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# THE POLITICAL ECONOMY OF MONEY

## Evolution and Impact of Monetarism in the Federal Reserve System

A Paper By

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CONTENTS


| | Page |
|---|---|
| Evolution and Impact of Monetarism in the Federal Reserve System | 1 |
| Monetarist Criticism of Federal Reserve Policy | 6 |
| Organization of Monetary Management | 10 |
| Strategy of Monetary Policy in the Federal Open Market Committee | 15 |
| Reformation of Monetary Management: 1961 | 19 |
| Quantification of Targets: 1964-65 Debates | 35 |
| Ambiguous Success: Reform of 1966 | 48 |
| Highwater Mark of Monetarism: Reform of 1970 | 53 |
| Federal Reserve Bank Attitudes Toward Monetary Aggregates | 61 |
| Impact of Monetarism on Policy Advisers in the Federal Reserve | 65 |
| Even Keel: Shadow or Substance of Market Pegging | 70 |
| Concluding Observations | 75 |

Table 1, Federal Open Market Committee - April, 1951
Table 2, Federal Open Market Committee - March, 1961
Table 3, Federal Open Market Committee - March 1971
Table 4, Federal Open Market Committee, Occupational Distribution
Table 5, Even Keel Operations

Appendix

References

# THE POLITICAL ECONOMY OF MONEY

## Evolution and Impact of Monetarism in the Federal Reserve System

by

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For almost a generation--but especially in the last decade--a vigorous debate has been underway over the conduct of monetary policy. The central issues in this controversy are widely known: What are the appropriate goals of monetary policy? What are the linkages between actions to influence the cost and availability of

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* Member, Board of Governors of the Federal Reserve System.

I am indebted to a number of persons in the Federal Reserve System for assistance in the preparation of this paper. Foremost among these are several of my fellow Board Members (especially Governors J. Dewey Daane, Sherman J. Maisel, George W. Mitchell and J. L. Robertson) who responded readily to my numerous questions and shared with me some of their recollections regarding internal debates in the Federal Open Market Committee (FOMC) and at the Board on the appropriate techniques of monetary management. Of course, they bear no responsibility for the use or interpretation I have made of the information provided. Mr. Arthur L. Broida (Deputy Secretary of the FOMC) and Mr. Merritt Sherman (Consultant to the Board and formerly Assistant Secretary of the FOMC) both shared with me their extensive knowledge of the FOMC's procedures and their familarity with persons who have served the Committee over the years. I am also grateful to several members of the Board's staff (Mrs. Whitney Adams, Mrs. Jaan Chartener, Miss Harriett Harper Mrs. Diane Sower, and Mr. Albert Teplin) for assistance in surveying the FOMC Minutes and other documents. Messrs. James Pierce and John Kalchbrenner were especially helpful in tracing the development of monetarist thinking and charting the response to it by economistsboth in the profession at large and inside the Federal Reserve System. Messrs. Peter M. Keir and Raymond Lombra helped with the analysis of "even keel" and its impact on the behavior of the monetary aggregates. Again, I must stress that the views expressed here are my own and should not be attributed to my colleagues either on the Board or among its staff.

money and credit and the behavior of real output, employment and prices? What are the best means--in terms of targets and central bank operating techniques--to accomplish the objectives of monetary policy?

The divergent answers which economists of different intellectual persuasion give to these questions have generated a sharp schism in the body of monetary theory. On the one side are the Keynesian and post-Keynesian economists who have stressed the efficacy of Government tax and spending policy for the purpose of economic stabilization and who have dominated the mainstream of economic thought and policy advice for more than a quarter of a century. On the other side are the members of the monetarist school who assign great weight to the role of monetary policy. Long confined to arguing their views in academic meetings and professional journals, they have recently arrived on the public stage to press their case before a wider audience.

This debate has obviously had a significant influence on thinking not only in the economics profession but also among the public at large--especially in the private financial community and the press. It seems natural to ask whether it has had a similar impact inside the Federal Reserve System. The aim of this paper is to sketch the evolution of monetarist thought inside the Federal Reserve System and to assess its impact on those responsible

for the conduct of monetary policy.[1/] In carrying out this project, I have viewed the issues and the evidence from the vantage point of a Member of the Federal Reserve Board and of the Federal Open Market Committee (FOMC). In the process, I have relied primarily on the public record available in the Minutes of the Federal Open Market Committee for the years 1936-1965 and on the FOMC Record of Policy Actions through the meeting of September 21, 1971 (the last one in the public domain) at this writing.[2/] In addition, I have participated in all 85 meetings of the FOMC held since I joined the Board in March, 1966. Consequently, I could draw on my own experiences and observations as well as on the documentation relating to virtually all of the last six years. Moreover, I could also benefit from reading my colleagues' speeches and articles and from talking with them about their own experiences and observations.

Thus, in this paper I have focused very little on the changing nature and content of monetary theory during recent years. Likewise, I have not been particularly concerned with the primarily technical aspects of monetary policy implementation. Instead, I have attempted to identify and appraise the response of my

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1/ A somewhat similar project was undertaken a few years ago by Lawrence S. Ritter who relied primarily on the evidence contained in four successive editions of the Federal Reserve Board's publication, Federal Reserve System: Purposes and Functions, between 1939 and 1961. See References attached.

2/ The FOMC Policy Record is made available approximately 90 days after the date of each meeting of the Committee and is published in the Federal Reserve Bulletin and the Board's Annual Report.

predecessors and contemporaries to the criticism of monetary policy advanced by the monetarists. This task could be approached in a variety of ways. On the basis of my familarity with the record, I concluded that a particularly promising approach was to observe the FOMC at work in those rare instances when it set out especially to make substantive revisions in the form of the directive through which it gives instructions to the Manager of the System Open Market Account (SOMA). In the last decade, there have been at least four such efforts--in the years, 1961, 1964-65, 1966 and 1970.

It might be recalled that near the conclusion of each meeting, the Committee adopts a policy directive setting forth the objectives to be sought by open market operations over the period until the next meeting.3/

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3/ The FOMC also devotes part of each meeting to a discussion of System foreign currency transactions. However, at most meetings the major part of the time is given to domestic monetary policy. The key parts of the policy directive issued at the FOMC meeting of September 21, 1971, read:

> "... In light of the foregoing developments, it is the policy of the Federal Open Market Committee to foster financial conditions consistent with the aims of the new governmental program, including sustainable real economic growth and increased employment, abatement of inflationary pressures, and attainment of reasonable equilibrium in the country's balance of payments."
>
> "To implement this policy, the Committee seeks to achieve moderate growth in monetary and credit aggregates, taking account of developments in capital markets. System open market operations until the next meeting of the Committee shall be conducted with a view to achieving bank reserve and money market conditions consistent with that objective."

Over the years, the form and content of the directive have been modified substantially, and on each occasion the revisions were adopted only after a full debate within the Committee--in a few cases extending over several months. While the discussions were focused on the proposed changes in the directive--and were consequently couched in the specialized language of Federal Reserve Open Market operations--it is clear from the record that the debates were actually over the objectives and conduct of monetary policy. Although the issues were phrased in terms of the best way for the FOMC to communicate its intent to the Manager, the Committee was really searching for the best way to communicate with itself and to the public. Above all, it was grappling with the difficult and complex task of managing monetary policy so that it could make its maximum contribution to economic stabilization. Having made this point, let me hasten to say that most of the men who have been Members of the FOMC over the years obviously recognized the basic issues they were confronting and were not led astray by semantic differences. Thus, the directive revision episodes present a unique opportunity to observe the impact on FOMC Members of competing ideas about monetary management.

The rest of this paper is organized as follows: first, a brief summary of monetarist criticism of Federal Reserve policy is provided to place the subsequent discussion in perspective. Secondly, the organization of monetary management within the evolving framework of the FOMC is sketched. Thirdly, the tasks of monetary policy as traditionally perceived by the FOMC and its basic strategy of open market operations are outlined. The way in which both the conception and execution of monetary policy have changed in response to monetarist criticism is then traced on the basis of the FOMC record. Finally, the possible conflict between "even keel" (the long-standing FOMC practice of avoiding changes in policy during U.S. Treasury financings) and an appropriate monetary policy for stabilization purposes is assessed. I conclude with a summary of my own view of the proper course which an eclectic monetary manager should follow--if he is truly interested in the Nation's economic welfare.

## Monetarist Criticism of Federal Reserve Policy

As mentioned above, given the objective of this paper, there is no need here to undertake a comprehensive survey of the evolution of the monetary doctrines falling under the umbrella of monetarism. However, a brief review of the nature and content of monetarist criticism of Federal Reserve policy might be helpful in placing the subsequent discussion in perspective. While numerous

economists have contributed to the development of monetarist doctrines, the principal proponent of that point of view for more than a generation has been Professor Milton Friedman. During most of the period since World War II, the appraisal by professional economists of his views concerning the importance of money and monetary policy for the level of economic activity was overwhelmingly negative. But in the mid-1960's, the Friedman position attracted growing support among professional economists--and increased attention among the public at large.

Obviously, the economists who classify themselves (or who are classified by others) as monetarists constitute a group among whom significant differences in point of view exist. But taken collectively, they all argue that money and monetary policy play an important causal role in the determination of economic behavior. But, they have charged, Federal Reserve monetary policy has been focused on interest rates or money market conditions rather than on the behavior of the money supply or other monetary aggregates. This focus, they maintain, has led to erratic--and often excessive--changes in the behavior of money; the latter in turn, they say, have had destabilizing rather than stabilizing effects on economic activity.

After a long period of arguing their case within a monetarist analytical framework without having noticeable effect on either professional economic opinion or the central bank, in

the early 1960's, the monetarists undertook direct challenges to the chief opposing economic point of view--the widely accepted Keynesian or income-expenditure approach. Employing a modern version of the quantity theory of money, the monetarists believed that they had provided a superior explanation of income determination than is produced by a Keynesian analysis.[4/*] In a widely known monograph prepared for the Commission on Money and Credit and published in 1963, Friedman and David Meiselman (17) attempted to demonstrate their beliefs empirically by estimating versions of both approaches. This monograph--probably more than any other single piece of monetarist research--touched off a controversy which remains unresolved. Working with Anna Shwartz, Friedman brought out in the same year a massive history of monetary experience in the United States. This record, they concluded, supported their view that Federal Reserve monetary policy had been a major source of economic instability (18).

Besides Friedman and his associates, several other economists joined the criticism of Federal Reserve policy from a monetarist perspective. Professors Karl Brunner and Allan Meltzer

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4/ In particular, monetarists argue that the money demand function is more stable than the consumption and investment relationships that constitute the principal focus of the income-expenditure approach. They also hold that money plays a large role in determining economic behavior, and that money supply and demand are not determined by the same set of factors. See Friedman (14).

* Numbers in parentheses in the text refer to references attached at the end of the paper.

and the staff at the Federal Reserve Bank of St. Louis played a large role with a direct focus on the monetary policy process in the Federal Reserve System (1).

In addition to a series of theoretical and empirical studies within the monetarist framework, Brunner and Meltzer became directly involved in the debate over appropriate Federal Reserve targets with their study of Federal Reserve policymaking for a Congressional committee in 1964.[5/] During the same period, James Meigs (24) published a book which attempted to demonstrate the possible pitfalls of relying on interest rate and free reserve behavior as targets of monetary policy.

Among professional economists, the Keynesian response to this monetarist challenge came in at least two forms. First, a series of reactions to the Friedman-Meiselman monograph appeared in the work of Franco Modigliani and Albert Ando (26), among others. These responses attempted to demonstrate the superiority of the income-expenditure approach in a simple model context by specifying the empirical models in what they considered to be more appropriate forms. A second, but related, development in a Keynesian framework is generally associated with the work of Professors James Tobin and William Brainard (6), (32), (33), (34). As the debate mentioned

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5/ See (9). In addition, an extensive bibliography of other monetarist research can be found in the footnotes to (8).

above was occurring in the mid-1960's, work centered at Yale University (and thus identified as the "Yale portfolio approach" to financial analysis) had proceeded far enough so that it could be used in the debate.[6/] This analysis emphasized the general equilibrium aspects of the relationship between the financial and real sectors of the economy. It fostered interest in a disaggregated structural equation approach to the analysis of the interrelations between monetary policy and income.

Clearly, many of the issues in the debate between the monetarists and economists with a Keynesian orientation remain open.[7/] Nevertheless, the discussion has led to important clarifications and modifications of the views of participants on both sides. More importantly for present purposes, it has had a noticeable impact inside the Federal Reserve System.

Organization of Monetary Management

Students of monetary policy know that the Federal Open Market Committee has responsibility for the principal instrument of monetary management--the purchase and sale of securities in the open market.[8/] The structure of the FOMC is also generally known: it is composed of 12 members--including all seven Members of the

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6/ An earlier book with a somewhat similar approach was also important. See Gurley and Shaw (19).

7/ Two recently published collections of essays provide an excellent summary of the current state of the debate between the monetarists and post-Keynesians. See (12), (23).

8/ The other two traditional instruments are discount rates (in which control is divided between the Board and Reserve Banks) and reserve requirements (in the hands of the Board). In the mid-1960's, ceilings on maximum interest rates payable on deposits (the Board's Regulation Q) also became a major monetary policy instrument.

Board of Governors plus five of the Reserve Bank Presidents. The President of the Federal Reserve Bank of New York is a permanent Member, while the Presidents of the other eleven Banks serve for one year on a rotating basis. Alternate Members are selected for Reserve Bank Presidents (and vote in their absence). Board Members do not have alternates. 9/

Perhaps what is less widely appreciated is the extent to which the FOMC also serves as the central forum for the coordination of all the instruments of monetary policy. The extent to which professional economists are playing such a prominant role in the FOMC is hardly appreciated at all. Both developments have had significant consequences for the conduct of monetary policy. Moreover, below the policymakers themselves, professional economists--at both the Board and Reserve Banks--play key roles as Policy Advisers and Policy Analysts in the shaping of monetary

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9/ The order of rotation among the Reserve Bank Presidents (by groups of Banks) is as follows: (1) Boston, Philadelphia, Richmond; (2) Cleveland, Chicago; (3) Atlanta, St. Louis, Dallas; (4) Minneapolis, Kansas City, San Francisco. In a given year in which a Reserve Bank President is serving as a voting Member of the FOMC, his Alternate is the next President in the order of rotation. The Alternate for the President of the Federal Reserve Bank of New York is that Bank's First Vice President--an arrangement related to the New York Bank's selection as the FOMC's agent for open market operations. (Federal Reserve Act, Sec. 12A).

policy. In my opinion, the emergence of professional economists in the front ranks of Federal Reserve policymaking, in addition to playing supporting roles, is a major factor accounting for increased emphasis on efforts within the System to systematize the strategy of monetary policy and to quantify its objectives and results.

This emergence of the economist can be traced with considerable precision. On the basis of records and recollections of my colleagues, I have sketched the pattern over the last generation. The results are shown in Tables 1, 2, 3, and 4.* The first three tables show the composition of the FOMC in April, 1951, March, 1961, and March, 1971, respectively. Table 4 shows for the same dates the occupational distribution of those serving on the FOMC or as Observers at Committee meetings.10/ In the first three tables, I have also shown the staff economists serving as Policy Advisers at the Board and at each Reserve Bank in each year.

Several points stand out in these data. As indicated in Table 4, in 1951, there were two economists on the FOMC, constituting one-sixth of the FOMC membership. When the number serving as

10/ The FOMC organizes itself at the first meeting in March of each year, with rotation among Reserve Bank Presidents occurring at that time. However, April, 1951, was selected for this study because the Treasury-Federal Reserve Accord of that date marked the beginning of a new era of policymaking in the Federal Reserve.

* Note: Tables are found at the end of the text.

Alternates and Observers* is added, economists accounted for less than one-sixth of the total number of Policymakers (20) participating in what I called the Federal Reserve Monetary Management Forum. By 1961, three voting Members of the FOMC, two Alternates, and two Observers were economists. The latter's share of the total policymaking positions had climbed to two-fifths. By March, 1971, eight voting Members of the FOMC were economists, three were Alternates and one was an Observer.

Moreover, two Reserve Banks (Cleveland and Minneapolis) were without Presidents at that time, and both positions were subsequently filled by economists--one of whom became an FOMC Alternate. Thus, by 1971, economists were holding 70 per cent of the principal policymaking posts in the Federal Reserve System.

As economists were rising to hegemony in the Federal Reserve, declines in representation occurred among bankers, bank supervisors and Federal Reserve Bank officials (other than economists and lawyers). There were no businessmen or agricultural representatives by 1971. Lawyers as a group about maintained their share of the total places.

Furthermore, one can also trace the progress of the economists from Policy Advisers to Policymakers. For example, in 1951, five men (Karl Bopp, J. Dewey Daane, Watrous Irons, George Mitchell, and Eliot Swan) were serving as Policy Advisers--but

*Observers are defined here as Reserve Bank Presidents not currently serving as Members or Alternates of the FOMC.

later were promoted to policymaking positions (Daane and Mitchell to the Board of Governors while the others became Presidents of Reserve Banks). Two others who were Policy Advisers in 1961 subsequently became Reserve Bank Presidents; David Eastburn at Philadelphia and W. Braddock Hickman at Cleveland (who died in office November, 1970).

The fact that so many of the policymakers in the Federal Reserve have previously served at subordinate levels in the System is a matter of considerable importance.[11/] In the process, they have acquired long exposure to the complexities of monetary management. They have shared an institutional legacy which has greatly influenced their perception of the objectives, targets, and techniques of monetary policy. Their common experiences have also made them highly skeptical of simplified suggestions about the appropriate way to carry out their tasks. On the other hand, because of their training and experience as professional economists, they have understood and appreciated much more than their predecessors the complexity of national economic stabilization policies. They have been much more interested in understanding the workings of monetary policy itself and searching for innovations which would improve their performance.

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11/ In passing, it should be reported that two other Members of the FOMC in March, 1971, had previous Federal Reserve service: Sherman Maisel was a member of the Board's staff in 1939-41 and I was an economist at the Federal Reserve Bank of New York in 1955-58.

Consequently, given these trends in the composition of the FOMC, if one wants to assess the impact of monetarism in the System, he should concentrate on the several attempts of the Committee to improve the management of monetary policy in recent years.

Strategy of Monetary Policy in the Federal Open Market Committee

It is highly likely that, if asked, each Member of the FOMC would give a somewhat differing account of what he thought the Committee is trying to accomplish and of the way it pursues its objectives. However, most of the explanations would probably show basic agreement on economic policy goals (at least most of the time). They would also probably contain enough common elements relating to operating tactics to add up to a pattern of behavior which can be described as the pursuit of a money market strategy in the conduct of open market operations.[12/] Basic to this strategy is the focus on a configuration of money market conditions as operating guides for the Manager of the SOMA. While the specific money market variables have varied over time, they have typically included: (1) member bank borrowings from the Federal Reserve Banks; (2) net free reserves; (3) the Federal

12/ For a more extensive treatment of this subject, see the article by Jack M. Guttentag (19). A later account--one which I have found particularly helpful--has been presented by my colleague Sherman Maisel. See (23).

funds rate, and (4) the 3-month Treasury bill rate. These money market variables are to be used by the Manager to influence the behavior of a variety of intermediate financial variables, which may include: (1) the general structure of nominal interest rates; (2) monetary or credit aggregates (such as the money supply--broadly or narrowly defined, member bank credit, deposits of nonbank financial institutions, or similar quantitative measures); and (3) the general environment of credit and banking market as reflected in expectations, and the demand for and supply of total credit in the economy.

By relying on a money market strategy, the FOMC is obviously not trying to achieve a specified change in the money supply by injecting or withdrawing a specific quantity of bank reserves during a given period of time.[13/] Rather, the FOMC's approach (followed in broad outlines over the last five years or so) has been sketched by Maisel as follows:

> "1. The operational directives of the Open Market Committee specify values (within a range) of money market variables that the Manager of the Account is to attempt to maintain. It is expected that he can do so by altering the margin between required reserves and the amount of reserves furnished by the System, and by the form his market operations take. These margins are considered significant in their direct impact on bank operations; but, what is probably more important, they influence interest rates on money market instruments.

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13/ In this discussion, I am putting aside the question of whether the bank reserve multiplier is constant or variable. Whether it is or not would have an important bearing on the magnitude and timing of monetary actions in the short-run. See, Maisel, (23).

"2. The amount of marginal reserves to be furnished and the money market rates sought are picked so as to influence the direction and rate of change of a more remote intermediate monetary variable.

"3. The desired rate of change in the intermediate monetary variable is judged to be the most effective in aiding the economy to move toward its ultimate goals." (23, p. 153).

In other words, through reserve absorption or supplying operations in the market, the Manager of the SOMA attempts to bring about or maintain a desirable set of money market conditions (e.g., raising or lowering the 3-month Treasury bill yield or rates on Federal funds) with the expectation that the intermediate monetary variables (e.g., bank credit or money supply) will contract or expand at a rate consistent with the requirements of economic stabilization. For each FOMC meeting, the staff prepares an analysis of the relationships likely to prevail among money market conditions, interest rates, and the monetary aggregates over a coming period, indicating the growth rates in various aggregates expected to be associated with each of several described kinds of money market conditions.

Of course, particular Members of the FOMC may not agree in detail with these analyses (or even on which operating targets are important). However, by operating within the framework of the money market strategy, Members ordinarily can find enough common ground on which to frame instructions to the

Manager of the SOMA. The crux of the latter is the instruction to buy or sell securities to achieve specified values (defined as a range rather than a point estimate) for the money market variables over a given period of time--e.g. until the next FOMC meeting. As he attempts to carry out his instructions, the Manager may find that (because of unanticipated situations or conflicting market forces) he cannot achieve simultaneously the indicated targets with respect to the different variables. Under these circumstances, the Manager has (and uses) discretion in an effort to accomplish a result which he believes is most compatible with the FOMC's fundamental objectives.

To help minimize the possibility of conflict among efforts to attain the appropriate relationship among money market conditions and monetary aggregates, most FOMC directives adopted since mid-1966 have contained a proviso clause. The essence of this instruction says that, if the identified monetary aggregates vary outside the range projected, the Manager should intervene to change money market conditions in a way that will induce the monetary aggregates to move toward the path projected at the time of the meeting. The adoption of this proviso clause was a significant innovation in the management of monetary policy, and the episode is examined more closely below.

As indicated above, however, the FOMC's pursuit of a money market strategy has sparked considerable criticism of its operating techniques. Economists who share monetarist views have charged that, by concentrating on interest rates, the Committee has failed to control the monetary aggregates (particularly the money supply). Thus, it is said, the FOMC has contributed to economic instability. To correct its errors, it is suggested that the Committee follow a policy of providing for a steady rate of growth in the money supply.

At this point, we can look at the FOMC record to chart the growing emphasis on specification and quantification (much of it with a monetarist flavor) of instructions to the Manager of the System Account.

Reformation of Monetary Management: 1961

In 1961, the FOMC undertook one of the most systematic and comprehensive examinations of its monetary management techniques reported in the records. The effort was spread over the entire year, and it was a direct--and admitted--response to criticism of its objectives and strategy in open market operations. The criticism was voiced by the Congress and the Executive Branch of the Government, as well as by private observers. The final outcome was a basic revision in FOMC operations.

The immediate issue arose because of a conflict between the FOMC's standard operating practices and the economic policy objectives of the Administration that was just assuming office. Since March, 1953, the FOMC had operated within a set of standing rules under which transactions were (1) "... confined to the short end of the market (not including correction of disorderly markets);" (2) not undertaken "... to support any pattern of prices and yields in the Government securities market ....," and (3) not used to support Treasury financings. (5, p. 88) This set of rules constituted the essence of what came to be known as the "Bills Only" doctrine, and was adopted as an aftermath of the Treasury-Federal Reserve Accord which had freed the System from the obligation to support prices of Government securities. So for nearly eight years, the FOMC had restricted transactions in the SOMA to extremely short-term issues and had made no attempt to influence directly the term structure of interest rates.

Against this background, the Administration set out on a policy course designed to stimulate domestic economic activity while avoiding further adverse pressure on the balance of payments. These policy objectives were intended to encourage a reduction in long-term interest rates to stimulate domestic

investment; while at the same time avoiding further declines in short-term rates that might tend to stimulate outflows of short-term capital. This policy was subsequently described as "Operation Twist."[14/]

Clearly, if the Administration's policy were to be pursued successfully, the cooperation of the Federal Reserve was a necessary precondition. If the latter, in turn, were to respond favorably, it would have to modify its policy of operating only in the short end of the money market. Moreover, such a modification had been urged on the FOMC for some time--among others by the Joint Economic Committee of the Congress in early 1960. (21) Within the Federal Reserve itself, however, there was little sentiment for such a change and representatives of the System had stressed their opposition to change on numerous occasions.[15/]

At the FOMC meeting of January 10, 1961--on the eve of the new Administration assuming office--Chairman Martin brought the question of operating procedures before the Committee.[16/] He suggested that the Ad Hoc Subcommittee that had produced the report in November, 1952 (on which the standing rules cited above

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14/ In passing, it should be noted that the FOMC never visualized the effort in these terms. Instead, it was viewed from the outset as "Operation Nudge." See FOMC Minutes, 1961, p. 1117.

15/ See, for example, the article by Ralph A. Young and Charles A. Yager, "The Economics of 'Bills Preferably'," (35)

16/ FOMC Minutes, 1961, p. 53.

were based) be reactivated for the purpose of studying certain aspects of open market operations. The membership of the reactivated Subcommittee would consist of Chairman Martin, Governors Balderston and Mills of the Board of Governors, and Presidents Hayes (New York) and Bryan (Atlanta). Subsequently, President Irons (Dallas) served as Alternate to Mr. Bryan and was later appointed a member of the Subcommittee. Mr. Martin served as chairman of the Subcommittee, and Messrs. Ralph A. Young (FOMC Secretary) and Robert G. Rouse (Manager, SOMA) were designated technical advisers. The Subcommittee reported to the FOMC on February 7, 1961. It recommended that the Manager of the SOMA be given authority to effect transactions in intermediate--and long-term securities. A limit of $500 million was set as the amount by which the System's holdings of such issues could be changed during the interval to the next meeting--representing one-half of the $1 billion overall limitation contained in the FOMC policy directive. The recommendation passed 10-1, with Governor Robertson dissenting and Governor King not participating. (Board, Annual Report, 1961, pp. 39-43).

For our discussion today, the debate surrounding the 1961 action is doubly important: it provided insight into the FOMC's perception of the tasks of monetary management in the early 1960's;

it also stimulated a review of FOMC procedures which subsequently led the Committee to focus more sharply on economic policy objectives as opposed to technical operating issues. In introducing the Subcommittee's report, Chairman Martin said that they "... had taken into account the very heavy barrage both from within and outside Government, against the System for the uncompromising position it allegedly took towards its own operating procedures and policies... the Subcommittee (was) unanimous in the view that the System had to give some further tangible indication of open-mindedness and willingness to experiment. The whole issue of operations, they agreed, had become one of conceptual contention, and, therefore, no progress could be made in resolving it by the device of papers, studies, or committee reports. There had to be evidence accumulated from actual experiment or testing to enable the System to escape from the charge of doctrinaire commitment to a laissez-faire, free private market position in confining operations to short-term securities. Therefore, the sooner the System got busy at the task of obtaining empirical data the better it would be." (FOMC Minutes, 1961, p. 141). The Chairman went on to express doubts about the outcome of the experiment, with particular concern regarding its implications for System relations with the market. Nevertheless, he felt the experiment should go forward.

The Chairman's assessment of the problem faced by the FOMC was shared by most participants in the meeting. However, a roughly even division of opinion developed over the question of a public announcement of the Committee's decision. For several days prior to the February 7 meeting, the press had carried stories suggesting that the Federal Reserve was about to abandon its "Bills Only" policy, and these generated market expectations of imminent System transactions in all maturities of U.S. Treasury securities. Against this background, the Manager of the SOMA (supported by the President of the New York Bank) suggested that, if the recommendations were adopted, the Secretary of the Treasury and the Joint Economic Committee be informed promptly--and that a public announcement stating the reasons for the change in operating procedures be made at the time transactions in longer maturities got underway. In the informal discussion, all Members of the Subcommittee (except Mr. Hayes) opposed issuing a public statement, but five of the eleven voting Members (Messrs. Bopp, Hayes, Leedy, Robertson, and Shepardson) favored the action. In the end, the Chairman concluded that the majority sentiment was against the issuance of a statement and so ruled. However, on February 20, 1961, when the Manager of

the SOMA commenced operations in longer-term Governments a statement was issued.[17/]

In voting against the authorization of transactions in longer-term issues, Governor Robertson explained his dissent on several grounds, among which the following stand out: "... the established operating procedures and policies of the Committee were ... the product of careful empirical and analytical study; ... had proved in practice to be sound both in terms of monetary policy and in terms of fair dealing with the market; (and) ... critics of present methods of operating in the market were relying on the simplest theories of determination of market interest rates and making allegations on postulates having little if any basis in empirical fact...." He also objected to giving the Manager of the SOMA such wide authority to operate in longer-term issues. (FOMC Minutes, 1961, pp. 153-154).[18/]

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17/ The decision was made by Chairman Martin in the light of subsequent discussions he had with Mr. Hayes (Vice Chairman of the FOMC), Mr. Rouse (Manager of SOMA), and Mr. Robert Roosa (Under Secretary of the Treasury). "The consideration weighing most heavily in the decision was the desirability that all market participants be informed at the same time that the Trading Desk was engaging in transactions outside the usual short-term sector and that no market group gain any trading advantage in the operations by virtue of information not known by the whole market." (FOMC Minutes, 1961, p. 156.)

18/ Mr. Frederick Deming, President of the Minneapolis Bank and an Observer at the meeting, favored the experiment but suggested that "... instruction to the Manager of the Account ... be in terms of amount of operations and not in terms of effect on market interest rates .... He thought the (FOMC) was treading awfully close to a peg of market interest rates ...." (FOMC Minutes, 1961, p. 147.) Carl Allen, an FOMC Alternate (not voting in meeting) opposed the action since he did not favor "Operation Nudge."

At the meeting of March 7, 1961 the Committee again took up the issue of operating procedures. The Subcommittee had given further study to the FOMC's continuing operating policies--including the standing rules on which the "Bills Only" policy was based. Based on this work several questions should be answered: (1) Should revised statements in directive be referred to as "operating policies" or "operating rules of practice"? (2) Should directive "... be reduced to the fewest possible statements or ... be kept rather inclusive"? (3) Should "... the authority to engage in transactions in long-term Government securities ... be reserved to the Committee or ... given to the ... (Manager of the FOMC)"? (4) Should instructions be divided into "standing authorization" and a "current policy directive"? (The FOMC staff favored such a division.) The Chairman observed that these were critical issues, and it would be unwise to hasten to a conclusion. (FOMC Minutes, 1961, pp. 160-161). There was general agreement to postpone further consideration of the matter for the time being.

However, a substantive issue did emerge which casts light on the FOMC's perception at that time of the extent to which it should attempt to quantify its instructions to the Manager of the SOMA. "... At least one member of the Subcommittee (Mr. Irons of the Dallas Reserve Bank) felt that in making the division the Committee should go further and provide a current

policy directive that would include enough specifications to define quite precisely the range within which the Manager of the Account might operate until the succeeding meeting of the Committee ...." (FOMC Minutes, 1961, p. 162). During the discussion this proposal received little sympathy--and was opposed by Messers. Balderston and Hayes.

The final--and crucial--decision in the 1961 episode was made at the FOMC meeting on December 19, 1961. The membership of the FOMC had changed since the earlier meeting in February when the Committee had decided to undertake operations in longer-term issues. George Mitchell had replaced Szymczak at the Board of Governors; among Reserve Bank Presidents, the new voting members were Wayne (Richmond), Allen (Chicago), Irons (Dallas), and Swan (San Francisco). (However, at the December 19 meeting, Fulton voted as an Alternate for Allen.)

In the meantime, a substantial effort had been made within the System to re-examine the System's operating objectives and procedures. At the FOMC meeting on September 12, 1961, the subject was discussed briefly, and a number of staff documents relating to the issues involved were identified--including (1) a paper (by Mr. James Knipe ) containing a critique of Federal Reserve policy and its explanation over the period 1949-61, and (2) a paper

(by Mr. Arthur Broida) which provided a critical review of the language of clause (b) of the FOMC's policy directives during the period 1957-60. During the discussion, Chairman Martin reported that he understood the Commission on Money and Credit would before long issue a paper containing critical comments on the Committee's directives. He thought that the distributed material should be studied and an effort made to see whether an improved form of the directive could be developed--particularly as far as public understanding was concerned. He suggested that the matter be scheduled for consideration at the FOMC meeting of November 14, 1961. (FOMC Minutes, 1961, pp. 795-96).

However, by mid-November, the FOMC was caught up in a debate over foreign currency operations (including a discussion of the appropriateness of the "swap" network), and the question of directive revision was not taken up until December 19. By that time, the issues had been set forth with sufficient clarity that members of the FOMC could focus directly on the critical questions: (1) Should the standing operating practices ("Bills Only" rules) be eliminated? (2) Should a separate continuing authority directive be issued to the Manager of the SOMA? (3) Should a separate economic policy directive be issued? A subsidiary question--but for our purposes an important one--also arose: To what extent should the current economic policy directive be quantified?

In the final vote, eight members approved the elimination of the standing rules, and four opposed the action. (Voting to approve were Board Members Martin, Balderston, Mitchell, and Shepardson, and Bank Presidents Hayes, Fulton, Irons and Swan; voting to oppose were Board Members King, Mills, and Robertson, and Bank President Wayne.) In general, the explanations given for their votes by participants were essentially those which had been expressed at the FOMC meeting in February. Those supporting the change did so because they agreed (in varying degrees) with the Subcommittee's argument that the standing rules hampered the FOMC's flexibility in open market operations. Those opposed, generally shared at least part of the range of considerations developed by Governor Robertson at the February meeting. (FOMC Minutes, 1961, pp. 1095-1130). With respect to the issuance of a continuing authority directive, the only new issue was the extent to which the Manager of the SOMA should have standing leeway to engage in transactions with maturities up to 24 months. Only Governors Mills and Robertson dissented. With these issues out of the way, the question of issuing a separate economic policy directive was rather straightforward and it was opposed only by Governor Mills. (FOMC Minutes, 1961, p. 1142).

However, during the subsequent discussion, the question of the form of the directive became interwoven with what should be the content of the current policy directive until the next FOMC meeting. The point at issue was the proposed instruction to the Manager to conduct "... operations ... with a view to providing reserves for bank credit and monetary expansion ... but with a somewhat slower rate of increase in total reserves than during recent months.... (Emphasis should be placed) ... on continuance of the three-month Treasury bill rate close to the top of the range recently prevailing. No overt action shall be taken to reduce unduly the supply of reserves or to bring about a rise in interest rates." Governors King, Mills, Mitchell, and Robertson voted against the current policy directive. Governor Robertson did so because he objected to the implementation of policy based on tying monetary policy to the bill rate. The other three Members voted in the negative because they opposed the emphasis on credit tightening they saw in the directive.[19/]

In the present context, the most interesting question related to the extent to which FOMC participants favored--or opposed--efforts to quantify the current economic policy directive.

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19/ In passing, I should note that this is the only instance I encountered in the FOMC Minutes in which a majority of the Board of Governors voted against a credit policy action that was carried by a minority of the Board plus the five Reserve Bank Presidents.

Every one did not comment explicitly on the subject, but those who did expressed their views with considerable clarity. Among the latter, Chairman Martin and Governor Mills were opposed, and Governors King and Shepardson favored steps in that direction: Reserve Bank Presidents Bopp, Bryan, Deming, Irons, and Swan were also attracted by the idea.

The issue arose directly because Governor Shepardson had suggested, in connection with the debate on the current policy directive,

> "... that the target for further growth of total reserves be reduced from an annual rate of 5 per cent to 4 per cent, or even as low as 3 per cent ... would be considered a tightening .... (since he would not interpret it as such) .... Chairman Martin commented that he would prefer to say (it would represent) a 'trending'.... Mr. Hayes suggested that this might be regarded as a trend toward a bit tighter situation, and Chairman Martin suggested that it might be referred to as a trend toward a less easy situation." (FOMC Minutes, 1961, p. 1135).

At this point, Mr. Woodlief Thomas, FOMC Economist, observed:

> "that this discussion illustrated the problem involved in using the word 'tightening.' Much would depend on what credit demands developed. In his (earlier) statement ... he had been suggesting that the Committee indicate that it would supply through open market operations the amount of reserves that would be adequate for a certain amount of growth in total reserves and let the market decide whether or not there would be tightening .... Whether interest rates would rise or the money market would tighten would depend on whether credit demands pressed against the available supply of reserves."

In response, Chairman Martin observed that "... it seemed to him that it would be wiser for the Committee to use some reference to the bill rate than to specify quantities of reserves for growth or to specify something in terms of the money supply. He did not believe that it would be feasible to try to pin down such factors." (FOMC Minutes, 1961, pp. 1135-36).

Sentiments in favor of quantification of the directive were also expressed by Governor King, who stated that in formulating the directive, "... he hoped that the Committee could use some quantitative guides, with variations from time to time." (FOMC Minutes, 1961, p. 1121). Among Reserve Bank Presidents at the meeting, one of the strongest statements favoring quantification was made by Eliot Swan (San Francisco). With respect to the current policy directive, he observed:

> "... The purpose of a directive is to direct. The directive should reflect what was now expressed in the consensus, and if some quantitative measures were included, he did not think that would be objectionable. This would provide a more sensible directive, and one that would avoid the criticism that the Committee's directives did not mean anything. Therefore, although the directive should not be too elaborate, he would not hesitate to include some quantitative expressions and provide a true directive rather than a review of the economic situation." (FOMC Minutes, 1961, pp. 1106-1107).

Malcolm Bryan (Atlanta) thought the current policy directive "... should not be a command, only a target. Moreover, the directive, even as a target, would be meaningless if applied to so short a period as a week. From time to time, various quantitative guides in the field of reserves might have considerable importance, and at other times they might have less importance ...." (FOMC Minutes, 1961, p. 1126).[20/]

Frederick Deming (Minneapolis), while addressing himself only indirectly to the question of quantification, expressed a view which went to the heart of the Committee's problem:

> "... As to the current policy directive, ... (he) said his thinking would start with the premise that the major difficulty had resulted from lack of adequate current explanation of what the Committee was doing rather than from a lack of explanation to the Desk. In his belief, there was need for a quarterly article in the Federal Reserve Bulletin stating authoritatively what the System had been trying to do. This article would not need to be official in the sense of being signed by the Open Market Committee, but it should be authoritative. This would conform generally to the practice followed in many other countries .... As to the content of the current policy directive, ... (he) suggested that it be relatively

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20/ In passing, it should be noted that Mr. Bryan, during his tenure on the FOMC, was one of the strongest advocates of quantification in the directive. At one time he stressed the need to concentrate on the money supply; at other times he urged the use of total reserves. For example, in early 1955, he observed "... We have not ... come to grips with that fundamental and basic difference of opinion in terms of free reserves, total reserves, or money rates--but have devoted ourselves to a textual change in the directive that conceals ... our differences.... We have been trying to use terms that are qualitative in nature ... (which do not help) in saying what we want to do ...." (FOMC Minutes, 1955, p. 25).

> simple so that the directive could be voted upon rather easily.... He would not have any particularly strong objection to writing a directive at this juncture in terms of total reserves, but he would not necessarily want to continue on that basis over a period of time ...." (FOMC Minutes, 1961, pp. 1110-11).

However, at an earlier FOMC meeting in June, 1961, Mr. Deming had shared with the Committee some conclusions he had reached about the appropriate course for short-term monetary policy that were directly on money supply analysis:

> "Mr. Deming also saw the national economy and the financial system as being not overly liquid at present. ... The ratio of the money supply, conventionally defined, to gross national product was about 28 per cent at present. It was over 30 per cent in the second quarter of 1957 and 33 per cent in 1955. Aside from 1960, when the ratio was slightly lower than today, one had to go back to the 1920's to find smaller figures. Even if time deposits were included in the money supply numerator, ratios to gross product today would be low by historical standards until one got back to the early 1920's.
>
> "Recently ... the Minneapolis Bank had done some crude figuring to produce some other ratios that might be of interest. If one took the growth in gross national product during the first year of upswing from the troughs of 1954 and 1958 and associated with those gains increases in the money supply and bank credit in the same periods, he would get the following results: For every $1 increase in money supply there was associated an increase of about between $6 and $7 in GNP. For every $1 growth in bank credit, there was associated an increase of about $3 in GNP. If, as seemed possible, GNP were to increase $40 billion over the first year of the current upswing, these ratios would suggest associated growth of $6 billion in the money supply and $13 billion in bank credit in the same period, or rates of growth significantly larger than presently evident.

> "Mr. Deming noted that he was anything but a devotee of a mechanistic approach to policy making He had not cited the foregoing figures as targets or goals. He cited them merely to emphasize the simple point he wished to make about near-term monetary policy. Until it could be demonstrated reasonably well that rates of growth in money supply and bank credit were running significantly higher than at present relative to GNP gains, or that new credit was financing speculative activity or underwriting price increases, monetary policy should continue in an easy posture. Such a policy seemed to offer little danger of losing control over liquidity." (FOMC Minutes, 1961, pp. 465-66).

But, despite evidence such as that cited above, during 1961, the basic sentiment in the FOMC was not in favor of greater quantification in the directive. Nevertheless, the year-long effort had accomplished at least two objectives: it had moved the Committee a considerable distance toward greater specification of instructions to the Manager of the SOMA, and it had greatly improved the Federal Reserve's ability to inform the public about the aims and execution of monetary policy.

Quantification of Targets: 1964-65 Debates

For two years, following the late 1961 revisions in FOMC procedures, there was little focus on the form and content of the directive. But that outcome clearly represented an uncomfortable accommodation among Members with widely differing views on the appropriate way to conduct open market operations. In early 1964, these differences surfaced again and triggered another year-long effort by the FOMC to reform its techniques of monetary management.

In anticipation of the Committee's organizing meeting in March (at which the continuing authority directive would have to be renewed), the FOMC staff began to discuss approaches to a revision of the current economic policy directive. In these staff discussions, two questions were raised: (1) How can the instructions be made more explicit? (2) How can the directive be made to accommodate a greater degree of fluctuation in the money market? During February, several proposals to accomplish these aims were circulating at the staff level.

However, at the meeting on March 3, 1964, the FOMC Secretariat proposed revisions for the continuing authority directive only.[21/] The proposal was challenged from two opposite directions. Governor Mills (joined by Governor Robertson) objected and suggested that the Committee return to the form of the directive that had been used prior to the revisions adopted at the end of 1961. He also moved that the statements of operating policies ("Bills Only" rules) that had been in effect from 1953 through December 19, 1961, be resumed. (This motion was defeated--with only Governors Mills and Robertson supporting it.)[22/]

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21/ These were to increase from $1 billion to $1.5 billion the standing limitation on changes in the SOMA holdings of U.S. Government securities between meetings of the Committee and to clarify language in the preamble relating to the Committee's intent with respect to this authority.

22/ FOMC Minutes, 1964, pp. 163, 175.

From the opposite direction, Governor Mitchell expressed unhappiness with the existing current policy directives. At times, he thought, the Manager of the SOMA was given inconsistent instructions and was forced to make policy judgments if he was to operate at all. He felt that the existing directive involved conflicts between objectives specified in terms of interest rates and money market conditions on the one hand, and in terms of bank reserves on the other. He hoped that something could be done and suggested that the staff might be asked to suggest ways of avoiding such conflicts. The ensuing discussion revealed varying degrees of satisfaction or unhappiness with the current economic policy directive--and differing degrees of support for a staff study of the issue. In general, those Members who favored defining operating targets in terms of money market conditions were reasonably satisfied with the existing procedures and saw no need for a change--and showed little enthusiasm for another study. In the end, Mr. Young (the FOMC Secretary) was asked to organize a staff group to review the question and make recommendations for the Committee's consideration. (FOMC Minutes, 1964, pp. 164-175.)

The staff's response (on which the New York Bank's staff had also worked) was put before the FOMC in early April, 1964. The general conclusion was that instructions to the Manager of the SOMA embodied in the current economic policy directive should be formulated primarily in terms of money market variables.

References by the Committee to quantitative measures--such as bank reserves, bank credit, and the money supply--should be in the first part of the directive where recent economic developments were reviewed. In essence, the staff's report contained a perceptive analysis of the inherent conflict between targets defined in terms of money market conditions and targets specified in terms of monetary aggregates. But on balance, it was felt that the better course was to continue the focus on money market variables. The report was scheduled for discussion at the FOMC meeting of May 5, 1964.

However, the matter was postponed at the suggestion of President George Ellis (Boston) who thought its consideration would be more sharply focused if the Committee had before it an agenda with a specific proposal. The suggestions was accepted, and a Subcommittee, consisting of Governor Mitchell and Presidents Ellis and Swan (San Francisco), was appointed to prepare an outline for a discussion of the Committee's current economic policy directive for consideration at a later meeting. It was understood that other FOMC Members and other Reserve Bank Presidents would forward any proposals they might have to the Subcommittee. After an intensive effort (with the assistance of the Board's staff), the Subcommittee submitted its report in about six weeks and it was distributed at the FOMC meeting of June 17. In commenting

on the report, Governor Mitchell pointed out "... the recommendations made were quite specific.... Their objectives were to give the Committee some specific proposals to which it could react, and to help create a climate in which desirable changes could evolve." (FOMC Minutes, 1964, p. 559).

The Mitchell Subcommittee based its recommendations on the following conclusions concerning the existing current economic policy directive:

(1) It was too incomplete to cover the policy decisions that the Manager of the SOMA must face from time to time;

(2) It was internally inconsistent;

(3) It was too vague to establish Committee authority over the current operations of the Manager;

(4) It did not convey for the public record the FOMC's appraisal of current conditions and its policy intent in sufficiently explicit terms.

To correct these deficiencies, the Subcommittee recommended that the FOMC adopt a comprehensive directive which would set forth its monetary policy objectives in quantitative terms and include specific quantitative instructions to the Manager of the SOMA. The proposed directive would consist of four interrelated elements:

Element 1: A detailed and analytical assessment of current economic conditions bearing directly on the FOMC's ultimate policy goals--the pace of economic activity, the level of resource utilization, the price level, and the balance of payments.

Element 2: An analytical account of recent credit and monetary developments--including a discussion of a variety of money market measures and monetary aggregates: short- and long-term interest rates; required reserves on various types of deposits; member bank borrowings, excess reserves, and free reserves; money supply and time and savings deposits; trends in velocity. Interrelations among commercial bank credit and other credit flows would be analyzed.

Element 3: Specification of the FOMC's longer-run policy intent. It would indicate the seasonally adjusted annual rate of increase the FOMC would like to achieve in reserves required to support private demand deposits over the intermediate-term period (longer than the intervals between Committee meetings but short enough to still have operational meaning), as well as to support changes in time and savings deposits, Government deposits, and currency in circulation.

Element 4: Specific short-run operating instructions to the Manager of the SOMA which in the FOMC's judgment would achieve the desired rate of expansion in required reserves and desired credit conditions (as noted in Element 3) given the economic and financial circumstances discussed in Elements 1 and 2). The primary instruction would be in terms of a range in weekly average net free (or net borrowed) reserves with the range large enough to allow for normal errors in preliminary estimates available to the Manager on a current basis. Subsidiary instructions would specify circumstances relating to Treasury bill rates and one or more other key indicators of money market conditions under which departures from the instruction concerning free reserves would be called for.

The Subcommittee's report also discussed a number of limitations of the statistical measures (especially free reserves) on which the proposed directive would rest so heavily.

It also recognized the additional work load implied for the staff, which would prepare a draft of the directive for Committee consideration. But, above all, it recognized that the proposed directive--if adopted--would represent a fundamental change in the way the FOMC and its Policy Advisers conceived, formulated, and executed monetary policy. Yet, the Subcommittee was convinced the change was worth making. Its position was expressed succinctly by President Swan. He said:

> "(I) would simply point out to the Committee what (I) personally consider to be the two most important sentences in the report: '... However deficient the state of the Art, the Committee must, and now does, make judgments of the sort that would be required under the proposal.' This thought is worth bearing in mind.... The other sentence reads '... In the effort to face the issues directly the Committee and its staff undoubtedly will come to have a sharper understanding of the problems, and this alone would be a long stride toward solutions'.... (I) hope that if the Committee moved in the proposed direction it would not only improve its own processes and directives but in the long-run it would also improve some of its basic research programs and facilitate improvement of its analysis of many of the issues involved." (FOMC Minutes, 1964, p. 664.)

The Mitchell Subcommittee earned much gratitude for its efforts but little support for its recommendations. Aside from the two voting members of the Subcommittee itself

(Mitchell and Swan, since Ellis was an Alternate),[23] only one other FOMC Member (Bryan, Atlanta) endorsed the report. One Reserve Bank President (Bopp, Philadelphia) expressed considerable sympathy, and one First Vice President (Clarence Tow, Kansas City) was favorably inclined toward the proposal. The reservations expressed covered a variety of points: for example, the economic and financial reviews (proposed Elements 1 and 2) should be included in the FOMC's Policy Record; too much authority to shape monetary policy would be delegated to the staff; too much extra burden would be put on staff; regional views and their influence on policy would be lost; too much complexity would be introduced into the directive. But fundamentally, the opposition to the proposal reflected a strong aversion to detailed specification and quantification of monetary policy targets.

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23/ Subsequently, Mr. Ellis voted against a current economic directive--partly because of the form of the instructions to the Manager of the SOMA. At the FOMC meeting of March 2, 1965, he said: "(I) ... dissented for two reasons. First, (I) also favored a firmer policy. Secondly, (I do) not believe that the present directive form (is) sufficiently clear and definite to serve adequately as an instruction to the Account Manager. To the extent that (my) dissent (is) on procedural ground, (I) propose to limit it only to this occasion and not to repeat it at subsequent meetings, even though (I) might continue to object to the form of the directive.

"Governor Mitchell commented that he shared Mr. Ellis' views on the directive but had voted favorably because he thought the policy decision was appropriate.

"Mr. Bryan indicated that he had voted favorably on the same basis as Mr. Mitchell had." (FOMC Minutes, 1965, p. 278).

The following is a sample of views expressed:

Hayes (New York)

"... (Subcommittee) has made a signal contribution to the discussion of the Committee's economic policy directive as a means for instructing the Manager and communicating with the public.... At the same time, I do not believe it would be wise for the Committee to adopt the present proposal for quantitative monetary objectives and detailed quantitative instructions. Given the current inadequate state of our knowledge about financial processes, and their linkages with real economic activity, I am especially dubious about the suggestion to single out a particular monetary variable and specify a particular growth rate for that variable as the System's primary policy objective. It would be presumptuous to expect that our directives would resolve the issues that have confronted monetary theoreticians and policy makers for so many years, and I do not believe that a good directive need attempt this. ... My own thoughts in this area are still quite tentative but I might just mention a few of the areas that my colleagues and I have been considering. First, it might be desirable to make greater use of judgmental-type statements in those parts of the directive relating to recent economic and financial developments ... give a clearer indication ... whether there has been (a divergence between developments and the Committee's expectations) .... A clearer distinction might be made between the Committee's assessment of the economic situation and outlook ... and its general policy posture .... We might be more explicit about expected and desired behavior of credit markets and key financial indicators for several months ahead .... However, ... even rough attempts to set down our expectations are subject to some dangers, and certainly will remain so until we know much more about the underlying linkages...." (FOMC Minutes, 1964, pp. 666-670).

Daane (Board)

"... He considered the proposed directive unnecessarily complicated. This was particularly true of elements 1 and 2, which ... did little more than add window dressing to what was now included in the policy record. ... (they) should not be made part of the directive .... On element 3, ... he shared Mr. Hayes' question about the desirability of specifying the Committee's longer run policy intent in terms of the seasonally adjusted annual rate of increase in required reserves .... He was opposed to selecting a new target of this sort without a demonstration that it would involve a net gain for monetary policy. The proposed element 4 ... would elevate free reserves to a status as an operating target even higher than that which the market believed, and some academicians had charged, that the Committee gave to it. He did not think the Committee should quantify its instructions and require the (Manger) to meet numerical targets, even if the instructions were tempered with qualifications...." (FOMC Minutes, 1964, pp. 687-689).

Bryan (Atlanta)

"The subject is one I have studied and briefly talked about on a number of other occasions. The subject is also one on which, admittedly, I have strong convictions. Accordingly, everyone here would correctly assume that I want to compliment and endorse the ... report. I have some sense of satisfaction in the fact that for the first time in my recollection a committee of the Open Market Committee has gone on record as favoring the need for a quantitative directive. ... We have been criticized with some cogency by various members of the Congress, who have said our present method of writing a directive is unsatisfactory... Of equal importance, we in this Committee at one time or another have nearly all expressed ourselves of varying degrees of dissatisfaction with the qualitative language in our instructions. I think, therefore, that we have no choice other than to devote our best efforts and minds to instructing the Manager in clearly defined terms--in my view--quantitative terms...." (FOMC Minutes, 1964, p. 874).

Tow (Kansas City)

"... The idea of moving toward a more comprehensive and more explicit directive was a very good one. Implementation of the recommendations ... would bring a number of improvements, but it also would create problems that would need to be worked out over time .... The biggest change from the present directive ... was the inclusion of element 3 as a statement of the Committee's longer run policy intent .... although ... this section also would create some problems ... of internal consistency, arising from the different approaches to monetary policy taken by Committee members. Some preferred what might be called a credit and interest rate approach, while others preferred some variant of a money supply approach. Accordingly it would be necessary to write element 3 in such a way that both approaches would be incorporated.... Another problem ... arose from the effort to quantify the targets adopted. No matter what measure was used, whether aggregate reserves, money supply, credit interest rates, or some other, there was no way of knowing what the correct quantification should be .... The most important issue before the Committee at this time (is) the adoption of the general framework for the directive that was proposed .... Quantification, whether or not adopted to some degree at this time, should be a continuing goal." (FOMC Minutes, 1964, pp. 678-81).

In closing the defense of the Subcommittee's report, Governor Mitchell observed:

"... There was a great deal to be learned before the Committee could use monetary tools with precision and with confidence in predicted effects. But ... the Committee could never achieve these goals if it did not start using what it had, and concentrating its efforts on extending and improving whatever beginning it was able to make. In trying to do so, the Committee would stimulate a good deal of productive effort on the part of its staff .... The proposed directive had been drafted specifically to avoid a commitment to any particular theory of monetary causation. Both the

views of those who felt the impact of policy ran from reserves to the money supply to economic activity, and the views of those who felt it ran from reserves to bank credit to credit conditions to economic activity, were accommodated under the proposed format. Whatever one's analytical preference, there could be no argument with the proposition that the System's policy was effectuated by changes in the reserves made available to the banking system. Such changes influenced both the money supply and the banking system's contributions to total credit flows. The common element in both theoretical structures was bank reserves, and this was the reason that element 3 contained a statement of the policy intent of the Committee in terms of reserves rather than of either the money supply or bank credit.... More than anything else (the proposal) was put forth as a framework for accommodating the use of better intelligence and more advanced analytical techniques and a clearer understanding of linkages between monetary action and the real economy." (FOMC Minutes, 1964, pp. 884-87).

Chairman Martin, in closing the debate, summed up as follows:

"... Messrs. Ellis, Mitchell, and Swan (have) done a splendid job of setting forth the basic problems that the Committee (faces) in formulating monetary policy. They also (have) indicated an area in which the Committee (has) received a great deal of criticism from the outside--criticism to the effect that it did not make clear what its objectives and purposes were, and what it intended to achieve .... Anything the Committee might do in this area had to be experimental. Such an experiment, far from making the work of the Committee and staff easier, would make it harder ... On reading (an early draft of the Subcommittee's comments on criticism of the proposal) he had been impressed by the fact that on some occasions in the past he had not thought through all of the implications of a possible course of action because of the difficulty of the problem. And at times

> he had tended to feel that it was easier not to engage in debates on the specific words to be used in the directive.... All members should make a sincere effort to grapple with these problems before concluding that the Committee could not improve the fomulation of its directives which, after publication, would provide the basis for evaluations of the policy decisions made. ... Perhaps the best way of coming to grips with the question of whether it could improve the directive, and of bringing the Committee's best thinking to bear on the subject, was to experiment ...." (FOMC Minutes, 1964, pp. 887, 960-61).

That is how the debate ended.[24/] From August, 1964 through February, 1965, an experiment was run with a "trial" or "shadow" directive drawn up in the format recommended by the Mitchell Subcommittee. Specification of quantitative targets was included. While the "actual" current economic policy directive that was adopted at each FOMC meeting did not contain the same material, it is clear from the record that both Members and staff came increasingly to express their assessments and prescriptions for monetary policy in quantitative terms. Moreover, as a by-product of the highly articulate debate on specification and quantification, the FOMC and its staff began to focus much more sharply on the linkages among money market conditions, monetary aggregates, and the behavior of real economic activity. I will return to these developments below.

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24/ Actually, the FOMC never did address itself explicitly to the question of "quantification"--aside from the overall format of the current economic policy directive. On two occasions, such a debate was scheduled (for January 12 and February 2, 1965), but the discussion was cancelled in each instance. (FOMC Minutes, 1965, pp. 91, 178).

Ambiguous Success: Reform of 1966

The debate in 1966 over the form and content of the FOMC directive was short and highly focused--compared with that generated by the reports of the earlier Martin and Mitchell Subcommittees. The controversy was sparked by the Committee's lack of success in checking the rapid expansion in bank credit and the money supply in the first half of 1966.

It will be recalled that in early December, 1965, the Board of Governors had approved an increase in Reserve Banks' discount rates from 4 to 4-1/2 per cent, and the maximum rate of interest payable on member banks' time deposits and certificates of deposit was raised from 4-1/2 to 5-1/2 per cent. (Board Report, 1965, pp. 63-64). Partly reflecting adjustment to these moves, financial market conditions through the rest of December and into early January had been unsettled. Other factors (such as year-end seasonal pressures, large private credit demands, and heavy Treasury borrowing) also contributed to substantial market pressures. Moreover, growing concern over inflation and conflicting reports about the prospects for larger military spending in Vietnam added to unsettled conditions in the financial sector.

Under those circumstances, the FOMC conducted monetary policy with the objective of dampening upward pressures on short-term interest rates. Reflecting this course,

nonborrowed reserves in December grew at an unusually high annual rate of 21 per cent, and net borrowed reserves shrank to only $25--compared with $80 million in November and $135 million in October. As the new year unfolded, money market pressures eased somewhat. Open market operations by the FOMC were aimed at maintaining "even keel"--as is customary during periods of Treasury financing. In February and early March, the growth in member bank reserves moderated considerably, and bank credit registered only a small increase. While the money supply declined in February, it rose sharply in the first half of March. (Board Report, 1966, pp. 124-25, 128, 136).

It was against this background that the serious debate developed in the FOMC over the Committee's objectives and the best way to achieve its goals. The main thrust of open market operations was toward maintaining relatively stable conditions in the money market during January. However, from February through mid-April, the FOMC's current economic directive was aimed at "... attaining some further gradual reduction in reserve availability," while allowance was to be made for Treasury financings. Throughout this period, the directive to the Manager stressed interest rates, net borrowed reserves, and similar money market conditions as operating guides.

The net result of the FOMC's approach, given the strong demands for credit by both the public and private sectors, was a substantial increase in the monetary aggregates. For example, in April the growth of commercial bank credit remained at the already high rate registered in March--roughly half again faster than in the first quarter as a whole. The money supply expanded at an annual rate of 13.5 per cent in April--following a sizable increase in March. In the first quarter, the annual rate of expansion in the money supply was about 4.5 per cent.

Within the FOMC, as reported in the Committee's Policy Record,[25/] there was general agreement that the recent growth rates in the monetary aggregates were excessive. As part of the campaign to check inflation--as well as because of the need to strengthen the balance of payments--Members thought that additional monetary restraint was required. However, a significant difference of opinion developed as to the appropriate way to implement such a policy decision. Some Members attached considerable weight on the need to avoid aggravating the already strained conditions in various financial markets. For them, a cautious approach toward reducing net reserve availability carried a high priority. In seeking the Committee's objectives, they preferred that the Manager of the SOMA move

25/ The FOMC Minutes for 1966 have not been released as of December, 1971. When the last volume (1965) was released in early 1970, the Board of Governors indicated that it planned to release additional volumes with a reasonable time lag.

gradually to achieve somewhat deeper net borrowed reserves and moderately higher interest rates.

In contrast, other Members of the FOMC attached primary weight to the behavior of the monetary aggregates. For them, the main task was to bring about an early and substantial moderation in the rate of expansion of bank reserves, bank credit, and the money supply. To this end, they were ready to accept a relatively large reduction--if necessary--in net reserve availability. In the judgment of this latter group, the Committee was being misled by too much focus on money market conditions. They were convinced that--so long as the FOMC instructed the Manager of the SOMA to keep interest rates relatively stable in the face of such strong credit demands--the inescapable result would be a sizable expansion in total bank reserves. To correct the situation, they urged that the Committee recast its current economic policy directive to focus on total or required reserves as operating targets.

Although the FOMC Minutes for 1966 are not publicly available, one can draw reasonably good inferences about the line up of Members in this debate. While there was some turnover in Members in 1966, the membership of the Board and the Presidents of the Federal Reserve Banks were essentially the same as they

had been the previous year.[26/] Thus, given attitudes expressed earlier by different Members with respect to the desirability of pursuing money market targets or monetary aggregates, one could fashion a rough idea about the position of particular FOMC Members in the debate.

But while the controversy within the Committee was continuing, it became increasingly clear that some means had to be found to bridge the differences among Members--and thus enable the FOMC to get a better grip on the expansion of bank credit. A basis for compromise was advanced by Governor J. L. Robertson, who suggested that, while the primary operating targets continue to be money market conditions, required reserves be specified as a secondary target. The latter would thus be a check on the former. Actually, a variation on this proposal was suggested by Governor Robertson at the end of January, 1966, and it was discussed at several FOMC meetings during the Winter and early Spring. While the idea helped to stimulate further staff work, the Committee itself did not embrace it.

But, as indicated above, the FOMC became much more receptive as its problem of credit control turned increasingly

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26/ At the Federal Reserve Board, I replaced C. Canby Balderston, and Darryl R. Francis replaced Harry A. Shuford as President of the Federal Reserve Bank of St. Louis in 1966.

pressing, and the proposed "proviso" clause was adopted in early June. The relevant part reads:

> "... It is the Federal Open Market Committee's policy to resist inflationary pressures and to strengthen efforts to restore reasonable equilibrium in the country's balance of payments, by restricting the growth in the reserve base, bank credit, and the money supply.
>
> "To implement this policy, System open market operations until the next meeting of the Committee shall be conducted with a view to maintaining net reserve availability and related money market conditions in about their recent ranges; provided, however, that if required reserves expand considerably more than seasonally expected, operations shall be conducted with a view to attaining some further gradual reduction in net reserve availability and firming of money market conditions." (Board Report, 1966, p. 151).

Thus, because of the continuing debate over the best route to pursue in open market operations, the FOMC made another significant improvement in its technique of monetary management. Yet, as discussed in the next section, that improvement fell short of its real need.

Highwater Mark of Monetarism: Reform of 1970

In March, 1970, the conception of monetary policy with a monetarist flavor reached a highwater mark in the Federal Open Market Committee. At the FOMC meeting of that month, a current economic policy directive was adopted, the most important part of which read:

> "To implement this policy, the Committee desires to see moderate growth in money and bank credit over the months ahead. System open market operations until the next meeting of the Committee shall be conducted with a view to maintaining money market conditions consistent with that objective." (Board Report, 1970, p. 110).

In that action, the FOMC explicitly shifted the principal target of open market operations from money market conditions to monetary aggregates. And among the latter, the money supply was listed first. Thus, after nearly a decade of debate over the form and content of its instructions to the Manager of the SOMA, the Committee finally accepted a substantial part of the argument advanced by the monetarists.

On the other hand, this move was made on a purely pragmatic basis, and it grew out of circumstances exactly opposite those which prevailed in the Spring of 1966, when the FOMC was having little success in its efforts to moderate the growth of bank credit and the money supply. In January, 1970, the FOMC took an overt step to encourage the rate of growth of the monetary aggregates. That first meeting of the year occurred against a background of serious shortfalls in the results of monetary policy compared with the FOMC's intermediate goals. While still placing the main emphasis on the use of monetary policy to help check continuing inflation, the FOMC had been attempting to encourage a moderate expansion of bank credit. However, from November to December, bank credit (measured by the bank credit proxy)

had declined at an annual rate of 0.5per cent. Even after adjustment for nondeposit sources of funds, the annual growth rate was only 1.5 per cent. During the fourth quarter, the adjusted bank credit proxy rose at a 2 per cent annual rate--following a 4.3 per cent annual rate of decline in the third quarter. Projections presented by the staff suggested that, over the first quarter of 1970, the adjusted bank credit proxy would decline, and the money stock would change little on balance--assuming that prevailing money market conditions were maintained and maximum interest rates payable on time and savings deposits were not raised.

Thus, if monetary policy continued to focus mainly on money market conditions as operating targets, the Committee might expect a continuing shortfall between its policy objectives and the actual results achieved. Partly to hedge against this prospect, at its January meeting, the FOMC adopted a directive which--while still putting primary stress on money market conditions--had a proviso clause relating to the monetary aggregates. In part it read:

> "... System open market operations until the next meeting of the Committee shall be conducted with a view to maintaining firm conditions in the money market; provided, however, that operations shall be modified if money and bank credit appear to be deviating significantly from current projections." (Board Report, 1970, pp. 98-99).

Consequently, in specifying monetary aggregates as a secondary target in the proviso clause at its January, 1970, meeting, the FOMC took an explicit (although modest) step in the monetarist direction. This was the last Committee meeting presided over by Chairman Martin.

At the February FOMC meeting (the first one attended by Chairman Arthur Burns), the FOMC shifted its goals toward fostering somewhat less firm conditions in the money market. The decision was based on unfolding evidence of weakness in both the money stock and the adjusted bank credit proxy. At the February meeting, the Committee also strengthened the proviso clause to hedge further against a shortfall in monetary aggregates. Again money market targets got the primary stress in the directive, but it was added "... that operations shall be modified promptly to resist any tendency for money and bank credit to deviate significantly from a moderate growth path."[27/] (Board Report, 1970, p. 105).

By early March, both short-term and long-term interest rates had declined considerably since the beginning of February--despite a substantial volume of capital market borrowing.

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27/ In passing, I should indicate that I voted against the current economic policy directive in February. I did so because I thought the Committee's objective of encouraging moderate growth in bank credit could have been achieved on the basis of the action taken at the January, 1970, meeting.

To some extent, the rate declines reflected increasing evidence of moderation in the pace of economic activity and widening expectations among investors that monetary policy had been--or soon would be--relaxed. Under these circumstances, time and savings deposits at thrift institutions ceased in February, and the prospects were for a sizable rise in the months ahead--partly also because rate ceilings had been raised in late January.

On the other hand, from January to February, the average levels of private demand deposits and the money stock contracted sharply--at estimated annual rates of about 15 and 10 per cent, respectively. From January to February, the bank credit proxy was estimated to have declined at an annual rate of more than 9 per cent; after adjustment for nonbank sources of funds, the decline was at a rate of more than 6 per cent. Looking ahead, the staff projected money and bank credit to increase at moderate rates over coming months--if somewhat less firm money market conditions (recently achieved) were maintained. It was estimated that, from February to March, the money stock would expand at an annual rate of 4 to 7 per cent (resulting in a 2 per cent annual rate of growth during the first quarter); in the second quarter, the money stock was projected to rise at a 3 per cent annual rate. The adjusted bank credit proxy was projected to rise from February to March at an annual rate of 8 to 11 per cent--resulting in a first quarter growth rate of 0.5 per cent.

Given these recent developments and prospects, the FOMC at the March meeting agreed that an expansion in money and bank credit over coming months at about rates projected would be appropriate. Yet, some Members were concerned about the risks of unduly large changes in money market conditions. Other Members expressed concern about both the danger of excessive growth in the aggregates and the risk of shortfalls from growth rates desired by the Committee--a risk that some Members thought was particularly likely for the money stock in a period of economic weakness--such as that in the Spring of 1970. Given the importance which Committee Members attached to avoiding such extremes, the FOMC decided to convey explicitly in its directive its goals of achieving growth in money and bank credit over the months ahead--at roughly the moderate rates indicated--and to aim for the maintenance of money market conditions consistent with that objective. In so doing, the Committee assigned to monetary aggregates to a new--and higher--priority than it had ever done before.

This decision by the FOMC was made in the context of a continuing debate over the use of monetary aggregates as policy targets and against the background of a year-long study of the Committee's techniques of monetary management by a Subcommittee under the leadership of Governor Sherman Maisel. The other Members of the Subcommittee were Presidents Frank Morris (Boston)

and Eliot Swan (San Francisco). The Maisel Committee had been appointed by Chairman Martin in the Spring of 1969 for the purpose of exploring means of improving open market operations. The Committee's concern was not so much with technical aspects of open market operations as with improving the performance with respect to the Committee's ability to accomplish its goals. The report of the Maisel Committee was completed in early March, 1970, and it was thus available for internal consideration by the FOMC. The report itself was not adopted formally by the Committee, and it has not been published. However, a collection of staff papers, prepared as part of the Maisel Committee's study, has been published.[28/] Moreover, an account by H. Erich Heinemann in the New York Times of January 4, 1970, provides a summary of the range of issues covered by the Subcommittee and indicates what recommendations were thought to have been made on several points. The article apparently was based on interviews with persons (but not Governor Maisel) associated with the Subcommittee's work. Furthermore, Governor Maisel has shared the flavor of the issues considered by his Committee in several instances.[29/]

In general, the issue the Maisel Committee focused on is the one already identified: if money market conditions are the primary target of open market operations, the FOMC has

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28/ See Axilrod, et. al., Open Market Policies and Operating Procedures--Staff Studies (3).

29/ "Controlling Monetary Aggregates," (23) and "Monetary Policy-Making in the Short-Run," September 10, 1970 (Mimeo).

no clear and definitive way of giving instructions to the Manager of the SOMA. If he achieved specified goals in terms of interest rates and other money market conditions, he had no sure way of reaching the Committee's objectives with respect to bank credit and the money supply. The reverse is also true. Thus, given this conflict, the need for basic reform of the FOMC's approach to monetary management was indicated.

It is clear from the published material (especially the Staff papers and Governor Maisel's comments and writings) that the Maisel Subcommittee leaned toward having the FOMC rely on some variety of monetary aggregates--especially total reserves, as the main target of open market operations.

The extent to which this view is shared by other Members of the FOMC is not clear. However, the general attitude of several Board Members to the use of monetary aggregates in general can be gleaned from their public statements. For example, Governor George Mitchell obviously attaches considerable weight to the role of the money supply in monetary management.[30/] On the other hand, it is also evident that Governor J. Dewey Daane (while obviously attaching some weight to the role of monetary aggregates in the management of monetary policy) is highly skeptical of the arguments of the monetarists.[31/]

Tha attitude of Chairman Burns is also in the public

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30/ See "Opening Remarks," on panel discussion at Annual Bankers' Forum, Georgetown University, October 2, 1971. (Mimeo).

31/ See "New Frontier for the Monetarists," Remarks before the Northern New England School of Banking, Dartmouth College, Hanover, New Hampshire, September 8, 1969. (Mimeo).

record. In appearing before the Joint Economic Committee of the Congress in July, 1970, he said:

> "... An impression seems to have prevailed... that the Federal Reserve has decided to pursue fixed target rates of growth in the monetary aggregates on a more or less continuous basis. This is a misreading of our intent. We believe that the nation would be ill-served by a mechanical application of monetary rules. We know that large, erratic, and unpredictable short-run changes often occur in demands for money and credit. One of the important functions of a central bank is to prevent such short-run shifts from interfering with the smooth functioning of money and capital markets. We have no intention of abandoning our responsibilities in this area...." 32/

This position expressed by the Chairman, was made in a statement presented on behalf of the Board of Governors. It expressed the views of the entire Board at the time, and I have seen nothing in the interval to change that assessment.

Federal Reserve Bank Attitudes Toward Monetary Aggregates

As I look at the Federal Reserve Banks, I get a mixed impression about their attitudes toward the monetary aggregates--and particularly toward the basic arguments of the monetarists. Undoubtedly, the Federal Reserve Bank of St. Louis is a major star in the monetarist constellation; it is the strongest (and in my opinion the only) advocate of the monetarist view in the Federal Reserve.

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32/ Testimony on July 23, 1970, Reprinted in the Federal Reserve Bulletin, August, 1970, p. 624.

However, some of the flavor of the monetarist perception of monetary policy--and of prescriptions for its conduct--has also permeated other parts of the Federal Reserve System. At times, this has appeared in the expression of views about efforts to quantify and control more closely the measures selected to guide open market operations. At other times, it has centered in attempts to have the FOMC place more stress on monetary aggregates and less on money market conditions as target variables.

But those sentiments (particularly in extreme form) have found only a limited reception among Reserve Bank Presidents over the years. In fact, such views have been actively resisted by those Presidents with a strong affinity for the money market strategy. On the other hand, a reading of the FOMC Minutes and other evidence indicates clearly thatmost Presidents have displayed a rather pragmatic and eclectic attitude toward their FOMC assignment and have generally avoided aligning themselves with any of the extreme positions.

Yet, at the risk of offending some of my present and former colleagues--and again based on my reading of the record--I believe it is possible to locate the Reserve Banks in the general area of where they appear to stand on the spectrum of attitudes regarding the monetary aggregates. Of course, let me say at the outset that each Reserve Bank President and his

associates in his own institution would probably make a different ordering--and may even argue that no such classification is possible at all. Nevertheless, I believe it is possible to visualize the Federal Reserve Banks as distributed along a continuum according to their apparent degree of allegiance to money market strategies as opposed to approaches based on quantification of monetary targets. Over time, their relative positions seem to have shifted somewhat, depending on the attitudes of the men who were providing policy leadership at the time. On such a scale, I would place the Federal Reserve Bank of New York at one end (on the left side, for example) as the foremost--and constant--advocates of the money market strategy. At the opposite extreme (on the right side), the Federal Reserve Bank of St. Louis would hold the unchallenged standing as the strongest exponent of the monetarist point of view. Currently clustering in the center (constituting a kind of eclectic fulcrum) would be the Federal Reserve Banks of Minneapolis, Chicago, and Cleveland. Inward from the left side moving from the position of the New York Bank toward the center, would be the Federal Reserve Banks of Dallas, Richmond, and Kansas City. Inward from the right side, moving from the position of the St. Louis Bank toward the center, would be the Federal Reserve Banks of Boston, Philadelphia, San Francisco and Atlanta.

Again, this is my own ranking of these Banks--based mainly on the views regarding quantification expressed by their Presidents in speeches and in the FOMC Minutes and on the content of research conducted in each institution and published in their respective Monthly Review and other outlets.

But, as I stressed above, the position of individual Reserve Banks in such a delineation has changed noticeably over time. For instance, a few years ago, the Federal Reserve Bank of Chicago (in the closing years of Charles Scanlon's leadership) seemed to display a somewhat warmer feeling toward the monetary aggregates and quantification of policy targets than it has since Robert Mayo became President in 1970. A similar shift is noticeable in the case of the Federal Reserve Bank of Cleveland with the transition fromthe late W. Braddock Hickman to Willis Winn. While Hickman apparently had little sentiment for quantification of targets in the mid-1960's, he seemed to have developed more interest in monetary aggregates just prior to his death.

In contrast, the Federal Reserve Bank of Boston under Frank Morris seems to have maintained its apparent hospitality toward monetary aggregates and quantification of targets that was evident when George Ellis was President. Similarly, when Bruce MacLaury became President of the Federal Reserve Bank of Minneapolis in 1971 following the death of Hugh Galusha, that

institution seems to have continued its leaning in the direction of the money market strategy. Looking farther into the past, however, it seems that the Minneapolis Bank, soon after Frederick Deming became President in 1957, undertook a substantial amount of work exploring the relationships between changes in the money supply and the behavior of real output. From time to time, the results were introduced by Deming in FOMC deliberations--although he disclaimed any allegiance to the monetarist position. In the same years, Malcolm Bryan, President of the Federal Reserve Bank of Atlanta in 1952-65, placed that institution among the strongest advocates of the monetarist approach in the FOMC.

But taking the Federal Reserve Banks as they are today, I would conclude that all of them (with the exception of St. Louis) remain highly eclectic and pragmatic in their conception of the tasks of monetary management. They appreciate fully the difficult problems of using monetary policy as an instrument of economic stabilization, and show no signs of being led astray by simple prescriptions as to how they should perform these jobs.

Impact of Monetarism on Policy Advisers in the Federal Reserve

Beyond the Members of the Board of Governors and the Presidents of Reserve Banks, one ought to look at the ranks of Policy Advisers and Policy Analysts in the Federal Reserve

System. They too play vital roles in the process of policy-making. In my personal opinion, one can detect a somewhat more favorable attitude toward monetary aggregates and quantification of monetary policy targets. This appears to be true much more for the Policy Analysts (who tend to be somewhat younger and thus obtained their professional training in more recent years) than it is of the Policy Advisers.

Among most of the chief economic advisers at the Federal Reserve Board and in the Federal Reserve Banks, I see increasing stress on monetary aggregates and growing emphasis on quantification. To a considerable extent, of course, it was this group which encouraged the FOMC to adopt the stand which it has taken on the monetary aggregates in recent years. These senior economists, in turn, were led to search for new approaches because of the failures experienced over the years by the Committee's reliance on money market conditions as policy targets. At the same time, most of them seem extremely anxious to avoid giving the appearance of attaching too much weight to their use of quantification as an analytical tool. A typical attitude was expressed by Daniel Brill, who was Senior Adviser to the Board until the Summer of 1969:

> "... It would be ridiculous to contend... that we can project with precision the extent of bank credit expansion appropriate to the real economy projected for the next three or four weeks, or to project with precision the interest rate complex associated with the projected rate of bank credit expansion. The estimates presented ... are a set of heroic guesses on all these elements--guesses as to the demand for bank credit that would likely arise if our GNP quarterly projection was being achieved evenly over the quarter, modified by specific events for which we may have information, such as Treasury or large private financings. Our estimates of the market rates that would be consistent with these bank credit flows are even more heroic, and estimating how all these variables would behave under alternate policy postures represents the ultimate in staff willingness to risk its reputation and paycheck. Given the state of the ART, the record is surprisingly good."

Of course, since Mr. Brill made that statement in the Fall of 1967, further strides have been made in the staff's ability to project economic and monetary aggregates. But the extent of the progress made does not erase the relevance of his counsel. To a considerable extent, the improvements in the staff's technical performance reflects the greatly enlarged research effort made in recent years to understand the linkages between monetary policy and the behavior of the real economy. Greater emphasis on research along those lines was one of the chief by-products of the debate over the FOMC directive in the mid-1960's.

Moreover, the need to develop greater understanding of the interrelations between monetary policy and the rest of the economy was the primary reason the Board supported the basic work which resulted in the large-scle econometric model now used extensively in staff analyses in support of monetary policy.33/

In fact, over the years, the amount and proportion of the staff budget at the Board devoted to basic rearch of the monetary process has expanded greatly. In 1951, the share was

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33/ See Frank de Leeuw and Edward Gramlich, "The Federal Reserve - MIT Econometric Model." Federal Reserve Bulletin, January, 1968, pp. 11-40.

> "... The major purpose of the model is to be able to say more than existing models about the effects of monetary policy instruments--both in themselves and in comparison with other policy instruments. No existing model has as its major purpose the quanticiation of monetary policy and its effect on the economy. As a consequence even those which do contain some treatment of monetary policy instruments and effects suffer from puzzling results either in their financial sectors or in the response to financial variables in other sectors--results which their proprietors would surely investigate further were the models to be used to say something about monetary developments on a current basis. We have tried to avoid these difficulties by concentrating most of our efforts on the treatment of financial markets and on the links between financial markets and markets for goods and services."

less than 5 per cent; by 1961 it had risen to 8 per cent, and it is currently about 14-1/2 per cent.[34/]

Aside from the greatly increased stress on basic research, the Board's staff has also considerably improved

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34/ Estimated Proportion of Research and Statistics Budget Devoted to Research on the Monetary Process

| | Research Budget | | |
|---|---|---|---|
| | Monetary Process[2/] | Total[1/] | Per cent |
| | (thousands $) | | |
| 1951 | 44 | 986 | 4.5 |
| 1961 | 118 | 1,508 | 7.8 |
| 1969 1/ | 391 | 2,673 | 14.6 |
| 1971 1/ | 661 | 4,573 | 14.4 |

1/ In 1969, there was a sizable expenditure for work dealing with the FRB-MIT model, together with work relating to the Price Committee. Although no comparable provisions were included in the 1971 budget, the percent of Research's total budget devoted to research on the monetary process remained close to the peak figure experienced in 1969 due to an increase in the size of the staff working in this area.

2/ Excludes data processing costs. Amounts shown for 1951 and 1961 include the major proportion of Banking Section salaries, a substantial portion of official staff salaries and smaller proportions of Capital Markets and Government Finance salaries. The figure for 1969 includes also the major proportion of the cost of the Special Studies Section plus the outside contractual costs of the Price Committee and the FRB-MIT model work. The major proportion of the 1971 figure given in the above table reflects cost of the Special Studies Section and the Econometric and Computer Applications Section, in addition to smaller amounts for other sections.

the material presented to the FOMC on the basis of which policy decisions are made. In fact, another by-product of the debates over the directives in the 1960's was an accelerated development of information for both the Federal Reserve and the public.[35/]

Even Keel: Shadow or Substance of Market Pegging

As has been indicated, many Federal Reserve critics argue that because the Open Market Committee is too greatly concerned about excessive volatility in money market conditions, it sometimes tends to lose control over growth in the monetary aggregates. The particular operating technique which has probably been subject to greatest criticism on these grounds is the Federal Reserve practice of maintaining an "even keel" during periods of large-scale Treasury financing. Since Treasury financings create new demands for funds--from the Treasury itself when raising new money, and from market professionals borrowing to finance positions, even in Treasury refinancings--the financings themselves tend to exert upward pressures on market interest rates. If, in these circumstances, the Federal Reserve seeks to stabilize money market rates, it obviously can do so--other things being equal--only by supplying additional bank reserves. And these reserves in turn will tend to support more growth in the monetary aggregates than would otherwise occur.

Contrary to the presumption of some of our academic critics, the "even keel" constraint has been interpreted in practice to mean simply that the System Account Manager should refrain from operations during periods of Treasury financing that might be

35/ For example, prior to July, 1967, when the FOMC Policy Record began to be published with a 90-day lag--under the requirements of the Public Information Act of 1966--the record of FOMC decisions was not available to the public until the Board's Annual Report was published well into the new year.

viewed by market participants as a shift in policy posture. Given this rather loose definition of "even keel", interest rates and money market conditions have not usually been stabilized during periods of Treasury financing in the strict sense the critics have assumed. In fact, significant changes in money market conditions and interest rates have occurred fairly frequently during Treasury financings.[36/] Even so, the question remains whether the "even keel" constraint may not have had the effect of stabilizing money market conditions relative to what they otherwise would have been and to some extent, therefore, have encouraged greater volatility in the behavior of the monetary aggregates. Clearly, this is not just an academic question. On the contrary, when one looks ahead to the heavy deficit financing the Treasury will have to undertake in 1972, at a time when the economy is generally expected to show strong recovery, questions about the effect of "even keel" on the monetary aggregates seem particularly pertinent.

Understandably, it is exceedingly difficult to isolate the effects of the system "even keel" constraint on past performance of the monetary aggregates. In addition to the many other factors affecting the monetary aggregates there are special difficulties in identifying the "even keel" effects. For one thing, the "even-keel" period -- which typically runs from a few days before

36/ An empirical analysis of "even keel" experience for the years 1966 to 1968 is contained in an appendix to a recently published Federal Reserve staff study on open market policies and operating procedures by Stephen Axilrod (4).

the Treasury announces terms on a financing to a number of days after the settlement or payment date--represents a rather short time span, and the urgency of making the constraint effective tends to vary from Treasury financing to Treasury financing, as well as between periods of tight and easy money.

Also, in recent years an increasingly large share of Treasury cash financing has been accomplished through types of operations--additions to weekly bills, tax bill auctions, auctions of relatively short-dated coupon issues, and sales of special issues to foreign central banks--that have not involved any "even keel" restraint. As a result, the only financings that have been "even keeled" have been those associated with the large quarterly Treasury refinancings. While a number of these operations have involved the raising of new money, in addition to the refinancing of outstanding debt, the extra cash borrowed was typically a relatively small amount. Finally, a special complication in analyzing the effects of "even keel" since 1968 is the fact that reserve pressures during quarterly Treasury refinancings have been limited essentially to the credit demands of market professionals acquiring "rights". Due to lagged reserve accounting at banks, the need for expanded required reserves to support any new deposits created by Treasury net cash borrowing do not occur until two weeks after the settlement date for the financing--which is outside the period usually covered by "even keel". At that

time, however, the required reserves expected to be needed to support new Treasury deposits are one of the reserve factors entering the System Account Manager's projections of reserve factors and tend to be provided more or less automatically.

Notwithstanding the preceding caveats about the difficulties of isolating the effects of "even keel", the logical possibility that System approaches to periods of Treasury financing have had an important bearing on the past performance of the monetary aggregates cannot be denied. For this reason some effort to gain at least a rudimentary impression whether this logical possibility is significant would seem to be desirable at this time. Table 5--which compares the behavior of key money, credit, and reserve aggregates during and outside periods of quarterly Treasury refinancing over the past three years--shows the results of one such effort.

Several tendencies suggested by the table are worth noting. First the data on money market conditions--represented by the Federal funds rates in columns 6 and 7--show that the patterns of change in these conditions were for the most part not too different during Treasury financing periods from what they were outside. However, in a number of the refinancings the funds rate rose more, or declined less, relative to its performance in periods surrounding the financing--particularly during the periods of

maximum credit stringency--suggesting that money market pressures generated by the financings themselves were not fully offset through open market operations.

The data on nonborrowed reserves, in column 4, show more rapid growth outside the Treasury financing periods than during. While this may result from the perverse effects of lagged reserve accounting and still reflect increases in required reserves generated by the financing, more careful study of other factors also affecting required reserves in those periods--such as changes in deposit mix--would be needed before the observed patterns of change could be reasonably explained.

Data on the monetary and credit aggregates--in columns 1-3 of the table--show the hypothesized pattern of greater growth during the Treasury financing period for some financings, but not for others. Of course, even where the observed relationships do seem to confirm the monetarists' hypothesis about "even keel", not too much reliance can be placed on such a simple tabular correlation. Nevertheless, the relationships indicated in this case are intriguing enough to suggest the utility of a more rigorous analytical investigation of the effects of "even keel" on the monetary aggregates.

Concluding Observations

From the above survey, I conclude that the years of debate over the best way to conduct monetary policy in the United States has been productive. The Federal Reserve has learned a great deal about monetary management, and it is in a much better position to perform its duties.

There remains the question of my own attitude to the issues in the controversy. Of course, let me say immediately that I recognize that an excessive growth of bank credit and the money supply does facilitate the propagation of inflation. But I am convinced that it would be a disastrous error for the Federal Reserve to try to conduct monetary policy on the basis of a few simple rules governing the rate of expansion of the money supply. In the first place, I find serious deficiencies in the theoretical and empirical analysis on the basis of which the monetarists reach their conclusions and policy recommendations. Put quite simply, they have not demonstrated convincingly that the relationship between the money supply and economic activity is especially close. Or, more importantly, they have not convincingly shown that money is more a cause than it is an effect of economic activity. While fluctuations in monetary conditions have undoubtedly contributed to economic instability on some occasions in the past, nonfinancial factors (such as wars, variations in the rate of business investment, and changes in consumer spending/savings behavior) have also been a principal source of fluctuations in output and employment.

Furthermore, the effects of monetary conditions on economic activity have not invariably been mirrored accurately in fluctuations in the money supply. Instead, the linkages between changes in the demand for goods and service and changes in the money supply should be sought in the behavior of other financial market conditions--such as interest rates and prices of financial assets, and the availability of credit--which occur in conjunction with changes in the money supply. Given the great complexity of our financial system, in which commercial banks and a variety of savings institutions live guardedly together in an increasingly competitive environment, I think it would be not only misleading but also extremely risky for the monetary authorities to settle on the money supply or any other single factor as the exclusive target and guide for monetary policy. On the other hand, the effort made in the last year or so--which has seen the Federal Reserve giving more weight to monetary aggregates in its policy implementations--has been in the right direction.

In the meantime, a great deal of the current discussion of the role of monetary policy (not all of it confined to academic economists) strikes me as extremely arid -- concentrating as it does on the behavior of the "money supply," while little effort is made to keep abreast of what is actually occurring in the nation's banking and financial system. In my opinion, not only does this monetarist view afford little profit in broadening public understanding of economic policy -- it actually can be misleading.

Too much emphasis on the "money supply"(an extremely fragile and frequently revised statistical series showing privately-owned checking accounts and currency)[37/] may mislead the public into believing that the Federal Reserve System can exert a far more precise control over the economy than is actually the case.

Instead of encouraging the belief in such a simple view of the structure and behaivor of our monetary system, I believe that those of us who share responsibility for the formulation and conduct of stabilization policies also have the responsibility to help broaden the public's appreciation of the limitations as well as the potentialities of our policy instruments. Above all, I think we have the responsibility to encourage the pursuit of policies -- in both the public and private sectors -- which enhance prospects for achieving and maintaining domestic stability -- rather than policies which aggravate the instability caused by nonmonetary factors.

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37/ A survey of efforts over the last decade to improve the statistics on the monetary aggregates is contained in the Appendix to this paper.

Table 1

Federal Open Market Committee
Members, Alternates and Observers
April, 1951

| Name | Background | Policy Advisers |
|---|---|---|
| **Monetary Management Forum** | | |
| **Federal Open Market Committee** | | |
| **Members, Federal Reserve Board** | | |
| Martin, William Mc.C., Chm. (1951-70) | Broker | FOMC Secretary: S.J. Carpenter |
| Eccles, Marriner (1934-51) | Banker, Industrialist | Economist: Woodlief Thomas |
| Evans, Rudolph M. (1942-55) | Agriculture, engineer | Associate Economist: Ralph A. Young |
| Norton, Edward (1950-52) | Radio, investments | Manager, SOMA: Robert G. Rouse |
| Powell, Oliver S. (1950-54) | Economist, Federal Reserve Bank Officer | |
| Szymczak, M.S. (1933-61) | College lecturer, Public servant | |
| Vardamon, James K. (1946-59) | Lawyer, Government Official | |
| **Reserve Bank Presidents** | | |
| Sproul, Allan (New York) (1940-56) Vice Chairman | Economist, Federal Reserve Bank Officer | John H. Williams, Harold Roelse, Robert Roosa |
| Williams, Alfred H. (Philadelphia) (1941-58) | Dean, business school | Karl R. Bopp |
| Gidney, Ray M. (Cleveland) (1944-53) | Federal Reserve Bank Officer (bank supervision) | Donald S. Thompson |
| Gilbert, R. Randle (Dallas) (1939-54) | Federal Reserve Bank Officer | Watrous H. Irons |
| Leedy, H.G. (Kansas City) (1941-61) | Lawyer, Federal Reserve Bank Officer | Clarence Tow |

Table 1 (cont'd) Federal Open Market Committee - 1951

| Name | Background | Policy Advisers |
|---|---|---|
| **Alternate Members** [1/] | | |
| Rounds, L.R. (First Vice President, New York) (1941-52) | Federal Reserve Bank Officer | John H. Williams |
| Leach, Hugh (Richmond) (1936-61) | Federal Reserve Bank Officer (Auditing) | C.W. Williams, J. Dewey Daane |
| Young, C.S. (Chicago) (1941-56) | Federal Reserve Bank Officer (Bank supervision) | George W. Mitchell |
| Johns, Delos C. (St. Louis) (1952-62) | Lawyer, Federal Reserve Bank Officer | Frederick Deming |
| Earhart, C.E. (San Francisco) (1946-56) | Federal Reserve Bank Officer | Oliver Wheeler, Eliot Swan |
| **Observers** [2/] | | |
| Erickson, Joseph A. (Boston) (1948-61) | Commercial banker | Alfred C. Neal |
| Bryan, Malcolm (Atlanta) (1952-65) | Economist, Federal Reserve Bank and Commercial Bank Officer | Earle L. Rauber |
| Peyton, John N. (Minneapolis) (1936-52) | Bank supervisor, Federal Reserve Bank Officer | Marvin Peterson |

1/ As of March, 1951, no alternate had been selected for the President of the Federal Reserve Bank of Dallas. W.S. McLarin, President of the Federal Bank of Atlanta, had been elected, but retired effective February 28, 1951. Malcolm Bryan was elected President of the Atlanta Reserve Bank and an Alternate Member of the FOMC on April 1, 1951.

2/ Observers are Reserve Bank Presidents not currently serving as Members or Alternate Members of the FOMC.

Table 2

Federal Open Market Committee
Members, Alternates and Observers
March, 1961

| Name | Background | Policy Advisers |
|---|---|---|
| **Monetary Management Forum** | | |
| **Federal Open Market Committee** | | |
| **Members, Federal Reserve Board** | | |
| Martin, William McC., Chairman (1951-70) | Broker | FOMC Secretary: Ralph A. Young |
| Balderston, C. Canby (1954-66) | Dean, business school | Economist: Woodlief Thomas |
| King, G. H. (1959-63) | Businessman | Associate Economist: Guy E. Noyes |
| Mills, A. L. (1952-65) | Commercial banker | Manager, SOMA: Robert G. Rouse |
| Robertson, J. L. (1952- ) | Lawyer, Government official | |
| Shepardson, Charles N. (1955-67) | Dean, School of Agriculture | |
| Szymczak, M. S. (1933-61) | College lecturer, Public servant | |
| **Reserve Bank Presidents** | | |
| Hayes, Alfred, (New York) Vice Chairman (1956-) | Economist, banker | George Garvy |
| Wayne, Edward A. (Richmond) (1961-68) | Bank supervisor, Federal Reserve Bank officer | Benjamin U. Ratchford |
| Allen, Carl E. (Chicago) (1956-62) | Banker, industrialist | George Mitchell |
| Irons, Watrous (Dallas) (1954-68) | Economist, Federal Reserve Bank official | Charls E. Walker |
| Swan, Eliot J. (San Francisco) (1961-) | Economist, Federal Reserve Bank official | Robert S. Einzig |

Table 2 (cont'd) Federal Open Market Committee - 1961

| Name | Background | Policy Advisers |
|---|---|---|
| **Alternate Members** | | |
| Treiber, William F. (First Vice President, New York) (1952-) | Lawyer, Federal Reserve Bank official | George Garvy |
| Ellis, George H. (Boston) (1961-68) | Economist | Robert Eisenmenger |
| Fulton, W. D. (Cleveland) (1953-63) | Bank supervisor | W. Braddock Hickman |
| Johns, Delos C. (St. Louis) (1952-62) | Lawyer, Federal Reserve Bank official | Homer Jones |
| Deming, Frederick L. (Minneapolis) (1957-65) | Economist, Federal Reserve Bank official | Franklin L. Parsons |
| **Observers**[1/] | | |
| Bopp, Karl R. (Philadelphia) (1958-70) | Economist, Federal Reserve Bank official | David P. Eastburn |
| Bryan, Malcolm (Atlanta) (1952-65) | Economist, Federal Reserve Bank and commercial bank official | Charles T. Taylor |
| Clay, George H. (Kansas City) (1961-) | Lawyer | Clarence W. Tow |

1/ Observers are Reserve Bank Presidents not currently serving as Members or Alternate Members of the FOMC.

Table 3

Federal Open Market Committee
Members, Alternates and Observers
March, 1971

| Name | Background | Policy Advisers |
|---|---|---|
| **Monetary Management Forum** | | |
| **Federal Open Market Committee** | | |
| **Members, Federal Reserve Board** | | |
| Burns, Arthur F., Chairman (1970-) | Economist, University professor, Government official | FOMC Secretary: Robert C. Holland |
| Brimmer, Andrew F. (1966-) | Economist, University professor, Government official | Economist: J. Charles Partee |
| Daane, J. Dewey (1963-) | Economist, Federal Reserve Bank and Government official | Associate Economist: Stephen H. Axilrod |
| Maisel, Sherman J. (1965-) | Economist, University professor | |
| Mitchell, George W. (1961-) | Economist, Federal Reserve Bank official | |
| Robertson, J. L. (1952-) | Lawyer, Government official | |
| Sherrill, William W. (1967-71) | Banker, Government official | |
| **Reserve Bank Presidents** | | |
| Hayes, Alfred (New York) (1956-) Vice Chairman | Economist, banker | George Garvy |
| Morris, Frank E. (Boston) (1968-) | Economist, investment banker | Robert W. Eisenmenger |
| Kimbrel, Monroe (Atlanta) (1968-) | Commercial banker | Charles T. Taylor |
| Mayo, Robert P. (Chicago) (1970-) | Economist, Government official, Commercial banker | Karl A. Scheld |
| Clay, George H. (Kansas City) (1961-) | Lawyer | Clarence W. Tow |

Table 3 (cont'd) Federal Open Market Committee - 1971

| Name | Background | Policy Advisers |
|---|---|---|
| **Alternate Members**[1/] | | |
| Treiber, William F. (First Vice President, New York) (1952-) | Lawyer, Federal Reserve Bank official | George Garvy |
| Eastburn, David P. (Philadelphia) (1970-) | Economist, Federal Reserve Bank official | Mark H. Willes |
| Coldwell, Philip E. (Dallas) (1968-) | Economist, Federal Reserve Bank official | Ralph T. Green |
| Swan, Eliot J. (San Francisco) (1961-) | Economist, Federal Reserve Bank official | J. Howard Craven |
| **Observers**[2/] | | |
| Heflin, Aubrey N. (Richmond) (1968-) | Lawyer, Federal Reserve Bank official | James Parthemos |
| Francis, Darryl R. (St. Louis) (1966-) | Economist, Federal Reserve Bank official | Homer Jones |

1/ As of March 1, 1971, the office of President was vacant at the Federal Reserve Banks of Cleveland and Minneapolis. Under normal rotation, the President of the Federal Reserve Bank of Cleveland would have been elected an Alternate Member of the FOMC in 1971. Subsequently, Willis J. Winn (Economist, Dean of business school) was elected President of the Federal Reserve Bank of Cleveland in July, 1971, and assumedhis place as an Alternate Member of the FOMC. Bruce K. MacLaury (Economist, Federal Reserve Bank, U.S. Government official) was elected President of the Federal Reserve Bank of Minneapolis in July, 1971.

2/ Observers are Reserve Bank Presidents not currently serving as Members or Alternate Members of the FOMC.

Table 4

Federal Open Market Committee

Occupational Distribution of Members, Alternates, and Observers

| Occupation | Status | April, 1951 | March, 1961 | March, 1971 |
|---|---|---|---|---|
| Economists | FOMC Members | 2 | 3 | 8 |
| | Alternates | 0 | 2 | 3 |
| | Observers | 1 | 2 | 1 |
| | Sub-total | 3 | 7 | 12 |
| Lawyers | FOMC Members | 2 | 1 | 2 |
| | Alternates | 1 | 2 | 1 |
| | Observers | 0 | 1 | 1 |
| | Sub-total | 3 | 4 | 4 |
| Bankers, Bank Supervisors, and Brokers | FOMC Members | 2 | 4 | 2 |
| | Alternates | 0 | 1 | 0 |
| | Observers | 2 | 0 | 0 |
| | Sub-total | 4 | 5 | 2 |
| Reserve Bank Officials (Except Economists and Lawyers) | FOMC Members | 2 | 0 | 0 |
| | Alternates | 4 | 0 | 0 |
| | Observers | 0 | 0 | 0 |
| | Sub-total | 6 | 0 | 0 |
| Businessmen | FOMC Members | 1 | 1 | 0 |
| | Alternates | 0 | 0 | 0 |
| | Observers | 0 | 0 | 0 |
| | Sub-total | 1 | 1 | 0 |
| Agricultural Representatives | FOMC Members | 1 | 1 | 0 |
| | Alternates | 0 | 0 | 0 |
| | Observers | 0 | 0 | 0 |
| | Sub-total | 1 | 1 | 0 |
| Deans (Business Schools) and Others | FOMC Members | 2 | 2 | 0 |
| | Alternates | 0 | 0 | 0 |
| | Observers | 0 | 0 | 0 |
| | Sub-total | 2 | 2 | 0 |
| All Professions | FOMC Members | 12 | 12 | 12 |
| | Alternates | 5 1/ | 5 | 4 2/ |
| | Observers | 3 | 3 | 2 |
| | Grand Total | 20 | 20 | 18 |

Table 4 (cont'd) Federal Open Market Committee

1/ In April, 1951, no Alternate Member of the FOMC had been selected for the President of the Federal Reserve Bank of Dallas.

2/ In March, 1971, the Office of President was vacant at the Federal Reserve Banks of Cleveland and Minneapolis. The Cleveland Bank's President normally would have been elected an Alternate for the President of the Chicago Reserve Bank. Both offices were subsequently filled by Economists.

Table 5 Changes in Money, Reserve, and Bank Credit Aggregates During and Between Periods of U. S. Treasury Financing
(Late October 1968 through fall of 1971)

| | Seasonally adjusted annual rates - % | | | | Annual % Change System Portfolio | Average Rate on Fed. funds (per cent) | Change in Fed. funds rate 1/ (per annum) |
|---|---|---|---|---|---|---|---|
| | $M_1$ | $M_2$ | Adjusted Credit Proxy | Nonborrowed Reserves | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1968 | | | | | | | |
| *Oct. 23 - Nov. 20 | 9.6 | 12.6 | 11.5 | 2.5 | .2 | 5.85 | - .51 |
| El 12.0 - Ex 10.1 2/ | | | | | | | |
| Nov. 27 - Jan. 22, 1969 | 6.8 | 8.2 | 5.6 | 2.3 | -11.0 | 6.08 | 1.01 |
| 1969 | | | | | | | |
| *Jan. 29 - Feb. 19 | 9.2 | 9.6 | 5.5 | -23.7 | .6 | 6.42 | .29 |
| El 14.5 - Ex 12.5 | | | | | | | |
| Feb. 26 - Apr. 23 | 3.5 | 3.3 | - 0.4 | - 3.9 | - .2 | 6.94 | .73 |
| *Apr. 30 - May 21 | 4.5 | 3.4 | - 3.0 | - 5.1 | 17.5 | 8.30 | 1.43 |
| El 6.8 - Ex 5.0 | | | | | | | |
| May 28 - July 23 | 3.4 | 1.0 | 2.5 | - 7.7 | 10.7 | 8.88 | - .41 |
| *July 30 - Aug. 20 | - 0.6 | - 4.7 | -13.6 | -17.8 | 6.5 | 8.90 | .29 |
| El 3.4 - Ex 2.9 | | | | | | | |
| Aug. 27 - Sept. 10 | - 0.9 | 0 | - 4.6 | 51.6 | -18.7 | 8.99 | - .22 |
| *Sept. 17 - Oct. 8 | 2.6 | 2.0 | - 1.7 | -19.3 | 11.1 | 9.30 | .86 |
| El 8.9 - Ex 7.0 | | | | | | | |
| Oct. 15 - Jan. 21, 1970 | 4.8 | 2.6 | 3.9 | 10.0 | 12.2 | 8.91 | - .13 |
| 1970 | | | | | | | |
| *Jan 28 - Feb. 18 | - 8.2 | - 5.7 | - 8.5 | -24.2 | - .4 | 9.20 | .09 |
| El 6.7 - Ex 5.9 | | | | | | | |
| Feb. 25 - Apr. 22 | 11.0 | 10.6 | 12.6 | 21.2 | - 2.7 | 7.95 | -1.18 |
| *Apr. 29 - May 20 | 5.6 | 7.9 | - 2.1 | -36.0 | 33.4 | 8.17 | - .37 |
| El 4.9 - Ex 3.4 - Cash 3.5 | | | | | | | |
| May 27 - July 22 | 3.0 | 8.2 | 10.5 | 2.1 | 11.1 | 7.53 | - .68 |

Table 5 (cont'd) Changes in Money, Reserve, and Bank Credit Aggregates
During and Between Periods of U. S. Treasury Financing
(Late October 1968 through fall of 1971)

| | Seasonally adjusted annual rates - % | | | | Annual % Change System Portfolio | Average Rate on Fed. funds (per cent) | Change in Fed. funds rate 1/ (per annum) |
|---|---|---|---|---|---|---|---|
| | $M_1$ | $M_2$ | Adjusted Credit Proxy | Nonborrowed Reserves | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| *July 29 - Aug. 19 | 9.3 | 11.3 | 26.0 | 51.6 | 31.7 | 6.82 | - .52 |
| El 5.6 - Ex 4.5 - Cash 2.75 | | | | | | | |
| Aug. 26 - Oct. 14 | 4.0 | 9.8 | 5.3 | 20.7 | - 4.7 | 6.30 | - .43 |
| *Oct. 21 - Nov. 18 | 2.4 | 6.8 | 9.0 | 13.1 | 18.3 | 5.97 | - .51 |
| El 7.7 - Ex 7.0 - Cash 2.0 | | | | | | | |
| Nov. 25 - Jan. 13, 1971 | 4.6 | 12.1 | 11.5 | 9.9 | 16.9 | 4.80 | -1.43 |
| 1971 | | | | | | | |
| *Jan 20. - Feb. 17 | 14.0 | 22.2 | 14.7 | 16.0 | 12.4 | 4.04 | - .13 |
| El 19.5 - Ex 11.0 | | | | | | | |
| Feb. 24 - Apr. 21 | 8.2 | 13.8 | 9.4 | 11.3 | 6.2 | 3.81 | .13 |
| *Apr. 28 - May 19 | 15.9 | 15.6 | 3.4 | 7.9 | 25.5 | 4.42 | .28 |
| El 8.4 - Ex 6.4 | | | | | | | |
| May 26 - July 14 | 10.2 | 9.0 | 7.4 | -18.8 | 10.3 | 4.94 | .58 |
| *July 21 - Aug. 18 | 3.2 | 3.0 | 9.0 | -18.2 | 4.3 | 5.52 | .46 |
| El 4.1 - Ex 2.7 - Cash 2.5 | | | | | | | |
| Aug. 25 - Oct. 20 | - 2.8 | 4.3 | 7.9 | 25.8 | 14.1 | 5.45 | - .45 |
| *Oct. 27 - Nov. 17p | 0.6 | 6.5 | 10.6 | 8.5 | - 1.1 | 5.02 | - .26 |
| El 21.3 - Ex 9.4 - Cash 2.0 | | | | | | | |

1/ Change in average Federal funds rate from first week of period to last week of period.
2/ Financing totals are in billions of dollars.
El = public holdings eligible for exchange (including in some cases pre-refunded issues).
Ex = public holdings actually exchanged.

* NOTE: * designates financing period.

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## APPENDIX

### Historical Development of the Money Supply and Monetary Aggregates as Statistical Measures 1/

Historical data on the $M_1$ concept of the money supply (private demand deposits and currency in the hands of the public) were published in Banking and Monetary Statistics in 1943 and extended back to 1892. From 1892 to 1923, data were annual and based on the end of June Call Report. From 1922 to 1943, data were semi-annual based on the end of June and end of December Call Reports. Previous to publication of Banking and Monetary Statistics in 1943, data were available in the Consolidated Statement and in the Chart Book section of the Federal Reserve Bulletin for Call Report dates.

Starting in February, 1944, monthly data were published in the Bulletin based on the semi-annual Call Reports and the end of month deposit reports of member banks. Starting in 1947, raw data on a daily average basis were available from the deposit reports of member banks. However, because of significant limitations in the data, this source was not tapped for use in compiling the money supply figures.

In 1959, the daily average data were substantially improved due to the inclusion of vault cash and Government deposit figures. Thus, in 1960, the new money supply series based on daily averages became available both internally and externally. The series was estimated back to 1947 based on the old daily averages data. The new series differed in concept from the previous series: it included demand deposits due to mutual savings and foreign banks, and it excluded Federal Reserve float. The new series was compiled and published twice a month (see October, 1960, Bulletin, pp. 1102-1114).

At the same time, concern within the System to make reserve data more timely for use by the Manager of the System's Open Market Account led to requiring Country Banks to report bi-weekly on Wednesday with a preliminary first week report rather than semi-monthly as was the case earlier.

In 1962, some further minor revisions were made in the money supply series dealing mainly with foreign deposits. However, at the same time, revisions in data on commercial bank time deposits were made to make that series conceptually consistent with the demand deposits component of the money supply. The new time deposits series was then released along with the money supply series (see August, 1962, Bulletin, pp. 941-945).

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1/ I am grateful to Mr. Edward R. Fry and Mrs. Jaan Chartener for assistance in the preparation of this survey.

By 1965, enough weekly data had been assembled from the new timing of reporting by Country Banks to construct seasonal adjustment factors, and the weekly money supply series was introduced.

Also in the 1963-65 period, there was concern both inside and outside of the System with the frequent revisions in the free reserve figures. The free reserve figure was watched as an important policy measure both by the Desk and by outside observers. An Ad Hoc Subcommittee of the System Research Advisory Committee was set up in 1963 to study the problem. The Subcommittee found that much of the source of error was due to Country Banks. As a result, a sample of 300 Country Banks was established to provide required reserve and vault cash data on the first five days of the reserve period so that the Desk would have an early estimate of reserves to work with before the end of the reserve period.

In 1968, the System adopted the recommendations of a second Ad Hoc Subcommittee set up in 1966 that reserve requirements and vault cash allowed as reserves be based on the period two weeks earlier. This change was designed to help member banks manage their reserve positions more efficiently and to further reduce revisions in free reserve figures to help the Desk perform its duties.

Also in 1968-69, the System took steps to improve early estimates of the money stock, as the monetary aggregates became more important in policy decisions. Previously, the staff had made estimates of the monetary aggregates based on daily reporting of deposit totals by Reserve City Banks and the Country Bank sample, but there were often wide errors in these early estimates due to lack of information on U.S. Government deposits and interbank deposits. The banks were requested to report information on Federal Government deposits and interbank deposits on their early reports.

In 1969, revisions were made in the money supply series to compensate for the downward bias resulting from the rapid increase in Euro-dollar float. In effect, Regulation D was changed to require member banks to include checks originating from transactions with foreign branches as deposits subject to reserve requirements (see October, 1969, Bulletin, pp. 787-789).

In 1970, further revisions were made to correct for bias due to the rapid growth of Euro-dollars and foreign exchange transfers through agencies and branches of foreign banks and through Edge Act corporations. Specifically, gross deposits of agencies of foreign banks and Edge Act corporations were included along with deposits liabilities of commercial banks in the calculation of the money supply. Both of these revisions, and particularly the 1970 revision,

were in response to increasing concern both internally and externally that the money supply figures were downward biased at a time when the money supply was considered a key variable (see December, 1970, Bulletin, pp. 887-894).

In February, 1971, data on $M_1$, $M_2$, and $M_3$ were introduced in the Bulletin. Since the basic components of $M_2$ had been published for some time, analysts both within and outside of the System had been using an $M_2$ concept. The main difference between the System's $M_2$ as finally published and concepts that had been used previously was the exclusion of negotiable certificates of deposit from the time deposits data.

In general, it appeared that, with the exception of the $M_2$ and $M_3$ concepts, changes in the compilation of the money supply data became available for internal use about the same time as they were published. Obviously, the $M_2$ and $M_3$ concepts had been in use both internally and externally before they were actually published in 1971. Also, the bank credit proxy was used internally before it was first published in October, 1966.

It also appeared that changes on both collection and conception of System data often came in response to desires by the Board and the Federal Open Market Committee to have more timely and more accurate estimates of those figures considered important at the time - free reserves. The System had accurate data on Fed funds in the early 1960's and the money supply data in the second half of the 1960's. This seemed to be particularly true in the later 1960's and also at present when changes in methods and scope of collection were made and are being made to improve the timeliness and accuracy of data on aggregates. For example, the deposit ownerhsip survey was instituted in June, 1970, in direct response to a desire to develop a statistical base for analyzing changes in the money supply. This information was helpful in periods such as early 1971 in attempting to gauge the sources of the rapid growth in the monetary aggregates. The System is also currently expanding its use of micro data so chat analysis can be made in terms of various economic categories.