreting these movements of free reserves within their conception, feel that their policies contributed decisively to break the downturn. Their strongly held conception about the role of

<sup>51</sup> "... whenever free reserves have been for some time in the area of \$500 to \$600 million, the money market and bank reserve positions have been easy and credit policy expansive." See appendix question II.

<sup>52</sup> The reader may wish to consult the chart of the moving average of weekly free reserves in the appendix.

free reserves implied a specific interpretation of the events in 1954 and shaped the policies actually pursued.

Some of the graphs collected in the appendix, particularly those showing monthly data on the growth rate of the "extended monetary base" and the money supply convey a somewhat different story. The growth rate of the money supply fell from a peak reached in 1952 to a bottom in April 1954. The annual growth rate collapsed by 50 percent over a period exhibiting a rise of \$1.5 billion in the prevailing level of free reserves. And the deflationary trend in the money supply persisted well into the year 1954. The extended monetary base, which effectively summarizes the Federal Reserve's policy posture, explains to a large extent the serious retardation in the growth rate of the money supply. The extended base grew around the middle of 1953 at a rate of approximately \$1.5 billion per year from month to corresponding month. The growth rate of this fundamental policy magnitude collapsed thereafter. By the end of 1953, the growth rate of the extended base had fallen by 66 percent. This decline slowed in 1954, but the growth rate of the extended base did not reach bottom until September 1954. According to this index measure of Federal Reserve actions, policy was dominantly moving in a deflationary direction during the recession of 1953-54.

Despite the prevailing downward trend in the growth rate of the extended monetary base, the growth rate of the money supply began to rise in the spring of 1954. At this point the restraining influences of Federal Reserve policy was offset by the conversion of currency into checking deposits. The reallocation of the public's money balances in favor of checking deposits, a typical phenomenon in cyclical downswings, compensated for the Federal Reserve's policy actions.

We hasten to emphasize that our interpretation of monetary events in 1953 and 1954 is not necessarily the "true" or the "best" explanation. But we do wish to note that the Federal Reserve interpreted its policy actions in terms of an unverified framework. That framework does not appear capable of explaining the events of 1953-54 any more than it was capable of providing guidance for policy in 1936-37, 1948-49, or at other times before and after.

#### PRELIMINARY CONCLUSION

The foregoing sections have developed the contention that the analysis of the monetary mechanism contained in many of the Federal Reserve publications and statements reflects three basic features of the Reserve System: (1) they have an essentially short-run, day-to-day orientation; (2) their analysis of the monetary mechanism runs largely in terms of the operation of a single bank rather than in terms of the banking system as a whole; (3) their understanding of the monetary process consists of a series of unverified strands, often unconnected and obscure. These three factors are not unrelated. As we noted, individual bankers and money deskmen must often take a day-to-day approach toward the management of their reserve positions. They often do not express great interest in analytic frameworks designed to separate the "systematic" from the "random." But the Federal Reserve has a very different role in the system and must be equipped with verified knowledge to effectively carry out the mandate of the

Congress. Knowledge that is adequate for the banker is often quite inadequate for the central banker.

A number of specific fragments in the Federal Reserve conception of the monetary process were discussed in this chapter to provide some support for our contentions. But knowledgeable readers are aware that a variety of notions and views compose the Federal Reserve conception. Careful sifting of pronouncements made by Federal Reserve officials uncovers statements conflicting with some strands analyzed in this chapter. In particular, on the question of the demand for reserves by banks, an interesting evolution can be observed in recent years.<sup>53</sup> But this situation has already been recognized as a dominant feature of the Federal Reserve's approach, an approach composed of fragments and pieces of many notions that have not been integrated into a coherent conception and that have not been supported by evidence.

One concept that has often been at the forefront of Federal Reserve statements in the postaccord period, the level of free reserves, has not been thoroughly discussed in this chapter. In the following two chapters, we consider the Federal Reserve's analysis of "credit expansion and contraction" and the role played by free reserves in policy formation and execution. Before doing so, we wish to note that the System's discussions centering on free reserves are again suggestive of their general procedures. No clearly stated frame of reference has been formulated and tested. As outsiders, we can only consider the mass of Federal Reserve statements, attempt to formulate a coherent framework, and support our views with evidence from their actions and behavior as well as their remarks. Much of the discussion in the two following chapters is devoted to that task.

<sup>53</sup> Review of the Annual Report \* \* \*, op. cit. pp. 153-4. See also the reply of the Board of Governors to question II, pt. 3 and to question V and the reply of the 12 Federal Reserve bank Presidents to question V in the appendix for statements indicating the importance of the demand by banks for reserves as a factor in the transmission of monetary policy to the economy. But this explicit acknowledgment of demand behavior emerged only recently. Also, it occurs in contexts exhibiting fragments quite incompatible with the demand behavior suddenly acknowledged.

