
HEARINGS
BEFORE THE
JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES
NINETIETH CONGRESS
SECOND SESSION

—
MAY 8, 9, 15, AND 16, 1968
—

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STANDARDS FOR GUIDING MONETARY ACTION

WEDNESDAY, MAY 8, 1968

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The Joint Economic Committee met at 10 a.m., in room S-407, the Capitol, Hon. William Proxmire (chairman of the joint committee) presiding.

Present: Senators Proxmire, Miller, and Jordan; and Representatives Griffiths, Moorhead, and Rumsfeld.

Also present: John R. Stark, executive director; James W. Knowles, director of research; William H. Moore, senior staff economist; John B. Henderson, staff economist, and Donald A. Webster, minority staff economist.

Chairman PROXMIRE. The Joint Economic Committee will come to order.

Gentlemen, I might explain that one of the reasons why we have relatively small attendance this morning is due to the fact that the Ways and Means Committee is meeting, and the House Banking Committee is meeting. Some of the members of this committee are also on these committees.

I want to stress the fact that what you say will, of course, be in the record and referred to many times, because this is an issue of the greatest importance to the economic future of this country, and we consider you gentlemen the Nation's outstanding experts in this area.

This is the first of a series of four hearings on monetary policy.

We welcome as witnesses in the first hearing, Prof. Lester V. Chandler of Princeton, Prof. Franco Modigliani of MIT, and Prof. Henry C. Wallich of Yale, all outstanding economists well known to this committee.

At this point in the record we will insert the press release announcing the hearing and the schedule of witnesses.

HEARINGS ON STANDARDS FOR GUIDING MONETARY ACTION

Senator William Proxmire (D., Wis.), Chairman of the Joint Economic Committee, today announced hearings by the full Committee on the operational aspects of monetary management, one of the major instruments in economic stabilization policy. The hearings will be held on May 8, 9, 15, and 16. The schedule of witnesses is attached.

In announcing the hearings, Chairman Proxmire noted that:

"Under the Constitution, the Congress has been given the responsibility for determining matters involving coinage and the stock of money. The Congress has chosen to delegate the exercise of this authority to the Federal Reserve authorities, giving them a considerable degree of independence both from the Congress and from the Chief Executive. For their part, representatives of the Federal Reserve System have repeatedly acknowledged before the Joint Economic Committee and elsewhere that the Declaration of Policy contained in the

Employment Act of 1946 is, along with the Federal Reserve Act itself, a directive for their guidance. Discussion persists, however, as to whether such broad language of the Employment Act is adequate or sufficiently specific to serve as a rule for the guidance of the Federal Reserve authorities, acting as the monetary agent for the Congress."

Chairman Proxmire continued: "The Joint Economic Committee has heard much evidence over the years on the role of monetary policy and, in its recent annual report, has made some specific policy recommendations. Nevertheless, there remain some very difficult unsettled questions about monetary management. Some of these arise from our experience in the 'credit crunch,' and most of them have to do with actual operations and market responses, rather than with theory or the 'Monday-morning-after' empirical testing.

"We need to get better understanding of some very important practical matters. For example: What are the interrelations between monetary policy and fiscal policy and to what extent can they be regarded as alternatives? Are the Federal Reserve authorities really able accurately to manage the stock of money, however, 'money' may be defined? Is there really sufficient knowledge of the time that it takes to recognize the need for monetary action and of the ultimate response to a change in policy directives once they are have been decided on? Are corporate policies in holding cash, bank deposits, certificates of deposit, and portfolio management, in general, sufficiently predictable to give the Fed a firm basis for policy making? Were the relatively wide swings in the rate of increase of the stock of money over the past 2½ years to some degree inadvertent, or were they, in part, attributable to attempts by the Fed to avert disturbing variations in the pattern of interest rates?

"These questions call for an examination of the manner in which policy actions of the monetary authority are actually translated into decisions at the member-bank and money-market level. Federal Reserve actions cannot ignore the fact that the stock of money, whatever it may be at a given moment, is actually held by someone who is willing to hold it in preference to short-term near-monies, longer term securities, or even commodities.

"The Committee intends," Senate Proxmire said, "to see whether rules of monetary policy action can, indeed, be formulated which are both realistic and testable after the event enabling one to assess whether the effects of an action taken have been of the scale, character, and timing that was expected. The testimony should provide, moreover, some estimate of the impact of external influences—the necessities of government finance, the corporate search for liquidity, and institutional features of the money markets. Any one—or all—of these is likely to complicate any simplistic system of good rules."

CONGRESS OF THE UNITED STATES JOINT ECONOMIC COMMITTEE—HEARINGS

MAY 8, 9, 15, 16, 1968, ROOM S-407, THE CAPITOL

STANDARDS FOR GUIDING MONETARY ACTION

Wednesday, May 8—10:00 a.m.

Standards for Monetary Action as Viewed from the Academic Community:

Lester V. Chandler, Professor of Economics, Princeton University.
 Franco Modigliani, Professor, Departments of Economics and Industrial Management, Massachusetts Institute of Technology.
 Henry C. Wallich, Professor of Economics, Yale University.

Thursday, May 9—10:00 a.m.

Standards for Monetary Action as Viewed from the Academic Community (continued).

Carl F. Christ, Professor, Department of Political Economy, Johns Hopkins University.
 William G. Dewald, Professor of Economics, Ohio State University.
 Richard T. Selden, Professor of Economics, Cornell University.

Wednesday, May 15—10:00 a.m.

Problems of Policy Determination as Viewed from Within the Federal Reserve System:

George W. Mitchell, Member, Board of Governors of the Federal Reserve System.

Daniel H. Brill, Director, Division of Research and Statistics, Board of Governors of the Federal Reserve System and Economist, Federal Open Market Committee.

Thursday, May 16—10:00 a.m.

Monetary Tools as Viewed from Within the Financial and Banking Community:

Tilford C. Gaines, Vice President and Economist, Manufacturers Hanover Trust Co.

Orson H. Hart, Vice President and Director of Economic Research New York Life Insurance Co.

Guy E. Noyes, Senior Vice President and Economist, Morgan Guaranty Trust Co.

The importance of monetary policy as an instrument of economic stabilization is so evident that the Joint Economic Committee has a responsibility to conduct regular reviews of the subject. We have done so in the past, and the experience of the past 2½ years gives particular emphasis to the need for our present inquiry.

We have approached and are now doing our best to keep a sustainable high level of employment. In the process, naturally, there have been strains. The monetary authorities have had to react to events as they appeared. Some of the problems have no precedent—despite startling historical analogies drawn by the Chairman of the Board of Governors of the Federal Reserve System.

The Joint Economic Committee, on its part, has made some specific policy recommendations. These have been somewhat tentative—pointing the direction in which we thought policy ought to move. At the same time we are very much aware of this need for more answers than any of us have.

The Congress has delegated to the Federal Reserve the responsibility for managing the Nation's money and the Fed has a considerable degree of independence in exercising its authority.

The first question is whether the Congress can improve its guidance or advice to the Fed.

The language of the Employment Act is very broad. But some ideas about how monetary policy should be conducted are very specific.

We should all prefer a simple rule of procedure. But the job of money management is complex, and there is sharp debate on whether any simple rule can be valid.

Besides, we need to have an exchange of ideas with the Fed. A second question thus concerns the Fed's explanations of its aims and actions. Mr. Reuss has likened this exchange of views to a conversation between two people, one speaking Swahili and one speaking Urdu. I don't speak either.

I do recognize the words the Fed uses. But I don't always get what—if anything—they mean. Financial metaphors are not easily understood by the layman or the legislator. The metaphors are often muddled and so are the listeners.

We must not let this difficulty of communication stand in our way. We must not be mystified and we must not accept a financial "mystique."

Money may be difficult to understand, but it is not totally inexplicable.

The principal aim of these hearings is to ask experienced people from the academic world, from the financial world, and from the Federal Reserve System itself:

What it is that they believe to be the Fed's current principles of monetary control;

What the Fed is looking at when it makes up its open market mind;

Whether these are the right things to pay attention to;

Whether the Fed is able accurately to gauge the need for action or to foresee the effect of action taken;

In short, what standards there are, or could be, for responsible and effective monetary policy.

We are not engaged in a strictly theoretical inquiry, but in an examination of the operation of the system. We are not specifically asking why the Fed did a certain thing at a certain time, but we are trying to make clear to ourselves how the Fed looks at the process of decisionmaking.

We began by inviting, for today's and tomorrow's hearings, panels of distinguished academic experts on these matters to give views "from the outside," so to speak. Next Wednesday we shall have the testimony of Governor Mitchell of the Federal Reserve Board and Daniel Brill, Senior Advisor to the Board and Director of its Division of Research and Statistics. To conclude the series, we shall, next Thursday, have three representatives of the financial community give their views on monetary management as seen by those directly affected by its decisions.

The witnesses have been provided with some background material which the Federal Reserve has given to the committee in response to an inquiry of Mr. Reuss. Without objection, that will be part of the record as an appendix of these hearings.

You are invited, gentlemen, to give your testimony freely and with whatever perspectives you regard as most useful.

Professor Chandler, you might start off.

**STATEMENT OF LESTER V. CHANDLER, PROFESSOR OF ECONOMICS,
PRINCETON UNIVERSITY**

Mr. CHANDLER. Mr. Chairman, I should like to begin by congratulating you and your fellow members of the Joint Economic Committee for investigating the issues before us today. These are so controversial, so little understood, and so important to our economic well-being that they merit very serious discussion.

It will be useful to divide guides for monetary policy action into two types: (1) guides relating to the objectives to be promoted by the monetary authority, and (2) guides relating to the specific monetary actions to be taken to promote the selected objectives.

I shall deal first with guides relating to the objectives of monetary policy. There is no shortage in the number of objectives provided for the Federal Reserve by the Employment Act of 1946, the Federal Reserve Act, forceful statements by the executive department and by Congress, and the sheer force of public opinion. Among the major objectives are maintenance of continuously low rates of unemploy-

ment, a high and stable rate of economic growth, reasonable stability in the purchasing power of the dollar, and a stable exchange rate for the dollar. In addition, there is often official pressure on the Federal Reserve to temper its policy to other objectives or considerations—to avoid significant changes in money market conditions at times of new Treasury issues, to avoid “excessively high interest rates;” to protect the flow of funds to nonbank financial intermediaries, and to ameliorate effects on the residential construction industry.

Thus, the Federal Reserve suffers from no lack in the number of guides relating to its goals or objectives. However, it has been given virtually no official guides as to how it should weigh the various objectives and select among them when they come into conflict. Some of these objectives are likely to be at least partially incompatible, even under the most favorable circumstances. They will almost certainly be incompatible if monetary policy is not assisted by timely and flexible fiscal policies, or when, as during the last 2 years or so, overall fiscal policies create an unfavorable environment for monetary policy.

I recommend that the Congress give serious consideration to providing more specific guides relating to the objectives of monetary policy—guides relating to the weights to be attached to the various objectives. Such an attempt by Congress might yield two beneficial results. First, it might provide more specific guidance to the Federal Reserve in terms of goals or objectives. Second, the very process would afford Congress an opportunity to reassess the relative roles of monetary policies and of other policies, including various types of fiscal policies, in promoting and reconciling our economic objectives.

I turn now to the second type of guides—guides relating to the specific monetary actions to be taken to promote the selected objectives. These might also be called operating guides. I do not believe that Congress, or anyone else, can formulate specific operating guides that will promote selected economic objectives in anything like an optimum way. In fact, we would be fortunate indeed if the specific guides did not on many occasions lead us away from our chosen goals. And the more specific and binding the operating guides, the greater is the danger.

A specific operating guide would presumably be formulated and prescribed in terms of the behavior of some financial or monetary variable. For example, it might be stated in terms of a prescribed behavior of interest rates, or the behavior of total bank credit, or the behavior of the money supply, however defined. None of these is in itself an ultimate objective or of prime importance. Each assumes importance for policy purposes only to the extent that it is related in a reliable way to economic variables of greater importance—to such things as the behavior of aggregate demand for output and the responses of real output, prices and employment. For a specific operating guide couched in terms of some monetary or financial variable to be useful, you would have to be able to predict long into the future a constant relationship between that variable and the ultimate policy variable that does matter. I am convinced that this cannot be done.

Consider first the much-publicized proposal that the money supply should be increased—week in, week out—at an annual rate approximating the growth potential of real GNP. I shall pass for the moment the question of whether the money supply should be defined narrowly

as currency-plus-demand deposits, more broadly to include as well time deposits at commercial banks, or more broadly still to include other types of liquid assets. But however defined, the quantity of money is in itself of little importance. What is far more important is the behavior of total demand for output, or GNP at current prices. All the evidence indicates that there is not a constant relationship between the stock of money and the rate of flow of expenditures for output. Rather, the two are linked in a variable way by income velocity, or its inverse, the amount of money balances demanded by business and the public relative to their expenditures. These have fluctuated significantly both cyclically and over longer terms, and there is no reason to expect that they will be stable in the future.

There is good reason to believe that the American economy, with its rising capacity to produce, will need a secular increase in the money supply. But no one can forecast far in advance the rate of increase of the money supply that will be required to keep aggregate demands for output in line with the economy's capacity to produce. For example, the money supply, narrowly defined, has increased since 1947 at an average annual rate of about $2\frac{1}{2}$ percent, while GNP, or expenditures for output, has grown more than twice as fast, at an average rate of more than 6 percent. Thus, the average income velocity of money has grown at an annual rate of 3.4 percent, and from an arithmetic point of view has accounted for more than half of the rise of spending for output. It is difficult to account fully for this rise of income velocity, or greater economizing on money balances. A part is probably due to the general rise of interest rates. Some of this may disappear if interest rates fall to lower levels, though we do not know how much. Clearly, however, a considerable part of the increase stems from financial innovations of a more lasting nature, such as improved corporate cash management, invention of various competing financial instruments, and greater financial sophistication of households.

It is almost in the nature of things that we cannot forecast far ahead what further financial innovations will occur, how fast they will spread, or how much they will affect income velocity. There are, however, great potentialities in the spreading use of bank credit cards, instant credit, and computers. In view of such uncertainties, it would not seem wise to order the Federal Reserve to increase the money supply steadily at some predetermined rates.

Also damaging to the prescription of a steady rate of increase of the money supply are the cyclical variations in the income velocity of money. That income velocity does fluctuate in a procyclical manner, rising in booms and falling during recessions, is a well-documented fact. Even Professor Friedman admits this, though he plays down its significance. But it is significant. For example, even a 10-percent decline in income velocity—a fall from the present figure of about 4.4 per year to 4 per year—would be associated with a decline of more than \$80 billion in the value of GNP, the money supply remaining constant. In effect, this is equivalent to a 10-percent reduction of the money supply, which would obviously be significant. Fluctuations of income velocity by 10 percent or more over the course of a cycle are by no means uncommon.

If the rule of a steadily increasing money supply were adopted, income would continue to fluctuate over the business cycle, if for no

other reason than because interest rates would fluctuate. It is highly significant that Professor Friedman stands almost alone in contending that income velocity and demands for cash balances are not significantly affected by changes in interest rates. Virtually all other investigators have found very significant effects. They differ somewhat on which interest rates are most influential and how great the responsiveness is, but all find that increases of interest rates reduce velocity. This assures that velocity will behave in a procyclical manner.

Consider, for example, the situation in 1966 when rapidly rising Government expenditures coincided with a strong investment boom. Interest rates would have risen sharply even if the money supply had been increasing at an annual rate of 3 or 4 percent. The rise of interest rates would have induced both business and the public to economize on their money balances, which yield no explicit return, and this would have been reflected in a rise of income velocity. Thus at the peak of interest rates, business and the public would be holding money balances relative to their expenditures which would continue to be satisfactory only so long as interest rates remained at that level. When the boom subsided and interest rates tended to fall, they would demand to hold more money relative to their expenditures, and their attempts to replenish their balances to the new and higher demanded levels would delay and retard the downward adjustment of interest rates and a general easing of money market conditions. Thus what could have been only a mild recession may be translated into a more serious recession or even into a depression, especially if an expansionary fiscal policy is not initiated.

It is for reasons such as these that Professor Friedman's inflexible rule would not yield acceptable results, especially so in view of the fact that he virtually rules out the use of fiscal policies for stabilization purposes. I was pleased to see that the proposal advanced by Congressman Reuss as a basis for discussion avoids these inflexibilities. For one thing, he suggests not just one rate of increase of the money supply but a band of rates between 3 and 5 percent. Then he would allow the Federal Reserve to depart from the band under six specific types of situations. I believe all of these exceptions are essential; perhaps more should be added. I submit, however, that when all the desirable exceptions to the rule are included, we are well on our way toward restoring discretionary power to the Federal Reserve.

I conclude, then, that while it may be feasible to provide more specific guides relating to the objectives of monetary policy, it is not feasible to formulate more specific and appropriate operating guides for the policy actions to be taken to promote those objectives.

I see no workable alternative to discretionary monetary actions. I say this despite the many shortcomings of discretionary policies—difficulties of forcecasting, lags in the effects of monetary policies, and so on. The Federal Reserve has made mistakes and will doubtless make more. But one need not think that Federal Reserve officials and their staffs are infallible to believe that their discretionary actions based on flows of current information, on forecasts for the coming months and on continuous revision of those forecasts, will yield better monetary policies than those dictated by some inflexible rule formulated and prescribed months, or even years, in advance.

I should like to end with a few comments on fiscal policies and their relationships to monetary policies. I believe that in recent years we have relied too heavily on monetary policy and have not properly exploited discretionary fiscal policies. In fact, fiscal policy has too often been destabilizing in its effects. For some years after 1960, Federal tax collections were too large and retarded the growth of private demands for output. By delaying tax reductions until 1964 and 1965, we lost billions of dollars worth of potential real output and millions of man-years of employment. Then, late in 1965 fiscal policy turned strongly inflationary. Rapidly rising Government expenditures on top of a strong investment boom escalated demands for output and injected huge amounts of additional income into the hands of business and the public. In the absence of tax increases to drain off this excess income the result was inevitable—strong inflationary pressures were created.

The Federal Reserve need not, of course, have responded by stopping the growth of the money supply, however defined. It could have allowed the money supply to increase steadily at some prescribed rate, which would have allowed prices to rise faster. Or it could even have created money fast enough to hold interest rates down, which would surely have escalated inflation.

Whether the Federal Reserve followed the most appropriate policies under these circumstances is debatable. But one thing is clear: a highly inflationary fiscal policy exacerbated the problems faced by the monetary authorities and must bear at least some part of the responsibility for the ensuing extremely high rates of interest, the diversion of funds from thrift institutions, and the sharp impact on the construction industry.

The very least that fiscal policies can do is to avoid creation of such unfavorable conditions for monetary policies.

Thank you.

Chairman PROXMIRE. Thank you, Professor Chandler.

Professor Modigliani?

STATEMENT OF FRANCO MODIGLIANI, PROFESSOR, DEPARTMENT OF ECONOMICS AND SLOAN SCHOOL OF MANAGEMENT, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Mr. MODIGLIANI. I also wish to congratulate the committee for carrying out these very important hearings, and express my appreciation for being allowed to share my views with you.

I hope these hearings will persuade the committee of the undesirability of imposing any precise rules of behavior on the Federal Reserve, particularly rules taking the form of a stated rate of increase in money supply.

I might also say that Professor Chandler has, I think, admirably stated the main points that I would have liked to make, and perhaps the only thing I can do is to elaborate on some of the points he has made and try to provide some answers to the questions that have been raised by Mr. Reuss.

It is certainly true that if we lived in a very static world, in a world in which things never changed, or changed according to some very stable rules, where population grew at a constant rate, where tech-

nological progress were constant without changing its nature, where exports behave regularly in time—in such a world, it is true that one would find that a steady rate of growth of the money supply would be needed to have both a stable high level of employment and a stable price level.

And by the way, this is fundamentally the reason that justifies rules of the kind that have been proposed by many people such as Mr. Friedman. If, let us say the population plus the technological progress lead to a situation where, with a stable high level of employment, GNP rose at 3 percent per year in real terms, then by and large the money supply would have to rise at this rate. But, of course, we do not live at all in a world of this kind. There are all kinds of things that are continuously changing, sometimes abruptly.

Some things change more smoothly, such as labor force and population; some things change less smoothly, such as technological change. There are variations in the nature of this change, variations in inventions that change the contribution of capital to production and require corresponding changes in the rate of return to capital.

Finally, we live in a world in which our fiscal policy has been far from stable because of a variety of circumstances, ranging from response to changing domestic needs, to response to international situations, responses with which one might disagree, but nonetheless, must be taken into account. We find very sharp variations in Government expenditures and, given the complex process of adjusting taxes and the politics involved in this, these changes in expenditures have frequently not been promptly accompanied by corresponding appropriate change in revenues.

Under these conditions, I think most economists would agree, that the appropriate behavior of the money supply is not at all one in which the money supply would rise at the steady rate.

I believe, in fact, that the attempt by Mr. Reuss to formulate specific rules of monetary action, spelled out in his "Supplementary Views," is an excellent illustration of the difficulty one has in formulating such rules. He started out by modifying the 3-percent rule to a range of 3 to 5 percent, which is already a considerable departure from the pure rule, because the difference between a 3-percent and a 5-percent rate of growth of the money supply it sustains is by no means negligible.

Second, he had to introduce a large number of exceptions. I think I agree with most of the exceptions made, although not all of them—I think there are some questions about his rule saying that if there is a cost push, then the money supply should adjust and permit any expansion, any increase in the price level that the cost push is creating. I think that would be a dangerous principle.

However, once you allow for all these exceptions, it is clear that you are back to a discretionary policy, especially if you consider that some of these exceptions are really not easy to formulate in operational terms. He makes some reference to the extent to which other forms of near moneys substitute for money. Now, we do know that, in some sense, the substitution exists, but you cannot put a number on it and therefore, to say you have to allow for it just means you have to use your discretion or all the information you have, in deciding how to respond to variations in these other assets.

Also, I think if you look at the list of Mr. Reuss' exceptions, you cannot fail to be impressed by the fact that some of his exceptions were colored by very recent experience. I think, for instance, that in formulating his qualification 3, he clearly had in mind the specific situation that developed early in 1967. It is clear, however, that the exceptions that he has listed are not all, that there are many other circumstances which have not occurred in the past which might occur in the future, which would also require exceptions.

In other words, I think it is impossible at any point in time to list all of the exceptions, and if you list them all, then I think you are really back to favoring a great deal of discretion and room for the central bank to maneuver.

It is, of course, true that if we allow the use of discretion, discretion may be misused; that is, trying to do the best we may not do very well. I think Professor Friedman is prepared to agree that, on the whole, a world in which the money supply rose at 3 percent per year would by no means be an ideal world. It would be a world in which there would be significant fluctuations in employment, fluctuations in prices. But he would argue that these fluctuations, as bad as they might be, are not as bad as those that might be generated by an attempt to respond to circumstances by an appropriate money supply policy. In principle this is a possibility, and I think Professor Friedman is correct in pointing to some past experiences in which the Federal Reserve has made very large errors. However, I think it is also true that we learn from past errors, and I believe the Federal Reserve has learned and is continuing to learn a great deal.

The question, therefore, of whether in fact it is preferable to use discretion at some risk versus tying your hands by a mechanical rule is an empirical one which has to be looked at against the record.

Let me put it this way: It is true that if one takes aspirin to cure headaches, one does not really know everything about the right dose, and when it should be taken. Sometimes we wait and take aspirin after the headache has come, and sometimes we take aspirin and the headache really was not developing and we have some stomach acidity. But I would still be against replacing rule discretion in using aspirin with a saying, every day take half an aspirin. That would be analogous to the kind of rule it is proposed to prescribe for the money supply. I think this rule would be most of the time too much and sometimes too little.

I have attempted a study of the record, trying to compare discretionary policies with certain rules in a recent paper, "Some Empirical Tests of Monetary Management and of Rules versus Discretion," in the *Journal of Political Economy*, University of Chicago, June 1964. Although such an attempt is fraught with difficulties, and my attempt can be probably improved, my own conclusion was that on the whole, the Federal Reserve is able to pursue very effectively the goals which it wants to pursue.

That leads directly to the question of the choice of goals, the distinction Professor Chandler has made between discretion about goals and discretion about tools for achieving those goals. I find that on the whole, in most of the cases in which the policy the Federal Reserve pursued did not agree with the one I would have liked to see them pursue, it was mostly because of differences in goals that were pursued,

not because of disagreement as to the best means of achieving those goals. I think a good illustration of this has been our record during the early 1960's, when I think the economy was kept in a state of relatively low employment and output, essentially because the central bank was concerned with the balance-of-payments problem which it rated as the highest priority and was willing to sacrifice the domestic goals to that particular goal. Thus, what I got out of the study of the record is the conclusion that it is all right to give to the Federal Reserve ample discretion in the pursuit of goals, but that much could be done in specifying these goals more explicitly.

One of the dangers of not having these goals explicitly specified, I think, is that it is hard to tell in the action of the Federal Reserve to what extent they are due to discrepancy of goals with those of other people and to what extent to a difference of views as to what are the means for achieving those goals. By essentially deciding simultaneously on goals and on the means of pursuing those goals, there is also a danger that the conflict between goals is not brought out into the open. I think if the Federal Reserve in the early sixties had pursued a goal of high employment instead of the balance-of-payments goals, it would have brought out into the open the conflict which existed then perhaps between maintaining a high level of employment and controlling our balance-of-payments problem, and bringing this into the open would have facilitated a discussion of a ranking of these goals and the establishment of trade-offs between them.

Just how these goals can best be set is a question which we cannot handle here in these few minutes, nor is it clear whether the goals should be set by the administration or they should be set by Congress, or perhaps by both. I have at some point suggested that a sensible way of stating goals might be to state some target in terms of aggregate demand, a target that would essentially be binding on the administration and on the Federal Reserve. Perhaps associated with this aggregate demand goal there should be some provision that if pursuing this aggregate demand target should lead to an excessive rate of increase of prices, then some trade-offs should be established in order to let go of one goal or reduce our aims in one direction and increase them in some other direction.

Now, we might ask: If we agree that the Federal Reserve should be given ample discretion, should anything be done in terms of limiting this discretion about tools in any way? I doubt there is anything that can be done by way of legislation to put any limits on this discretion.

Perhaps the only point on which there might be a wide agreement among experts in this area is that in a period in which economic activity is declining, money supply should not be allowed to decline. I think most people would agree with that.

One can point in the past record several occasions in which this has not happened, in which we have had at least for a while decreasing economic activity and decreasing money supply. I believe this was due frequently to errors of the Federal Reserve—sometimes to a delay in recognizing the onset of a recession, sometimes, perhaps, to the Federal Reserve looking at the wrong target—for instance, at interest rate targets—and being satisfied with the interest rate level and permitting the money supply to shrink.

So I think there might be a case for saying such a situation should not be allowed to develop. But even here, I favor a general recommendation that this should not be allowed to happen, accompanied by an obligation for the Federal Reserve to provide an explicit explanation of why it happened, should it happen.

In other words, we might simply say there is a *prima facie* case that this should not happen but allow for the possibility that this might be desirable, except that an explanation should be provided.

Of course, there is much to be said for an economic environment in which it would be proper for the money supply to change at a constant rate, possibly a very stable rate. But, as Professor Chandler has pointed out, this is a matter of the economic environment in which we live. In particular, much could be done to bring about such a world by a more rational fiscal policy, by a fiscal policy in which expenditures and revenues are tied together in the appropriate way, with a view about their effect on aggregate demand.

Let me finally say that when I suggest that we should therefore allow ample freedom to the Federal Reserve in choosing its policy, I am certainly not asserting that the Central Bank will be able, continuously, to choose the optimal policy, the optimal money supply, or the optimal interest rates. Mistakes have been made, and mistakes will continue to be made. All I am saying is that the mistakes which are being made, particularly in the recent experience, are smaller than those that would result from any other mechanical rule.

I also believe that we should stop taking refuge in the propositions which Professor Friedman and others frequently make, that we cannot use monetary discretionary policy because the problem of using it is too hard, because there are lags and variable lags. I think we must try to understand the nature of these lags. We should devote our effort to improving our understanding of how the monetary and fiscal policy works, what are the lags involved, and if they are variable, why they are variable. The fact that lags are different at different times does not mean they are unpredictable.

For example, the lags between change in monetary conditions and expenditure for equipment tends to vary with rate of utilization of capacity in the equipment industry. If it is heavily utilized, there may be a longer lag. If the capacity is not utilized, the lags will be shorter. But this is within the realm of the things we can study, analyze, and predict.

Now, I would like to stress the fact that the central bank is very much aware of the necessity of this study. I think anybody who has followed the kind of research that is being done at the Federal Reserve cannot fail to be impressed with the tremendous improvement we have had in recent years in the quality of the research and the way this research is being applied to decisions. As a matter of fact, I feel that the very recent record of the Federal Reserve is, on the whole, a very creditable one. I believe that the way in which the Federal Reserve handled the situation in 1966 and 1967 has been quite good. One might feel that through a part of 1967, the money supply was rising too fast, that perhaps conditions were too loose. But I think one has to take into account the fact that the central bank was entitled to suppose that the Congress would pass legislation to increase taxes and, given the long lags there are in monetary policy, it was appropriate under those conditions to see to it that

interest rates should not rise any further if, in fact, the current pressure of demand would be relieved by an appropriate increase in taxes.

I should finally like to stress that the Federal Reserve is deeply concerned with continuously improving understanding of the connections and lags between the tools at its command and economic activity. As evidence of this concern I should like to mention that the Federal Reserve is currently participating in a sizable research focusing on these issues and which involves jointly its research department and a group of universities including MIT, the Wharton School of the University of Pennsylvania and the University of Chicago, and with some cooperation of Harvard, Princeton, and Yale. We are trying to work to the best of our ability to try to put numbers into this process.

I feel that the Congress should encourage the Federal Reserve in pursuing this line. The payoffs may not be immediate, but I think we are gradually learning. We are at least learning to ask the right questions. And I believe that the process can also be helped by the production of better data which, in some cases, are very much needed.

Thank you.

Chairman PROXMIRE. Thank you, Professor Modigliani.

Professor WALLICH, you are next. You have a detailed statement, which is a fine statement. If you could abbreviate it, it would be appreciated. But go right ahead.

STATEMENT OF HENRY C. WALLICH, PROFESSOR OF ECONOMICS, YALE UNIVERSITY

MR. WALLICH. Thank you, Mr. Chairman. Let me first express my gratitude for the opportunity to appear here today.

I have a very long paper, which enables me to be brief.

I agree very largely with what the two previous speakers have said. That really implies that Professor Friedman, whose rule has been referred to here repeatedly, is under-represented today. I think that will be remedied tomorrow, but perhaps it would be only fair to say at the outset that there are some things that I think would be worse than the rule that he proposes. The rule that he proposes I have great doubts about. But if some other rule were proposed, such as to peg the interest rate at a fixed level or to peg the rate of unemployment at a fixed level, and if these levels to which we tie the rate of money creation should not be levels that permit the economy to remain in equilibrium, we would have progressively accelerating imbalance. The economy would go up in rapidly advancing inflation or, less likely, sink into rapidly rising deflation.

What would happen under Professor Friedman's rule and, to some extent—a lesser extent—under Representative Reuss' rule, is that we might go off the rail of stability to a certain extent. But we would not land very far from stability. We might have a moderate rate of inflation. We might have wider cyclical fluctuations. But worse things could happen to the economy than what would happen under the application of those rules.

I would like to simply go down the list that I have in my paper of problems raised by a fixed money supply rule. I realize this neglects

all the other guides of monetary policies such as interest rates or free reserves or the rate of credit creation, all of which the Federal Reserve says they look at.

The multiplicity of objectives is suspicious, and I shall focus on the one objective that I believe is of interest to the committee, namely, a fixed money growth rule.

First, I am sorry to have to differ with some of the witnesses. I am not at all convinced that the Federal Reserve can make the money supply anything it pleases. There are a number of slips between cup and lip. A small one occurs at the level of the banks which can accumulate excess reserves. When the Federal Reserve pumps reserves in, they may not use them to expand.

The second occurs because the banks can borrow from the Fed when the Federal Reserve tries to tighten. This is a minor thing and will be overcome within a month.

Second, there is a flow into time deposits; when the Federal Reserve wants to increase demand deposits, it may turn out that the public converts these demand deposits into time deposits. We had an experience of that sort early in 1960.

But the most important leakage is the international one. We increase the money supply, thereby driving down interest rates. Money will flow abroad and that will counteract the rise in the money supply. In a large country like ours, the Federal Reserve probably can overcome this, but at great sacrifice in reserves. In a small country, if that is relevant here, it is quite impossible for the central bank to determine the money supply, and few central banks around the world in convertible countries would think of trying to set the money supply, because any excess money they create will simply flow abroad. It is a matter of pouring water into a glass that is already full. No more than a single Federal Reserve district in this country can fix the money supply in that district than can a central bank in a small county control its money supply.

There is a remedy to this, and Professor Friedman has always recognized it. We could go on a floating exchange rate. If then, excessive money supplies are generated, changing the relation of interest rates in this country to interest rates abroad, that differential would draw money out of the country. All that would happen, however, is that the dollar depreciates. That removes the need to pay out gold. Professor Friedman has always recognized that in strict thought, a flexible exchange rate is the necessary concomitant of a fixed rule. But that has not been, I think, what has been said to the committee, and I think we ought to be clear about it. If we want to go with a fixed money growth rate through thick and thin, we do need flexible exchange rates. Our gold supply will be exhausted if we set a high money growth rate that drives down the interest rate and money flows abroad.

Alternatively, if we set a low money growth rate that causes interest rates to rise in this country relative to rates abroad, we will be sucking in gold from the rest of the world, denuding them of reserves, and creating trouble internationally.

Third, if we take into account balance-of-payment objectives, assuming the balance of payments is a legitimate objective of policy, as I think, then it is not the money supply that ought to be our target, but interest rates. We ought to look at interest rates abroad and so conduct

our monetary policy that rates here will not give rise to the wrong kinds of flows out of or into the country. A money supply target in that case is inferior to interest rate target.

Fourth, the consequence of a stable money growth rate will be highly unstable interest rates. The need for money in the economy varies from day to day. There are payment dates, dividend payments, tax payments, and wage payments. On those days, a larger amount of money is needed than on others. This is automatically accommodated by the Federal Reserve with its existing procedures. By maintaining a reasonably stable interest rate, by maintaining stable-free reserves, they, in effect, vary the money supply to accommodate daily, weekly, monthly, quarterly, varying demands.

If we go on a strict money supply rule from week to week, month to month, we will certainly have great instability of interest rates. If we go on a quarterly rule as Representative Ruess suggests, instability will be less, but not much. If the Federal Reserve, for instance, were to accommodate the Treasury for 2 months, and thereby greatly to increase the money supply during the 2 months, and then were compelled in the third month to get the money supply down on target, it might create a serious squeeze.

Instability of interest rates is not a great tragedy. It is bad for the central bank, it is bad for participants of the money market. It hurts the real economy only to the extent that this instability is transmitted to it. It will be transmitted in some small degree. The main effect, I think, would be that interest rates on the average would be a little higher than they are.

If rates fluctuated widely, everybody who deals in money will have to charge a risk premium to protect himself against these fluctuations. He will charge that into the interest rate. The average interest rate will be a little higher thanks to the money target and its interest rate insability.

Fifth, the rule requires some definition of money. It makes a difference whether we use time deposits or whether we do not. We know that time deposits have gyrated widely in recent years. If the theory says that that makes no difference, then all one can say is that it is a pretty rough and ready theory.

Next, the relationship of money and income which is postulated by the growth rule is not very clearly spelled out. The theory says that the rate of growth in money is related to the level of activity. It is not obvious why something that slows the rate of growth, but leaving that rate of growth positive, should lead to a positive down turn in economic activity. You would expect a relationship that relates either levels of money with levels of income, or rates of growth of money with rates of growth of income. The reason why this peculiar relationship was chosen is mostly a statistical one; one would not get the lead-lag relationship that has been discovered unless one made that assumption.

Likewise, the mechanics by which changes and money affect changes in income are not very clearly known. I defer here to Professor Modigliani. Maybe he knows, but I do not. We know some parts of the mechanism, but we know that this mechanism works unstably. It is a mild effect, that money exerts on economic activity; it is by no means true that money has economic activity on a tight string and can pull it this

way or that. To say that by changing money we can really control the economy is a vast exaggeration.

We are also uncertain about what is the proper rate of growth in money. Is it the rate of growth of the economy? There are findings that money, including time deposits, needs to rise almost twice as fast as economic activity. That is Professor Friedman's finding. Other findings say that, as transactions get larger, there are economies of scale in the use of cash balances. Bigger transactors can get by with a proportionately smaller cash balance. If that were true, money should grow less rapidly than income. It makes a great deal of difference which theory is right.

One piece of evidence that also makes a great deal of difference is the postwar period. Had we raised the money supply since 1946 at the rate of growth of the economy, we would have had a much bigger inflation than we have had. We had inflation even though money grew less rapidly than income. I will grant that this example is mildly biased, because we entered into the postwar period with an excessive money supply and had to grow into it. Still, that money supply was needed to have the low interest rates of that time. Had we tried to maintain those low interest rates by generating more and more money, we would indeed, I think, have had a horrible inflation.

Next, there is the lag question. It is argued that we need a fixed rule because the lags with which monetary policy affects income are so long and so unstable that it is better not to work on a discretionary basis. We might just get the full effects of a policy at a time when it was no longer appropriate. That experience is derived largely from small changes which, indeed, operate probably with a substantial lag. If you look at times when the Federal Reserve really tried to exert a drastic influence, such as in 1967, you will see that they can turn the economy around within a matter of 6 months or so. I would not recommend that as a steady diet, but the lag, in case of drastic action, is relatively short, subject to the qualifications Professor Modigliani introduced about high backlogs of orders.

Now, to wind up, let us suppose we did go on a fixed money growth rule. I would deplore this. I think the rule would get us into unexpected situations from which not the rule, but only skillful discretionary action could extricate us. For instance, if we do not accept a flexible exchange rate but continue with a stable dollar, paying out gold when we have a deficit, the rule might very well produce low interest rates at a time of economic slack. Money then flows out of the country, gold follows. And we find ourselves confronted with an exchange crisis. Now, we are asked to believe that in that crisis, the Federal Reserve will happily go on grinding out money at 4 percent or 6 percent per year.

We know that that would not stop the crisis. What they will have to do is to put up the discount rate and cut the rate of growth of the money supply. It is like saying that driving along the middle of the road we shall be safest. Well, that is true so long as all goes well. Suppose for some reason, nevertheless, the car veers off and one wheel goes over the ditch. We have made a rule never to jerk the wheel. We turn if only very slowly. Are we going to abide by that rule in that situation?

I suspect as a matter of realism, if we introduced this rule, it would last just as long as the next crisis. Suppose that crisis were one of heavy unemployment; then the Fed should be grinding out money rapidly—instead, it grinds out money peacefully at 4 percent a year. I think the Congress would not stand for it, economists would not stand for it, the Federal Reserve itself would not stand for it. As soon as the rule produces a crisis, the rule almost inevitably is going to be abandoned in order to get out of the crisis. I would regard that as a fortunate development.

Thank you.

(The prepared statement of Professor Wallich follows)

PREPARED STATEMENT OF HENRY C. WALLICH

STANDARDS FOR GUIDING MONETARY ACTION

Among the numerous standards of monetary policy that have been suggested, such as money supply, credit, interest rates, and bank reserves, one has attracted particular attention: a rule for a stable increase in the money supply. This proposal, associated principally with the name of Professor Milton Friedman of the University of Chicago, is embodied in recommendations made by this Committee. It was supported, as early as 1930, by Carl Snyder of the Federal Reserve Bank of New York. A detailed specification has been offered by Representative Henry Reuss, in this Committee's Report on the February 1968 Economic Report. My comments will be principally concerned with the fixed money growth rule.

RATIONALE OF THE RULE

The rule rests upon the theoretical and statistical finding, not universally accepted, that the *rate of growth* of money supply and the *level* of economic activity are closely related. A downturn in the rate of money growth, even when it does not lead to a positive shrinkage of the money supply, tends to be followed by a decline in the level, rather than the rate of growth, of economic activity. The same applies to troughs in the two series. It is argued that the behavior of money, because it precedes movements in the economy, causes the latter. The effect takes place with a long and variable lag, however. Hence, while those controlling the money supply have great power over the economy, the long and unstable lag makes it difficult to apply monetary policy on a discretionary basis for stabilization purposes. Monetary policy has so often been wrong that it seems preferable to deprive it of discretion and subject it to a fixed rule. It is not claimed that the fixed rule will produce perfect policy. But it will produce better policy than discretion is likely to do.

The main burden of my argument will be that this reasoning is fallacious. Before proceeding with the argument, I would like to point out however, that while the rule at times is likely to have very bad results, it will probably have better results than alternative fixed rules that have sometimes been proposed. For instance, a rule that fixes the rate of growth of money supply is vastly superior to a rule fixing the interest rate. The fixed money growth rule may at times lead to wrong action. It may also have bad side effects through instability in the capital markets and in the balance of payments. But, so long as the money supply is kept growing at a stable rate, roughly commensurate with the growth rate of the economy, cumulative instability is unlikely to develop. Short run fluctuations may be wider than under a competent discretionary policy. But in the long run money and income will move broadly hand in hand, with at most a moderate rate of inflation or deflation, and moderate changes in the foreign exchange value of the dollar.

A rule pegging the interest rate, on the other hand, for which some time ago there was widespread support, would be cumulatively destabilizing. If, for instance, interest rates were pegged below their equilibrium values, i.e. below the level consistent with stable prices or a stable rate of inflation, the open market purchases required to keep rates at the pegged level will sharply increase the money supply. Inflation would start or accelerate. This would raise the equilibrium rate of interest, which must be higher, in nominal terms, the faster the rate of inflation. This in turn would widen the gap between the equilibrium rate and

pegged rates. The scale of open market operations, and the growth in the money supply, would then have to be stepped up. The process would lead to accelerating inflation. In the unlikely case that the pegged rates should be above equilibrium rates, an accelerating deflation would follow.

The same is true with respect to a rule that would try to peg the level of unemployment. In the long run, there is only one level of unemployment consistent with stable prices: the unemployment at which real wage increases are equal to nationwide productivity gains. At a lower level of unemployment, labor demands, and business is willing to grant, higher money wage increases than are consistent with productivity gains. This leads to price increases. These reduce nominal wage increases to less than what labor and business had anticipated. In the following bargaining round, therefore, the existing rate of inflation will be taken into account; nominal wage increases will be higher. Then the process repeats itself, the bargaining parties always vainly trying, by higher nominal settlements, to achieve a rate of real wage increase that, because it is in excess of productivity gains, the economy cannot provide. A policy rule seeking to peg the level of unemployment above or, more likely, below its equilibrium value will lead to increasing deflation or inflation. In this it resembles a fixed interest rate policy, both contrasting with a fixed money growth rule. This, however, does not show that a fixed money growth rule is superior to discretionary monetary policy. I shall argue the case by pointing to the difficulties that a fixed money growth rule is likely to encounter. Obviously this does not prove that discretionary policy is bound to be better. Discretionary policy *can* be worse. All that can be done is to compare the probable defects of the two systems. In doing so, I shall draw on some findings in a study I recently completed, the text of which is appended to this paper. ("Quantity Theory and Quantity Policy", in *Ten Economic Studies in the Tradition of Irving Fisher*, John Wiley & Sons, Inc., 1967). (Page 25.)

1. *Can the Money Supply be Controlled?*

The fixed money growth rule takes for granted that the central bank can make the money supply anything it pleases. That assumption is made also, of course, by all those who argue for a discretionary money supply target. The process of money creation encounters leakages, however. These may slow down attainment of the desired money volume. In the extreme case, they may prevent it altogether. At the level of the banking system, changes in excess reserves and in rediscounts can temporarily prevent the central bank from achieving its objective. The tendency of banks, after a period of great stringency, to rebuild liquidity by paying off rediscounts rather than purchasing assets is familiar. The central bank can overcome these obstacles, by operating on a scale sufficiently large to make its objective prevail. This involves some danger, of course, of overshooting if the banking system later makes fuller use of the reserves supplied.

At the level of the money holding public, shifts from demand deposits into time deposits may frustrate the central bank's effort to increase the money supply. Again, operations on a sufficiently large scale will overcome the resistance of the public, again with some danger of overshooting later. Because the relative expansiveness of an added dollar of demand deposits and of time deposits, respectively, is not known, the ultimate effects of a monetary expansion that increases time deposits along with demand deposits are difficult to estimate. The same applies in the case of relative or absolute contraction.

In the longer run, however, the most serious leakage is that via the balance of payments. A monetary policy that generates either interest rates much below foreign rates, or prices much above foreign prices, will produce a deficit on capital or current account, or both. This deficit reduces the money supply. If the central bank increases the scales of its expansive operations to compensate, it will increase the leakage. In the United States, the desired money supply may prove attainable most of the time despite this leakage. In a smaller economy, where the balance of payments leakage is proportionately larger, it is quite obvious that the central bank cannot put the money supply at any level it pleases so long as the currency is to be kept stable and convertible.

For all these reasons, control over the money supply on the part of the central bank is less than complete.

2. *A Fixed Rule Requires Flexible Exchange Rates*

Let us assume that the Federal Reserve achieves its money supply objective. This may, however, lead to large international reserve losses if the money supply

objective leads to outflows on current or capital account. In time the outflows will exhaust exchange reserves. Thereafter, unless payments controls are introduced, the dollar would be on a floating exchange rate. If the money growth rule continues to be overly expansive, this would result, not in a deficit, but in a continuously declining exchange rate for the dollar. Academic discussions of a money growth rule generally recognize that floating exchange rates are its logical and necessary counterpart. This has not been the case, so far as I know, in congressional discussions. If a flexible exchange rate is not acceptable, then the money growth rule will have to be modified from time to time to prevent reserves from being exhausted. Related considerations apply to the case where a fixed money growth rule would produce a continuing balance of payments surplus. To avoid draining the world of its reserves, the dollar would have to be allowed to appreciate, or the fixed rule would have to be abandoned.

3. *Balance-of-Payments Objectives*

If an internationally stable dollar and an equilibrated balance of payments are desired, any money supply target, whether based on a rule or on discretion, is inferior to a monetary policy using interest rates as a target. An important part of the balance of payments is determined by flows of short and long term capital, so long as these are not subject to controls. These flows reflect interest rate differentials between the United States and abroad. They can best be controlled, therefore, by a monetary policy using an interest rate target.

That an interest rate target, pursued without regard to domestic equilibrium, can be much more disruptive than a money supply target, whether based on rule or discretion, has already been pointed out. Nevertheless, monetary policy, in one form or another, is the appropriate weapon for balance of payments management. It is superior, in this regard, to fiscal policy. If the objectives of domestic and external stability should conflict, as they sometimes do, it is best to pursue domestic stability by means of fiscal policy, balance of payments equilibrium by means of monetary policy. The reason for this is that while both fiscal and monetary policy affect domestic activity and thereby also the level of imports, monetary policy additionally affects the balance of payments via capital movements. Thus, monetary policy has a "comparative advantage" in dealing with the balance of payments. To implement this advantage, an interest rate target is superior to a money supply target or rule.

4. *Stable Money Growth—Unstable Interest Rates*

If the volume of money were rigidly fixed from day to day, interest rates probably would jump about within a wide range. The exact amount of money demanded by the economy varies from day to day. It depends on the payments that firms and households have to make, subject to weekly, monthly, quarterly and annual "seasonals", and also to purely random fluctuations. The normal policy of central banks is to stabilize interest rates in the short run by allowing bank reserves and the money supply to vary. The Federal Reserve's policy of maintaining "net free reserves" roughly constant over short periods has the same effect. Any change in the economy's demand for money is thus validated by a change in the supply of reserves and of money. Without this flexibility in the money supply, those in need of money would have to sell short term securities, thereby unsettling interest rates.

A fixed money growth rule would put an end to this accommodating central bank behavior. The ensuing instability of interest rates would probably be moderated, in the course of time, by the market itself. Speculators and arbitrageurs would buy short term securities when they seemed depressed by transitory factors and sell them when they have risen because of temporary excess liquidity. This smoothing activity of the market would not be perfect, however, nor costless.

Unstable interest rates are not an intolerable calamity. They are painful mainly to participants in the financial markets. They would damage the real sector of the economy only if instability was transmitted to it, or if uncertainty in financial markets leads to a reduction in the flow and an increase in the cost of capital for investment. Some cost increase probably would result, since market participants would have to protect themselves against interest instability by charging higher risk premia.

Unstable interest rates might destabilize international capital flows. It is true that these international flows would help to limit the amplitude of domestic interest rate fluctuations. They would also, however, destabilize foreign capital and exchange markets. Foreign countries might reasonably complain about an American monetary policy that interfered with their own stability.

5. *What Definition of Money?*

Reference was made above to the leakage from the money supply through the creation of time deposits. The problem goes deeper, however. All near-monies are substitutes for money in some degree. The exact equivalents are unknown. No doubt they vary from time to time and from holder to holder. The historical evidence seems to say that it does not matter greatly whether a fixed money growth rule is based upon money supply narrowly or broadly defined, i.e. including or excluding time deposits. For the broad definition, a higher rate of growth would be needed than for the narrower, since time deposits have grown more rapidly. But recent gyrations of time deposits and other near-monies make clear this much: either the conditions that in the past made the two types of rules equivalent have changed, or else that equivalence and hence the precision of the monetary growth rule itself was of a very rough sort. The rules specified by Representative Reuss have tried to take unstable behavior of near-monies into account. But they do not provide for quantitatively precise adjustment. In the present state of knowledge, not even a discretionary policy can take erratic behavior of near-monies adequately into account. To allow for it accurately in a fixed money growth rule would be even more difficult.

6. *The Relation of Money to Income*

Less than twenty years ago, it was fashionable to argue that money had no influence on income. Monetary policy was considered powerless by a great majority of economists in and out of government. Today we are in danger of overshooting in the opposite direction. The existence of an effect running from money to economic activity seems well documented. Its mechanics and its timing are only imperfectly understood.

That the relationship should be between the rate of money *growth* and the *level* of economic activity, for one thing, is not intuitively obvious. One would expect more likely a relationship between the *level* of money supply and the *level* of economic activity, or else between their respective rates of growth. The principal reason why some investigators have chosen the rate of growth rather than the level of money supply seems to be that historically the money supply has declined much less frequently than the level of economic activity. Thus, the level of money and the level of activity have at times moved in opposite directions, casting doubt on the relationship. On the other hand, a relationship between a rate of growth and a level may well be meaningless. It is true of any time series moving in a cyclical, i.e. wave-like pattern, that its rate of growth must decline before the absolute value of the series can decline. Thus, to the extent that money and economic activity are in fact correlated, the rate of money growth is bound to decline before the level of activity, without this implying any causal relationship.

Furthermore, while there is good reason to think that money influences activity, it is obvious also that activity can influence money. It does so by stimulating the demand for bank credit. The banks can meet this demand by using their excess reserves and by borrowing from the central bank. Moreover if the central bank is interested in maintaining reasonably stable interest rates, it will supply the banks with reserves needed to meet a strong loan demand. Alternatively, if the central bank is determined to curb an expansion, the appearance of incremental loan demand may cause it to tighten the financial markets even more than the incremental demand itself would. Thus, an incipient change in the level of economic activity may very well cast its shadow ahead, in the form of a prior change in the demand for credit and in the rate of growth of money.

To the extent that money does determine income, the mechanics of this influence remain only partly resolved. There is wide agreement that interest rates play a key role. But if interest rates are the mechanism that transmits impulses from money to the real economy, why look at money instead of at interest rates?

One possible answer to this question is that there is a "direct effect", running from money to income and bypassing interest rates. An increase in money may raise aggregate demand, not because money holders buy securities and drive down interest rates, but because they use their excess money holdings to buy goods directly. This is the manner in which the "quantity theory" often is explained: "when people have more money than they want, they spend it and drive up prices."

But the "direct effect" is less plausible than appears. Households presumably make a decision how much to consume and how much to save. If they accumulate

cash, it is by virtue of a prior saving decision. It seems unlikely that, having just decided to save this money, they should then turn around and spend it on consumer goods. The most likely use of excess money saved would seem to be for financial assets, for residential housing, and conceivably for durable consumer goods, if these are regarded as assets. In the case of households, therefore, a "direct effect" seems to be precluded except in the narrow areas of housing and durables.

For firms, saving means to retain profits. The resulting cash balances can be spent on any of the assets that firms acquire—receivables, inventories, fixed assets—or for debt repayment. Here the range for a "direct effect" is wider.

Any demand for physical assets—plant and equipment, inventories, homes—will stimulate economic activity. This demand may be influenced by the liquidity of households and firms. Very importantly, this demand will depend, however, on the rate of return that the assets yield, and on the rate of return that potential asset holders want to obtain. Anything that raises the return on assets, e.g. technological improvements, or reduces the return that asset holders expect, e.g., a fall in rates of return on financial assets—will increase the demand for physical assets and stimulate economic activity. The rate of money growth will affect economic activity insofar, directly or indirectly, it affects these key elements. This is considerably more complex a process than one described by the statement "more money means more demand."

For the setting of a precise rule it is important to know whether money tends to grow faster, as fast, or more slowly than real income. This decisive question unfortunately remains unsolved. According to one theory, money is a luxury good. It follows that the demand for it should expand more rapidly than per capita income, i.e. the velocity of circulation tends to fall. According to a second theory, there are economies of scale in the use of money that allow larger transactors to operate with relatively smaller balances, i.e. velocity tends to rise. The historical evidence shows that there have been long periods of declining velocity of money, which would seem to confirm the "luxury good" theory. Since World War II, however, velocity of money has greatly increased. This change has been accompanied by a rise in interest rates, by a growing expectation that inflation will be a permanent condition, and by various technological improvements that permit economies in the holding of balances.

Another factor that may possibly influence the velocity of money is the proportion of the money supply based upon government debt and international assets ("outside money"). According to the findings of the attached paper, which must be considered highly tentative, a decline in this proportion tends to increase velocity. In the United States, this proportion has in fact declined substantially in the post-war period.

Some progress has been made in estimating the quantitative impact upon velocity of these various determinants. But even if we were prepared to rely on such calculations in setting a money growth rule, which is premature, it would remain necessary to estimate future levels of the determinants. It would be necessary, that is to say, to forecast such factors as interest rates and inflationary expectation as would prevail given any proposed rate of money growth. Only then would we know what the appropriate rate of money growth should be. To set a fixed rate of money growth without knowing these determinants is hazardous in the extreme. In the post-war period, for instance, a rule based on money growth during the interwar period would have been highly inflationary.

The manner in which money is created may also count, especially in the short run. Money created through bank loans and therefore spent immediately may have a more stimulating effect than money created through banks' purchase from investors of highly liquid short-term assets.

Likewise, the phase of the business cycle may affect the appropriate rate of money growth. Historically, velocity has increased during periods of cyclical expansion, even during epochs when the long run trend of velocity was downwards. The same money growth rule may not, therefore, be equally appropriate for all cyclical phases, assuming that even under a fixed money growth rule some cyclical fluctuations will remain.

Finally, it is necessary to point out that all these relationships are highly aggregative. Households with different income levels and firms with different kinds of cash flows have different individual velocities. National velocity is an average. Changes in the mix of households and firms almost certainly would alter average velocity and hence the appropriate growth rate of money.

7. Lags

Research performed by Professor Milton Friedman and Mrs. Anna Schwartz has shown that the lag between peaks in money growth and in economic activity has ranged from 6 to 29 months. The lag from the trough in money growth to the trough in economic activity has ranged from 3 to 22 months. This great variability has been interpreted as demonstrating the uncertainty of monetary policy. It is argued that an action taken, say, to curb an expansion may achieve its main effects only in the succeeding recession.

This reasoning seems unconvincing. The peak rates of monetary growth rarely can be interpreted as indicating a deliberate stance of monetary policy. Monetary policy has not been guided by money growth. Certainly one cannot assume that the start of a decline in money growth marks the moment when the monetary authority decided to put on the brakes. Accordingly, the lag from the peak in money growth to the peak in economic activity is not indicative of the lag of monetary policy. The same applies to the troughs of money growth and economic activity.

A better test of the lag in monetary policy can be derived from observing its effect on the occasion of drastic shifts in policy. Such a shift occurred in 1966. It took only four months to move from reasonable liquidity in the financial markets in April to a serious crunch in August. It took little time to convert a crunch into expectations of recession, and only another four months to move from the crunch to a positive halt in the growth of industrial production in November. Mild monetary measures are another thing—their effect may well be long delayed, since they are not intended to produce abrupt changes in economic activity.

At a more theoretical level, the lead-lag relationships exhibited by money growth and the level of income, respectively, have been examined, as well as some properties of models embodying a fixed money rule. (James Tobin and William C. Brainard, "Pitfalls in Financial Model-Building," paper presented at the December 1967 meeting of the American Economic Association; Richard Marcotulli, "Lags Under a Fixed Rule and Under Discretionary Monetary Policy," unpublished manuscript). These analyses show that the nature of the leads and lags depends heavily on what factor is assumed to be "driving" a cyclical fluctuation, and what causal relationships are assumed to exist among the various factors. It is even possible to show that money growth may lead income in a model where, by assumption, money has no influence on income at all. Under different assumptions, the rate of money growth, or the level of money supply, may lag changes in income, yet by assumption have a causal effect upon income. The length of time over which a system, once thrown out of balance, returns to equilibrium tends to be, in general, longer under a fixed rule than under a reasonable discretionary policy. While these models cannot form a basis for policy, they serve to show that observed relationships, such as the lead of money growth over income levels, do not unambiguously point to any particular causal mechanism. They also show that a fixed rule may be a costly substitute for sensible discretionary policy. To use a simply analogy, a fall in the barometer usually—*not* always—precedes rain. No conclusions as to causality can be drawn.

8. Comparison of Results of a Fixed Rule and of Actual Policy Measures

Studies have been made seeking to compare the performance of variously specified money growth rules with actual performance. Usually this involves specifying what policy would have been optimal at any given time, and examining the degree to which the rule and actual policy, respectively, have conformed to this optimum. The cyclical behavior of the economy makes specification of optimum policy rather uncertain. For instance, it depends entirely on the lags with which monetary policy is assumed to work, how soon during a cyclical expansion monetary policy should shift from stimulation to restraint, and whether it should shift back again from restraint to stimulation ahead of the upper turning point. Analogous problems arise on the downside. Again, the relative weight given to full employment, price stability and the balance of payments, respectively, will influence what is considered optimal policy. There is also the question of defining "policy". Policy may not look the same in terms of a money supply standard, a credit expansion standard, or an interest rate standard. Thus the attempt to compare policy by rule and by discretion against an optimal policy is in any event questionable.

The comparison becomes virtually invalid, however, when another circumstance is taken into account. The cyclical and other conditions of the economy, in terms of which optimal policy is defined, are those brought about, at least in

part, by the actual policies pursued. They are never the conditions that would have prevailed had policy been guided by a fixed money growth rule. But if the money growth rule, under certain circumstances, destabilizes the economy, then the proper test for it would be how it performs in correcting a disequilibrium of its own making. To such a disequilibrium, a discretionary policy could react flexibly. The fixed rule can respond only by doing more of the same. For a while, at least, that may increase the disequilibrium.

For example, if a fixed rule should lead to inadequate growth of the money supply, as it might have in 1967, and cause or contribute to a recession, nothing can be done under the rule to turn the economy around quickly. The same would be true in case of an inflation, or of a balance of payments deficit. Conceivably, very extreme conditions might develop before the economy returns to equilibrium. Discretionary policy, whatever its defects, usually has succeeded in preventing the occurrence of such extreme conditions, with a few lamentable exceptions. Thus a comparison of a rule and an actual policy, employing the actual historical record, gives the rule the wholly unjustified advantage of always starting from a situation that discretionary policy has kept from going to an extreme. Put in simplest terms, a rule could get us into a big mess, yet the tests rarely confront the rule with such a mess.

10. Will the Rule Be Sustained?

No Congress, no President can bind a successor. Short of being anchored in the Constitution, any money growth rule can be altered or dropped. What are the chances that a rule, whether simple or complex, whether enacted into law or adopted voluntarily by the Federal Reserve, will be broken?

I believe the chances are excellent the first time the rule deviates substantially from what discretionary policy would counsel. In a recession, when the Federal Reserve would be inclined to generate liquidity rapidly, would the Congress, the public, and the Federal Reserve itself be satisfied with money being pumped out slowly? In an inflation, when money growth should be slowed sharply, would we be satisfied to see the Federal Reserve continuing to feed the process? In a balance of payments crisis, would we sacrifice a large volume of reserves instead of adopting the monetary policy that would stop the drain? In simplest terms, if the car is going off the road and one wheel is over the ditch, will we keep turning slowly because we have made a rule never to jerk the wheel?

In addition to the prospect of major breaches, there is the probability that minor adjustments in the rule will be demanded from time to time, unless the rule is very broadly defined. Evolving circumstances will show that any single percentage growth rate, or narrow range, is not the right one. If the range is wide, and if full discretion is given to the Federal Reserve within that range, the policy will not differ greatly from a discretionary one. In the end therefore, even if a rule were adopted, discretion probably would be reestablished soon in one way or another. I would regard that outcome as fortunate.

(Additional material, submitted as part of Professor Wallich's prepared statement, follows:)

CHAPTER 10

Quantity Theory and Quantity Policy

HENRY C. WALLICH*

When Irving Fisher, in 1911, undertook what he called a “restatement and amplification of the old quantity theory,” he was moved to say, in his introduction, “it has seemed to me a scandal that academic economists have, through outside clamor, been led into disagreements over the fundamental propositions concerning money.” This condition, Fisher thought, was due to “the confusion in which the subject has been thrown by reason of the political controversies with which it has become entangled The attempts by promoters of unsound money to make an improper use of the quantity theory—as in the first Bryan campaign—led many sound money men to the utter repudiation of the quantity theory. The consequence has been that, especially in America, the quantity theory needs to be reintroduced into general knowledge.”

Since Fisher’s restatement, the quantity theory has experienced another repudiation, although with party lines somewhat redrawn, and another restatement. Today it is coming back strongly.

Monetary Policy Trends

The “rediscovery of money” that began in the United States around 1950 and in continental Europe a little earlier has been followed, on this side of the Atlantic, by an increasingly vigorous revival of quantity theory propositions. At a theoretical level, this re-statement of the quantity theory has been marked by a high degree of sophistication, supported by ingenious and imaginative empirical work. For much of this we are indebted to Professor Milton Friedman. At the policy level, a highly simplified version of

* I am greatly indebted to Duncan Foley and William Dodson for help with the econometric work, to my colleague Donald D. Hester for general advice in this area, and to my wife for programming. Errors are mine.

¹ Irving Fisher, *The Purchasing Power of Money*, New York, Macmillan, Second Edition, 1913, Preface to the First Edition, p. viii.

the theory is being pushed by its sponsors to its shortest-run consequences. The rate of growth of the money supply is being watched from month to month and even from week to week. The Federal Reserve is advised, by the monetary experts of the Congress no less than by some of its academic critics, to orient its policy toward a stable growth of money at prescribed rates. Failure of the money supply to rise for some months is regarded as a reliable harbinger of recession. The theorist's hypothesis that demand for money depends on a number of variables, among which income at best is only one of several, is permuted, at the policy level, to the assertion of a crude constancy of velocity.

Strong statements are made about how money behaves, although there is yet no agreement as to what money is. The broad definition (including time deposits in commercial banks) competes with the narrow (currency and demand deposits only). Recent sharp differences in the movement of the two series lend substance to an otherwise definitional issue. Government publications such as the President's Economic Report and the Federal Reserve Bulletin, though they have talked about money supply for many years, have had the courage to designate a particular series—the narrow one—by that title only since 1960, and they may live to rue the day. Meanwhile, mutual savings banks, savings and loan associations, and credit unions sit wondering when someone will propose to include their liabilities in a very broad definition of money.

The money supply, however defined, competes with a host of other instrument or target variables. Among these are interest rates, the volume of credit, money and credit market conditions, owned, borrowed, net borrowed and total reserves, reserves plus currency in circulation, and a variety of money market features. Most of them can be categorized according to their closeness to ultimate goals like employment, price stability, and balance of payments equilibrium, by the extent to which the central bank controls them, by their speed of reaction to central bank measures, or their measurability. The latter, however, seems to depend in good part on the willingness to develop data and indexes to replace "feel." For reasons which will become apparent presently, moreover, I have little faith in the central bank's ability to control any of these variables more than very partially. The most sensible grouping therefore seems to me one that distinguishes targets or indicators according to whether they

represent a quantity, a price, or a set of nonprice terms and conditions. The principal issue must lie, of course, between quantity and price indicators, although there is a subsidiary one between the quantities of money and of credit.

Quantity indicators have in their favor one simple circumstance: when the economy is growing at a steady rate (with no economies of scale), they must grow at the same rate as the GNP. This supplies a benchmark for sustainable rates of change that price indicators lack. It is the plausible assumption of a stable long-term growth rate of the economy that led Federal Reserve statistician Carl Snyder, in 1930, to propose increasing the money supply by 4% per year as a means of stabilizing the price level.² It would be difficult to match the intuitive appeal of this proposition with an analogous one concerning the interest rate, Keynes' apprehensions concerning the stickiness of the long-term rate at some conventional level notwithstanding.

Interest rates have in their favor a high degree of visibility. This primitive advantage must not be underrated in a world that everybody agrees is very complex and that almost everybody nevertheless seeks to explain in terms of one variable. Money supply data until recently were quite nebulous, being published late and containing a great deal of "noise" due to lack of weekly or monthly averaging and inadequate seasonal adjustment. Nevertheless, once good money supply data became available, this spurious advantage of the price indicator vanished. There are too many interest rates, and they do not always move harmoniously. The marginal efficiency of investment, moreover, as well as the cost of capital, the relation between which presumably determines the demand for investment, is in any event not observable. The expansiveness or restrictiveness of any visible interest rate therefore remains in doubt. The intuitive appeal of a quantity target gains under these circumstances.

The theoretical foundations of the relation between money and output are not agreed, however. Two related but separable aspects are at issue. How is the demand for money determined? And given a difference between the amount of money supplied and demanded, how is the effect transmitted to the real sector?

² Carl Snyder, "New Measures of the Relations of Credit and Trade," *Proceedings of the Academy of Political Science*, January 1930, particularly p. 29.

On the second issue, there is widespread agreement that interest rates play a key role. That being so, it is not clear why one should look at money as a policy target rather than at interest rates directly. A direct or real balance effect is sometimes postulated, going from the money market to the goods market and bypassing the bond market. That effect seems a priori implausible for households, however. It is hard to believe that households first allocate income to consumption and saving, respectively, and then, finding that their saving has increased their liquidity, revise the original saving decision. Only the allocation of saving to different forms of investment provides an opportunity for a real balance effect, but household investment has little direct impact on demand for goods and services except through housing. The a priori view that household liquidity does not greatly affect consumption is supported by empirical findings.³

A real balance effect is more plausible in the case of firms. A firm's decision to save requires subsequent allocation of savings to assets, most of which are real rather than financial. Empirical work has found what amounts to a real balance effect, running from business cash flows to business investment.⁴

An empirical finding whose theoretical bases remain to be specified is the tendency of changes in the rate of growth of money to lead changes in the level of economic activity. Should this phenomenon turn out to be not simply a consequence of the relation between the levels of money stock and economic activity, it would be a highly interesting and somewhat ominous affair. If the rate of money growth could never fall without danger of recession, a policy of constant or rising money growth would be required to assure full employment, and the outlook for price stability would be dim. The chances are that the phenomenon is simply a reflection of a close though not perfect correlation between levels of money and income. Declines in the rate of growth both of money and of income must then inevitably precede a downturn of income.

³ Daniel B. Suits, "The Determinants of Consumer Expenditures: A Review of Present Knowledge," in *Impacts of Monetary Policy*, Commission on Money and Credit, Prentice-Hall, Englewood Cliffs, N.J., 1963, p. 43.

⁴ Edwin Kuh and John R. Meyer, "Investment, Liquidity, and Monetary Policy," in *Impacts of Monetary Policy*, Commission on Money and Credit, Prentice-Hall, Englewood Cliffs, N.J., 1963, p. 381.

Money Demand Hypotheses

Even without full knowledge of the transmission mechanism, the usefulness of a money supply target could be established if income could be shown to be the principal independent variable in a reliable demand for money function. If other determinants enter importantly, such as interest rates, the problem of the transmission mechanism is reopened.

The range of money demand hypotheses is wide. Measured income, permanent income, wealth, short-term rates, long-term rates, have been among the principal explanatory variables. The introduction of what amounts to a general trend variable, in the form for instance of permanent income, and of the lagged value of the dependent variable, as in stock adjustment models, seems virtually to assure a good fit in some time series models. But knowledge of the relation of income to the rest of the independent variables, that is, of the transmission mechanism, is still needed where such variables are present if a money supply target is to be useful.

At a theoretical level, the most striking contrast is that between the economies of scale model of demand for money presented by Tobin⁵ and Baumol,⁶ the "economies of large numbers" model of Patinkin, and Friedman's⁷ view that money is a luxury good, implying diseconomies of scale. The Tobin-Baumol-Patinkin hypothesis so far has not been confirmed by cross-section analysis of firms' money holdings. Friedman's evidence is impressive up to the end of World War II. Since that time, the income elasticity of money, previously well above unity, has been below unity. If, as seems intuitively plausible, liquidity is a luxury, firms and households seem to have been enjoying it in other forms besides money.

The empirical evidence employed by most analysts rests upon monetary data of particular countries, often the United States, and often in time series form. I have tried to examine some of the more obvious relations for a cross section of countries. This permits

⁵ J. Tobin, "The Interest Elasticity of Transactions Demand for Cash," *Review of Economic Statistics*, August 1956, pp. 241-247.

⁶ W. J. Baumol, "The Transactions Demand for Cash: An Inventory Theoretic Approach," *Quarterly Journal of Economics*, November 1952, pp. 541-556.

⁷ Milton Friedman, "The Demand for Money: Some Theoretical and Empirical Results," *Journal of Political Economy*, August 1959, pp. 327-351.

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Table 1

For money narrowly defined M_1 (currency and demand deposits):

$$\frac{M_1}{Y} = 0.1109 + 0.03261 \ln \frac{Y_p}{N} - 0.00296 \frac{\dot{P}}{P} - 0.07525 \frac{CP}{TA} - 0.01139 \hat{R}$$

(4.2810) (-3.2010) (-1.8175) (-3.9417)

$R^2 = 0.200$
 $F = 13.125$
standard error of residual: 0.099

For money broadly defined $M_1 + M_2$ (currency, demand deposits, and time deposits):

$$\frac{M_1 + M_2}{Y} = -0.3878 + 0.12263 \ln \frac{Y_p}{N} - 0.00784 \frac{\dot{P}}{P} + 0.13414 \frac{CP}{TA} - 0.01049 \hat{R}$$

(8.4033) (-4.4247) (1.6911) (-1.8939)

$R^2 = 0.360$
 $F = 29.664$
standard error of residual: 0.190

For currency:

$$\frac{C}{Y} = 0.1874 - 0.00424 \ln \frac{Y_p}{N} - 0.00160 \frac{\dot{P}}{P} - 0.06038 \frac{CP}{TA} - 0.00604 \hat{R}$$

(-1.3367) (-4.1530) (-3.5053) (-5.0230)

$R^2 = 0.243$
 $F = 16.838$
standard error of residual: 0.041

For time deposits:

$$\frac{M_2}{Y} = -0.4987 + 0.09002 \ln \frac{Y_p}{N} - 0.00488 \frac{\dot{P}}{P} + 0.20937 \frac{CP}{TA} + 0.00091 \hat{R}$$

(8.4530) (-3.7736) (3.6169) (0.2242)

$R^2 = 0.379$
 $F = 32.088$
standard error of residual: 0.139

Where:

M_1 = Currency + demand deposits, in local currency units

M_2 = Time deposits

C = Currency

Y = GNP, in local currency units

Y_p/N = Per capita GNP in U.S. dollars adjusted for purchasing power

\dot{P}/P = Annual rate of price increase in percent, for the preceding 5 years—"inflationary climate"

CP/TA = Ratio of claims on private sector to total bank assets—"inside money"

\hat{R} = Interest rate after eliminating linear influence of rate of price increase, to approximate a "real" rate of interest, lagged one year

Numbers in parentheses are t values.

bringing in explanatory variables not easy to deal with in single country studies, such as the inflationary climate and the role of "inside money."⁸ It also avoids some of the statistical difficulties inherent in time series. It is beset, on the other hand, by the uncertain comparability or total unavailability of data for many countries. Country specific influences are troublesome, and the need to avoid extreme heteroscedasticity makes it necessary to employ some of the data in ratio form. Thus what is investigated is not the demand for money as such, but the demand for money relative to income.

The sample employed is limited to 43 countries for which some sort of interest rate could be found. The period covered by the dependent variables is 1959–1963; that covered by the explanatory variables is 1958–1963 and for some 1954–1963. The findings apply only, of course, to the countries and the period covered. The results are stated next; the procedures appear in the Appendix.

The regressions for the money/income ratio and some of its components that seemed to give the most satisfactory fit are given in Table 1. These data suggest the interpretations that follow.

Demand for Money

1. The demand for money, as inferred from the money/income ratio, is positively related to per capita income, for both definitions of money. This confirms results obtained in 1951 by Ernest Doblin⁹ as well as the findings of an unpublished study by Gurley and Shaw.¹⁰ The elasticity of the money/income ratio with respect to per capita income, [taken at the intersection of the arithmetic mean for M_1/Y and $(M_1 + M_2)/Y$ and the geometric mean for Y_p/N] is 0.15 for M_1 and 0.31 for $M_1 + M_2$. That is, an increase of \$100 in Y_p/N from its geometric mean of \$712 will raise M_1/Y from 0.2175 to 0.2222 and will raise $(M_1 + M_2)/Y$ from 0.3955 to 0.4127. These

⁸ Inside money, in the terminology of Gurley and Shaw, is money created by monetization of private debt. Cf. John G. Gurley and Edward S. Shaw, *Money in a Theory of Finance*, The Brookings Institution, Washington, D.C., 1960. In this study, the ratio of the banking system's claims on the private sector to total assets is used as a proxy for inside money. Monetization of government debt and of international reserves represents "outside money."

⁹ Ernest Doblin, "Ratio of Income to Money Supply," *Review of Economic Statistics*, August 1951, p. 201.

¹⁰ John G. Gurley and Edward S. Shaw, "The Impact of Economic Development on Financial Structure: A Cross Section Study" (unpublished manuscript).

figures imply an elasticity of demand for money with respect to income moderately in excess of unity, by either definition, the elasticity of the broad definition being of course higher. Money appears to have been, for these countries and years, a "luxury."

The demand for time deposits, expressed as a ratio to income, is positively related to per capita income, as might be expected. The demand for currency, also as a ratio to income, is negatively related, which is similarly plausible.

2. The demand for money is negatively related to inflation. The elasticity of M_1/Y with respect to inflation is -0.071 and that of $(M_1 + M_2)/Y$ is -0.103 (at the point of means): a rise of one percentage point in the rate of inflation above its mean value of 5.2% reduces M_1/Y from 0.2175 to 0.216 and $(M_1 + M_2)/Y$ from 0.3955 to 0.3914. The effects are small but significant. The higher elasticity of money broadly defined is of course to be expected. The impact of inflation on velocity has been demonstrated, for hyperinflation, by Phillip Cagan¹¹ and, for the general case, by Maurice Allais.¹²

3. The demand for money, defined as M_1/Y , is negatively related to the "inside money ratio." The broader definition is positively related. Since both coefficients are significant at the 5% level, this finding should perhaps not be altogether ignored. A negative relation seems in accordance with expectations. In an economy where a large part of the money supply derives from private borrowing, the pressure of credit rationing is likely to encourage economy in the holding of cash balances. Monetization of private debt, moreover, usually adds more to the liquidity of an economy than does monetization of public debt if, in the absence of such monetization, the same amounts of public and private debt, respectively, had to be held by the non-bank public. Less monetization of private debt would then be required for a given increase in liquidity. In this respect, the finding bears upon the issue of "money versus credit" as a policy target—does the source of money creation make a difference? But since this reasoning does not apply to international reserves, the second source of outside money, any conclusions are bound to be highly tentative.

¹¹ Phillip D. Cagan, "The Monetary Dynamics of Hyperinflation," in Milton Friedman, ed., *Studies in the Quantity Theory of Money*, University of Chicago Press, Chicago, 1956, pp. 26-117.

¹² Maurice Allais, "A Restatement of the Quantity Theory of Money," *American Economic Review*, December 1966, pp. 1123-1157.

A positive relation, applicable to the broader definition, seems *prima facie* less plausible. Perhaps one may hypothesize that the banking system of an inside money economy, generating its own assets, tends to be aggressive also in seeking time deposits.

The elasticity of M_1/Y with respect to the inside money proxy is -0.1765 , that of $(M_1 + M_2)/Y$ is 0.1733 : a rise in the inside money ratio of 5%, in the sample under review, lowers M_1/Y from 0.2175 to 0.2156 and raises $(M_1 + M_2)/Y$ from 0.3955 to 0.3989.

4. The demand for money is negatively related to interest rates. The elasticity of M_1/Y with respect to \hat{R} is -0.246 , that of $(M_1 + M_2)/Y$ is -0.1245 (at the point of means), so that a rise in the interest rate from its mean value of 4.7% by one percentage point would lower M_1/Y from 0.2176 to 0.2062 and $(M_1 + M_2)/Y$ from 0.3955 to 0.3850.

The significance level of the coefficient of interest rates is higher for M_1/Y , better than 0.5%, than for $(M_1 + M_2)/Y$. Higher interest rates may be reflected in higher rates on time deposits, which could work counter to the principal relation found. At the same time, interest rate data are notoriously poor, possibly causing significance levels to be understated. However, because actual rates probably fluctuate more widely than those statistically available, the coefficients and elasticities may possibly be overstated.

To distinguish the response of money/income ratios to short-term and long-term rates was not possible because of inadequacies of the data.

Substitutability

Conclusions concerning substitutability among time deposits, demand deposits, and currency can be extracted from the data. When M_2/M_1 or C/M_1 are included among the explanatory variables, both show highly significant negative coefficients. Because the use of these variables to explain M_1/Y and $(M_1 + M_2)/Y$ is likely to bias the coefficients of the other independent variables, regressions employing only $\ln Y_p/N$, and M_2/M_1 , or C/M_1 respectively, were used for this purpose. The conclusions follow.

1. A high currency component in M_1 reduces the joint demand for currency and demand deposits. Currency therefore appears to circulate more rapidly than demand deposits.

2. A high level of time deposits relative to M_1 reduces the demand for M_1 . Time deposits are seen to be a substitute for M_1 , as one would expect. This conclusion can be reached also by observing (in the regression in Table 1), that the R^2 of the variables explaining M_2/Y is practically the same as that for $(M_1 + M_2)/Y$, and both are substantially above that for M_1/Y . If the better R^2 were the result solely of adding a more fully explained relationship to a less fully explained, the result should fall somewhere in between. The fact that the $(M_1 + M_2)/Y$ relation does better suggests that the combination of M_1 and M_2 removes an element of instability which presumably is the substitution of M_2 for M_1 .¹³

Definition of Money

The appropriate definition of money, especially the inclusion or exclusion of time deposits, depends partly on the theoretical approach chosen, for example, income (transactions motive) versus wealth (asset motive) as chief determinants of demand for money. But it can also be viewed pragmatically as determined by the quality of the fit that alternative definitions give with respect to the explanatory variables.

1. Regressions omitting one or more of the explanatory variables appearing in Table 1 generally yield a higher R^2 for the broad than for the narrow definition of money, as do the regressions in Table 1.

2. Whereas $(M_1 + M_2)$ is clearly a heterogeneous composite, the previous finding that currency circulates more rapidly than demand deposits implies that M_1 also consists of two significantly different components. Not too much weight should be placed on this conclusion, since the various denominations of currency, as well as demand deposits of different magnitude, probably also behave differently. Broad aggregates inevitably tend to be heterogeneous. But the usual objection to the broader definition of money, that it combines two different variables, is somewhat weakened by similar observations with respect to the narrow definition. None of these findings, of course, can be regarded as in any way decisive for a choice among definitions of money.

¹³ I am indebted to William Dodson for pointing this out to me.

Implications for Money Supply Targets

What do these data tell us about the reliability of money supply targets for central banks?

A central bank contemplating such a target will primarily employ estimates based on local time series rather than international cross sections. The cross-section results, however, suggest that it will encounter two difficulties.

1. Since the demand for money is responsive to changes in interest rates and price movements, as well as to gradually rising per capita income, stable money/income ratios cannot be expected. The central bank will have to take into account these other variables which make much more complex the forecasting of the demand for money. Efforts I undertook to relate the variability of M_1/Y and $(M_1 + M_2)/Y$, measured about their trend, to per capita income or other explanatory variables, including those employed in Table 1, were not very successful. The results suggest that countries enjoying a high rate of real growth of GNP have a more stable relation of money to income, but further work will have to be done to establish and evaluate this tentative finding.

2. The variables examined, while significant, account for only a small part of the total variability of the money/income ratios. Many of the influences not accounted for are likely to be country specific. In time series analysis of national data these influences would disappear. But the suspicion remains that the very high explanatory values achieved in such analysis by a small set of variables is partly a product of the statistical technique. Quite possibly there lurk underneath unspecified variables that may upset the central bank's estimates. A few are worth listing.

One is the differential behavior of money under alternative definitions. As long as there is no agreement on the choice to be made between, or the weights to be assigned to, the two kinds of money, and the two do not correlate closely, whatever signals are thrown off by one may be countermanded by the other.

Another trap underlies the fact that concepts of money as well as of income are highly aggregated. Households determine their cash balances with respect to income, and probably wealth; firms with respect to sales and perhaps assets; local governments and other nonprofit entities with respect to payments and receipts. Households

in different income and wealth brackets, firms in different industries, may have a significantly different demand for money. To summarize these divergent functions and their shifting weights in a single relation of money to income or to wealth requires courage.

The origin of the money supply, that is, for the most part, "credit," also must be expected to weigh. Whether money is created against a liquid asset like a government bond, or against an illiquid one like a business term loan, makes a difference not only in the first "round" of the new money. The difference in the degree of liquidity added to the economy remains. This seems to be partly reflected in the negative relationship of the demand for money narrowly defined and the "inside money" ratio in Table 1.

Systematic differences, moreover, have been found between cyclical and long-run relations of money and income. If in the long run velocity falls, as Friedman's data and the preceding intercountry comparisons suggest, during cyclical expansions velocity rises with income. Whether it is permanent income or rising interest rates and prices that are associated with this phenomenon, it would be necessary to forecast the cyclical movement, or else interest rates and prices themselves, in order to use money supply as a safe policy guide.

Short-run variations in the relation of money and income may result also from the lag with which income responds to exogenous changes in money. This fact sometimes finds expression in sentiments such as "the quantity theory holds only in the long run" or "to say that doubling money roughly doubles prices does not mean that increasing money by one percent raises prices by roughly one percent."

Money Supply Targets

All that has been said about the difficulty of relating money to income and hence, implicitly, about the defects of a money supply target for monetary policy making does not necessarily mean that the money supply may not be the best target available—all others may be worse. I would be prepared to accept this hypothesis whenever the pursuit of another target produces effects on the money supply that are unsustainable by any reasonable money demand hypothesis. If, for instance, during a cyclical expansion, when interest rates, prices, and velocity tend to rise, pursuit of an interest target, even a rising one, leads to monetary expansion in excess of the economy's

growth rate, such a case could be indicated. The same applies *mutatis mutandis* to cyclical contractions. Balance of payments constraints, which usually find expression in interest rates, of course at times may predominate over considerations of domestic stability.

The implicit rule for target choice "when in doubt, use money" is not equally applicable, however, to short- and long-run target conflicts. It is hard to believe that an economy could remain stable if its policy makers maintained the wrong money growth rate for two years. There is no reason why an economy should not be able to live with the wrong money growth rate for three months. Monetary forces are neither immediate nor pervasive nor irreversible enough to push an economy off its equilibrium path in so short a time.

Adherence to a rigid money supply target in the very short run, on the other hand, whether stated as an absolute amount or as a rate of growth, is likely to generate a great deal of instability in short-term interest rates. The amount of money demanded on any day is subject to stochastic as well as seasonal influences. The seasonal factor can be eliminated after a fashion—the Federal Reserve operates with "seasonals" ranging from a year to very short periods. But there remains enough instability of demand from day to day to make interest rates jump about badly if supply does not accommodate.

In the short run therefore the central bank cannot have both stable money supply and stable interest rates. A choice must be made. Most central banks probably make the choice without even asking themselves the question; they stabilize interest rates, in a very short-run sense, at the expense of monetary instability. Most central banks do it by discounting and, in some cases, open market operations. The Federal Reserve's "money market conditions" and "free reserves" techniques leave interest rates a little more flexible, but essentially they imply preference for control over interest rates rather than money supply in the very short run.

Central banks probably overestimate the importance of interest rate stability. The financial markets are not the economy. Unstable interest rates may hurt operators in the market and certainly bring down criticism on the money manager. They are unlikely to have farther reaching repercussions of great gravity. Even so, instability of any sort is a cost. Risk premia must be charged to cover against it, in the form of permanently higher rates. Interest rate fluctuations, unlike those of the money supply, are very visible; large numbers of

savers and borrowers can quickly respond to them (thereby, of course, reducing the range of fluctuation). Speculative movements may be induced that may or may not be stabilizing. International money flows may be activated.

Thus central banks all over the world, in choosing in the very short run to stabilize interest rates rather than money supply, probably are making the right choice. In consequence of this choice, however, money supplies all over the world behave unstably in the short run. Believers in stable money growth policies thereby are put in a position to speak of the destabilizing policies of central banks, as manifested in gyrating money supplies. In a world in which this advice were heeded, money would grow stably but interest rates would gyrate. Other critics then would presumably rise to castigate central banks for this alternative failing and attribute to interest rate instability the instability of the economy. The fact is that, with only one policy instrument at their disposal—monetary policy—central banks cannot simultaneously control both money supply and interest rates.

It should be noted that in the United States, where during business cycles money has fluctuated less than income, interest rates most of the time have not been stabilized excessively, at least over cyclical periods, which of course much exceed the “very short run.” Changing interest rates, instead, have partly taken the place of changes in money supply.

Target Shifts

A central bank that operates with a short-run interest rate target but for the long run wants to attain a money supply target must continuously negotiate a shift from one target to the other. The money supply target may be a specific amount, or a given rate of growth, or a maximal range of growth rates of money. If the central bank were faced by a stable rather than stochastic money demand function, and found that it was off its money supply target, it could approach that target by small weekly or monthly changes in money supply. If the central bank believed that it knew the tradeoff between changes in money and changes in interest rates, it could simply modify its interest rate target periodically and would in time arrive at its money supply target. If it did not know the tradeoff, it would discover it by this movement along a stable money demand function. The time to be allowed for reaching the money supply target would

be dictated by the maximum tolerable rate of change in interest rates. In this way, a short-run interest rate target and a long-run money supply target could be reconciled.¹⁴

In practice, the central bank faces a stochastic rather than stable and known money demand function. In other words, it does not know what the "true" money supply currently is. The observed money supply is equal to the "true" amount plus or minus such periodic additions or subtractions as the central bank has to initiate or permit, in amounts it does not know, in order to keep interest rates (or free reserves) at their target level. Thus the central bank does not know how far away it is from its money supply target, nor what periodic additions or subtractions it should make in order to reach it.

The stochastic nature of the money demand function also prevents the central bank from experimentally learning the tradeoff between money supply and interest rate. It can change the money supply and observe the change in rates. But, quite aside from lags in the effect of monetary action, the central bank has no means of knowing what part of the movement in interest rates is a response to its own action and what part reflects changes in demand.

The estimation of the current value of a stochastic series is a difficult matter that besets all policy makers using time series. A highly sophisticated approach to it is discussed in the study by Marc Nerlove in this book.¹⁵ A simple procedure is to use a moving average. The moving average will itself be subject to random influences. Its variance will diminish, however, with the number of observations entering into the average so long as the underlying relation (which in the case of the money demand function in a growing economy would have to contain a trend factor) does not change in variability.¹⁶ If weekly money supply data are available, as is the case in the United States, a fairly good moving average could be built up over a month, certainly over a quarter. If monthly data are the best that

¹⁴ A transition of this kind is sketched in Jack M. Guttentag, "The Strategy of Open Market Operations," *Quarterly Journal of Economics*, February 1966, pp. 1-30.

¹⁵ See Chapter 6.

¹⁶ The variance of the moving average will behave like the variance of the mean of a sample as the size of the sample is increased, i.e., $\sigma_m^2 = \sigma^2/n$ provided the deviations from the average are independent. If they are autocorrelated, as seems probable, the variance will diminish more slowly as the number of observations entering into the average is increased.

can be had, one or two quarters may be the minimum period. If the central bank has reason to mistrust its seasonal adjustment, the averaging period may have to be further extended. The important thing is that, with the moving average centered at the midpoint of the period, the shortest period over which the central bank can attain a money supply target is equal to one-half the averaging period. If an immediate move to the target level or growth rate should be too disturbing to money rates, a still longer target period would have to be allowed for in shifting from an interest rate to a money supply target.

Power to Control Money Supply

These perplexities arise, of course, from the premise that most central banks start with a short-run interest target. Pursuit of this target compels them to destabilize the money supply. Because they do not know what the "true" money supply is under these conditions, they do not know how to modify it in order to reach the target. A central bank totally indifferent to interest rate fluctuations and bent solely on controlling the money supply would know, or so it would seem, exactly by how much to change it every week or month to be always on target. It thus could control the money supply perfectly—if it could control it at all.

On that score, however, there is considerable doubt. The frequently made assumption that the central bank can control the money supply is at odds with some important facts. These facts are familiar and can be stated very briefly.

The liabilities created by the central bank can become commercial bank reserves supporting demand deposits, but they can also be absorbed into currency, commercial bank excess reserves, and reserves supporting time deposits. Of these, the leakage through time deposits has been particularly important in recent United States experience.¹⁷ If time deposits are close substitutes for securities, central bank expansion that pushes down interest rates on securities will lead to the creation of time deposits, thus limiting creation of

¹⁷ Lesser elements that recently have become important by absorbing or releasing reserves are changes in government deposits and shifts of deposits between American banks and their foreign branches. A shift of deposits to foreign branches, i.e., the creation of a Eurodollar deposit, liberates reserves, because head office liabilities to branches are not subject to reserve requirements.

deposits. If, on the other hand, demand deposits are a close substitute for time deposits, central bank expansion pushing down the rate on time deposits will lead to the extinction of time deposits, thus augmenting creation of demand deposits.¹⁸ The evidence of the last few years seems to indicate very clearly that short-term securities like Treasury bills are close substitutes for time deposits in the form of certificates of deposit.

Similar arguments could be made with respect to currency and excess reserves. There is little reason, to be sure, for thinking that currency might be affected by substitutions between securities, time deposits, and money. But the evidence is uncertain as to the dependence of the demand for currency on money supply and on income, respectively. To the extent that demand for currency is a function of income, the increase in money resulting from a given expansion of central bank liabilities (the money multiplier) will be larger in the short run, before income has risen, than in the long.

Furthermore, excess reserves are clearly elastic with respect to interest rates. Some evidence has been adduced that this elasticity did not become infinite even during the 1930s, that is, that no liquidity trap existed at the bank level.¹⁹ In recent years, however, variations in excess reserves in American banks have been small relative to changes in reserves absorbed by time deposits.

As an extreme, it is conceivable that the creation of central bank liabilities may reduce the money supply, if a decrease in the rate on securities resulting from central bank expansion should generate sufficient increases in the amounts of time deposits, currency, and excess reserves demanded. As a practical matter, the conclusion remains that the behavior of time deposits is the most powerful factor interfering with central bank control of the money supply, as long as the analysis remains limited to the domestic sphere.

¹⁸ Cf. Lyle E. Gramley and Samuel B. Chase, Jr., "Time Deposits in Monetary Analysis," *Federal Reserve Bulletin*, October 1965; and William G. Dewald, "Money Supply Versus Interest Rates as Proximate Objectives of Monetary Policy," *National Banking Review*, June 1966, pp. 509-522.

¹⁹ Cf. David Laidler, "The Rate of Interest and the Demand for Money—Some Empirical Evidence," *Journal of Political Economy*, December 1956, p. 551; Allan H. Meltzer, "The Demand for Money: The Evidence from the Time Series," *Journal of Political Economy*, June 1963, p. 245; Karl Brunner and Allan H. Meltzer, "Liquidity Traps for Money, Bank Credit and Interest Rates" unpublished manuscript; George R. Morrison, *Liquidity Preferences of Commercial Banks*, University of Chicago Press, Chicago, 1966.

Internal—External Conflict

Limitation to the domestic sphere, however, is inappropriate. There are international flows on both capital and current account. Because in a reserve currency country these flows usually do not lead to reserve changes for the banking system, and because in the United States they are in any event small relative to the domestic money supply, it has been customary to write money multipliers in a form strictly applicable only to a closed economy. With increasing international mobility of capital, and with the heavier use of gold to settle United States payments deficits, international leakages must be taken into account. For most foreign countries, of course, this has always been the case.

In a world of near-perfect mobility of capital, the outflow of reserves, resulting from the appearance of an interest rate differential, would depend, on the supply side, upon the relative magnitude of reserves and, on the demand side, upon the interest elasticity of demand for money at home and abroad. The adjustment would be instantaneous. The outflow of reserves, if any, reflecting a current account deficit, would depend on the response of income to changing money supply, and on the marginal propensities to import and export, both at home and abroad. This adjustment inevitably would occur with a lag. If these difficulties are overlooked by assuming that the relationships are the same in all countries, and by disregarding the asymmetry introduced by the gold exchange standard, the expanding country's reserve loss is determined by the ratio of its (domestic commercial bank) reserves to those of the entire world. The familiar money multiplier could then be written as:

$$\Delta M_H = \frac{\Delta R \left(1 - \frac{R_{RW}}{R_{RW} + R_H} \right)}{r_H(1 - c_H) + c_H}$$

Where R = Reserves

M = Money = Currency + Demand Deposits

RW = Rest of the World

H = Home

c = Currency/Money

r = Reserve Ratio

For most countries with stable and convertible currencies, the term

$R_{RW}/(R_{RW} + R_H)$ is close to unity, and their ability to influence their equilibrium money supply is accordingly small. Imperfect or totally lacking mobility of capital gives temporary power to affect the domestic money supply. Only a floating exchange rate system foregoing all use of international reserves validates the traditional domestic money multiplier.

The conclusion that a country can only temporarily determine its money supply offers a parallel to an analogous conclusion in another area of monetary theory: the view that monetary changes cannot alter the equilibrium values of real variables. National monetary policy finds its range of action limited in both dimensions. Neither limitation, however, is absolute. Monetary variables can affect real equilibrium values if the conditions for neutrality of money are not met. National monetary policy can permanently determine the domestic money supply under certain conditions—if it is prepared to increase the money supply of the entire world.

The degree to which even the world's richest country can afford the luxury of "raising the world's money supply" depends on its international reserves. Freedom of monetary policy thus is circumscribed by the lag with which heavy reserve drains may set in and by the willingness to lose reserves. The willingness of other countries to be drained of reserves sets limits of a less binding sort, in the inverse direction. Thus control of the balance of payments becomes an objective of monetary policy. Historically, this indeed has been the origin of monetary policy, the domestic impact being in the nature of an afterthought.

When the monetary authorities seek to influence the current account of the balance of payments, interest rate and money supply strategies both are adequate. Either works through aggregate demand. When the capital account is to be influenced, an interest rate strategy is clearly preferable. The proximate factor determining international capital flows is differential interest rates, not differential rates of money growth.

Even when no particular balance of payments effect is desired by the monetary authorities, the habit of international monetary cooperation requires them to watch their interest rates. If they did not, a large country particularly might inadvertently and needlessly destabilize the balance of payments and perhaps the domestic equilibrium of foreign countries. A money supply target pursued for purely domestic reasons may have awkward repercussions in the international sphere,

if it seriously destabilizes interest rates. The important role that interest rates play in the capital account of the balance of payments gives the interest rate target an edge in the international area.

Frequency of Conflict Cases

This edge depends to an important extent on the combination of internal and external policy objectives a country is pursuing. Its objectives may be compatible, for example, the reduction of domestic inflation and of a simultaneous balance of payments deficit. A reduction in aggregate demand will simultaneously redress both disequilibria. The objectives may diverge, for example, ending a domestic recession accompanied by a balance of payments disequilibrium. A single instrument cannot cope with this situation.

In the absence of a conflict of objectives, a case can be made for either an interest or a money supply target. Monetary tightening, measured by interest rates or by money supply, will reduce aggregate demand and thus reduce domestic inflation and improve the current account in the balance of payments. Emphasis on high interest rates, indeed, would mean to emphasize improvement of the capital account as well, which, in conditions of domestic inflation, is not the most convenient means of coping with a payments deficit.

When a conflict is present, the interest rate strategy gains in attraction relative to the money supply strategy. As has been shown theoretically, and seems to be confirmed also by contemporary central bank practice, the proper allocation of instruments to targets is to assign fiscal policy to the achievement of domestic equilibrium and monetary policy to payments balance.²⁰ The reason is, of course, that monetary action works simultaneously on the current and on the capital account. To maximize effectiveness on the capital account, an interest strategy is clearly appropriate.

To differentiate still further the conditions that call for an interest rate strategy, one must distinguish between policy conflicts associated with domestic inflation and recession. Inflation combined with payments surplus could be corrected by simultaneous fiscal tightening and low interest rates. But the goal of payments equilibrium may not seem very important to a country under these conditions, particularly when it can be attained only by pushing out capital instead

²⁰ Robert A. Mundell, "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability," *IMF Staff Papers*, March 1962, pp. 70-77.

of by deteriorating the current account. It may be decided to focus both monetary and fiscal policy on the domestic inflation, meanwhile allowing unwanted foreign exchange reserves to pile up. Then an interest rate target holds out no advantage over a money supply target. But in the opposite case, a recession accompanied by a payments deficit, it will be important to end the outflow of reserves quickly so that expansionary domestic policy can go forward. An interest rate target then again has the advantage.

A rough estimate of the frequency of policy conflicts of the two types can be obtained with the help of the data employed earlier. A conflict may be considered to be present when a balance of payments surplus coincides with a price increase that is above average for the period, and when a payments deficit coincides with a price increase below average. In the absence of unemployment data for most countries, variations in the rate of price increase probably are not a bad indicator of cyclical conditions. Other interpretations of what constitutes a policy conflict could of course be chosen even while focusing only on price and balance of payments data. Changes in the rate of price movements, possibly foreshadowing cyclical turns, might be more indicative of what policy makers are concerned about than the actual rate of price increase. Changes in the magnitude of a payments imbalance, also possibly foreshadowing a reversal, may be more important than the presence simply of a surplus or deficit. Payments imbalances, moreover, may mean different things to policy makers depending on whether they occur on current or capital account, whereas in the data here employed they are measured simply by a change in international reserves. Small surpluses may be preferred to precise balance. Finally, the need to rely on annual data undoubtedly limits their significance. The results are nevertheless not without interest.

Out of a total of 509 observations, 231 or 45.4% represented conflict of objectives, as here defined. Among less developed countries, the proportion was 42.3%, among developed, 50%. Details appear in Table 2. The difference between developed and less developed countries is significant at the 10% level, tested against the hypothesis that price movements and balance of payments conditions are randomly associated.

The case of "no conflict" is related, although not unambiguously, to endogenous instability, provoked by destabilizing domestic

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Table 2

	No Conflict			Conflict		
	Prices + Reserves -	Prices - Reserves +	Total	Prices + Reserves +	Prices - Reserves -	Total
Developed countries	33	69	102	61	41	102
Underdeveloped countries	<u>86</u>	<u>90</u>	<u>176</u>	<u>62</u>	<u>67</u>	<u>129</u>
Total	119	159	278	123	108	231

Legend:
58 countries for, in most cases, 9 years, 1953-62

Prices + = $\dot{P}/P > \bar{P}/\bar{P}$ Prices - = $\dot{P}/P < \bar{P}/\bar{P}$
Reserves + = $\Delta R > 0$ Reserves - = $\Delta R < 0$

monetary and fiscal policies. It contrasts in this respect with the "conflict" case reflecting imported inflation or deflation. The evidence of the present very simple test does not make it possible to generalize on the relative importance of the two cases, except perhaps that conflict seems to be more frequent for developed countries within this sample and period. The data are quite unambiguous, however, in demonstrating that conflict cases are in no way exceptional for the countries and the period of the sample.

It can be shown, moreover, that the frequency of policy conflict is likely to mount the closer countries come to success in their attempts at maintaining overall equilibrium. The simultaneous attainment of full employment and payments balance is likely to be a relatively infrequent event. But if either is achieved, anything then done to reach the second will tend to undo the first. Since the interest target is preferable in conflict situations, evolution toward greater world stability, as well, of course, as toward greater international mobility of capital, will strengthen the case for the interest strategy.

APPENDIX

Sources of Data

International Financial Statistics, International Monetary Fund;
Yearbook of National Income Statistics, United Nations; various country sources.

Selection of Data

Countries were selected exclusively on the basis of availability of data, the most restrictive criterion being interest rates. The period beginning in 1959 appeared optimal in view of the desirability of disposing of five years' prior price data without disturbances going back to the Korea period. Data for the five years 1959-1963 were pooled, providing a total of 215 observations.

Adjustments

Income data represent GNP in all but a few cases where NNP or national income only were available. GNP was estimated in these cases.

Per capita income was stated in logarithms, to minimize the effect of extreme values. Alternative experiments with a linear form gave somewhat inferior results. Per capita incomes were converted into dollars and were adjusted by a purchasing power factor, derived from Paul Rosenstein-Rodan, "International Aid for Underdeveloped Countries," *Review of Economics and Statistics*, May 1961, pp. 107-138. In cases of multiple exchange rates, the highest official rate was used except where this was clearly unrealistic. Experiments without the purchasing power adjustment gave somewhat inferior results.

Money and all its components as well as claims on the private sector and total assets of the banking system were taken from IFS, freely translating "quasi-money" as "time deposits." The heterogeneity of these data probably is higher than of the national income accounts, reflecting the differences in national monetary institutions. Omission from M_2 of important intermediaries, such as savings and loan associations in the United States, following domestic practice, is a serious shortcoming. Money supply was taken as of the end of the year to reduce feedback upon per capita income. The per capita income variable was not lagged because in an inflationary situation this would lead to severe distortions.

Price changes represent average annual changes for the five years preceding the date of the dependent variable, as a proxy for "inflationary climate." Contemporaneous price changes, aside from being very unstable, are likely to be significantly affected by feedback from changes in money supply. The cost of living index was used wherever available.

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Interest rates are government bond rates wherever available; in a few cases discount rates or call money rates had to be used. Since the effect of inflation on money/income ratios is separately accounted for, its linear influence on interest rates was removed, providing an approximation to a "real" interest rate. A one-year lag was employed to reduce the feedback of money on interest rates.

Countries

Australia	Germany	Peru
Austria	Greece	Philippines
Belgium	Iceland	Portugal
Brazil	India	South Africa
Burma	Ireland	Sweden
Canada	Israel	Switzerland
Ceylon	Japan	Syria
Chile	Korea	Thailand
China	Mexico	Turkey
Colombia	Netherlands	United Arab Republic
Denmark	New Zealand	United Kingdom
Ecuador	Nicaragua	United States of America
El Salvador	Norway	Uruguay
Finland	Pakistan	Venezuela
France		

Chairman PROXMIRE. Thank you, Mr. Wallich. I want to commend all three of you gentlemen for a superlative performance. I am sure you understand that, for Members of Congress, this is not an area in which we are expert. Some of us know a little bit about it, some of us know a little less. But you have certainly given us, I think, a wonderful picture of the tremendous complications involved here and some very helpful caveats.

I might point out here that although all of us have the greatest respect, approaching almost reverence for Henry Reuss, he is a very fine person and a kind of expert in these areas, he did not set forth the view of the committee when he set forth the seven exceptions. That was his idea, not ours. The committee's position is without these exceptions.

I would agree with you that if you ran these exceptions, as Governor Maisel and Congressman Reuss would advise us, you might as well throw the whole thing out. You do not have any rule at all, just exceptions that give the Federal Reserve Board discretion to operate as they wish.

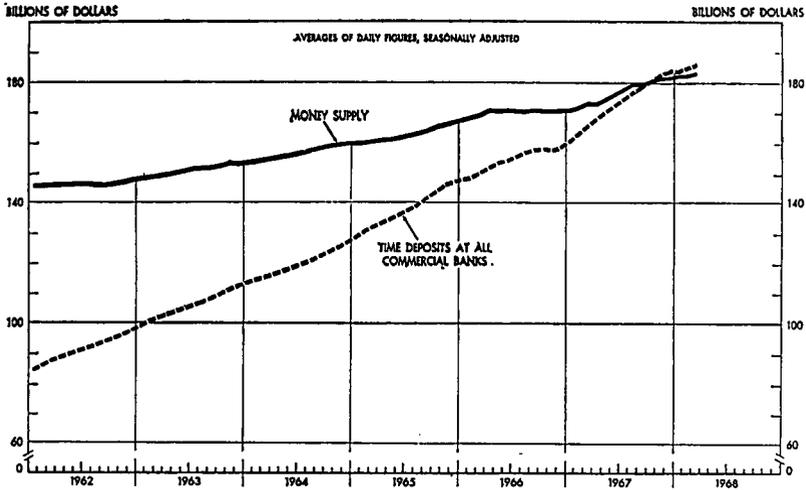
I would like to call your attention to what you gentlemen who have indicated are, after all, mistakes, and your assurance we are not going to make mistakes like that in the future. Since 1960 or so, the Federal Reserve Board has made what appear to be, in hindsight, three very serious and conspicuous mistakes. In the period of 1962, at a time when we had relatively low economic activity and relatively high unemployment, the Federal Reserve Board increased the money supply almost not at all. It was almost stable. I am looking now at the money credit and security market section on page 29 of the April 1968 Economic Indicators.

(Page of Economic Indicators referred to follows:)

MONEY, CREDIT, AND SECURITY MARKETS

MONEY SUPPLY

The seasonally adjusted money supply rose \$0.9 billion in March after remaining unchanged in February. Time deposits increased \$1.6 billion, slightly more than the February increase.



SOURCE: BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

COUNCIL OF ECONOMIC ADVISERS

(Averages of daily figures, billions of dollars)

Period	Money supply				Money supply				U.S. Government demand deposits ¹
	Total	Cur-rency out-side banks	De-mand de-posits	Time de-posits ¹	Total	Cur-rency out-side banks	De-mand de-posits	Time de-posits ¹	
	Seasonally adjusted				Unadjusted				
1962: Dec.....	147.4	30.6	116.8	97.8	151.6	31.2	120.3	98.7	5.6
1963: Dec.....	153.0	32.5	120.5	112.2	157.3	33.1	124.1	111.0	5.1
1964: Dec.....	159.3	34.2	125.1	126.6	164.0	35.0	129.1	125.2	5.5
1965: Dec.....	166.8	36.3	130.5	146.9	172.0	37.1	134.9	145.2	4.6
1966: Dec.....	170.4	38.3	132.1	158.6	175.8	39.1	136.7	156.9	3.4
1967: Dec.....	181.5	40.4	141.1	183.8	187.2	41.2	146.0	181.8	5.0
1967: Feb.....	171.5	38.7	132.8	163.5	170.6	38.3	132.3	164.0	5.0
Mar.....	173.1	38.9	134.2	166.1	171.0	38.5	133.4	166.7	4.9
Apr.....	172.7	39.1	133.6	168.1	173.6	38.7	134.9	168.8	4.8
May.....	174.5	39.2	135.3	170.0	171.1	38.9	132.2	170.8	6.5
June.....	176.2	39.3	136.8	172.4	174.3	39.3	135.1	173.0	3.9
July.....	177.9	39.5	138.4	174.6	175.8	39.6	136.2	175.1	5.6
Aug.....	179.1	39.6	139.6	177.2	175.9	39.6	136.2	177.7	4.3
Sept.....	179.2	39.8	139.5	178.9	178.4	39.8	138.6	178.9	5.0
Oct.....	180.3	39.9	140.3	180.8	180.6	40.0	140.6	180.3	6.2
Nov.....	181.2	40.0	141.2	182.5	182.5	40.4	142.1	181.1	5.2
Dec.....	181.5	40.4	141.1	183.8	187.2	41.2	146.0	181.8	5.0
1968: Jan.....	182.5	40.5	141.9	183.7	187.8	40.5	147.3	183.5	4.9
Feb.....	182.5	40.7	141.8	185.0	181.5	40.3	141.3	185.5	7.2
Mar*.....	183.4	41.1	142.3	186.6	182.1	40.7	141.4	187.4	6.7

¹Deposits at all commercial banks.

Data include Alaska and Hawaii.

NOTE.—Effective June 9, 1966, balances accumulated for payment of personal loans (about \$1.1 billion) are excluded from time deposits and from loans at all commercial banks.

Source: Board of Governors of the Federal Reserve System.

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Chairman PROXMIRE. Then, later on, in 1965, and there was a rapid increase in the money supply and this coincided with a whole series of great stimulating elements in the economy, as you recall. It was in the beginning of the Vietnam escalation, there were two massive tax reductions, an unprecedented record of business investment in plant and equipment, so that the money supply increased at a time when the economy was expanding rapidly.

Perhaps the most conspicuous example of what seems to be in error is what happened last year when we seemed to be suffering from serious

inflation and during one point, the Federal Reserve pumped money into the economy at an annual rate of 10 or 11 percent.

In hindsight, it seems we would have been far better off to have followed the prescription the Joint Economic Committee, as a committee, recommended, that we fall within the band of 3 to 5 percent or so, or 2 to 4, depending on whether you are a Republican or Democrat, and try to have a fairly stable kind of monetary policy. This would not have put the handcuffs on in the sense that they could not vary; there is a considerable difference between 2 percent on the one hand, and 4 percent on the other, between 3 percent and 5 percent.

But it does suggest that we might have followed a more moderate monetary policy which, in hindsight, might have been better. What is your answer to that?

Mr. CHANDLER. I would like to speak about the—I do not remember the 1962 episode as well as I should, but I would like to speak about 1965 and 1967.

With the benefit of hindsight, the restrictive policy by the Federal Reserve was several months too late. That discount rate increase and some tightening up on unborrowed reserves should have been initiated some weeks earlier and should have been progressing more rapidly toward restriction. However, I think one needs to remember that until the latter part of 1965, there was an unemployment rate of around 5 percent, and there was a great deal of adverse reaction to the initiation of the tightened money policy when it was initiated.

My guess is that this was a mistake. They did not tighten it quickly enough. But my guess is that a major reason for that was that no one knew at the time how rapidly the defense expenditures were going to rise.

It is my impression that not only the Federal Reserve, but even this committee was not fully informed as to how quickly and how rapidly Government expenditures would rise, and that that made a great deal of difference.

With respect to 1967—

Chairman PROXMIRE. You see, what I am getting at is that this is part of the whole problem. We were able to predict that. We may be able to predict these things a little more in the future, but if the administration had been completely frank and given us the defense indicators, we would have been better informed. I am not sure we would have been well-enough informed to have made a different kind of policy judgment. But as Professor Wallich so well indicates, the problem is one of considerable lags. You initiate a money policy in which you think you are going to try to follow policies to increase money supply because you think the economy needs the stimulation this would warrant. This does not have an effect for several months. The paper of Dr. Wallich indicates from 3 to 22 months, but he says you can turn the economy around if you take drastic action in 6 months.

The Bureau of Economic Research has made what I think is a competent and objective study, that indicates forecasts for more than 6 months to the economy are poor, no matter who makes them. This seems to me the heart of it. If you gentlemen can convince us that you can forecast pretty accurately what is going to happen for a year or a year and a half or two years in advance, then I think there is no question that we should just leave it to the discretion of the Federal Reserve

Board completely and let them do what they wish to with the money supply. But if this cannot be forecast accurately, it would seem to me to make sense to have a policy which would provide for a fairly regular and moderate expansion of money supply.

Mr. CHANDLER. It should be noted that the problem of lags also exists in the case of a steadily increasing money supply. For example, suppose that a boom ends, investment demand falls off. If one does not use fiscal policy at that point for a stimulus, note the length of time before there is any significant stimulus from the monetary section. You have to wait for the very slow rate of increase of the money supply, plus a fall in the level of the income, to buying a decrease of interest rates and greater availability of money. And the lag also applies in this case, except that it starts at a later time than it presumably would under a discretionary policy.

Chairman PROXMIER. This is on the assumption that we say you should have a fixed 3 or 4 percent of the increased money supply. I would not argue, certainly, with widening the band. But I think the thrust of our position has been that there should be an increase. It is hard to argue that in the kind of economy that we expect in the future you should at any time have a decrease, but that you can have a rather large increase in the money supply, or a rather mild one.

After all, a 6 percent increase in the money supply over a year's period has not happened very often in our history. It happened last year at the time it should not have happened, in the view of many people. But it is not very often that you can go back and find a money increase of this size.

Professor WALLICH?

Mr. WALLICH. I think it is fair to say that what today loom as the obvious mistakes of the Federal Reserve are not as obvious as they seem. In other words, the type of mistake that the Fed makes is not the sort of mistake that I would be making if I came to this hearing on the wrong day, an obvious error. It is more nearly like an investment adviser guessing wrong on the way the market moves or failing to pick Xerox or IBM. It is a high-grade mistake that is almost certain to happen to some extent. Perfection such as we demand in the light of hindsight is simply impossible. The question is how badly will the results of a fiscal rule depart from perfection? In my judgment, more.

In terms of the particular example you cited, Mr. Chairman, 1962 called for expansive policy. The reason it was not done was the balance of payments. We would have had to be prepared to pay our large amounts of gold or go off gold had we been trying to expand monetarily very sharply. We have certain principles about the mix of fiscal and monetary policy. When there is unemployment and a payments deficit simultaneously, the proper mix—I know this committee has heard this many times—is tight money and easy budgets. It was as much a failure of fiscal policy as of monetary policy to do the right thing at that time, although I think basically, our fiscal policies were not bad at that time, either.

In 1965, it is evident the Fed acted too late, with the long lag to which monetary policy is subject. But recall, this does not excuse discretion, but it excuses the Fed—their first step in raising the discount

rate in 1965, December, was very ill-received. They acted too late, not too early, as many of us said at that time.

In 1967, their reason—

Senator PROXMIRE. All of us could have been wrong in 1965. I think I was one of those who criticized them. I think I was wrong. In hindsight, though, I say reflecting on what would have been the best policy over the past several years, it might have been better if they had had the guideline.

Mr. WALLICH. We would have been better off had not a stable rule gotten us into this ditch before. I think this is very likely.

Now, 1967 is a case in point. The demand for money changed. After many years in which corporate treasurers were proud of not having a cent too much nor uninvested, it became fashionable in 1967 to have money for 5 years to spare. They all rushed out and borrowed. This demand for money could not have been accommodated by the rule. Had the rule been followed in 1967, I feel fairly confident that the mini-recession would have become a normal recession.

Mr. MODIGLIANI. I would like to really indicate full agreement with Mr. Wallich on his explanation of the three episodes; 1962 is within the period to which I referred in my testimony when I spoke of the conflict of goals between the balance of payment and domestic employment and how the Federal Reserve had chosen the balance of payments. The explanation in fact for that behavior is visible from the very same chart you have, if you will turn to the chart which gives the bond yields and interest rates. You will observe that in 1962, despite the fact that money supply was not rising, interest rates were stable or flexing. If you will look particularly at the treasury bill rate, it was in fact quite stable and some of the other rates were rather flexing. And the balance-of-payments situation essentially as interpreted by the Federal Reserve required that short-term interest rates preferably rise, but certainly should not fall. Now, you see, if you have a stable pattern or a slightly declining pattern with a constant money supply, you can see you would have declining short-term interest rates with an expansive monetary policy. They just did not feel it was appropriate. I think it is quite clear that during the period of the 1960's, until the tax cut, the Federal Reserve Bank was concerned that the short-term rate would not decline, and should move up whenever possible. So as the demand expanded, they used part of the pressure to raise rates. This is the type of situation to which I referred earlier where it would have been helpful if the conflict between goals would have come out in the open that we could not, relying just on monetary policy both maintain the dollar as the reserve currency of the world by avoiding a balance-of-payments crisis, and pursue the goal of high-level employment. The conflict might have been partly resolved only through an expansionary fiscal policy. I think the administration was in favor of a tax cut earlier and I think Congress delayed in passing a tax cut. It took the death of the President to get through a tax cut. If we had acted quickly, we would have been able to have a more rapidly expanding money supply, without risking a deterioration in the balance of payments.

As for 1966, I think on the whole, the tight policy of 1966 was exactly what was required under the circumstances. And the rapid expansion of 1967, I completely agree with Professor Wallich, was a

good piece of statesmanship. I think they handled it quite well. We had the beginning of a contraction. I am sure that with the GNP falling in real terms in the first quarter of 1967, and long-term interest rates rising, very few people would really have advocated then that the increase in the money supply be kept to some 2- or 3-percent rate or even 4.

Senator PROXMIRE. In hindsight, you say it would have been wise, but that is another story.

My time is up. I yield to Senator Miller.

Senator MILLER. Thank you, Mr. Chairman.

Professor Wallich, in your statement evaluating the rule proposed by Dr. Friedman, you say that the rule rests upon a statistical and theoretical finding, that the rate of growth of money supply and the level of economic activity are closely related. What do we mean by level of economic activity? Are we talking about gross national product, for example? Are we talking about other factors in the economy? Could you elaborate on that?

Mr. WALLICH. Yes, Senator. I personally would take gross national product as the best indicator. I would want to shade that judgment possibly by looking at the production index. We have had periods where GNP rose and the production index remained constant. That has to do with the growth of services while there was stagnation in manufacturing. That means unemployment in manufacturing and that is a consideration of great seriousness.

Now, the standard way, as I am sure you know, of defining when activity in general is rising or falling is to take the National Bureau of Economic Research's turning points. This great body of experts, long after the event, tells us that indeed there was a turning point in August 1957, and I think there was a turning point in February 1961. These things can only be defined after all the series are in. So it is completely right that contemporaneously, we do not see what happens. We see only with a lag whether we are turning the corner on the upside or the downside.

Senator MILLER. But you can get about a 3-month indicator on the increase or the decrease in GNP?

Mr. WALLICH. Yes. In fact, you can do even better than that. The GNP being published quarterly, we usually have some data from the first 2 months and the major series that go into the GNP, like retail sales, are early available on a flash basis. The Federal Reserve production index is available monthly. Some series—steel, autos—are available every week or every 10 days so that we have a pretty good fix on which way things are going in a broad sense.

Senator MILLER. When we talk about GNP, I assume for this purpose that you are referring to real dollar GNP and not inflated dollar GNP?

Mr. WALLICH. That is an important question, because in an inflationary period such as we have had, dollar GNP may be rising and real GNP may be falling. By one test we may have had a minirecession in 1967; by another test, we may not. This distinction exists and it is easy and dangerous to fudge it.

Senator MILLER. You would be more inclined to look at the real dollar GNP rather than the inflated dollar GNP, would you not?

Mr. WALLICH. Yes, sir; and I also would look at the rate of unemployment and plant excess capacity. For instance, if for some reason,

real GNP leveled off and unemployment did not rise as one would expect it to do as the labor force grew, then I would conclude that the labor market for some reason had remained tight and that there was less room for compensatory expansion than one would have hoped there to be. And the same is true of utilization rates in manufacturing.

If, for instance, as at the present time, unemployment is low but utilization rates are high, there is some indication that the economy is off balance. We ought to be able to utilize plant and equipment better without putting a bigger strain on labor markets than we are already putting.

Senator MILLER. Getting back to this economic activity again and GNP, I think you were here one time when the committee went into this feature of it. I believe there was a conclusion on the part of the panel appearing before us that GNP—that is, just plain dollar GNP, is interesting, real dollar GNP is much more important, and per capita increased real dollar GNP is even more important.

Mr. WALLICH. That is certainly true, Senator. If we try to measure the growth of welfare, since welfare relates to the individual, we have to look at per capita GNP in real terms, not in inflated dollar terms.

When we look at the business cycle and ask ourselves, should money be eased or tightened, then we are dealing with total GNP. There I would add the qualifications that we have already talked about.

Senator MILLER. Might we go a step further and say that of even greater interest than real dollar increased GNP per capita would be that figure coupled with the real dollar increased per capita debt. I am talking about, now, all kinds of debt—National, State, individual, and private.

Mr. WALLICH. Debt can become a very serious problem when it becomes excessive. I think it quite evidently became excessive for some families in 1967, when interest rates rose high, when it became hard to get mortgages, and people who, for instance, had to refinance for some reason just were unable to do this. It just froze them into their existing home if they did not own their home outright and could not sell it for cash and buy another home.

Debt in the aggregate for the economy as a whole worries me less. I think we are in reasonably good shape there, among other things, for an unfortunate reason: the inflation is reducing the burden of debt. This year, the Government took about 4 percent off the Federal debt by inflating the price level by 4 percent. This is not a policy I recommend, but one has to recognize that is the result. So I would focus the debt problem principally on the individual households that are hit in particular periods by inability to refinance their debt, to pay off their debt, and to incur new debt.

Senator MILLER. So looking at the debt side of the picture, you would be more interested in the private sector of the debt and the increase therein than in the public sector of the debt?

Mr. WALLICH. That is certainly true even in the aggregate; not just speaking of households but looking at the total private sector. What has happened is that the private sector has greatly increased its indebtedness relative to the income base from which it must service that debt. The same happens to be true of States and municipalities. It is not true of business and it is least true of the Federal Government. It is the consumer, the homeowner, who has most heavily gone into debt.

This can become a problem for those who have gone farthest in that direction.

Senator MILLER. I recently did a little research and I found that over the last 7 years, 1961 through 1967, we had a very dramatic increase in our gross national product; as I recall, in the neighborhood of \$250 billion. But then I found that during the same period of time, we had an even more dramatic increase in total debt, Federal, State, local, and private, amounting to around \$500 billion. When one realizes that much of that debt would be reflected in turn in purchases going into the GNP increase, assuming the general accuracy of my figures there, Professor, would that not indicate to you that GNP, without taking into account the debt increase, is a rather soft basis for reaching economic conclusions?

Mr. WALLICH. I think, Senator, there is a longrun relationship of debt to GNP that is a little below 2 to 1. Since 1929, that relationship has been going, I think, at an average ratio of 1.85 of debt to GNP. But it is certainly clear that debt can become burdensome for particular people and sectors and most particularly, there is a danger that debt can be financed badly. If debt is too heavily financed by the banking system, then too much money is created. Excess money causes inflation. And if we allow increases in debt to be excessively financed by the banking system, and excessive means that more is created than the amount of money that ought to be created annually, then we have nothing to expect but inflation.

Senator MILLER. My time is up. I would like to go into that with you in a little more detail. But I would just like to footnote this last question.

Do you think that ratio of 1.85 of debt to 1 of increased GNP is a healthy ratio? Why should it not be 1 to 1, or even less than 1 to 1?

Mr. WALLICH. Well, it depends on the amount of investment that the economy needs. After all, for everybody who goes into debt, there is somebody else who wants to save money. Now, savings need to be invested; otherwise, money is withdrawn from the income stream and jobs are lost. Therefore, every time somebody saves a dollar, somebody else, or maybe himself, needs to invest a dollar. I would not want to discourage borrowing in the face of a high rate of saving. Our problem, I think, is to prevent excesses to make sure that particular sectors, particular firms, households, do not go beyond their debt capacity.

Senator MILLER. Thank you very much.

Chairman PROXMIRE. Mrs. Griffiths?

Representative GRIFFITHS. Thank you, Mr. Chairman.

May I ask you, each or any of you. Do you really think this country can survive full employment merely with the use of monetary and fiscal policy? Survive?

Mr. MODIGLIANI. What do you mean by survive?

Representative GRIFFITHS. Well, we would not have to take some sort of drastic action in some other area, with full employment, just by the use of fiscal—

Mr. WALLICH. The answer surely is "No," Mrs. Griffiths.

Representative GRIFFITHS. I agree.

Mr. WALLICH. One policy instrument among two, driving toward full employment and the other seeking to achieve all our other objectives—it depends, of course, on what we mean by full employment.

Representative GRIFFITHS. I mean hunting up all these people—those that the unemployment security people in all these States are now ignoring.

Mr. WALLICH. If by full employment, you mean that we really solve the problem of these pockets of unemployment, knowing that some European countries did and go to a one-half of 1 percent unemployment rate, then it is very clear that by trying to do the same we would go up in rapid inflation. It does not help to say, let us use fiscal policy to stop that inflation, because fiscal policy and monetary policy pull on the same string. They both work an aggregate demand.

There are no known instruments that really work that will accomplish what you would like to accomplish, short of tight controls on prices and wages. I do not believe those will work in peacetime, because it is basically the Congress that would feel the pressures to break these contracts—and I think they would be broken.

Now, there is one piece of very cold comfort. If a 2-percent unemployment rate is inflationary, we do not really have the choice of saying let us accept that inflation. If the inflation is 3 percent, let us live with it and if it is 8 percent, let us live with it, too. There is every reason to believe that this inflation would accelerate. At a 2-percent unemployment rate, labor will not be satisfied with a real wage increase of 3 percent, which productivity permits, but they may want, let us say, 6. The economy cannot give 6 percent. If wage settlement such as are now made at a 6-percent rate, inflation will occur that reduces the nominal 6 back to a real 3 percent. When labor observes that, they will have to add that inflation into the next wage demand and will ask for a higher rate. That will give a still higher rate of inflation. In the next round thereafter, labor will again have to escalate its demand. Business, also counting on inflation, will always be willing to grant it.

Representative GRIFFITHS. Because they are escalating, too. I observed the other day one of the drug companies in this town on a 17-percent increase in sales got a 61-percent increase in profit.

Mr. WALLICH. Business can take care of itself. If labor asks for 7 percent instead of 3, business raises prices by 4. Labor asks for 11; business takes care of that by moving inflation up yet again.

Representative GRIFFITHS. Now, may I ask you, when we are talking about stability and trying to create it in the economy with monetary and fiscal controls, what we really are talking about is stabilizing it at the status quo. If you could fight your way into the economy stream, we may accept you, but we are not going to do anything under our stability policy that really puts any pressure on them to take in new people. Is that not really right?

Mr. WALLICH. The means to that, I think, are different. We have to recognize that aggregate demand policy will only carry us so far. But there is a vast range of other policies that we can pursue—job training, increasing mobility, tax incentives to business. We have not even begun to scratch the surface of what can be done to reduce the equilibrium level of unemployment.

Mr. MODIGLIANI. I would like to comment. Mr. Wallich has used this sort of mysterious sentence of equilibrium level of unemployment, which is sort of economic jargon. What we ought to say is that we should at all times aim at the lowest level of unemployment that is consistent with stability, and at the same time try to lower that minimum level that is consistent with stability.

At any particular point in time, given the structure of the labor market, I think it is sensible to suppose that there is some minimum level of unemployment that is achievable while maintaining relative price stability—not absolute, but a reasonable amount of price stability, and no explosive developments. Just what it is, we do not know precisely. We know it is less than five, probably less than four; and are pretty sure at the present time that it is not less than three.

But in aiming at the lowest unemployment consistent with reasonable price stability we should remember that what matters is not just level, it is also how we get there. I believe the problem we are facing now, where we seem to be running into an inflationary spiral at something over 3.5 percent unemployment is that we have been approaching it too rapidly. In 1966, when we were already at the 4-percent level we kept pushing rather hard. I think as you approach this lower boundary, you have to approach it very slowly to maintain stability. But beyond that, I think it is absolutely clear that we should aim at lowering that minimum figure. I do not see why, at some point, it should not be as low as two and a half. But it takes some programs, particularly training programs and anything the Congress could do in this direction would be a great help in the long run.

Representative GRIFFITHS. Do you think the proposed tax and expenditure cut policy is recessionary and if so, how much?

Mr. CHANDLER. I certainly would not expect it to be recessionary. It might take some of the inflationary steam out of the economy. But given the rate of increase of expenditures and the rate of increase of prices at the present time, surely an increase of taxes by \$10 billion and a cut in expenditures of \$4 billion would not put us in a recessionary situation. My own estimate is that we would still be in an inflationary situation.

Representative GRIFFITHS. How much do you think it would require to make it recessionary?

Mr. CHANDLER. At least \$20 billion at the present time, I would say.

Representative GRIFFITHS. May I ask you, suppose we take a practical problem. Suppose 15,000 poor people showed up here and we decide that, well, we will not cut into any other program, but we will make the money available to train these people and we will see to it that they are hired; by the Government, if necessary, but hired. What do you think the effect of this would be upon the economy? Because it is going to cost money to train them. You are going to have to spend money to train them.

Mr. WALLICH. Mrs. Griffiths, we do have a precedent for this. That is the WPA, which some of us remember. The experience was at least minimal in the sense that it gave these people an income. It did not give them pride in their jobs, it did not produce anything worthwhile. It turned out that the Government as an employer of last resort is not a very efficient employer.

I really think it would be better to give these people the money, say via a negative income tax, then let them scout around to see if they can earn some money for doing real work on top of that.

Mr. MODIGLIANI. I would like to comment by saying that there is a question of priority within expenditures. I would agree with you that the training of people who want to be trained and are trainable is, in my view, the highest priority. But I think there are many pro-

grams that could be cut and I think everybody is familiar with what these programs are—supersonic jet and other things of this kind, and some fat in the defense expenditure. I feel that we should cut those expenditure programs and really look at these training programs and some of the other poverty programs as highest priority items which should be regarded as absolutely untouchable and scrounge elsewhere.

Representative GRIFFITHS. I want to thank you. My time is up. But I think that we spend a lot of our time trying to stabilize the economy that stabilizes a lot of people out of the mainstream of the economy. This really worries me. I do not think we can ask for stability only. I think this is American and we have to pull these people into this economy.

Mr. CHANDLER. May I make one comment on this?

Chairman PROXMIRE. Yes, Mr. Chandler.

Mr. CHANDLER. I certainly agree with the point of view you are expressing and also the views of my colleague, Professor Modigliani. It seems to me that a stabilizing fiscal and monetary policy, even if we had complete and accurate control of aggregate demand, is not enough in the American economy. We have to find ways of improving the performance of both output markets and labor markets in terms of their response to whatever we do to aggregate demand. We need retraining programs. We need rehabilitation programs. We need to knock down all sorts of barriers to freedom of movement and entry in order to get a more favorable response to whatever the monetary and fiscal policy may be. It would be absolutely marvelous if the markets were purely competitive markets, with high degrees of mobility, and so on, that a lot of us like to think of in perfectly competitive systems. But we do not have them. This is one of the reasons we have serious trade-off problems that Professor Wallich was talking about.

Representative GRIFFITHS. Of course, we stabilize out a whole lot of people, but no matter what we do, we are not going to touch those who are highly organized or those who are in a monopoly. Those programs are not going to touch these things.

Mr. WALLICH. On the boards of companies where I serve this is a No. 1 discussion topic. One encouraging thing is that there seems to be known ways of accomplishing this retraining of people. It is not that one is in front of a blank wall. The personnel experts can tell us it will take this, that, and the other, there will be an attrition ratio of so much, the total cost of the program will be such. If the organization will underwrite this, it is possible to bring into the organization so and so many blacks.

Representative GRIFFITHS. Thank you very much, all of you. Thank you. It was excellent.

Chairman PROXMIRE. Senator Jordan?

Senator JORDAN. Thank you.

I want to commend all of you for your constructive statements and the colloquy you have had with the members of the committee, which has been very instructive to me.

I am going to direct a question to the entire panel and I will call on you, each one, in the order in which you have presented your statements. I am concerned about where we go from here with respect

to current policy. True, we have had an increase in gross national product of some \$20 billion in the first quarter of this year, which includes about 4 percent inflation. We hear in many quarters that the economy is overheated, and we have to take some steps to cool it down. Yet, I would submit that there are some segments of the economy which are not overheated.

I come from an agricultural State. Farm parity prices are the lowest they have been since farm parity prices were introduced way back in the depression years. I had a call from a very substantial farmer in my State the other day. I think his farmland, his machinery, and storage facilities would be worth in the neighborhood of a million dollars. He has a \$300,000 operating loan at the bank and he pays 8½ percent interest.

He says, I have not paid any income tax for the past 4 years out of 5. He said, please plead with Mr. Martin of the Federal Reserve Board to reduce interest rates and to put as much emphasis as is necessary on fiscal restraint by increasing income tax or surtax or what have you, because, he said, I am not paying any income tax—the interest rate is driving me out of business.

So I would ask you what do you see as the most prudent monetary policy to relieve the current inflationary pressure? You may make whatever assumptions you like about fiscal policy.

I will call first upon Professor Chandler.

Mr. CHANDLER. We have really reached a dangerous state in the country in terms of price expectations. In 1965, we were in a rather fortunate position in that prices had been pretty stable since about 1958 and not too many people were worried about price increases. Now, as a result of the price increases we have had for nearly 3 years, the expectational situation is extremely dangerous. You see it built into the new wage contracts, you see it built into forward pricing of products and so. I feel something has to be done to slow down the run-away behavior of expectations.

My own feeling is that in the absence of fiscal restrictions, the Federal Reserve simply cannot relax its restrictive policy and it might even have to go farther in the direction of restriction. I would much prefer to see some effective restrictive fiscal action taken so we could live with a somewhat lower level of interest rates. I do not think the present level of interest rates and the present level of reliance on monetary restriction is conducive to growth of the economy.

I think you have eloquently indicated some of the differences in the impact of restrictive fiscal policies as compared with monetary policies.

Senator JORDAN. I will add one question to it and ask you to comment on this, Professor Chandler.

What fiscal restraint would you recommend to go along with the present monetary policy?

Mr. CHANDLER. I would hope that the gentlemen in Congress would continue to look for expenditures that can be cut with little loss to the country as a whole. I would hope that you would keep in mind, however, a sense of priorities about expenditures and not cut back the ones that are, as Mr. Modigliani said, of the highest priority.

I would prefer heavy reliance on tax increases, especially personal and corporate income taxes.

Senator JORDAN. Mr. Modigliani?

Mr. MODIGLIANI. I think I fundamentally agree with what Professor Chandler has said. The high level of interest rates we have reached now reflect a combination of causes. They reflect a very expansionary fiscal policy. These expenditures were not accompanied by corresponding increases in revenue. It reflects to some extent expectation of rising prices which typically do lead to higher interest rates, because people essentially are willing to borrow at higher rates if they expect to gain from the increases in the prices of the things they buy, or the plant they buy while it is being used.

There are also other factors, however, that contribute to the high interest rates, and I think perhaps people should be more aware of it. I believe that one of the forces that has led to higher interest rates are fiscal incentives such as the investment credit. The investment credit makes it more profitable for firms to acquire equipment, and they are, therefore, willing to pay a higher interest rate because of this higher profitability.

If one were really concerned with trying to reduce interest rates, and I think there is some point to that, one might want to look at the possibility of eliminating some of the incentives that now exist for borrowing at higher rates. In the short run, the tightening of fiscal policy would contribute toward making it possible to at least have no further escalation of interest rates and possibly, by reducing expectations, by changing the mood, to also reduce interest rates.

After all, we do know that every time Congress seems to be close to passing a tax bill, the bond market responds by higher bond prices, lower interest rates. So I think that step would be a helpful step in that direction. Needless to say, I think it is important to act very fast, because the Federal Reserve has been in some sense holding its horses hoping for such passage. And at some point, it just will not be able to hold any longer. So I think time is of the essence, and those steps are not so easily retraceable. So I hope the tax increase will be passed very fast.

Senator JORDAN. And you, too, would go along for selective cuts in spending?

Mr. MODIGLIANI. Oh, absolutely.

Senator JORDAN. Thank you.

Professor Wallich?

Mr. WALLICH. Senator Jordan, I agree with what my predecessors have said and would say very briefly, high interest rates are very largely due to inflation. I would favor as low interest rates as we can get consistent with economic stability. If the Government will stop inflating, interest rates will be a lot lower. As a mild consolation to the farmer who seems to be caught wearing these two millstones, there is the possibility that on the debt he already owes, the true interest rate is substantially reduced by inflation. A four percent price increase means that the real value of his debt in purchasing power is that much less. That does not help him very much, however, if the value of the things he produces is not going up.

It is also possible that the value of the real estate he owns is going up. That would be a compensation.

Senator JORDAN. That has been his only salvation so far. But if he does not sell, he does not realize a capital gain, and he does not wish to sell his property.

Mr. WALLICH. It gives him no cash and his dilemma of paying 8 percent or $8\frac{1}{2}$ percent at low farm prices remains unchanged.

Senator JORDAN. What fiscal restraint would you recommend at this time, Professor Wallich?

Mr. WALLICH. I would go for a tax increase plus expenditure cuts. My preferred tax increase is not a surcharge, but an across-the-board increase. The reason for that is that we always try to mix economic reform or economic equity with a tax change. That is why we get hung up on accomplishing it. If we instituted once and for all a rule that when taxes need to be raised, they are raised across-the-board, and when they need to be lowered, they are lowered across-the-board, then we have removed the distributional effect, the impact on the upper and lower income brackets. I think these changes will go through the Congress with much less difficulty than they do now.

As far as expenditure cuts are concerned, everybody has his priorities. My colleague, Professor Modigliani, mentioned the SST. Surely, that looks like a very useless expenditure now. We do not know 10 years from now how we are going to feel about it. We may now feel in our balance of payments the failure to make certain R. & D. expenditures 10 and 20 years ago that now would be giving us an income.

I would go slow on cutting things that will improve the balance of payments 10 years from now.

Senator JORDAN. Instead of being selective, could you give us a percentage of cut that you think would be a good target?

Mr. WALLICH. I could very easily, Senator, generate \$6 billion—I cannot do it in percents, but I can do it in billions.

Senator JORDAN. Yes.

Mr. WALLICH. I could do it in billions and bring it up to six or more. But I am not sufficiently unrealistic to think that some of the programs that are deeply imbedded in our legislation or in our political structure could easily be cut. When I look at the programs that I think are cuttable, I have quite a hard time getting to 6 percent.

I just want to note that a civil service increase ranks as equally important in our program at the margin as the poverty program.

Senator JORDAN. Would you two gentlemen agree that \$6 billion is a desirable target for cutting? Would you say more or less?

Mr. MODIGLIANI. I would say \$4 to \$6 billion. I would think that would be quite adequate.

Senator JORDAN. Professor Chandler?

Mr. CHANDLER. I would find it difficult to answer that without knowing which expenditures were going to be cut. If a major part of it came out of the antipoverty program, I would not be happy. If it came out of the supersonic program and perhaps nonessential military expenditures and some things of that sort, I would be much happier.

Senator JORDAN. Thank you. My time is up.

Chairman PROXMIRE. Congressman Moorhead?

Representative MOORHEAD. Thank you, Mr. Chairman. I would like to continue with Senator Jordan's line of questioning.

My question is: Given the proposed package before the Ways and Means Committee of a \$4 billion cut in expenditures plus approximately \$10 billion increase in taxes and recognizing that there might be a better way, do you economists feel \$14 billion is too much, not enough, or just about right for our situation? May we hear from each of you?

Mr. CHANDLER. I would say it is a minimum package and that if it goes through, it probably will not be enough to permit us to have anything like a sensational turnabout in levels of interest rates. But as a minimum it would probably head off the necessity for still higher interest rates. I would like to see a larger package, but at this point, I am willing to take anything I can get.

Representative MOORHEAD. Professor Modigliani?

Mr. MODIGLIANI. Yes, I would agree that this is about the right figure to shoot at at the moment. I do not think we can be any more precise at this time. As developments unfold, 6 months from now, we may want to take a new look and see what the situation looks like then. It seems to me that at the moment, this figure is realistic. That is, it is within feasibility. And I would rate urgency above being precise about quantity. I think the first thing is to get it going.

One other comment. I would like to stress one point Professor Chandler has made in his presentation, namely, the while we have been concerned here with development of rules for the Federal Reserve, we should stress the great importance of a flexible fiscal policy as a long-run program. In particular, I think the proposition—well, some of the results of the study I have been undertaking together with the Federal Reserve do confirm these long lags in monetary policy and do suggest that monetary policy is not a good instrument for fine tuning.

Representative MOORHEAD. That monetary policy is not—

Mr. MODIGLIANI. A good policy for fine tuning. In other words, there is a point in saying we would like to live in an environment in which the tasks of monetary policy are to bring about only slow changes, changes which result from slow developments. But for the fast developments such as sudden changes in expenditures or other kinds of rapid changing conditions, fiscal policy is more suited.

I think one point that needs attention is the development of fiscal tools which are flexible and also which have the correct expectational aspect. You see, there is one problem. We have talked frequently about the possibility of using temporary changes in the income tax; that is, raise it and lower it temporarily.

These temporary changes have one trouble, that they have the wrong expectational aspects. If the people know the taxes are going to be put up for just 3 or 6 months, chances are there would be little change in their consumption because they would look forward to being able to recoup later. Therefore, I think attention should be given to finding measures that have the right incentives. An example of such a measure is a suspension of the investment credit. Temporary suspension of the investment credit has the effect of encouraging a postponement of spending until the credit has been reinstated.

Therefore, besides reducing expenditure by reducing income it also reduces it by inducing a postponement to a time at which the higher expenditure will be useful to support aggregate demand.

A similar provision can be made with respect to excise taxes. They would have the right expectational characteristics and I think this would be an excellent tool to add to our box of tools.

Mr. WALLICH. These last two remarks of Professor Modigliani are exactly those I wrote down here: Income tax changes do not operate well on a temporary basis because people will cover the gap by

borrowing when it is an increase and save the windfall when it is a decrease in taxes; investment credit changes and excise taxes are the things that cause postponement, precisely because at a later time, one one will be able to buy more cheaply; or at a later time, it will cost more when the tax was changed in the opposite direction.

As far as the effect of this package—I believe it is a 10-8-4 package—is concerned, I share the views of my colleagues. It will not stop inflation, it will keep the situation from getting worse. What we have learned about prospective business cycle developments in the last month or so points toward strength in the economy in the second half. The danger of overkill thus is less. We have to resign ourselves to some continued inflation in the years 1969 and 1970 because we are already building it into the wage structure by 6 or more percent wage increases in 3-year contracts.

Representative MOORHEAD. I am very much interested in the excise tax increase-decrease. Is there any way that this can be made to operate automatically, or does it have to be either by congressional action or action by the Congress to delegate this power to the President or some other agency?

Mr. WALLICH. We have backed away largely from automatic devices, Mr. Moorhead. In the early postwar period there was talk of trigger mechanisms. If unemployment rises above 5 percent or if inflation goes faster than 3 percent, certain actions are automatically taken. We have seen evidence that most of these triggers would give the wrong signals, just as I think the automatic monetary growth rule would, in effect, be the wrong kind of automaticity. So we are talking about discretion.

If it were not so completely unrealistic, I would say turn the whole thing over to the Federal Reserve.

The President has shown that he may have reasons why it may not be advisable for him to recommend a tax increase at certain times. The Congress has shown that at certain times, as Mrs. Griffiths says, a tax change goes through the Congress like a declaration of war and other times it takes a year and a half. It is not a timely instrument in the hands of either of these parties. If you could find a good outside group to whom you could delegate this power, you could prevail upon yourselves to give it up; it would be a good thing.

Representative MOORHEAD. I have a suggestion I would like to propose to you gentlemen. I think it is possible that Congress would be willing to delegate the unpopular task of raising the taxes to the President—but not the power to lower them, because a President in seeking reelection would be sorely tempted to lower them just at the right time to get the maximum political effect.

If we delegated the power to raise them, I think that the Congress has learned the good economics and the good politics of cutting the taxes, and I believe we could get that through the Congress in very short order.

Do you think this would be a way of solving the dilemma?

Mr. WALLICH. That is the first time I have heard this proposal, Congressman. I am sorry that it did not originate in the private sector, as it were. I think it is a very interesting proposal.

Representative MOORHEAD. I introduced a bill one time to give the

President the power to raise taxes during the time that Congress is not in session. But I did not get too much support for it.

Mr. CHANDLER. I would like to make a comment on a statement by Professor Modigliani. He pointed out, I think quite properly, that an income tax cut with a stated terminal date might not be very effective because people would go ahead and spend. That would argue very strongly against a tax increase that would expire, say, on December 31 of this year. But I should not expect it to apply to a tax increase of indefinite duration.

In other words, if the tax were put in and would stay there until you gentlemen took action to take it off, I think you would avoid the escape that Professor Modigliani indicated.

Mr. MODIGLIANI. I would like to comment on one point I would not agree on the idea of entrusting that power to the Federal Reserve. I think it is to be entrusted to elected officials. I think if the President makes the mistake of not raising taxes when they should be raised, he should bear the blame. He can be defeated next time. One hopes that this is the way democracy works, that at least in the medium run, it works.

I think it should be left to the Congress and to the President.

I think your idea that the President could raise taxes, I suppose this is subject to the approval of Congress. I suppose Congress could disapprove, and, also, Congress could propose that the tax be cut, but it could not be done by the President on his own authority. That is what you are suggesting?

Representative MOORHEAD. Oh, yes.

Mr. MODIGLIANI. This strikes me as quite possibly a very good device, although there is something to be said for announcing in advance a terminal date for this kind of tax and then, perhaps subject to some conditions under which the termination would not be automatic or something of the sort.

Representative MOORHEAD. Of course, I would put a limit on the amount that he could raise them. I am not sure what that should be.

Mr. MODIGLIANI. Oh, of course. He could choose within some limited range.

Representative MOORHEAD. Take something like the Reorganization Act, the Congress could disapprove it if he acted. But otherwise, the Congress would retain the complete power of cutting taxes.

Mr. WALLICH. Could I add one thing?

Representative MOORHEAD. Yes.

Mr. WALLICH. I think it is extremely important to put a terminal date on this, even though I recognize that it reduces the effectiveness, because if there is not, it is very likely that the supposedly temporary tax becomes permanent, like the telephone taxes. This mechanism then generates a gradual rise in the size of the public sector that was not intended.

Representative MOORHEAD. Thank you.

Chairman PROXMIRE. I would like to pursue that on the basis of the same questioning that Congressman Moorhead was engaging in.

I agree on the terminal date. I would make the date about the day after it was enacted, because I am against the tax increase entirely, probably for the very interesting arguments that you gentlemen have properly made concerning it. You point out that a tax, an income

tax, with a terminal date is less likely to have an effect on expenditures and consumption by the taxpayer, for obvious reasons. This is a tax that is being imposed now, this \$10 billion tax—\$7 billion of it would be on the individual taxpayer—that would expire within a year. Testimony we have had heretofore has indicated that tax increases that we have had in the past or tax changes we have had in the past have a lag of 9 months. Some have argued a year or 2 years.

Again, in view of the unpredictability, as we look at the international situation, the Vietnam war, and so forth, it would seem to this Senator that it is just a shot in the dark to impose a tax which is going to have its effect probably in a year or so if at all, and although you gentlemen seem quite sanguine on the notion that if you put a terminal date on it it will expire at that time; I would disagree with you, because we have had very few taxes that have expired at the time that they were scheduled to do so. They are usually reenacted.

You are likely to have a situation, in my view, where you have increasing unemployment, but also continuation of rising prices if we are realistic about it, so it is going to be hard to get that tax repealed.

We all think it is easy to stop taxes or at least to lower taxes, but I think if you will recall the last tax cut experience, in 1964, President Kennedy struggled and fought and pleaded and tried to persuade the Congress for 2 years before it was finally put into effect.

So that this whole—I do not want to get into an argument, of course, on fiscal policy, because that is not our purpose here, except to express the notion that I think it is a mistake to say we can rely on monetary policy for the long-term effect and hope that we can have a fiscal policy which is going to be more responsive to the immediate need.

That may be very good economics, but I think it is very bad politics.

Our experience has just indicated that we are not going to do it. We are not going to put business on a yoyo with this investment credit. My experience is that Congress has had it with that. We put it on, took it off, put it on again. Congress does not want to fool around with that any more. I cannot think of anything worse politically than to put an excise tax on, take it off, put it on again. The small businessman does not like it, the businessman reacts most violently to it. The consumer does, too.

So this relying on tax increase for economic short-run effects I do not think is very realistic.

Professor MODIGLIANI. I think in terms of the lags you have referred to, I think the studies we have been conducting do suggest that the lags are not that long. Six months, yes, but there is some impact effect within the first quarter and the effect builds up.

So that I don't think one should be that pessimistic. Also I believe that under the present circumstances, there is a psychological impact which is extremely important. I think I would expect, in fact, that it would have some immediate effects in the financial markets. That is one of the things we seek. We do seek to put an end to the escalation of interest rates with the danger this poses to some sectors of our economy, such as the construction.

Chairman PROXMIRE. Let me pose the question a little more sharply and specifically.

Supposing this package does go through, the \$10 billion tax increase, the \$4 billion expenditure cut, et cetera. Mr. Chandler indicates he

wanted a \$20 billion package, and I take it he means a bigger tax increase. I think we all recognize the pressure from the balance of payments to maintain a tight monetary policy, maintain high interest rates. Under these circumstances do you foresee the possibility that the Federal Reserve Board could wisely follow the notion of easier monetary policy, given the international situation, or will we not be constrained to have, No. 1, tighter fiscal policy with the \$14 billion package and the continuation of a tight monetary policy to keep our capital here, or attract capital from abroad?

Mr. MODIGLIANI. A mix of the sort I have suggested would, I am sure, be quite acceptable to the foreign central banks.

Chairman PROXMIRE. They do not vote in this country.

Mr. CHANDLER. That is right. But if you are talking about the balance-of-payments effects, the most severe part of that is the gold problem. They do not like us to have high interest rates in this country because of the effects on their own domestic economies. They have been pleading for a more restrictive fiscal policy here so that we would not tend to draw funds away from them in the loan markets.

So I would be quite sure that you would get cooperation from the foreign central bankers even if the interest rates were lower. They would welcome that.

Chairman PROXMIRE. They may welcome that, but would this help our balance-of-payments situation? After all, if our interest rates are lower here, would there not be a tendency for capital not to flow abroad or more capital to flow here?

Mr. CHANDLER. This is true, but there may be no more gold conversion.

Senator PROXMIRE. Less gold conversion.

Mr. MODIGLIANI. By the cooperation of the foreign central banks, I think he means they would also come along with the easier monetary policy.

If we stopped increasing or perhaps eased a little on our long rates, I think the foreign central banks would try to pursue a policy of the same kind and this would not deteriorate our balance of payments.

Senator PROXMIRE. They might try to, but our past experience with them is that they tend to serve their own economic needs.

Mr. MODIGLIANI. This time I think there is a willingness to cooperate and they have indicated a willingness to pursue an easier monetary policy if we will let them, as it were.

Chairman PROXMIRE. I am surprised none of you gentlemen have espoused the position taken by Governor Robertson. He appeared before the Senate Banking Committee last week. He said in his view we should completely ignore the balance-of-payments policy when it comes to monetary policy. Our monetary policy should be completely based on our domestic economy and the needs of the domestic economy. He said you can ignore the balance of payments and do it with an interest equalization tax and that is what we should do, that you cannot solve both problems at the same time. If you do, you are going to have a monetary policy that is going to conflict with your domestic needs that are much more important; there is going to be slow growth or you need more growth and it is going to be inflationary.

Mr. MODIGLIANI. I think you raised this international aspect, so I was responding to you.

I think I would agree with Governor Robertson to a point, that there are devices we can use to insulate our economy. I do not think the insulation is ever going to be complete. The interest equalization tax, after all, is one that works on long-term bonds, on long-term instruments.

Chairman PROXMIRE. Why not? Why can you not devise an interest equalization tax that will work on everything? Whatever you have to have, you provide that kind of tax.

Mr. MODIGLIANI. I would be very much in favor of the extension of the interest equalization tax. I was an early proposer of that tax. I think one could try, although problems get more and more complicated as you move from more formal instruments like securities to less formal instruments like loan arrangement.

But I think this is very much worth pursuing, and I think it would be a perfectly good idea to give attention to increasing the interest equalization tax if it becomes necessary. I think this is within the range of desirable changes.

But I do not think one can completely disregard the foreign aspects, either at the level of interest rates or at the level of the effect of domestic demand and prices on foreign trade. Unless we make recourse to quotas or additional import duties, there is no way in which we can prevent higher domestic prices from affecting adversely the balance of payments and, in this case, balance of trade, which is of course the mainstay of the whole thing.

Chairman PROXMIRE. Let me ask you gentlemen if you all oppose under present circumstances imposition of either price controls and so forth or credit controls.

Mr. WALLICH. By credit controls, Mr. Chairman, do you mean a credit ceiling, such as—

Chairman PROXMIRE. No, of course we have, as you know, considerable controls in that respect. I was referring to a limitation on a requirement for a downpayment that would be a certain proportion of the cost of an automobile, for example, and that payment would have to be over a limited period of time so that we could tend to restrain the inflationary tendencies in that area.

Mr. WALLICH. We have tried those and it looks as though they were appropriate at a time when the housing industry was overextended, the automobile industry overextended. Then they served a purpose on a temporary basis.

In the long run, they tend to be undermined if liquidity runs high—people begin to buy with their own money what they cannot buy on credit.

At the present time we have what is called a balanced imbalance. All sectors are a little overextended and I see no reason particularly to hit at the housing industry, which is in great jeopardy from tight money. Automobiles are not visibly overextended.

If we went to direct credit controls, I would favor what has always been used abroad when they really meant business to tighten and that was, in addition to high interest rates and tight money, a ceiling on overall lending. Each bank is told, "You can increase the volume of your credit by only 1 percent per month or a half percent per month," and let them then allocate among different customers so that the allocational function of the market is not completely destroyed.

Chairman PROXMIRE. I think it would be very helpful because we do have a problem trying to get money into the housing industry, which is most serious now and is going to continue to be serious, in my view, for months and years to come unless we work something like this out.

Mr. WALLICH. If the housing industry were given this leeway while, say, other intermediaries were also under constraint, this might make for better distribution.

I would like to add one thing to the discussion of whether we cannot ignore the balance of payments. There is just one way by which one can do that, and that is to cut loose from gold and let the dollar float. It will always float low enough so that we can pursue any domestic policy we please and not have to worry about a disequilibrium.

If we do it in any other way—interest equalization tax, direct controls on corporations, tourist tax, surcharge on import—I would predict that independent domestic policies that do not pay attention to what happens to the balance of payments, and particularly the trade balance, as Professor Modigliani said, will within 5 or 10 years get us to where some European countries were during the 1930's: one needs a license for every single international transaction. A tourist gets 10 units of the local currency as he departs and he can then see how he makes out abroad; direct investment is stopped, all foreign assets are under control and possibly being sequestered by the Government. That makes for a perfectly horrible situation.

Chairman PROXMIRE. So we come back to a situation where, in view of the international balance-of-payments situation, no matter what we do with fiscal policy, we are going to have a reasonably tight—continuing tight monetary policy. At least interest rates cannot be expected to fall very rapidly.

Mr. WALLICH. We live in this world and we have to watch the balance of payments.

I agree with what has been said that tighter fiscal policy will help on interest rates. Whether it will bring them down very much, I do not know. But in the absence of a tax increase, I foresee very substantial escalation at the short end and some escalation, say 7½ percent or so, on bonds at the long end, a crunch on housing again, not quite of the same kind as last time because the market learns to defend itself.

In general, I foresee again this overuse of monetary and underuse of fiscal policy.

Mr. CHANDLER. Might I comment on two things here? First, with respect to the ceilings on the total amount of credit extended by a bank—this may work with more or less success in a country that has anywhere from five to 20 banks. Just contemplate the situation with 13,700. And even if you exempted the bottom 2,000, you would still have a problem.

On your question about wage—

Chairman PROXMIRE. Why? More banks, but why any harder?

Mr. CHANDLER. It is much harder primarily for this reason: You then have the problem of allocating your overall quota among the different banks. If one thing is certain, it is that demand for credit will behave very differently at the different banks. The only way it could work with anything like satisfactory allocation would be if one bank had some way of transferring its quota to another bank. Perhaps

someone could work out such a scheme, but it would be very difficult.

I would like to comment also on the wage-price control. I do think with some feeling, having spent three hectic years of my life as a price controller and we just barely held on until the war was over—almost as soon as the war was over, the whole thing collapsed.

Chairman PROXMIRE. Which war was that?

Mr. CHANDLER. World War II.

Chairman PROXMIRE. I meant by that—

Mr. CHANDLER. By the end of that war, I thought I had been in it since World War I. We had the most favorable possible conditions—a feeling of natural unity, of patriotism, and the rest. The thing worked very well during the war, given the pressures, but it could not survive peacetime conditions.

Given the divided opinion we have in this country and the nearness to violence that we experience all the time, wage and price controls do not have a prayer.

Chairman PROXMIRE. I take it that is the unanimous position.

Mr. MODIGLIANI. That is right.

Also, I would indicate I am very much against this idea of the credit ceiling. I think there are other devices by which we control the banks—namely, through the Federal Reserve—and possibly controls on the interest rate they can offer to their depositors on the time deposits and on CD's. I think that is somewhat less discriminatory.

I think Mr. Chandler is quite right in pointing out the problem, particularly with so many banks, that you will have a poor allocation of credit and it will just be working against an improved efficiency.

It does not seem to me that the present emergency is in any way that serious.

I also would argue that to some extent the balance-of-payment problem is now complicated by the gold problem and the problem of the dollar as a reserve currency. I very much hope that the new administration will try to organize and arrange an international conference like Bretton Woods in which there will be a chance of changing radically the international monetary arrangements and in which the United States will give up its privileged position as a reserve currency. Then I think certain other things will be easier to handle because we will have more goodwill and cooperation.

Chairman PROXMIRE. Senator Miller?

Senator MILLER. Thank you, Mr. Chairman.

First let me say that I have enjoyed very much the discussion by the panel. It is my observation that this is about the most agreeable panel among themselves we could find.

Professor Chandler, I take it from what you have said that you would conclude it would be whistling in the dark to suggest a fixed rule on monetary policy without taking into account the gyrations of fiscal action—not just fiscal policy, but fiscal action.

Mr. CHANDLER. That is true.

Mr. MODIGLIANI. True.

Senator MILLER. Now, all of you seemed to agree that we ought to go for about a \$14 billion package, although Professor Chandler suggested it may be more than that. But looking at fiscal 1969 with a \$29 billion deficit in the offing, and this does not take into account possible supplemental appropriation requests, a \$14 billion package

would only cut that deficit in half. That would give us a \$14 billion budget deficit.

My recollection is that during calendar year 1967 our deficit was in the neighborhood of \$19 billion. This laid a foundation for \$25 billion of inflation, and the comment was made later that it seems as though we may have been seeking stability in the economy which has resulted in excluding many people from the main stream of our economy.

I would be inclined to suggest that perhaps we have not been having the stability in our economy, because I cannot see much stability in an economy with \$25 billion of cost-of-living inflation, not to mention about another \$18 billion of erosion away of the purchasing power or the value of life insurance or pension fund reserves and savings accounts and the like.

Now, this \$25 billion can be allocated among the various States on a per capita net income basis. If that is done, in turn it can be translated into an impact on the individual citizens of a State according to a sales tax equivalent, because it operates in about the same way in taking purchasing power away from people. Wisconsin's share—I was over in the chairman's home State a couple of weeks ago, and I pointed out that Wisconsin's share of that \$25 billion cost-of-living inflation of 1967 was the equivalent of a 17-percent sales tax. I believe it was in the neighborhood of the equivalent of a 12-percent sales tax in New Jersey.

If you come along with that kind of an impact of inflation on people, it seems to me that the lack of stability in the economy is indeed going to exclude the poor and underprivileged people from the mainstream of our economy. I do not see how they can even afford to buy the necessities of life if that continues.

Do you think that this is a realistic approach of the impact of inflation on the people who are presently excluded from the mainstream of our economy?

Mr. CHANDLER. The analogy with a sales tax is a rather interesting one and carries you a certain distance. There is, however, a very great difference, in that the very same process that brings about the rise of prices and the decrease in the purchasing power of the dollar also throws a lot more money income into the hands of the public, but does it in a most erratic type of way, so that some are more than compensated for the sales tax type of thing that you mentioned and others are not compensated at all.

Senator MILLER. And those that are not compensated at all or scarcely at all are the poor and underprivileged, are they not, by and large?

Mr. CHANDLER. They range widely. Certainly among the poor and underprivileged you have a lot of them whose wages do not go up if they are working or whose welfare allowances do not go up if they are relying on those. Of course, at the other end of the scale is the chap who is living off bond income, who gets hit proportionately just as hard, though the pain may not be as great.

Senator MILLER. Except that he may also have an estate to fall back on, which the poor and underprivileged do not have.

Mr. CHANDLER. That is why I say the pain may not be so great.

But this is not true of all of them. There are some who may have retired on fixed incomes which are barely adequate to maintain a re-

duced standard of living from what they had when they were working. There can be very serious hardships in many of those cases.

Senator MILLER. Right.

Professor Wallich, you made a statement that surprised me a little. You said business can always take care of itself in connection with the rounds of wage and price increases. But do you not have to take into account the competitive position in world markets?

Mr. WALLICH. Yes. I think as particular businesses are concerned in particular sectors, that may well be so. You see it in the steel industry, for instance. Historically—that is what I was referring to—income shares as between capital and labor have been remarkably stable. The efforts of labor to increase the income share by pressing for higher wages have been quite unavailing. Over short periods that may vary, because profit margins undoubtedly get squeezed at certain times. And we have never had a period like the present of a heavy payments deficit and heavy pressure of foreign competition.

Senator MILLER. I would like to ask each member of the panel a double-barreled question. And I know how difficult it is for members of the economics profession to make an absolute statement. But I suppose there are certain axioms in the economics profession—not many, perhaps, but there are probably some. But would you say that it would be axiomatic that an increase in the money supply over and above the amount of the increase in real economic growth would lead to inflation?

Mr. MODIGLIANI. I can definitely say that it is not so. There is no such axiom. There is nothing that says that an increase of the money supply above the growth of real GNP meets—

Senator MILLER. Now wait a minute, please. I do not say real GNP. I worded it this way: above real economic growth. I might say I certainly do not subscribe to the thought that GNP has any necessary relationship to real economic growth.

Mr. MODIGLIANI. Right. Well, I think even to that, the answer is that there is no simple relation between the rate of growth of the money supply, in relation to the capacity of the economy or whatever other measures you want, and inflation.

Senator MILLER. Suppose the three of you all agreed that during the last 3 months we had real economic growth in this country of \$10 billion. Now, that is quite an assumption, because we would have quite a time figuring out what indeed constitutes real economic growth. But suppose that you could come up with a formula in computing that that would be reasonably agreeable among the three of you. And we saw an inflation in the money supply of \$15 billion.

Mr. MODIGLIANI. Yes.,

Senator MILLER. Would it follow that we would have had some inflation as a result of the disproportionate increase in the money supply over and above the real economic growth?

Mr. MODIGLIANI. I have tried to precisely answer this question. If you give the specific figures you give, I would say that today, if in fact the capacity rose by \$10 billion, however measured, and the money supply rose by \$15 billion, I would have no doubt that would generate inflation. However, it would not follow that if the money supply grows faster than the thing to which you refer, inflation must necessarily result.

You asked if it is an axiomatic thing, something which has no exception, and I would say it has exceptions.

Senator MILLER. Do the other members of the panel agree on that?

Mr. CHANDLER. I would agree from your example that you most likely would have inflation.

Normally, a monetary increase of something like \$5 billion would finance an increase of \$10 billion of GNP.

Mr. MODIGLIANI. Less than that. More like \$2.5 billion.

Mr. WALLICH. I agree with that.

Senator MILLER. If it is likely that this will prove out, recognizing there could be some exceptions, might it not be a good idea for the Federal Government to try to seek out a formula for arriving at what could be called real economic growth? Instead of all this attention being paid to various factors—gross national product, production, all that business—and come up with a formula that will tell us whether or not we have had any real meaningful economic growth? For example, a year ago you may remember that during the first 3 months the entire amount of increased GNP consisted of inflation. And we were just standing still. That does not mean that we had no real economic growth. Possibly our real economic growth went down. I do not know. But our committee went into this some time ago, I think, Mr. Chairman, when we encouraged the development of a long-range balance sheet for our economy.

I am just wondering why we have not developed something along the line of a concept of real economic growth which would be uniformly recognized by the economics community.

Mr. CHANDLER. I would like to make two comments on that. The first one is that I think the number of exceptions would exceed the rule. I think they would be very frequent indeed. The second thing is that if we are going to approach it from your point of view, we would certainly have to use some concept of potential real growth, because the actual rate of growth is surely not independent of the behavior of demand for output, which in some sense is related to the behavior of the money supply.

So one would have to deal with potentials rather than actuals.

Mr. MODIGLIANI. And I think in this connection, while it is hard to construct a single—a one-dimensional measure of economic growth, I think most economists would agree that a measure of capacity to produce GNP in constant prices is as good an overall measure as one can have, and I think you would want to accompany this by a few related measures such as productivity measures and measures of employment and whatnot.

But, in principle, this notion of the full employment GNP, real GNP, is a good measure, and the way it behaves over time will give you a reasonable measure of real economic growth.

Senator MILLER. You do not agree with Professor Wallich that we could refine that still further to real dollar increased GNP per capita?

Mr. MODIGLIANI. You see, when I speak of a potential economic growth, I mean the amount of GNP in constant prices that could be produced at high-level employment. That still tells you the maximum you could do and what you should shoot for.

You can then, if you want, express it on a per capita basis, that is fine.

Senator MILLER. And you do not think that we ought to take into account increased per capita debt?

Mr. MODIGLIANI. It is automatically taken into account——

Senator MILLER. No, I mean increased per capita debt.

Mr. MODIGLIANI. I do not see why we should worry at all about debt. I think debt is a phenomenon of growth and well-being. I do not see why we should worry particularly about debt. You have to look at it this way: National wealth is about $4\frac{1}{2}$ times aggregate disposable income, 4 to $4\frac{1}{2}$ times. And so people like to keep their wealth in the form of other people's debt.

Senator MILLER. What about Senator Jordan's farmer? What about the agricultural community as a whole?

Now, I understand, looking at this from a 1-year standpoint, that you are not going to get increased income. But looking at it from a 7-year standpoint, we have an increased agricultural net income of over \$13.5 billion. We have an increased agricultural debt of over \$25 billion. The net income per farm is up 55 percent in the last 10 years while the net debt per farm is up 110 percent.

What are the farmers supposed to do? Sell off their real estate in order to pay the debt? I think this debt situation is deeply important, at least to some segments of our economy.

Mr. MODIGLIANI. It may be important to some segments of the economy regardless of the aggregate. It may be that some firms are overloaded with debt while the overall of the economy is shrinking 50 percent a year. So I think it would be wrong to look at any overall measure of debt.

While it is quite true that some people may be in unsatisfactory debt conditions, it is perhaps because the market for their product has not been developing at the same pace other things have been developing. But I would say this is a symptom of some other malaise or disease.

I think there is not any real reason to become concerned with the fact that the debt is growing. The growth of debt is a symptom of economic growth. Essentially everything grows more or less in proportion. To some extent the growth of consumers debt, for instance, which some people have paid attention to, reflects simply a long-drawn consequence of the fact that more and more things are nowadays produced in the household. There was a time when transportation was made by public conveyances, when entertainment was made by firms. Nowadays a great deal of this has shifted to the household and the household is holding the capital goods with which it is producing these services. If it is turning into a firm, it will also borrow like a firm did before. So one has to look at this phenomenon in terms of the entire situation, and I see no reason to think there is any special danger coming from that angle.

Senator MILLER. You are not concerned that we have had a \$500 billion increase in debt and over a \$250 billion increase in GNP over the last year?

Mr. MODIGLIANI. That is about par for the course.

Senator MILLER. That is about par for the course, but look at the inflation we are in.

Mr. MODIGLIANI. But the inflation has nothing to do with this phenomenon, because I think much of that growth of debt to which you refer occurred between 1959, let us say, and 1965, a period of great

price stability. That was one of the periods of greatest stability in our recent history. During that period, if you will look at the figures, you will find that the debt grew at about that pace, if not faster.

Senator MILLER. You do not think that may have laid a foundation for the hardship we are in now?

Mr. MODIGLIANI. No; I believe the inflation that followed after came when we were approaching full employment and we kept pressing the throttle when we were already at the speed limit.

Senator MILLER. Thank you again for your very fine testimony. I am sure we all derived benefit from it.

Chairman PROXMIRE. I just have one more question of Professor Chandler. One of the members of the staff asked me to ask this.

If the major drops in velocity are avoided or mitigated at least by a gradual expansion of the money, is this not a desirable goal? Because arithmetically that would tend to minimize the recession and tend to minimize inflation. Certainly that is a proper and appropriate, desirable economic objective.

This comes back to the argument you were making, Mr. Chandler, that the drop in velocity to which you referred in your postcyclical discussion seems to be generally preceded by increases of money of less than 3 percent.

We seem to be getting at a notion that there is a connection and a favorable connection between velocity and a gradual change in the money supply rather than abrupt changes in the money supply.

If we could favorably affect velocity in this particular way, it seems to me that this might be a desirable argument for the Friedman thesis.

Mr. CHANDLER. There is no question that the behavior of the money supply has some effect upon velocity. I would say that, for example, an increase in the money supply that shows up in a fall of interest rates will probably mean somewhat lower velocity than you would have had otherwise. But my point would be, and here is where I would depart very markedly from Mr. Friedman, that there are a lot of other things that would affect velocity as well, emanating not from the behavior of the money supply.

Chairman PROXMIRE. Yes, he could agree to that. I do not know whether he would, but I would agree that there are many other things that affect it. But if you have a factor, to wit, the change in the supply of money that would seem to affect it favorably, why should we not encourage that kind of policy?

Mr. CHANDLER. The important thing here is not the level of velocity but the variability of it. The point I was trying to make was that it is the variability that is important and also that if you move from a boom period to a depression period you will probably have unfavorable expectational effects if you do not increase the money supply.

I do not really see much point in lowering the average velocity of money.

Chairman PROXMIRE. Frankly, what I get back to is that the Friedman thesis, to the extent that we have modified it, depends on the assumption that the economic future, more than 6 months or so, is very, very hard, impossible to forecast, no matter how competent the people are that you have forecasting for you.

You subscribe to that, that you cannot tell, that you do not know, that you have no knowledge of what economic conditions will be a

year from now. Then I think you can make an argument for the policy this committee subscribes to.

On the other hand, if you contend that you can make a pretty good, pretty wise, prediction as to what the economic situation is going to be when your policy takes effect, then I think you can argue that you should rearrange, cut the money supply, increase it, increase it by 20 percent if that seems to be the thing at the time—do what you wish without any restraint or any guidance whatsoever.

Perhaps you assume that the Federal Reserve can forecast economic conditions—I do not think they can and that is why I subscribe to this position.

Mr. CHANDLER. I guess at some stage you come back to a certain amount of faith and hunches.

Chairman PROXMIRE. That is just what I do not have, faith in hunches.

Mr. CHANDLER. In the first place, much of Professor Friedman's material is based on a study of monetary phenomena from 1867 to the present.

Chairman PROXMIRE. Do you criticize that because he did not go back far enough?

Mr. CHANDLER. On the contrary.

Chairman PROXMIRE. Well, he went up to the present.

Mr. MODIGLIANI. But you mix two periods which have no relation to each other and what you get is garbage.

Mr. CHANDLER. I would say the history of the Federal Reserve and much of his monetary statistics before 1951 are just irrelevant to the new situation.

Chairman PROXMIRE. We tried to go back to 1962 and not before that in our discussion here.

Mr. CHANDLER. So many of his findings simply do not hold for the period since 1951. His forecast of a declining velocity of money has proved to be absolutely wrong, and I think that his comments about the ability of the Federal Reserve to forecast do not apply to the present situation. I admit they made virtually every mistake in the book before World War II. Then they made another big mistake after World War II.

Chairman PROXMIRE. From now on, they are going to be right.

Mr. CHANDLER. They have adopted stabilization objectives, too many of them, in fact. And their whole set of objectives has changed.

Chairman PROXMIRE. I certainly agree that the competence of the board is enormously improved. Now you have economists on the board and that is what we should have had. We have not had them before. Economists have their weaknesses, as we all know. But at least this is their life, their job, their training. That makes a difference.

Tomorrow we will have three gentlemen who will disagree with you gentlemen. I think that should be stimulating. We all agree you have done a marvelous job today, most impressive.

We recess, to reconvene tomorrow at 10 o'clock in this room.

(Whereupon, at 12:50 p.m., the Joint Economic Committee recessed, to reconvene Thursday, May 9, 1968, at 10 a.m.)

STANDARDS FOR GUIDING MONETARY ACTION

THURSDAY, MAY 9, 1968

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met at 10:10 a.m., pursuant to recess, in room S-407, the Capitol, Hon. William Proxmire (chairman of the joint committee) presiding.

Present: Senator Proxmire; and Representative Griffiths.

Also present: John R. Stark, executive director; William H. Moore, senior staff economist; John B. Henderson, staff economist; and Donald A. Webster, minority staff economist.

Chairman PROXMIRE. The Joint Economic Committee will come to order.

This is the second of our current hearings on monetary problems. Yesterday our witnesses gave testimony that was in the main skeptical of the usefulness of simple general rules to guide the operations of the Federal Reserve Board.

The objectives could be formulated in general terms they thought but not the specific limiting guidelines.

Today by contrast at least two of our witnesses are known to be sympathetic to the idea of guidelines for monetary policy. We welcome Professor Christ of Johns Hopkins, Professor Dewald of Ohio State, and Professor Selden of Cornell.

Professor Christ, you might go right ahead. You understand that we have a limitation of 20 minutes on the presentation, although I see you have a nice concise statement and I presume you can present it in less than 20 minutes.

STATEMENT OF CARL F. CHRIST, PROFESSOR, DEPARTMENT OF POLITICAL ECONOMY, THE JOHNS HOPKINS UNIVERSITY

Mr. CHRIST. I was told 10 and I hoped you might give me an extra 10 percent if I needed it.

Chairman PROXMIRE. Of course.

Mr. CHRIST. I am very glad to be here today, Senator, to contribute what I can and also to learn from the committee and my fellow witnesses.

The central questions before us today are whether the Federal Reserve (a) *can* and (b) *should* cause the stock of money to increase fairly steadily at a rate of about 3 to 5 percent a year, and (c) what circumstances, if any, would justify a higher or a lower rate of growth of the stock of money.

The main objectives of monetary policy are full employment and a stable price level.

At the outset we have to admit that we cannot hold the Federal Reserve responsible for everything that happens in the economy. In the first place, there are other actors on the scene, and the Federal Reserve cannot accurately forecast what they will all do. In the second place, the effects of Federal Reserve policy are not all felt immediately; they are spread out over a period of variable length, but at least several months. These two facts mean that the Federal Reserve often cannot know what is the proper action to take today, in order to offset some disturbance that will happen next week and whose effects will be felt next month or next quarter.

But even granted perfect prediction, we could not hold the Federal Reserve responsible for everything, for there are times when a choice must be made between two conflicting aims, and even the Federal Reserve cannot have both.

For example, suppose—not unrealistically—that the Treasury, acting under instructions from the Congress, undertakes a large increase in spending, and that the Congress does not increase tax rates—when I wrote this, the Congress didn't look as though it was going to increase tax rates and I am very pleased that it now looks as though this may happen.

The obvious result would be a large increase in the budget deficit, if there were an increase in expenditure with no increase in tax rates. The Treasury would have to finance this deficit by offering new U.S. Government securities for sale. What will happen? Consider two possibilities.

First, the Federal Reserve could assist in the financing by buying and holding whatever portion of the new securities is not taken up by private investors. In that case, the stock of money would increase, because part of the money that the Treasury spends would be created when the Federal Reserve buys new Treasury securities.

Or, take the second possibility, the Federal Reserve could decline to assist in the financing; that is, buy none of the new Treasury securities offered. In that case, the Treasury would have to offer better terms to the private market; that is, higher interest rates, in order to induce the private market to buy all the securities offered. Then the stock of money would not increase, but interest rates would increase.

Thus, the Federal Reserve has a choice, when faced with a Treasury deficit; the Federal Reserve can increase the money stock while maintaining interest rates about the same, or hold the money stock fixed while permitting interest rates to go up. Of course, one could imagine a policy somewhere between these two, permitting some increases in both the money stock and in interest rates. But the Federal Reserve cannot stabilize both the money stock and interest rates in this situation when there is a large deficit.

Similarly, when faced with a Treasury surplus, the Federal Reserve has a choice between stabilizing the money stock while interest rates fall, or stabilizing interest rates while the money stock falls, but cannot stabilize both.

It is pretty clear that the Federal Reserve can control the stock of money within narrow limits. I mean they can make the stock of money come within plus or minus one-half percent of any desired level, 99 weeks out of 100.

By the way, the money stock concept I am using is the Federal Reserve's own: currency and demand deposits.

It is certain that a policy of increasing the money stock at 4 percent a year, or between 3 and 5 percent a year, would not be the best possible Federal Reserve policy, if we knew everything about how the economy operates. But we don't know that, and therefore, we don't know what the best possible policy is.

I would like to argue *first* that, given our present knowledge, we will probably have better monetary policy if the Federal Reserve sees to it that, during every calendar quarter, the increase of the money stock is at a seasonally adjusted annual rate of between 2 and 6 percent, better I mean than we would have if the Federal Reserve follows policies like those of the past. I would like to argue *second* that the Federal Reserve ought not to change this rate of change abruptly, from a 2-percent annual rate in one quarter to a 6-percent annual rate in the next quarter, or vice versa. *Third*, it is more important to stabilize the rate of growth of the money supply than to stabilize interest rates, whenever the Federal Reserve must make a choice.

For the long run, a 4-percent annual growth rate in the stock of money is about right. Real GNP has been growing at 3.9 percent a year since 1948—when one might say the economy had returned to normal after World War II. At roughly constant interest rates, which we have not had within the last 20 years, a roughly constant price level, the demand for money grows roughly in proportion to real GNP. If the money stock grows much *faster* than 4 percent a year, say 8 percent or more, then aggregate demand is induced to grow much faster than capacity. When demand catches up and overtakes capacity, there is upward pressure on the price level. If the money stock grows much *slower* than 4 percent a year, say it doesn't grow at all, or even declines, then aggregate demand is induced to fall rapidly behind capacity. When this happens, we have deflation, downward pressure on prices, and unemployment.

During 1941–45, the money stock grew at 22 percent a year; everyone agrees that this was far too fast for stability. During the depressions of 1921 and 1929–33, and all the recessions since 1921—they were in 1924, 1927, 1938, 1949, 1954, 1958, and 1961—the money stock *actually declined in absolute terms*, which in my opinion should not be permitted.

I think that is a very important criticism of Federal Reserve policy in the past, that they have permitted the stock of money to decline during depressions.

The evidence so far is not persuasive in favor of the claim that small variations in the rate of growth of the money supply cause business cycles. But it is clear that an actual decline in the money stock, or a prolonged period of little or no growth, aggravates any recession that is in progress or that might develop. Similarly, a prolonged period of rapid growth in the money stock aggravates any overheating that is in progress or that might develop.

Furthermore, rapid changes in the rate of growth of money stock are themselves a disturbing factor.

That is why I would like to see the Federal Reserve keep the rate of growth of the money stock fairly steady, between 2 and 6 percent a year, and to vary this rate of growth only gradually.

It should be pointed out that if the Congress were to require the Federal Reserve to follow any such rule, the Congress would thereby

restrict its own freedom of choice in some situations. Consider again the case in which the Congress provides for a large increase in expenditure with no increase in tax rates, so that a large deficit develops. If the Federal Reserve is prohibited from increasing the money stock at a rate greater than 6 percent a year, say via a congressional rule, then a large share of the deficit would have to be financed by the sale of Treasury securities to the private sector, thus driving interest rates very high, and not completely preventing inflation either—an undesirable situation. Notice that, if the Federal Reserve is required to keep the money stock from growing faster than 6 percent a year, and if the Congress increases expenditures greatly, then the Congress has only the following choices open: to endure high interest rates and some inflation, or to increase tax rates, or some combination of these two.

The basic alternatives among which the Nation must choose may be seen more clearly if looked at from another angle. There are three important ways in which the Treasury's expenditures may be financed: (1) by taxation, (2) by increasing the stock of money, and (3) by increasing the amount of Government debt in private hands (that is, by borrowing from the private sector). By choosing the level of Government expenditure and the level of taxes, the Congress determines the amount of the Government budget deficit, or surplus. Let's suppose there is a deficit. Then, it must be financed by some combination of increasing the stock of money, and increasing the amount of Government debt in private hands. The most important function of the Federal Reserve is to control how this deficit financing is to be divided between increasing the stock of money and increasing the amount of privately-held Government debt. This the Federal Reserve does chiefly by deciding what amount of Treasury securities to buy and hold (thus increasing the money stock), and what amount—that is offered by the Treasury—not to buy, thus requiring private holdings of the Government debt to increase.

I have been speaking of a deficit, but if there is a budget surplus the opposite choice is open to the Federal Reserve, decrease either the money stock or the private holdings of Government debt.

Just as the Congress has the authority to fix Government expenditures and taxes, and thus to fix the budget deficit, so the Congress has the authority to decide how much of the deficit should be financed by increasing the money stock, and how much of it should be financed by borrowing from the private sector.

I have suggested that the Federal Reserve ought to make the stock of money grow at a rate between 2 and 6 percent a year. But the foregoing discussion makes it clear that such a policy will not work well unless the Congress keeps the budget deficit or surplus within suitably narrow limits, so that the amounts of Government securities dumped on the private market by a budget deficit are not too large, and conversely so that the amounts of Government securities taken out of private hands by a budget surplus are not too large.

When I say the budget deficit or surplus should be kept within suitable limits, I mean a range something like a deficit of from 15 to 17 billion on the one hand to a surplus of 10 or 12 billion on the other hand.

In this sense, fiscal policy, which determines the size of the budget deficit, and monetary policy, which determines the stock of money,

ought to be in harmony. The Congress is the only authority that can make them so.

Treasury and Federal Reserve actions can be substitutes for each other with respect to aggregate demand. For example, the Treasury alone can stimulate aggregate demand by selling new securities to the private sector and using the proceeds to buy goods and services for Government programs. Or the Federal Reserve alone can stimulate aggregate demand by buying securities for the private sector in the open market, thus increasing the stock of money. But the effects of the two methods upon interest rates are different. When the Treasury buys goods financed by borrowing from the private sector, interest rates are bid up; when the Federal Reserve buys securities in the open market, securities prices are bid up and interest rates are pushed down.

The Federal Reserve can counteract the aggregate-demand effect of this Treasury action, or in the interest-rate effect, but not both. Treasury and Federal Reserve action can be substitutes for each other when a certain effect on aggregate demand is desired, or when a certain effect on the general level of interest rates is desired. But when there is a desired level of aggregate demand, and a desired level of interest rates, then cooperation between the Treasury and the Federal Reserve is required.

It is extremely important to realize that the policies required of the Treasury and the Federal Reserve to achieve the domestic objectives of full employment and stable prices will sometimes conflict with the achievement of balance-of-payments equilibrium at a given exchange rate. This conflict has persisted in the United States for several years, programs 3 or 4 years. It may still be with us even if the present buoyant business temper moderates. In the face of such a conflict, we have several choices. Since we have gold and foreign exchange reserves, we can continue in deficit on our balance of payments, but only until the reserves are gone. Our other choices, among which we *may* choose now, but among which we *must* choose when our reserves are gone, are these: reduce Government spending and lending abroad; impose restrictions on private foreign trade and capital movements; impose a recession on the domestic economy to dampen private import demand and possibly increase exports; or seek a new exchange-rate level where equilibrium is possible. The last of these alternatives, in my view, is the best.

It is encouraging to see the development of econometric models of the U.S. economy, in greater sophistication and detail. I believe that they hold promise of teaching us ever more about our economy and how it operates and responds to public policy. In spite of substantial improvements in the past generation, I am sorry to say that I know of no model that I would now trust with the task of formulating stabilization policy for the United States.

In summary, my answers to the questions before us are these: *First*, the Federal Reserve *can* control the stock of money very closely. *Second*, I believe it would be an improvement if the Federal Reserve would increase the money stock each calendar quarter at a seasonally adjusted annual rate of between 2 and 6 percent. *Third*, the Federal Reserve should adjust the rate of growth of the money stock within these limits, making only gradual changes in the rate of growth, and raising or lowering that rate of growth in accordance with its best

judgment as to whether economic conditions are—or soon will be—too buoyant or too slack. *Fourth*, this policy will work best if the Congress will keep the budget deficit or surplus from being very large, and from changing very rapidly.

There is the end of my opening statement, Senator Proxmire. I have an appendix at the end of the prepared statement that might be useful—

Chairman PROXMIRE. Without objection it will be printed in the record in full.

Mr. CHRIST. Thank you very much.
(Appendix follows:)

APPENDIX TABLES

TABLE 1.—DECLINES IN THE U.S. MONEY STOCK (DEMAND DEPOSITS AND CURRENCY, SEASONALLY ADJUSTED) DURING DEPRESSIONS AND RECESSIONS SINCE 1921

Month during which the money stock reached its peak	Percentage decline on the money stock during recession	Number of months before the money stock regained its previous peak level
March 1920.....	15.0	53
December 1922.....	2.0	10
September 1925.....	3.0	26
October 1929.....	33.0	79
March 1937.....	6.0	20
January 1948.....	2.0	27
July 1953.....	.2	9
July 1957.....	1.0	9
July 1959.....	3.0	27

Source: M. Friedman and A. Schwartz, "A Monetary History of the United States," pp. 709-15, and Federal Reserve Bulletin, June 1964, pp. 682-90.

TABLE 2.—RATE OF CHANGE OF THE U.S. MONEY STOCK (DEMAND DEPOSITS AND CURRENCY, SEASONALLY ADJUSTED) ANNUAL PERCENTAGE GROWTH RATES FOR CALENDAR YEARS AND QUARTERS, 1956-68

Year	Rate for calendar year	Rate for calendar quarter			
		1	2	3	4
1953.....	11.1	11.9	11.6	10.3	10.6
1954.....	2.7	11.2	2.2	3.1	4.2
1955.....	2.2	4.0	2.4	11.8	1.6
1956.....	11.3	11.5	1.9	1.6	2.1
1957.....	1-7	1.0	1.0	1-3	1-2.6
1958.....	3.8	11.8	5.6	3.2	4.6
1959.....	1.6	4.0	2.5	1-3	1-3.9
1960.....	1-6	1-2.8	1-2.3	2.9	1.0
1961.....	3.0	2.6	2.8	2.5	4.2
1962.....	1.4	11.7	1.5	1-1.1	4.4
1963.....	3.8	3.8	4.3	2.9	4.0
1964.....	4.1	2.9	3.9	16.2	3.3
1965.....	4.7	2.5	3.5	5.7	16.8
1966.....	2.2	5.8	3.3	1-2	1-2
1967.....	16.3	16.3	17.2	16.8	5.1
1968.....		4.2			

¹ Denotes a rate of change outside the range from 2 percent to 6 percent a year.

Source: Federal Reserve data for monthly averages of daily figures. Each rate is calculated from the difference between the last month of the period (year or quarter) and the last month of the preceding period.

TABLE 3.—AVERAGE ANNUAL GROWTH RATES OF SELECTED INDICATORS FOR THE U.S. ECONOMY OVER THE PERIOD FROM 1948 TO 1967

[In percent]

	Total	Per capita
1. Price level (GNP deflator).....	2.1	-----
2. Population.....	1.6	-----
3. GNP in money terms.....	6.0	4.4
4. GNP in real terms.....	3.9	2.3
5. U.S. Government debt privately held.....	0.7	-0.9
6. Time deposits (commercial banks).....	8.7	7.1
7. Money stock (currency plus demand deposits).....	2.4	0.8
8. Money stock plus time deposits.....	4.6	3.0
9. U.S. Government debt privately held, in real terms.....	-1.4	-3.0
10. Time deposits, in real terms.....	6.6	5.0
11. Money stock, in real terms.....	0.3	-1.3
12. Money stock plus time deposits, in real terms.....	2.5	0.9
13. Velocity of money (GNP divided by the money stock).....	3.6	-----
14. Interest rate (Aaa bonds).....	3.6	-----

Source: Federal Reserve Bulletin, and Economic Reports of the President, 1968.

Chairman PROXMIRE. Thank you, Professor Christ.
Professor Dewald, you are recognized.

STATEMENT OF WILLIAM G. DEWALD, PROFESSOR OF ECONOMICS, OHIO STATE UNIVERSITY

Mr. DEWALD. I have a series of questions that I have raised myself.
Chairman PROXMIRE. You have a somewhat longer statement too, I see.

Mr. DEWALD. I am not going to read it, if that is acceptable?

Chairman PROXMIRE. All right.

That is why I mention that because the entire statement will be printed in full in the record.

Mr. DEWALD. The first question: Has the Federal Reserve controlled the money supply? I think there is persuasive evidence that it has not attempted to or at least has not effectively controlled monetary growth.

There are very erratic movements in the quantity of money from week to week or from month to month as is evidenced by the behavior in 1967 and so far in 1968. The tremendous increase in money in January of this year, essentially no change in February, a rapid increase again in March, and though the April statistics are still preliminary, apparently very little change in April. On again, off again.

Perhaps that makes sense from the point of view of short-term patterns, but when one looks at cyclical movement of the quantity of money, I wonder whether it does. On the average monetary growth proceeded at a 2.6 percent annual rate over the period 1957 through 1967.

From the period August 1962 through August 1965, as the economy was proceeding on its course toward full employment, there was an acceleration in the rate of monetary growth to 3.6 percent. That also made sense perhaps. But conceivably that increase in monetary growth would have made more sense if it had come earlier in the period, when the level of employment relative to capacity in the economy was a lot lower.

But then, from the period August 1965 through April 1966, when increased spending threatened to be inflationary, monetary growth occurred at a 7.6 percent annual rate.

Over the next months, April 1966 through December 1966—the period before and after the credit crunch—there was essentially no monetary growth at all. And in 1967 annual monetary growth was 7.2 percent, a rate that has not quite been matched through the present.

On the basis of that on again, off again performance, I think that the Federal Reserve is looking at something else than the quantity of money. Whether it should or not is another question. But in any event I am willing to conclude that it has not attempted to control monetary growth.

Question two: Could the Federal Reserve control monetary growth? I think there is good evidence that it could, but we can't be sure because central bankers here or any place else have never, to my knowledge, made any direct attempt at controlling the quantity of money.

Let's look at the evidence as far as the quantity of lawful money is concerned—that is the monetary obligation of the Government consisting of currency and coin and the deposit obligations of the Federal Reserve. I classify the Federal Reserve as part of the Government—I hope no one objects. The amount of lawful money depends on factors that are outside the control of the monetary authority, and other factors that it can control. Quite obviously there is a problem in predicting the effect of noncontrolled factors on the amount of lawful money. This is done by the Federal Reserve. Daily and weekly and monthly projections of these noncontrolled factors are made. For reasons that I really don't understand, these projections are not made available outside the Federal Reserve. But I know that they are available inside. Independent estimates have been made. These would suggest that over the course of a week or two almost all of the variation in noncontrolled factors could be accounted for and adjusted for by open market operations that were directed at a target comparable to the bracketing of a target by an artillery officer. To hit a target one would overshoot and undershoot until the desired average level of lawful money were achieved.

Controlling the amount of lawful money does not control the money supply, however. The ratio between the quantity of money and the quantity of lawful money is affected by policy instruments, for example, required reserve ratios, the discount rate, and Federal Reserve holdings of securities. It is also affected by factors that are outside the control of the monetary authority. Hence, one has a second level kind of prediction problem in relating the instruments of monetary policy to the quantity of money. I label these factors that are not controlled as the "distribution of money." It involves the distribution between kinds of money that are subject to different reserve requirements, between kinds of assets that are defined as money and those that are not, between bank required and excess reserves and the like.

On the basis of these noncontrolled but predictable factors, given the instruments of monetary policy, a very substantial percentage of the variation in monetary growth can be explained.

Professor Christ has mentioned the quarterly models that have been prepared in recent years. Many of these have taken the instruments of monetary policy as exogenous or independent factors, and subject to that limitation have estimated money flows, with upwards of 80 percent of the money flows from quarter to quarter being explained.

I would suggest that a much greater degree of accuracy in monetary

control is possible than would be indicated by that 80 percent figure, on the basis of a kind of monetary policy, if directed at moderating variation in monetary growth, that would react to recent observations. The Federal Reserve does have weekly average statistics on the money supply, and if the greater monetary growth one week is out of line from that which is desired, quite obviously there are changes of policy instruments in the subsequent week that can affect the amount of money. And on the basis of the reasonable predictability of the non-controlled factors that affect money, I think there is no question that over the course of a period as long as a quarter, the rate of monetary growth can be made anything that the Federal Reserve wanted it to be—or if directed by the Congress, anything that the public wants it to be.

There is a statistical problem in terms of feedbacks in the effects of changes in instruments on the quantity of money. However, on the basis of such a bracketing policy as I suggested, and the degree of predictability of noncontrolled factors, that is likely, I think it is quite reasonable that money could be controlled.

As far as questions about the effects of moderating monetary growth, let me point out that I do not think that a fixed rate of monetary growth is necessarily the best policy. But it is a norm against which we might compare particular policies.

If we moderated monetary growth, there would be some important effects on market interest rates. From the point of view of day-to-day and week-to-week money market conditions, there would be a greater degree of interest rate variability than presently. I don't think you can establish that on the basis of the evidence in the United States over the course of the Federal Reserve period, because of the fact that the Federal Reserve has taken as its objectives to act as a kind of shock absorber to buy securities when the market is tighter than it wants it to be, and to all securities in the opposite circumstances.

But there is evidence elsewhere. I spent last year in Australia at the Reserve Bank of Australia. The money market there is operated on a somewhat different basis than here. There are wider spreads than in the United States between the buy and sell prices on securities that the Reserve Bank of Australia uses in stabilizing the money market, and there are correspondingly wider variations in short-term interest rates on a day-to-day, week-to-week, or seasonal basis in Australia than in the United States. Increased short-term variation in interest rates is one of the likely consequences if there were moderation in the rate of monetary growth variation.

There is additional evidence about this. If you look at the period before the Federal Reserve, there was much seasonal variation in interest rates. There is still a bit but certainly there was a greater amount of it before the establishment of the Federal Reserve. Also, there was a period in the 1930's when the Federal Reserve conducted no market operations—the Pontius Pilate effect, it washed its hands of the whole matter. If you look at that period there was interest rate variability on a short-term basis, which resulted from noncontrolled factors. And finally, if you look at statements of Federal Reserve officials, they have in mind that they are stabilizing money market conditions and interest rates in response to variations in the short-term demand for money that would otherwise cause variability in market conditions and interest rates.

I would like to point out that this interest rate variability that would occur as the result of moderating variation in monetary growth, would be importantly constrained by the market. Changes in interest rates, if they aren't expected to obtain for very long, will induce a market response by people who expect that they can earn a short-term profit in taking a position. At least that is the experience that we have on the basis of the operation of government security dealers here and everywhere else; and there is a parallel experience in other markets.

As far as longer term considerations are concerned, moderating variation in monetary growth on the basis of the conventional wisdom would be expected to increase interest rate variability. This is a possibility, but I am not sure, and I think that a reasonably strong case can be made that if variation in monetary growth were moderated, it would have the effect of moderating interest rate variability over the business cycle.

I argue that the slowest rate of monetary growth over business cycles is around cyclical peaks in economic activity. If monetary growth proceeded at the average rate of the entire cycle, the effect would be to moderate the peak levels of interest rates that are typically reached at about the peak of the cycle. And furthermore, there is a reasonable probability that the peak in interest rates would occur sooner than it does now. If, as we all expect, there are lags in the effects of monetary policy and interest rates on the economy, certainly it would make sense for interest rates to peak and begin to decline in anticipation of a cyclical peak. One can't be sure that this effect would occur but it is a reasonable probability on the basis of the kind of monetary growth and the kind of interest rate peaks we have seen in the postwar period. The result would be that interest rates would be lower at cyclical peaks and their peak would pre-date the cyclical peak in economic activity.

A similar argument could be made with respect to the increase of interest rates in anticipation of the economy achieving a full level of activity.

Perhaps the most important long period interest rate effect of moderating variation in monetary growth would be that, if it were effective in damping the cumulative deflationary and inflationary experiences of the economy it would limit extreme interest rate variability such as that observed in the 1930's. Interest rates went to almost nothing on Government securities that were very close substitutes for money. Indeed interest rates were pretty high on some other kinds of loans where default risks were high. Because of a variety of factors but at least partly accountable to unduly tight monetary policies in the early 1930's—we had substantial deflation which affected people's expectations. And they found it would be appropriate for them to hold additional default-risk-free assets denominated in money terms. Interest rates were low because people anticipated additional deflation. Lenders were willing to accept low rates because of expected increases in the real value of the money that was promised to them. Interest rates are high today because of past monetary policies in part and because of the associated fact that people expect the value of the dollar will depreciate.

This kind of long-term, secular peak and trough interest rate variability would, in my mind, certainly be moderated by a policy of moderating variation in monetary growth.

As far as economic efficiency is concerned, the average level of unemployment would likely be reduced as a result of a policy of moderating variation in monetary growth. This is accountable in part to the cyclical effect, but in addition there is an argument included in the paper that if we moderated monetary variation over the course of the seasons and permitted interest rates to vary instead, and if this happened every year, it is conceivable that we could avoid some seasonal variability in unemployment. For example, there is peak economic activity and employment in October and excessive unemployment during the summer months. I don't want to make much of an argument for this because it is mainly conjecture, and there is little evidence that bears on the possible effects of seasonal interest rate variability on the economy.

As far as the effect of moderating variation in monetary growth on foreign exchange rates, it is conceivable that it would be necessary to change foreign exchange rates from time to time as a result of a drift in prices and interest rates here in comparison with overseas. Nevertheless it is possible that the fixed exchange rate system would work better than it does now to the extent that excesses in terms of inflation and deflation were moderated.

Finally, would moderating monetary growth be a better policy than what we have got?

I certainly think it would be. I don't think a constant rate of growth in the quantity of money is necessarily the best policy but it is a norm against which we ought to compare what monetary policy should be. I think that over the course of a cyclical downturn, it is reasonable that the rate of monetary growth at least expand at the average of the business cycle; and during a period of high level economic activity and threatening inflation, it is reasonable that the rate of monetary growth not exceed its average of the business cycle. That has not been the historical pattern no matter how you define money.

Thank you.

Chairman PROXMIRE. Thank you, Mr. Dewald.

(Prepared statement of Mr. Dewald follows:)

PREPARED STATEMENT OF PROF. WILLIAM G. DEWALD

COULD THE FEDERAL RESERVE CONTROL THE MONEY SUPPLY AND WHAT WOULD HAPPEN IF IT DID?

The Federal Reserve (F.R.) has not tried to control short term variation in monetary growth, but it could if it tried. Limiting variation in monetary growth would probably increase day-to-day and week-to-week variation in market interest rates; decrease variation in interest rates over the business cycle; reduce average unemployment and increase economic efficiency; necessitate changes in the foreign exchange rate of the dollar if U.S. prices and interest rates got out of line; and not be the best possible monetary policy but be better than what we have had.

I. HAS THE FEDERAL RESERVE CONTROLLED MONETARY GROWTH?

If this is interpreted to mean that the F.R. has consciously sought to limit variation in monetary growth, the answer is no. The evidence is that monetary growth has been very erratic. Money narrowly defined increased 7.2 percent during 1967. If that were the desired rate, there would have been a very strong

tendency for weeks when the rate of monetary growth deviated from that average to be followed by weeks when its growth rate deviated from the average in the opposite direction. The fact is that there were 27 periods in 1967 when the actual percent change in seasonally adjusted money deviated in the same direction from the annual average for two weeks or more; ten periods, for three weeks or more; and three periods, for four weeks. It is not reasonable that these changes could have occurred without the F.R. finding out soon enough to try to react: Preliminary but quite accurate weekly data are published with a lag of only one week.

Observed deviations from average monetary growth over longer periods than weeks are even more persuasive that the F.R. does not control monetary growth. The average annual rate of increase in money was 2.6 percent from 1957 through 1967. Relative to that historical trend, monetary growth accelerated to a 3.6 percent annual rate from August 1962 through August 1965. This probably made sense, though it could have come earlier. But then as the economy approached capacity utilization, the monetary growth rate, rather than decelerating, accelerated further to 7.6 percent from August 1965 through April 1966. From April through the rest of 1966—during the “credit crunch”—there was no growth at all. As mentioned, monetary growth accelerated to 7.2 percent in 1967. A similar on-again, off-again monetary growth is shown in money broadly defined to include commercial bank time deposits.

The directives of the Federal Open Market Committee to the Manager of the Open Market Account in New York offer the best testimony of what it is that the F.R. tries to do. The directives are usually phrased in terms such as reserve “positions” or “availability” and money market “conditions” or “pressures”. This is measured by net borrowed reserves (negative free reserves)—the arithmetic difference between member bank borrowings from the Federal Reserve and excess reserves

“Long experience has shown that any departure from a relatively steady ratio between bank credit expansion and the reserves supplied at Federal Reserve initiative sets forces into operation that tend to encourage bank credit expansion when free reserves exist and to restrain bank credit expansion when net borrowed reserves exist.”¹ Net borrowed reserves and market interest rates are correlated; and it is to one or both of these that the Committee usually refers. In the terminology of the Committee, easing conditions are measured by declines in interest rates or net borrowed reserves, while tightening or firming conditions are measured by the comparable increases. Where conditions differ in New York from elsewhere the Manager may indicate that the “feel of the market” is tight, aggregate measures to the contrary.

Statements about money market pressures in the directive have sometimes been made conditional in recent years. The Committee has directed that desired conditions be attained subject to particular developments that might occur between meetings. Shocks related to Treasury financing, bank credit, money, and liquidity developments have been referred to in this way, though it has been unclear what precisely would have to happen to change desired market conditions and by how much. According to the record for the December 12, 1967 Meeting, the Committee directed the Manager to conduct operations for the purpose of “. . . moving slightly beyond the firmer conditions that have developed in money markets partly as a result of the increase in Federal Reserve discount rates, however, that operations shall be modified as needed to moderate any apparent significant deviations of bank credit from current expectations or any unusual liquidity pressures.”²

During the intervening period until the January 9, 1968 meeting, bank credit, estimated by total bank deposits, increased at a 3 percent annual rate but money narrowly defined increased at an 11 percent annual rate. It is presumably not a coincidence that free reserves did decrease as directed and were widely interpreted as an indicator of tightening policy despite the fact that monetary growth had proceeded at such a rapid rate. A similar directive was issued by the Committee at its next meeting. During the following four weeks; free reserves fell further; the rate of bank credit growth was about the same; and monetary growth proceeded at about a 1.5 percent annual rate.

It is clear that the F.R. has not tried to control monetary growth, at least not directly. The proximate targets at which the F.R. has aimed have typically

¹ “The Federal Reserve and the Treasury Answers to Questions From the Commission on Money and Credit.” Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963, p. 9.

² “Federal Reserve Bulletin,” March 1968, p. 306.

been achieved. The timing of changes in desired money market conditions reveals that the F.R. has been quick to pick up evidence of a need for action. But actual policy actions and money supply changes have often been in the wrong direction and of inappropriate magnitude. The analogy is made that the policy of manipulating money market conditions or interest rates is like a baseball player who can't hit curve balls. The policy is all right if market conditions are at an equilibrium associated with achievement of objectives. But otherwise, when the economy throws curves, tardy adjustments in desired money market conditions lead to strikeouts by swinging at where the economy was rather than where it is.

II. COULD THE FEDERAL RESERVE LIMIT VARIATION IN THE RATE OF MONETARY GROWTH IF IT TRIED?

Generations of American university students have learned how F.R. open market operations could be used to control bank reserves and other "lawful money." This is also called "high powered" or "base" money. It in turn has been interpreted as the cornerstone on which the money supply depends. The quantity of money is determined within a supply and demand or market framework. But this market process operates subject to important policy constraints including the amount of lawful money and the legal requirements imposed on banks to hold lawful money.

A number of empirical studies of the determination of the quantity of money within a market framework have been made in recent years.³ Most have used quarterly data and have accounted for about 80 percent of the variation in quarterly changes in the money supply. But these statistical results are not altogether relevant from the point of view of actual monetary control. It is not necessary to fix the quantity of the F.R. open market account or reserve requirements over the span of an entire three-month period as is the assumption of the quarterly models. The F.R. has weekly money supply statistics that are published with a lag of one week. It is in a position to observe when deviations in monetary growth from a desired rate are sufficiently great to warrant a reaction. It is certainly true that the F.R. must take into account various non-controlled factors that affect the supply or demand for lawful money. It presently makes day-to-day and week-to-week projections of likely changes in these non-controlled factors. Independent estimates show a large part of the variability in non-controlled factors that affects average bank reserves and other lawful money could readily be offset over a week or two by open market operations of sufficient magnitude.⁴

Changes in the ratio of money to lawful money are accountable to changes in the distribution of money among deposits subject to different reserve requirements, between monetary and non-monetary deposits, between lawful money reserve holdings of banks and currency holdings of the public, and finally, between bank required and excess reserves. These changes reflect both supply and demand factors in the money market. There is a relatively strong, seasonal pattern in variation with respect to some of these non-controlled distributional factors; and there is knowledge with respect to their response to market interest rates and to spending. Though non-policy factors are important, it has been shown that a large part of the quarterly changes in money are accountable to changes in reserves (and other lawful money) and in reserve requirements.⁵ At but one remove from the money supply, another study has shown that more than two-thirds of the variation in changes in net deposits of member banks over half-monthly periods were accountable to changes in bank reserves, changes in required reserve ratios, and predictable changes in distribution of deposits subject to different reserve requirements. Though the deposit distribution is really very stable in the short run, taking account of seasonal factors and market prices reduces prediction errors by about 50 percent from those based on the naive

³ Frank de Leeuw, "A Model of Financial Behavior" in J. S. Duesenterry, G. Fromm, L. R. Klein, and E. Kuh, "The Brookings Quarterly Econometric Model of the United States." Chicago: Rand McNally & Co., 1965; Stephen M. Goldfield, "Commercial Bank Behavior and Economic Activity," Amsterdam: North Holland Publishing Co., 1966.

⁴ William G. Dewald and William E. Gibson, "Sources of Variation in Member Bank Reserves," "Review of Economics and Statistics" (May 1967), 143-50.

⁵ William G. Dewald, "Money Supply Versus Interest Rates as Proximate Objectives of Monetary Policy," "National Banking Review" (June 1966), 509-22; and Karl Brunner, "A Scheme for the Supply Theory of Money," "International Economic Review" (January 1961), 79-109.

alternative of assuming that there would be no change in the distribution from period to period. The estimates suggest that more than half of the time prediction errors would be $\$ \frac{1}{2}$ billion or less.⁶ These errors in prediction must be interpreted in the light of an attempt to control monetary growth. Errors could be reduced substantially over longer periods than a week or two if monetary policy were implemented so as to offset prediction errors in one period by compensating changes in the target the following period. For given settings of policy instruments, reasonable predictability in deposit changes and changes in the quantity of lawful money over very short periods supports the conclusion that the Federal Reserve *could* ordinarily manipulate its instruments to have a highly predictable impact on the amount of member bank deposits and money on a month-to-month or quarter-to-quarter basis.

A question must be raised with respect to the actual relationship of money to policy instruments if monetary control became the proximate policy objective. If the F.R. utilized its instruments to constrain monetary growth to a desired level, induced changes in interest rates could feed back to affect changes in money. The point is that if the structure of the economy has been one such that policy instruments have moderated interest rate variability, then estimates of financial behavioral patterns could be expected to be biased. A simple illustration can make this clear. Suppose there is a change in demand for bank credit which prompts banks to sell securities. The effect would be to increase market rates on private and government securities. But if the monetary authority conducts open market operations to prevent these increases, it would increase the amount of lawful money in the system and in the immediate run moderate the increase in interest rates. Statistical data would show that changes in the amount of lawful money were directly associated with changes in the quantity of bank credit and deposits. The question is whether there would be a comparable increase in the quantity of money and bank credit if the F.R. initiated the action by purchasing the same quantity of securities where there had not first been an increase in the demand for bank credit.

There is little question that the F.R. could increase the quantity of lawful money by any given amount. This would induce banks to extend credit and to issue deposits. In the immediate run this would decrease interest rates. And that in turn would induce the public to borrow and to add to deposit holdings. From cycle to cycle or historically over long periods, it is reasonable to conclude that these policy actions have played an independent role.⁷ The question is whether they have played an independent role, week to week and month to month; and if they have not, how can one interpret the short term relationship between money and bank credit, and the instruments of policy?

Though the evidence is incomplete I am willing to conclude that the predictability of lawful money and the distribution of money is sufficiently great that actual manipulation of controlled variables to limit variation in monetary growth could be accomplished. There is no need over reasonably long periods of time, certainly a quarter-to-quarter basis, for average monetary growth to deviate from desired rates. The money supply could be controlled if it were desired.

III. WOULD THERE BE INCREASED SHORT TERM VARIATION IN MARKET INTEREST RATES AND MONEY MARKET CONDITIONS IF THE FEDERAL RESERVE WERE PERSUADED TO LIMIT VARIATION IN MONETARY GROWTH?

The evidence must come from someplace else than the present U.S. For many years the F.R. has acted as a shock absorber, preventing short term variability in interest rates or other measures of money market conditions from desired values. The desired values have been subject to change, but, for a given level, changes in any of the uncontrolled factors that would otherwise change market yields and money market conditions have been offset by policy reactions. Indeed there have been many occasions when the immediate effect on money market conditions of one monetary policy action has been almost altogether offset by another.

The prediction that there would be increased short term variability in interest rates if the F.R. moderated variability in monetary growth is based on the following evidence:

There is greater seasonal and random variability in free market rates of interest on short term instruments in other countries where the central bank takes

⁶ William G. Dewald, "Control of Member Bank Deposits," Econometric Society Winter Meeting, 1964, unpublished.

⁷ Milton Friedman and Anna J. Schwartz, "A Monetary History of the United States, 1867-60," Princeton: Princeton University Press, 1963.

a less active role in moderating short term shocks to the financial system than is true in the U.S. In Australia, where I was visiting economist to the Reserve Bank of Australia last year, there are relatively wide spreads between the buying and selling prices of the monetary authority. It takes a larger change in money market conditions to induce an open market operation. The market is free to determine interest rates on short term instruments over a much wider range of values than is true in the U.S. And there is substantially more variability in rates of interest in the short term money market in Australia than in the U.S., though it is importantly limited by speculation and international capital flows where rate changes are expected to be temporary.⁸

There was a strong seasonal in interest rates in the U.S. before the establishment of the F.R. This has since been moderated by F.R. actions. There was no apparent seasonal in interest rate variation from month to month during that period of the 1930's when the F.R. did not make any open market transactions for a few years; but there were substantial month-to-month changes in interest rates, presumably reflecting non-policy factors. Finally there is the testimony of the F.R. officials who repeatedly have reported that there are large changes in uncontrolled factors in the short run that would cause sharp changes in market interest rates and money market conditions in absence of cushioning operations.

I am willing to conclude that there would be increased short term variability in market interest rates if the F.R. tried to moderate variation in monetary growth rates.

IV. WOULD LIMITING VARIATION IN THE RATE OF MONETARY GROWTH INCREASE INTEREST RATE VARIABLY OVER THE BUSINESS CYCLE AND SECULARLY?

Limiting variation in monetary growth would likely decrease interest rate variability. This is stated with full knowledge that it is an affront to conventional wisdom.

Monetary growth in the postwar period has been lowest around cyclical peaks. It has accelerated subsequently and then, during expansions, has sometimes accelerated further and sometimes decelerated. It is reasonable to infer that interest rates would have been lower and would have fallen faster around cyclical peaks if monetary growth had proceeded at its long period average. Similarly a steadier rate of monetary growth would have held interest rates higher than the actual lows at cyclical troughs since these periods often coincided with high points in rates of monetary growth.

There are separate short term and long term forces that affect the relationship between monetary policy and interest rates. The argument that is most familiar involves the short run where increases in monetary growth could be expected to decrease interest rates and decreases in monetary growth could be expected to increase interest rates. The point is that policies that expand the money supply provide banks and others with the wherewithal to increase the demand for investments, the effect of which is to bid up their prices, or equivalently to reduce interest rates. This argument depends on the presence of relatively sticky prices and wages, and by implication, less than capacity utilization of resources. When these conditions hold, it is possible for declining interest rates to stimulate demand without causing offsetting price and wage increases. A similar argument can be made for a decrease in monetary growth.

Though one cannot be sure, it is reasonable that cyclical interest rate variability of this variety would be reduced by policies that limit variation in rates of monetary growth. The present cyclical interest rate pattern mainly follows the business cycle with peaks and troughs roughly coinciding with peaks and troughs in economic activity. To the extent that steady monetary growth would represent an acceleration (deceleration) relative to observed growth around cyclical peaks (troughs), moderating variation in monetary growth would tend to damp interest rate variability at the extremes. And it could also be expected to force interest rates to decline earlier and to precede cycle peaks in economic activity. The argument is that around cyclical peaks when monetary growth has been slowest, a relative increase in monetary growth would tend to decrease interest rates. The implication is that the timing of interest rates changes, the effects of which are inevitably lagged, would be reset to start their stimulative effects earlier than under the present policies. These policies have deliberately taken actions to make high interest rates or tight money market conditions

⁸ William G. Dewald, "The Short Term Money Market in Australia," the English, Scottish and Australian Bank Limited Research Lecture, 1967, Brisbane: University of Queensland Press, 1967.

coincide with business cycle peaks and to make low rates coincide with cycle troughs.

The argument that is least familiar involves the long run where increases (or decreases) in monetary growth could be expected to increase (or decrease) interest rates. This involves a reformulation of expectations of future prices on the basis of observed effects of monetary growth on prices. Suppose that an increase in the rate of monetary growth supports an increase in demand. This would tend to increase prices which in turn would eventually induce savers and investors to anticipate further price increases. Borrowers would be willing to pay more interest for dollars whose purchasing power was expected to depreciate. And savers would demand to be paid enough interest to compensate them for their sacrifice of present purchasing power in real terms and for the expected decline in the value of money. Under these circumstances policies to accelerate (or decelerate) monetary growth would increase (or decrease) interest rates.

One cannot be sure what effect moderation in variation in monetary growth would have on overall interest rate variability over the business cycle. But it is reasonable to expect that interest rates would tend to lead economic activity more than presently where rates of monetary growth have tended to lead, and that cyclical extremes in interest rates would be damped. It is eminently clear that limiting variation in monetary growth would be associated with less long term variation in interest rates than has been observed historically. The extremely low interest rates that obtained after the financial collapse of the banks in the 1930's resulted from an extremely low level of demand at least partly accountable to unduly restrictive monetary policies that had occurred earlier. The extremely high interest rates that obtain today are at least partly accountable to the high rates of monetary expansion and aggregate demand that have occurred over recent years. To the extent that moderating variation in monetary growth could damp cumulating inflation or deflation in the economy, it is reasonable to conclude that it would limit interest rate variability too. I believe that lessening variability in monetary growth would have this effect.

V. WOULD LIMITED VARIATION IN MONETARY GROWTH REDUCE VARIATION IN UNEMPLOYMENT AND INCREASE ECONOMIC EFFICIENCY IN THE LONG RUN?

There is a question whether monetary policy actions have been counter-cyclical in their effects, and whether limiting variation in monetary growth would increase or reduce the counter-cyclical effects of monetary policy actions. This is an issue about which there is a lively argument presently in the economics profession.

Those who have argued that monetary policy actions are perverse and play a major role in the pro-cyclical variation in monetary growth rates would conclude that limiting such variation would reduce the amplitude of the business cycle. This implies reduced variability in capacity utilization or unemployment and an increase in economic efficiency. But even if monetary policy actions have affected the economy in the right direction, the question is whether that effect is as great over the cycle as the effect that would have resulted if monetary growth had been stabilized. This depends on the timing of the reaction of policy to economic performance and the effect of policy action on objectives. Empirical results suggest a relatively short lag in the response of policy aims to changes in economic conditions but a rather long lag in the response of the economy to policy actions. Part of this response comes in a very short time but overall it is distributed over many months and is variable from cycle to cycle. Empirical results would suggest important responses in expenditure to interest rate changes in six months to a year though much longer average lags have been estimated.⁹ An interesting theoretical model has been developed in recent years that suggests that changes in the money supply, if made an independent factor, would tend to cause augmented changes in market interest rates which would have the effect of speeding the adjustment to monetary policy actions in comparison with

⁹ Michael J. Hamburger "The Impact of Monetary Variables: A Selected Survey of the Recent Empirical Literature," "Staff Economic Studies" (August 1966); and Robert H. Strotz, "Empirical Evidence on the Impact of Monetary Variables on Aggregate Expenditure" in George Horwich (Editor), "Monetary Process and Policy: A Symposium," Homewood, Ill.: Richard D. Irwin, Inc., 1967; and such unpublished econometric studies as those of Stephen M. Goldfeld and Albert Ando, Ronald Teigen, and the MIT-Fed model.

the lag that one would expect simply on the basis of the relationship of expenditure to interest rates.¹⁰

If one assumes that limiting variation in monetary growth would have the effect of increasing interest rate variation seasonally, it is reasonable to expect that economic efficiency would be improved and that unemployment variation over the year would be reduced, though perhaps not very much. The argument is that where interest rate variation is moderated over the year, the economy loses the effect of one kind of price change that could direct factor; of production to employment during periods that would otherwise be slack. Over the year there are periods of intense employment utilization, peaking at the end of the harvest season and the pre-Christmas production in October. The high point in unemployment is in June when the labor supply is increased after school-leavings; and hard on its heels comes the low point in industrial production in July. One should expect that relatively lower interest rates before and during June would make it easier for businesses to finance their operations and to increase their utilization of labor in June and July and that relatively higher interest rates later in the year would marginally shift production to earlier periods. If there is no financial penalty to operating during periods of high level resource utilization, other than the relative scarcity of labor, then part of the potential power of the price mechanism in directing resources toward employment during slack production periods is emasculated.

The potential effects of interest rates on the allocation of resources are much greater over cycles than seasons. Low interest rates in recession serve a purpose in stimulating demand. As mentioned, if monetary policy actions and acceleration in monetary growth lag behind cyclical peaks, it follows that a more stable rate of monetary expansion at cyclical peaks would speed declines in interest rates. Similarly, it could stimulate an earlier increase in interest rates where the economy approaches full utilization of resources. Gradual declines in interest rates after cyclical peaks have been the bane of F.R. policy. Since policy actions affect the economy with a lag, it is incumbent to introduce counter-cyclical policies of sufficient magnitude to have a measurable effect and not to delay their introduction. Where the need for policy response is established, gradualism in declines in interest rates or increases in free reserves have often got the F.R. into the difficulty of taking policy actions that were actually perverse in preventing interest rates from falling as far as they would have in the absence of actions.¹¹ This has typically been associated with a misconception on the part of the F.R. It has often interpreted declining interest rates or easing money market conditions as expansionary and rising interest rates or tightening money market conditions as contractionary without taking account of the independent effect of its own actions.

The actual change in quantity of money (and bank credit) can give important clues about whether policy actions have been sufficiently expansionary in the face of a declining economy or sufficiently contractionary in the face of inflation. The money supply might not always increase even with expansionary policy actions, because of the effect of factors outside the control of the F.R. Nevertheless, where there has been a decline in the demand for commodities at the onset of recession, it would be reassuring that the impulse of policy was in the right direction if the money supply actually increased, at least at the average rate it had grown in the past. And where there has been an inflationary increase in the demand for commodities, it would be reassuring that the impulse of policy was in the right direction if the money supply actually increased at not more than its long period average rate. By this standard money grew too little in the year ended June 30, 1960, as the economy moved into recession and too much in 1967 in opposite circumstances. The rate of growth in the supply of money can be given the interpretation of early election returns which provide an indicator of the final outcome of an election. The quantity of money can reflect the thrust of policy action on the economy before the actual effects of those actions are felt in expenditure, employment, and prices. This has been the main point of my colleague, Karl Brunner's argument with respect to the interpretation

¹⁰ Donald P. Tucker, "Income Adjustments to Money-Supply Changes." *American Economic Review* (June 1966), 433-449, and a related empirical study, Harold T. Shapiro, "Distributed Lags, Interest Rate Expectations, and the Impact of Monetary Policy: An Econometric Analysis of a Canadian Experience," *American Economic Review* (May 1967), 444-461.

¹¹ The episode of the 1959-60 decline in money is discussed in William G. Dewald, "The Monetary Policy Guide," Money and Banking Workshop, Federal Reserve Bank of Minneapolis, May 1961 and "Free Reserves, Total Reserves and Monetary Control," *Journal of Political Economy* (April 1963), 141-153.

that one should put money changes. Analysis by Brunner and his collaborator, Allan Meltzer, has shown a much closer correspondence between economic activity and the money supply variously defined than between economic activity and alternative measures of the stance of monetary policy such as interest rates and free reserves.¹²

It is reasonable to conclude that limiting variation in monetary growth rates and letting interest rates vary seasonally would moderately reduce average unemployment. Limiting monetary growth variation cyclically would be expected to reduce the amplitude of the business cycle and increase economic efficiency.

VI. WOULD LIMITING VARIATION IN THE RATE OF MONETARY GROWTH REQUIRE FOREIGN EXCHANGE RATE ADJUSTMENTS?

An implication of a policy to limit variation in monetary growth rates is to commit the U.S. to put domestic policy objectives first. It might be necessary to change the value of the dollar in terms of other monies from time to time. But there is no reason why one should expect balance of payment disequilibrium to be any more of a problem than presently. In fact, if moderated variation in monetary growth had the effect of damping the business cycle, the critical problem of inflation and an associated balance of payments deficit would be reduced. This would make the dollar more attractive as an international reserve currency. If not only the U.S. but other countries initiated policies of moderating variation in monetary growth and other policies that had the effect of stabilizing domestic prices and maintaining production reasonably near capacity, there would be much less reason than now for the price of one currency to change in terms of others.

Over the years, as tastes and productive capabilities changed in different countries, one should expect that it would be necessary to adjust foreign exchange rates. But such fundamental disequilibrium in currency values is best eliminated by foreign exchange rate adjustments and not by inflation in surplus countries or deflation and depression in deficit countries. It is more than a remote possibility that the present fixed exchange rate system would operate a lot more efficiently than now if the U.S. and other countries took steps to limit variability in the growth rates of their domestic money supplies. Nevertheless, it is an implication of domestic stabilization policies that any resulting balance of payment disequilibrium be adjusted by exchange rate changes. If more stable monetary growth rates than we have had should result in greater relative inflation here than overseas, the implication is that foreigners would eventually get more dollars than they would want and the price of the dollar would fall. On the other hand, if limiting variation in monetary growth should result in less inflation here, the implication is that we would accumulate additional foreign currencies or gold—eventually more than we would want—and the price of the dollar would have to rise in terms of other currencies.

VII. WOULD MODERATING VARIATION IN MONETARY GROWTH BE A BETTER POLICY THAN WHAT WE HAVE HAD?

I have argued that moderating variation in monetary growth would be an improvement over past policies. This does not mean that a constant rate of growth in money would be the best policy. But it is a reasonable norm against which to compare counter-cyclical policy actions. The economic record suggests that a constant rate of increase in the money supply would have provided more expansive action before and after cyclical peaks than what we actually got. It would have provided less expansive actions during the Korean War and the present Vietnam War. It is reasonable to conclude that a constant rate of increase in the money supply would have moderated the extremes of postwar booms and recessions.

The reason why the F.R. has so often pursued policies that caused monetary growth rates to accelerate with accelerating economic activity and to decelerate with decelerating economic activity is associated with the idea that the thrust of policy actions is measured by interest rates and money market conditions. An implication is that monetary policy actions have often tagged along behind fiscal policy, rather than exerted an independent role. This is probably even more

¹² Karl Brunner and Allan H. Meltzer, "The Meaning of Monetary Indicators," in George Horwich (Editor), "Monetary Process and Policy: A Symposium," Homewood, Ill.: Richard D. Irwin, Inc., 1967.

of a problem in most other countries than it is in the U.S. Expansive or contractive monetary policy actions can be induced by budget deficits or surpluses where F.R. acts to prevent interest rates from changing as much as they otherwise would. The test of whether the F.R. has added to the inflationary or deflationary impulse of fiscal policy is not whether interest rates went up or down but whether the F.R. sold or bought securities or took equivalent actions with its other policy instruments. It is typical, though not necessary, for rising budget surpluses such as in 1959 to induce deflationary F.R. policy actions and for budget deficits such as 1967 and 1968 to induce inflationary F.R. actions.

Central bankers the world over share the F.R.'s misconception of the proper measure of the stance of their policy actions.¹³ This misconception is particularly dangerous when the level of total demand is at a peak and begins to decline. In this situation it is natural for interest rates to decline and money market conditions to ease in the absence of any F.R. policy actions. The danger is that the F.R. may be fooled into interpreting declines in interest rates as a sign of expansionary policy despite the fact that it takes actions to prevent interest rates from falling as far or fast as they would if there had been no policy actions. Similarly during inflationary periods rising interest rates can lead the F.R. to misinterpret its policy stance.

Earlier I mentioned the analogy of this policy to a baseball player who can't hit a curve. That analogy can be extended to include the policy of moderating variation in rates of monetary growth. It's a natural curve ball hitter just as the F.R. policy is a natural strike-out. Moderating variation in monetary growth—on the basis of the kind of curves the economy has offered in the postwar period—would automatically tend to damp the worst excesses of induced monetary policy reaction to the economy. Fifty-five years of swinging at where the economy was, not where it is, would seem a fair chance for the central bankers' policy. It may be time to substitute a new policy—particularly when one considers the ominous prospects our economy faces today because of policies in the recent past.

Chairman PROXMIRE. Our final witness is Prof. Richard Selden, of Cornell. Professor Selden?

STATEMENT OF RICHARD D. SELDEN, PROFESSOR OF ECONOMICS, CORNELL UNIVERSITY

Mr. SELDEN. I appreciate very much having an opportunity to participate in this important discussion of the role of guidelines in governing Federal Reserve policy.

My statement this morning consists first of some general observations about guidelines, and then some more specific comments about the proposal of Representative Reuss which appeared in the committee's 1968 report.

The quest for monetary guidelines goes back at least to the famous controversy of the 1940's in England between the currency school and the banking school. In the 1920's in this country, there was lively discussion of proposals to direct the Federal Reserve to attempt to stabilize an index of commodity prices. In 1936 Prof. Henry Simons published an article titled "Rules versus Authorities in Monetary Policy" in which, after surveying a variety of monetary rules, he concluded that the selection of a particular guideline, such as stabilization of the price level or of the volume of money, was less important than acceptance of the principle that some rule should be adopted and announced to the public.

Simons saw three main advantages to the adoption of a monetary rule. First, it would tend to stabilize business expectations. According

¹³ William G. Dewald, "Indicators of Monetary Policy," Economic Papers, "The Economic Society of Australia and New Zealand, New South Wales and Victorian Branches" (August 1967), 16-43.

to Simons, the major source of the uncertainties that plague business planning and lead to fluctuations in investment spending is government itself—and especially the monetary authority. The announcement of a simple rule that would be adhered to steadfastly would create a stable environment within which rational decisionmaking could proceed with comparative calm. Second, Simons was disturbed by the antidemocratic implications of vesting great power in the hands of a quasi-independent agency such as the Federal Reserve Board. Congress, he felt, should retain closer control over this important area. However, the only feasible way of establishing firm congressional control over money would be for it to lay down guidelines within which the Federal Reserve would have to operate. Third, adherence to a rule would prevent the monetary authority from following perverse policies. The case that usually is cited is the 1929–32 period when the volume of money fell by about 25 percent during one of the most severe business contractions the country has ever known. It is generally agreed that a policy of maintaining a constant money stock—assuming this could have been achieved, and I have no doubt at all that it could have been—would have been far preferable to the one actually followed by the Federal Reserve, and it is plausible to suppose that instead of suffering through a great depression the economy would have experienced something more closely resembling our mild postwar recessions after 1929. This point of view received empirical support from the work of Dr. Clark Warburton, former chief economist for the Federal Deposit Insurance Corporation, who found that every business cycle peak during the interwar period was preceded by a lapse of monetary growth from its “normal” upward trend of 5 percent per year. Warburton concluded that the Federal Reserve should aim at a growth rule that would prevent such lapses—as well as inflationary excesses—in the future.

It is probably fair to say that the contemporary phase of the guidelines debate grows out of Prof. Milton Friedman’s work on lags in the effect of monetary policy, which has provided a fourth reason for adoption of a monetary rule. While by no means rejecting the arguments of Simons and Warburton, Friedman has argued that a flexible; that is, discretionary, monetary policy is likely to intensify business fluctuations rather than moderate them. The reason is that policy changes influence the economy only after very substantial time-lags. The policy initiated in May 1968 may not reach its maximum impact until, say, July 1969. But neither the Federal Reserve nor anyone else possesses dependable means of forecasting the state of the economy a year or more in advance; hence there is every likelihood that today’s policy will turn out to be inappropriate by the time it matures. And to compound difficulties, Friedman believes that monetary lags are highly variable, and unpredictably so. Hence even if we could foresee the state of the economy a year or two from now there would be no assurance that the policy changes initiated today would blossom forth precisely when intended.

Friedman’s doctrine of long and variable monetary lags has not gone unchallenged, of course. Critics have disagreed with his statistical methods and his choice of variables for timing comparisons. It has been pointed out that the effects of monetary policy are likely to be spread out over lengthy time spans and that a significant portion of the effects

will be felt fairly soon. However, work by others, including Prof. Thomas Mayer and Prof. John Kareken and Robert Solow and even the Federal Reserve Board's own staff, has established rather definitively the reality of monetary lags. Moreover, Friedman readily admits that some of the effects of policy changes will be felt quite quickly; what is vital to his position is that a substantial portion of the effects are not felt until long after they are needed, and his critics have not been able to fault him so far on this point.

While nearly everyone now accepts long monetary lags as a fact of life, most students of monetary policy remain unconvinced about the wisdom of setting guidelines for the Federal Reserve. This is particularly true of the policymakers themselves.

Failure of the pro- and anti-guidelines advocates to reach agreement can be attributed largely to disagreements on the following three points. First, the advocates of discretion seem to have different objectives of monetary policy in mind than do the advocates of guidelines. Second, there is disagreement on the theory of monetary policy, that is, on the channels through which policy changes influence the economy's ultimate goals. Third, although this is something of a red herring, it is contended by the advocates of discretion that the best rule for the 1960's may be wholly inappropriate for the 1970's or some later period; rules inevitably become obsolete. I shall offer a few comments on each of these sources of disagreement.

It is commonplace to observe that the ultimate goals of economic policy, including monetary policy, are to maintain (1) high levels of employment of the economy's resources, (2) a stable price level for goods and services, (3) equilibrium in the balance of payments, (4) efficient patterns of resource use, and (5) an adequate rate of economic progress, whatever that may be. The Federal Reserve authorities, of course, affirm these objectives like everyone else. Yet at least three other objectives seem to play a role in the Fed's determination of proper policy. One such objective is to aid the Treasury in its task of managing the Federal debt. A second objective is to avoid making membership in the system unattractive to member banks. This unspoken objective appears to be the major explanation of the Fed's forthcoming liberalization of policy at the discount window. A third implicit objective, often lost sight of by academic critics of the Federal Reserve, is protection of the money market against the random shocks that continually buffet it. One gets the impression from reading their commentaries that Federal Reserve officials regard the money market as a delicate plant that needs constant attention in order to survive.

It should be noted that lags probably do not interfere significantly with the Fed's attainment of these three "lesser" objectives—in sharp contrast to the ultimate goals discussed earlier. On the contrary, adoption of simple monetary guidelines such as Friedman's 4 percent growth rule or mandatory stabilization of a price index would require abandonment of at least some of these special Federal Reserve objectives, especially that of protecting the money market.

My own view is that these are unworthy objectives that should be rejected in any event. Although I cannot pose as an expert on the money market, I am inclined to think that the Fed as an exaggerated view of the value of the role it is playing in the market. Furthermore, I see no justification for constraining monetary policy in order to

accommodate the Treasury's borrowing plans. Finally, I believe that Congress should make all insured banks, whether members of the system or not, subject to the same reserve requirements.

A much more important source of disagreement on the advisability of establishing guidelines is the lack of consensus on the way in which monetary policy influences economic activity. Typically monetary, fiscal, debt management, and other policy changes take place simultaneously, along with a multitude of "exogenous" nonpolicy changes—all of which influence the economy with varying lags. At any moment it is impossible to say with certainty just what the contribution of monetary policy has been to the end result. It is possible, therefore, for competent economists to hold rather different views about the relative importance of the money stock (variously defined), bank credit, total unborrowed reserves, the monetary base, etc., as factors influencing the ultimate goals. Even if the general idea of guidelines is accepted, there may be disagreement over the selection of an appropriate target. There may also be disagreement about the ability of the Fed to hit whatever target is selected, although I certainly agree with Professor Dewald that there is not a whole lot of room for disagreement on that point. But one should not exaggerate the extent of our ignorance of monetary economics. In my judgment adoption of target growth rates for any of the variables just listed would probably give better results than we have been getting from monetary policy in recent years.

This leads us to the third source of disagreement—the likely obsolescence of any monetary rule. I have called this a red herring because those advocating guidelines have always recognized the desirability of continuous appraisal of results and the possibility of occasional modifications when the results turn out to be negative. Several years ago I suggested a mechanical device for imparting some flexibility into the monetary growth rule by making the growth rate of money depend on a moving average (say over a 15-year period) of past growth rates in real output and in the velocity of circulation of money. Perhaps a more sensible procedure would simply be an annual review of the guidelines to determine whether they need revision. Of course, the spirit of the whole guideline approach would be violated by sudden revisions of a substantial magnitude but this would in no way preclude a high degree of flexibility in the long run.

I turn now to Representative Reuss' suggestion that the Fed keep monetary growth (money defined narrowly) within guidelines of 3 to 5 percent per year. I think this is a reasonable suggestion and one that would achieve better results over the long haul than those we have attained in the last decade or so.

My only criticism is of the loopholes Representative Reuss has created by design. I have no quarrel with the idea of allowing for changes in the relative importance of time deposits and other liquid assets so long as this is restricted to taking account of what seem to be longrun trends. However, if we are convinced that the demand for money is highly sensitive to variations in yields on these assets, then the solution would be to expand the scope of our monetary target to include them. Similarly, I am skeptical of the value of Representative Reuss' second and third qualifications, which would permit suspension of the guidelines during slack and inflationary periods and during periods when businesses "are making exceptionally heavy demands

on credit" in order to replenish liquidity. What we know about lags in the effect of monetary policy suggests that these deviations from the guideline would be ill advised.

The next three qualifications seem to be especially questionable. The fourth, relating to the accommodation of cost-plus inflation, would guarantee a secular rise in the price level. The basic reason why cost-plus inflation has been such a minor problem in the U.S. economy has been the unwillingness of the Fed to underwrite "excessive" wage increases through monetary expansion. With respect to the accommodation of the Treasury, I see no reason why the Federal debt should be managed in such a way that large indigestible blocks of debt must from time to time be refunded, with the tacit cooperation of the Fed. A more even spacing of maturities over a long time span would obviate any special function for the Fed in aiding debt management. With respect to the balance of payments, I certainly share Mr. Reuss' dislike for subjecting the domestic economy to monetary change because of balance of payments problems. However, I believe he is much too optimistic about what can be accomplished through strategies such as "Operation Twist." Ultimately it will turn out that monetary policy can ignore the balance of payments only if exchange rate variations are used as an equilibrating device. This is an expedient I am quite content to see us follow, especially if "exchange variability" means a regime of floating rates.

Finally, I think it would be most unwise for the Fed to engage in open market operations in obligations of the FNMA and the FHLB's. Down this path, it seems to me, there is a real danger lurking—that gradually the Fed will be drawn into all sorts of overt interferences with the free market in order to "improve" the allocation of resources. The Fed already has too many responsibilities—for example, regulation of bank holding companies and administration of "voluntary guidelines" for bank loans to foreigners—to permit devotion of its best efforts toward achievement of our ultimate goal; it should not be encumbered with this additional duty. Moreover, in my judgment the difficulties that beset savings institutions and the housing industry in 1966 were in part unique events that are not apt to be repeated and in part the result of the absence of monetary rules in 1965 and 1966 of the very sort Mr. Reuss is proposing. In my opinion the credit crunch was a result mainly of excessive monetary growth, well above 5 percent per year, during the 18 months or so prior to the summer of 1966.

I should like to close by making a few observations on the Federal Reserve Board staff comments on Representative Reuss' proposed guidelines. At the top of page 2 it is stated that "the Federal Reserve should be chary of rules that seek to specify, once and for all, what growth of money over the long run is appropriate." Of course, but that is hardly the issue. The problem that the guidelines are aimed at is excessive *short-run* variations in money, as in 1965-67. The guidelines could be adjusted gradually to take care of long-run changes in the demand for money.

The illustration of dire consequences that may result from adoption of a monetary rule given on pages 2-3 of the comment is so not very convincing. One can always select time periods that are congenial to a particular point of view; calculation of growth trends in money over

the period 1947-67 is highly misleading. Suppose, for example, that the Fed staff had taken 30-year trends instead of 20 years. I have not bothered to make the computations but it is clear that a rather different picture would emerge. And as stated in the preceding paragraph, there is no reason why the guideline could not be adjusted gradually to conform more accurately to the growth trends in output and velocity.

The Fed staff has rightly criticized, Mr. Reuss' recommendation that monetary growth be accelerated during periods of cost-plus inflation. Identifying such periods is an extremely tricky business and certainly could not be done quickly enough to assure reasonable results, even in the absence of significant monetary lags.

Most of the remainder of the Federal Reserve Board staff comment deals with the specific qualifications that Mr. Reuss has built into his proposed guidelines. In general I find myself in agreement with the positions taken by the staff.

In summary, I would like to state my recommendations with respect to the guidelines issue. I certainly would oppose any attempt to set up a rigid x percent per year guideline for all future monetary growth. At the same time I feel strongly that the U.S. economy has been subjected to excessive fluctuations in the growth of money and bank credit, in the recent as well as more distant past, and I would welcome adoption by the Fed of a 3 to 5 percent per year guideline—without the loopholes contained in Mr. Reuss' proposal. In addition I would like to see a willingness on the part of the Federal Open Market Committee to announce exact growth goals in the money stock within the 3- to 5-percent band—for example, 4.6 percent—these targets to be sought over periods of 2 or 3 months. There would, of course, be random weekly deviations from the desired trend but the public would not mistakenly interpret these as harbingers of change. The targets could be adjusted at any time, preferably in small steps, and a public announcement to this effect would be made. Hopefully, however, the FOMC would resist the temptation to attempt a fine tuning of the economy as in 1965-67.

Thank you.

Chairman PROXMIRE. Well, thank you, gentlemen. These are three more very, very fine papers, more helpful and most enlightening.

Yesterday, as I say, we had witnesses who disagreed with you, and I have discussed with the staff why they didn't have panels who disagreed among themselves. I think we would have had a more lively discussion but they say that professors don't like to disagree. They like consensus.

Mr. DEWALD. Who says—

Chairman PROXMIRE. Whether it is good judgment or not, I don't think it is.

Mr. SELDEN. I am sure we will find something to disagree about.

Chairman PROXMIRE. I am sure you will. Anyway, I will try to raise some of the arguments. One of the arguments that might appeal to a good many people, is that in 1967 we were confronted with a situation in which interest rates were high and seemed to be rising and represented a terrific burden on borrowers, on the homebuilding industry, and so forth. They have been worse in 1966 but in 1967 they were still bad.

The Fed increased the money supply, as you gentlemen have said, at a very rapid rate. But because of liquidity preference which was pretty high at that time, and because of other elements the Fed was unable to bring interest rates down.

If they had followed the policy you are advocating and limited their increase in the money supply to, say, 6 percent and presumably it would be less than that because it was an inflationary period, they might have limited monetary expansion to the 2-percent level, under those circumstances what would have happened to interest rates? Mr. Christ?

Mr. CHRIST. If we start at the beginning of 1967, where the 7-percent rate of increase in the money supply began, and if we had limited the increase in the money supply at that point to 6 percent, I think interest rates would have risen more in 1967 than they actually did. But we can—

Chairman PROXMIRE. Wouldn't there have been an argument, even at that time on the basis of the philosophy that I understand lies behind the thesis that you are advancing, that in view of the dominant inflationary element and the low level of unemployment, and the relative strain at least on manpower resources, this would have been a logical time to have increased the money supply at the low end, that is at 2 or 3 percent rather than at 5 or 6, in which case you would have an even still higher rate of interest.

Mr. CHRIST. Well, possibly. But let me go back a little bit into early 1966. There was a period of the last 8 months or so of 1966 when the money supply changed for practical purposes not at all. It shows a slight negative change and I think that was a mistake, and it is hard to begin at one point—

Chairman PROXMIRE. I see what you mean.

Mr. CHRIST. And say what should be done from here on and expect there will be no heritage from what happened a few weeks before you began your rule. So there is probably no time at which one can begin a guideline of 3 to 5 percent or 2 to 6 percent when you wouldn't be a little bit sorry about something that happened at the beginning, but we have to look on the beneficial effects of such a guideline in the long run.

Chairman PROXMIRE. You see what I am getting at is the contention that although you gentlemen say the Fed will be able to increase the supply of money, we might agree to that, the argument is whether they can increase the supply of money at a rate which will result in a level of interest rates which give you the optimum public interest.

The point that was raised yesterday by Mr. Chandler and Mr. Modigliani, was that the velocity interferes with all this, and you can't control the velocity. You can increase the supply of money but if the money is being used at a more—at a less rapid rate you don't have the kind of effect on economic activity that you would like to have to compensate.

Mr. CHRIST. Velocity is not absolutely constant and Chandler is known for saying that it varies greatly and can't be predicted. It varies, that is demonstrable. I think it is reasonably easy to tell what is going to make it change. High-interest rates make velocity increase, as a rule, and low-interest rates make it decrease as a rule.

Twenty years ago we had very low interest rates, and much lower velocity. Now, we have higher interest rates and higher velocity.

But it is a mistake to pay heavy attention to attempts to smooth out the interest rate. It is more important to see to it that the money stock grows at a fairly steady rate. I would like to see the Fed have some opportunity to increase the rate above 4 percent when they think it is necessary, and to reduce it below 4 percent when they think it is necessary. But they have gone too far. Usually they have reacted about as soon as you could expect an authority to react, but they have reacted too much, and I would like to see them not worry so much about changes in the interest rate and to worry more about moderating the rate of change of the money stock. I think that the long run effect of this would be that we would have smoother variation in the things that really matter, namely real output, and we would have some periods when we would have to face high or low interest rates, but I don't think that is as important as smoothing the general level of activity.

Chairman PROXMIRE. Mr. Selden?

Mr. SELDEN. I would like to disagree a little bit with one aspect of Mr. Christ's comment just now. To go back to the beginning of 1967 and suppose that we did have a policy of slower monetary growth, say 5½ or 6 percent, I think that the pattern of interest rate changes during 1967 would have been different from what it was. But I think by the time the end of the year had been reached, it is just as plausible to expect that interest rates would have been lower than they, in fact, turned out to be rather than higher.

Chairman PROXMIRE. You think there would have been possibly an expectation element here if the public, if the borrowing public, the banks, the bankers and others who were aware of this recognized the fact there was a limitation on the rate at which the Fed would increase money and that they would try to stabilize it around 4 percent, give or take 1 or 2 percent, that this would have been constructive in maybe stemming the liquidity preference.

Mr. SELDEN. Yes.

Chairman PROXMIRE. Liquidity preference, I take it or at least affecting the liquidity preference one way or the other?

Mr. SELDEN. Well, I simply think it is wrong to argue that we raise interest rates by reducing the stock of money. I think that tight money paradoxically leads to lower interest rates rather than to higher interest rates. There are various ways in which this can be argued.

Chairman PROXMIRE. That certainly contradicts the conventional wisdom, doesn't it?

Mr. SELDEN. It certainly does.

Chairman PROXMIRE. The argument is that money is like other commodities, you increase the supply and the price drops, the price or interest rate drops. You reduce the supply and the supply or interest rate increases. Why isn't there that tendency?

Mr. SELDEN. I think one has to distinguish between a rather short run effect which works over a 3- or 4-month period possibly and the longer run effect. Over a relatively short period I think that the conventional wisdom is correct. In other words, if the policy of slower growth had been instituted in January 1967, the course of rates through maybe April or May of 1967 might have been different—I think there was some easing tendency in interest rates at that time. Under the policy I am proposing there would have been less easing probably.

Chairman PROXMIRE. This suggestion though, it seems to me, that the money authorities have less capacity to influence rates than we might otherwise think. I notice that one of you gentlemen suggested that in the 1930's, at least in the beginning of the 1930's, we followed a perverse monetary policy, but certainly in the 1930's, the mid-1930's and on, we followed a policy of keeping interest rates so low they were almost negative. Remember short-term Federal obligations yielded very little more than zero. Mr Dewald, you apparently disagree.

Mr. DEWALD. Very strongly, yes.

Chairman PROXMIRE. Good.

Mr. DEWALD. The quantity of money fell by about 25 percent narrowly defined from 1930 through 1933. After the economy had gone through this traumatic experience, banks were afraid of their shadows, as they should have been. The public was afraid of the banks. People didn't just talk about a change in liquidity preference. You really had it in that period. People did want to hold the most liquid asset, namely Government money. In that situation the monetary authority certainly played a role in the change in liquidity preference by scaring the wits out of the banks and the public. You had very low interest rates on some kind of highly liquid instruments, not on all. The low interest rates on close substitutes for money were partly the result of a change in liquidity preference which implies an increase in interest on loans that, to lenders, aren't such close substitutes for money. Another point is that during the 1930's, the Federal Reserve asked for additional authority because of the fear of inflation. This is hard to believe, but it's true. There were a tremendous amount of excess reserves in the system, so the Federal Reserve asked for the authority, and Congress gave it to them, to double reserve requirements, to reduce the inflationary potential. That is precisely what they did, and the effect of doubling those reserve requirements, of course, was to increase interest rates in that period.

Subsequently, there was a further increase in the demand for highly liquid kinds of assets, and it was in that period, 1938-39, following this painful experience—you know recession within a recession, to which the Federal Reserve contributed—that you had these close to zero rates of interest.

Chairman PROXMIRE. Of course, we are speaking about relatively different things. It is hard to look now at 1938 or 1937 as a period of high interest rates because we are not accustomed to interest rates that are so much higher. But what I am trying to get at is it is difficult to see how the monetary authority could have done much more to stimulate the economy during the period say from 1933 on than they did. Perhaps they could, you are undoubtedly a much closer student than I, but the Martin notion of pushing a string by using monetary authority to keep their rates down and, therefore, the borrowing attractive to industry, just seemed to be quite sterile in that period.

Mr. DEWALD. The argument of pushing a string I think is just a rationalization for perverse actions. The period of the 1930's was one where monetary policy could have been very different. Let's consider this possibility. Suppose that monetary policy actions had been taken commencing in 1930, such that the quantity of money had increased at the average rate that it increased over the period of 1920's. This is really the kind of thing that we are suggesting.

Chairman PROXMIRE. Right.

Mr. DEWALD. That means that instead of the money supply falling, broadly defined, by a third from 1930 through 1933, it would have increased by several percentage points—net difference probably about a 75-percent larger quantity of money in 1933 than there actually was. If the money supply had been 50- to 100-percent higher than it was in 1933, would that have made a difference? Would fewer banks have failed? Would that have affected the demand for currency?

Chairman PROXMIRE. After 1933 none of them failed. The FDIC was established.

Mr. DEWALD. No, when we lost that many thousands you know people were sufficiently frightened that I think the effect of the policy—

Chairman PROXMIRE. Maybe it is Democratic instincts, I am trying to defend Roosevelt's policies and keep Hoover out of it.

Mr. CHRIST. We can stop at March 1933 and still make all these statements.

Mr. DEWALD. By all means.

Mr. CHRIST. The greatest damage was done by 1933. It is perfectly clear that the central bank could have prevented the stock of money from declining.

Chairman PROXMIRE. My time is up but it is just a revelation to me you very, very distinguished economic scholars contend, at least the implication is, that much of the depression and terrible unemployment that we had in the 1930's, and it continued until 1941 really might well have been avoided if we had followed a policy of creating money in view of the fact that I had always had the notion that during much of this period 1935 on that interest rates were very, very low. But again I will have to go back and review that more closely. It has been most enlightening.

Mrs. Griffiths?

Representative GRIFFITHS. Thank you.

Would it be true or not that the more rigid the monetary policy the more flexible the fiscal policy would have to be?

Mr. CHRIST. Do you want to ask anyone of us in particular?

Representative GRIFFITHS. Any one of you to answer.

Mr. CHRIST. I will be glad to volunteer.

I think the monetary and fiscal policy are connected to each other in the sense that, as I tried to point out, the Government expenditures are going to be financed by some combination of taxing, borrowing from the public and increasing the money stock. And if we impose a rule on what the Federal Reserve can do with the money stock, then whatever adjustment has to be made in financing Government expenditures will fall more heavily on taxation and on borrowing from the general public. So in this sense, if we should, through the Congress, state to the Federal Reserve that we want them to follow a rule, then I think it would behoove the congressional authority to realize that it is going to have to make some adjustment in order to keep the deficit and the surplus from being too large or else the burden will be very great on the debt market when the Treasury tries to sell securities.

Representative GRIFFITHS. Have you noted recently how hard it is to change the fiscal policy of the Government?

Mr. CHRIST. Yes, I have, and I am very pleased at the news this morning.

Representative GRIFFITHS. It is very difficult.

Mr. CHRIST. Yes; that is right.

Representative GRIFFITHS. First, the Federal Reserve was crying havoc 15 months ago and asking for a tax increase.

Mr. CHRIST. Right.

Representative GRIFFITHS. Now, it fell really on deaf ears. Then finally, approximately 2 months ago, it was decided that you could only have a tax increase if you cut expenditures. Now, we are frozen into that position. But 2 months have passed and everything looks considerably worse, and I would think you would try for a tax increase only.

Mr. CHRIST. I think that would be better.

Representative GRIFFITHS. I am sure it could be done.

Mr. CHRIST. I think the Federal Reserve could have pointed up the issue more strongly and perhaps incurred some congressional displeasure but perhaps also have raised the flag more vigorously in favor of a tax increase by keeping the increase in the money stock last year below what it was. What the Federal Reserve did, in effect, was to say "here we have this deficit, it is rather large. We will support it by increasing the money stock very greatly." If they had done that a little less, if they had increased the money stock a little more slowly, interest rates, my guess is, would have been at first, higher, and this would have been more of a signal in the economy that we needed a tax increase, I think.

Representative GRIFFITHS. The real proof is that it would be better if both policies were in the same hands.

Mr. CHRIST. Ultimately they are, they are in your hands, you and the other 500—

Representative GRIFFITHS. We have nothing to do with the monetary policies.

Mr. CHRIST. Oh, yes, you do.

Representative GRIFFITHS. Not that much.

Mr. CHRIST. The Constitution gives you the right to tell the Federal Reserve how to act.

Representative GRIFFITHS. But we never really have done much about any of it. We are too slow to react. We are not really reacting. We are already frozen into a position that in my judgment is ridiculous.

Mr. SELDEN. I think there are two kinds of lags that are involved in what you and Professor Christ are talking about. There is a lag between the need for a policy and the adoption of a policy. But there is a second kind of lag which we were talking about earlier in reference to monetary policy—between the taking of the step by the Congress or by the Federal Reserve and the effects of the step on the economy. So it is even worse than you are saying. It may be sometime before the policy changes are made, and after they are made it will be sometime before they are having their full effects on the economy, and it may very well be.

Representative GRIFFITHS. At the worst time.

Mr. SELDEN. Be completely inappropriate at that time.

Representative GRIFFITHS. I would like to ask you about the velocity of money. Wouldn't there be a certain level of income where the velocity is constant.

Mr. DEWALD. No; I don't think so.

Representative GRIFFITHS. Why not? I mean everybody has to eat—

Mr. DEWALD. Well, the reason, I suspect, is associated with the fact that the velocity of money is a reflection of the usefulness that money serves in peoples holdings of various assets, and if interest rates are high, if the opportunity cost of holding money is high, they will hold less of it utilizing the money more intensively. Hence, as a result you could have the same income associated with a number of different velocities depending on the particular kind of institutions that are there that can issue assets that are utilized by the public in making payments.

It is a complicated affair, of course. It is associated not just with market interest rates, but it is associated with a market mechanism, and that reflects not just these prices, but it reflects the institutions that are available to provide services.

Representative GRIFFITHS. Thank you. Thank you, Mr. Chairman.

Chairman PROXMIRE. I would like to get back very briefly because I do want to get on to some other points, but I am fascinated by looking at these interest rates in the 1930's. They did reach a peak for 3 months' Treasury bills of less than one-half of 1 percent in 1937.

Mr. DEWALD. Yes.

Chairman PROXMIRE. They are now more than 10 times as high as that. During most of this period they were yielding less than one-fifth of 1 percent, they were very consistently less. In 1940, for example, they were yielding a little more than one one-hundredth of 1 percent. Furthermore, when you go over and take a look at prime commercial paper you find that the rate kept dropping, and this would, it seems to me, be a better reflection of the impact on the commercial part of the economy.

Here is what they were: 1933, 2.73 percent. The following years 1.73, 1.02, 1.76. In 1938 they dropped again to 0.75. In 1937 they came up, but they came up to 0.94. This is an annual yield. Then 0.81, 0.59. You can see why the bankers were not exactly Roosevelt supporters. But at any rate the argument I am making is that I do think there is a lot you can do with monetary policy and especially in times like this, but I do question whether or not in a period of very serious depression you can do a great deal with monetary policy. It has to be, you have to have a fiscal policy that is pretty emphatic and far reaching if you are going to really stimulate the economy very much. Well, you are right about that 1936 policy which was, of course, wrong and perverse doubling the reserve requirements, recognizing that it still seems to me the monetary policy in the 1930's was about as expansionary as it could be made, and if we had doubled the supply of money, I don't know just how that money would have gotten into circulation. After all, it was so easy to borrow at such low rates would you say instead of being able to, if instead of commercial paper yielding three-quarters of 1 percent, it had yielded half that, it would have made any difference?

Mr. CHRIST. I think by the time we got to 1933, and maybe you will like this being a Democrat, it was a little late. If we look at the Federal Reserve's action in the period from 1929 to 1933, they were doing the right thing with discount rates for a couple of years from 1929 to 1931, but then in 1931 they raised the discount rate substantially, and

worsened the decline in the money stock which had been proceeding from 1929 onward.

Yesterday, Mr. Wallich made one statement, or at least it is in his printed statement here, saying that the Federal Reserve should have the authority to depart from any preassigned rule, and he said in a depression, for example, when the Federal Reserve would be inclined to inflate would we want to restrict them by preventing them from increasing the money stock beyond any certain rate? Well, there never has been a depression so far when they have not permitted the money stock to decline, and I think if as soon as a downturn is detected they begin purchasing bonds massively in the open market, there is no doubt that the stock of money could be kept from falling.

Chairman PROXMIRE. This is a good point of departure because you say never before, this is one of the things the three economists yesterday disagreed with you gentlemen on. For instance, they attacked with great vehemence the Friedman analysis going all the way back to the middle of the 19th century which they said was just irrelevant, just a completely different kind of a situation.

Now, another element that occurred to me and I think is significant is we have changed the quality of the Federal Reserve Board. Until recently people were appointed to the Federal Reserve Board without much reference as to whether they had any economic knowledge at all. They may be a businessman and very successful businessman, but without any understanding of how the money market works or the impact of monetary policy on the economy. The appointments recently have been far different.

If you have people of ability who have devoted their lives and are recognized scholars and experts in this area, as members of the Federal Reserve Board and, therefore, able to evaluate the staff which has always been professional, don't you have a much different situation?

What I am getting at is aren't you putting handcuffs, this would be their objection, I suppose, aren't you putting handcuffs, on the Federal Reserve in the event you do have a recession by saying you should not increase the supply of money or a depression, more than 6 percent a year. You say in the past they haven't done it.

Mr. CHRIST. Right.

Chairman PROXMIRE. Well, in the future you have got some real professionals here who are dedicated, as all of us are, to eliminating heavy unemployment by whatever means we have to use. Why shouldn't they be allowed to go ahead with an 8-percent, 10-percent—whatever seemed appropriate—increase in the supply of money if this is going to help us reduce unemployment?

Mr. CHRIST. It is a very good question and I think that in 1933 I probably would have been, if I had been old enough and known what I know now, in favor of permitting an increase in the money stock at greater than 6 percent. But my point is that I think it is extremely unlikely that we will get into severe depressions if we don't permit the money supply to decline in a depression. Now, it has been 6 or 7 years since we have had a test here, it has been 6 or 7 years since there has been a recession, and Mr. Maisel and Mr. Brimmer have been appointed to the Board, these are two professional economists, and you say the composition of the Board has changed and maybe

they will do better. But even since World War II there has not been a recession in the United States where the stock money did not decline in absolute terms at least for a while and take at least 9 months to catch up to its previous level and start to grow again and I feel that at a time when people are uncertain, which they are in a depression, and when they want to hold more money rather than less because of this uncertainty that it is a great mistake for the monetary mechanism of the United States to allow the amount of money to decline.

Chairman PROXMIRE. Now, Mr. Dewald, how about the other side of this, aren't there circumstances where the situation is so inflationary, and the unemployment rate is consistently low and expected to be lower, and perhaps you have military commitments overseas that we expect to go on for a long, long time and so forth, aren't there such circumstances where it might be wise for a period not to increase the money supply at all, maybe even to retard the money supply in order to restrain the economy?

Mr. DEWALD. Yes.

Chairman PROXMIRE. Is this conceivable?

Mr. DEWALD. I certainly agree that it is. But first, getting back to the point you raised in terms of the professional qualifications of the people who make these decisions I think you judge people not on the basis of their degrees, but on the basis of what they do and on those criteria, certainly the kind of performance that we have observed from our Federal Reserve with its Ph. D.'s today is not far different from the performance of the Federal Reserve or central bankers anywhere over the course of the long history of central banks.

I think also in this period of inflation as you suggest, that moderating the level of monetary growth to a somewhat lesser growth rate than its average, would indeed make sense. But you should know that monetary policy typically has not taken an independent course. That is associated with a particular myopia that is present in people who run central banks whether they have Ph. D.'s or not and that myopia, I think, is associated with looking at something called money market conditions or interest rates as a measure of what it is that the monetary authority is doing, rather than looking at the actions that are actually taken by the monetary authority.

Look at the present period, there was a tremendous budget deficit last year and this year. What happened to money last year? Did monetary policy take an independent stance of his budget deficit? It certainly did not, and if you look back in history you see exactly this same pattern of response. I shouldn't make such speculative arguments, but it is conceivable that the kind of thing that happened in the year ended mid-1960 which was a very sharp decline in the money supply, was accountable in part to the fact that the Federal Reserve was just laggard in its response to the economy but in part it was induced by the tight fiscal stance of the preceding year. The very big increase in the budget surplus in 1959 certainly played a role in this very tight monetary policy. And with rare exceptions, monetary policy and fiscal policy rather than standing independently have stood together during periods of inflation as well as deflation.

Chairman PROXMIRE. Well, after all, I am not sure I understand when you said independent, are you arguing that monetary policy

ought to be, might go, in one direction and fiscal policy in the other?

Mr. DEWALD. Hopefully that is what we mean by mixtures of policy. During a period such as 1967 when we just happened to have inherited a budget deficit because of one thing or the other that was in the works—the war and other factors, the effects of which could not be readily predicted—presumably a flexible monetary policy should have been expected to take an independent stand to achieve the objectives of price stability, sustainable levels of economic growth, et cetera.

Chairman PROXMIRE. Again may be it is just the word that is confusing me somewhat, an independent stand. You would argue in which inflation is the principal problem that both fiscal policy and monetary policy should be restrained, we ought to have a fiscal policy which tends to slow down the economy to some extent, and a monetary policy that would do the same thing. They ought to work together, they should not go in opposite directions.

There have been so many periods when they have charged in opposite directions, and that kind of independence, it seems to me, is counterproductive. That is, if you have monetary policy expanding the economy while fiscal economy is contracting it.

Representative GRIFFITHS. I think he is suggesting, Mr. Chairman, that central bankers are all first cousins. [Laughter.]

Mr. SELDEN. I wonder if I could add my 2 cents on the qualifications for membership on the Federal Reserve Board, and I do not wish to be disrespectful to any of the Ph. D.'s or non-Ph. D.'s on the Board at present. I think they are very able people. But, personally, speaking as a Ph. D. in economics and a monetary theorist, I do not welcome the presence of Ph. D.'s on the Federal Reserve Board any more than I would welcome a five-star general as the Secretary of Defense.

Chairman PROXMIRE. That is very interesting. You want incompetence rather than competence on the Board; is that correct?

Mr. SELDEN. No; not at all.

I think, as Mr. Dewald has said, that a review of the last 2 or 3 years does not do anything to shed a feeling of confidence among us that—

Chairman PROXMIRE. You fellows are too defensive. All of you are Ph. D.'s.

Mr. SELDEN. I do not want to denigrate Ph. D.'s, but when it comes to forming public policy, I would trust the intelligent layman to have competence in these things.

Chairman PROXMIRE. It is awfully hard to find the intelligent layman. I do not know why it should be such a handicap for somebody to have been trained in this area of monetary policy, who can have certain limitations and have certain opportunities, and so forth—why should this be—

Mr. SELDEN. I think, perhaps—

Chairman PROXMIRE. This is a strange kind of anti-intellectualism.

Mr. SELDEN. All I do say is that I do not think we ought to bias it one way or the other. I do not think we ought to go out of our way to find professional economists to serve in this capacity, although I am sure that some of them are able to make a fine contribution to problems of monetary policy.

Chairman PROXMIRE. Is there not a great difference between—when you talk about having a five-star general as Secretary of Defense? After all, here is a man who, presumably, his whole life has been in the Army and whose whole attitude is military, and there are many limitations, if you had that kind of a life, as far as being Secretary of Defense, and relating it to the broader national needs and integrating it with the program to promote peace in the world, and that kind of thing.

On the other hand, where you have a Ph. D. whose whole life has been one of studying this problem, and teaching it, and learning about it, and debating it, and discussing it, it would seem to me that he would be in an excellent position to exercise judgment.

Mr. SELDEN. I suppose a better analogy would be appointing a banker like David Rockefeller to the Chairman of the Board rather than—he happens to be a Ph. D. in economics, incidentally, so my thesis is consistent.

Chairman PROXMIRE. Would that be good or bad then? You would or would not?

Mr. SELDEN. I think I would have some hesitation frankly in selecting a man who was—

Chairman PROXMIRE. Qualified except for that doctorate that he got. [Laughter.]

Mr. CHRIST. I think a better rule would be we should not take the members of the Board from the present staff of the Board. This is a better analogy to the five-star general as the Secretary of Defense.

Chairman PROXMIRE. That has not been done very much, has it?

Mr. CHRIST. No.

Mr. DEWALD. I am sorry; but it has been done. Not in terms of the Board itself but in terms of the Federal Reserve System. In fact, that is the most consistent route by which the present Ph. D.'s on the Board got to where they are.

Chairman PROXMIRE. Well, they may have served a little while in the system, but certainly the principal occupation of Brimmer and Maisel, and so forth, were not as staff men on the Federal Reserve Board.

Mr. SELDEN. I think though, fine economists as these men are, and I certainly would not want to leave the impression that I think they are not, I will fault them on one point. They all talk as if they do not believe in the existence of monetary lags, and I think that they are simply wrong. They talk as if the policies that they are initiating today will have important effects within the next month or two.

Chairman PROXMIRE. Very good. I think that is very crucial to this whole thing, the monetary lag situation.

You say it is controversial in your paper, and you say there is some dispute about it, and you quote Modigliani testified yesterday against this kind of restraint of the Federal Reserve Board, with great emphasis, you quote him as an expert on lags.

He recognizes this, but he apparently feels that this is not a serious handicap. I think this is the strongest part of your case, because everything I have seen suggests that we cannot predict or forecast the economic future very well more than 6 months or so in advance. You cannot do so, and if predictions are likely to be wrong as often as right, it might well be that we should follow this policy of a steady rate of growth in the monetary supply.

Can you document this except by saying some economists have said it is so?

Mr. SELDEN. In the January issue of the Federal Reserve Bulletin there is an account of the new Federal Reserve-MIT Quarterly Econometric Model, and for whatever they are worth it is very interesting to look at the simulations which have been conducted on the basis of the model. They indicate very substantial monetary lags, so this is evidence that is developed within the system itself, in addition to the other evidence that can be cited.

I really do not think that there is any disagreement on the existence of lags. The Federal Reserve Board itself stands out, I think, as an exception to this statement. They seem to talk as if there are no lags.

Academic economists, on the other hand, have come rather close to an agreement on this point. They have different ways of measuring lags, they have different estimates of the lags, but I think there is something close to—

Chairman PROXMIRE. How long are the lags, by and large? More than 6 months, more than a year?

Mr. SELDEN. Oh, yes; probably a year or more, on the average.

Chairman PROXMIRE. And you feel that this is pretty universal in the profession, recognition?

Mr. SELDEN. I would like to get the opinion of my fellow panelists.

Chairman PROXMIRE. Do you agree with that?

Mr. DEWALD. I think the existence of lags is certainly recognized in the profession. Whether it is a year or not is a difficult estimation problem. However, most economists would argue there is a lag in the effect of policy actions that is distributed over time. There is some effect of monetary policy actions or any other kind of policy action that occurs instantaneously. In fact, if you could detect what is going to happen there might even be a lead. But on the basis of the kind of empirical work that has been done, one could say there are reasonably substantial effects to changes in interest rates within 6 months, although the average lag—looking at the lag over the entire period of its effect—the average lag would typically be much longer.

There has been some important work of a theoretical nature in recent years that would suggest a more rapid response of the economy to monetary policy. If the monetary authority really did use the money supply to take a countercyclical stance, that is, if money became independent indeed instead of just in terms of assumptions in economic models, there might be a much faster response to independent monetary policy actions than you would estimate on the basis of the responsiveness of the level of expenditures to interest rates.

That argument goes in this form: if you take account of the interaction of the various elements of the economy and if monetary policy took an independent stance, changing the rate of growth of the money supply would have a prompt effect and a large effect on interest rates that would speed up the lag in response of the economy to the policy action.

I think this is a very important argument. It is a new idea that has practical importance. Economists are starting to test it empirically. These results indeed suggest that the length of lag in response of the economy to monetary policy actions is not as long as we might have thought earlier.

On that basis, I think we can fault the Federal Reserve not on the fact that lags are as long as some once thought, but on the basis of the fact that its policy stance has not been countercyclical, assuming that there is no lag.

Chairman PROXMIRE. Would you all agree that during the last year or so the policies of the Federal Reserve have been inflationary? This is a period of inflation, and they have been increasing the money supply at a much more rapid rate than the growth in the economy?

Mr. DEWALD. Over the past year? Certainly.

Mr. SELDEN. Yes; over the past 3 years, on net.

Chairman PROXMIRE. Inflation.

You all agree that this policy has been in error?

Mr. SELDEN. Yes.

Chairman PROXMIRE. Of course, we have the advantage of hindsight, but it has been in error; it has been wrong.

Mr. DEWALD. Yes.

Chairman PROXMIRE. The national interest would have been better served if they increased the money supply at a lesser rate during this period, just as it would have been much better served if we increased the money supply at a much more rapid rate in the thirties and in much of the fifties, perhaps.

Mr. DEWALD. And in 1966 as well; yes.

Mr. SELDEN. Yes.

Chairman PROXMIRE. It would have been steadier.

Mr. DEWALD. Yes.

Chairman PROXMIRE. Let me just ask about the point that you make on Congressman Reuss' proposals.

It seems to me, Mr. Selden, you say they are good, and then you knock them all down. I am inclined to your knocking them all down because the testimony yesterday was they liked the Reuss proposals because they just seemed to destroy the limitation. In other words, if you say you have a limitation of 2 to 5 percent or 3 to 6 percent or something, and then say but, you can make exceptions pretty much whenever you want to, it would seem logical to do so, you do not have any effective limitations.

Mr. SELDEN. My feeling was that—

Chairman PROXMIRE. Why do you think they are a good idea, better than what we have now?

Mr. SELDEN. I thought the preamble or the major statement of the proposal was the thing we should focus on, and I took that as the guts, so to speak, of the proposal.

I think Representative Reuss' heart was in the right place, and then I think he had some second thoughts perhaps. He was a little afraid that this was too constraining, and so he built in contingencies. He is trying to take account of contingencies in all of these six qualifications or seven qualifications that he has listed. So I will accept the first statement, but I do not think the qualifications are needed.

Chairman PROXMIRE. None of the exceptions.

Mr. SELDEN. Yes.

Chairman PROXMIRE. It is kind of a list of—I think it would help our monetary policy very, very greatly if we could follow what Governor Robertson suggested to the Senate banking committee the other day, and that was insulate our monetary policy from considerations

of the international balance of payments by utilizing a comprehensive interest equalization tax, something of that kind.

At any rate, you may disagree with the device, but to find a way to insulate it from international considerations so it would be much easier for the Federal Reserve Board to concentrate on the domestic objectives, if they could ignore the balance of payments.

Now, you have two obviously conflicting objectives. You could have a kind of situation where you have deflation here but continued adverse balance of payments.

Do you think there is a constructive way and a practical way in which we can insulate other than exchange rates, exchange rate fluctuations; is there any other way that we can insulate our monetary policy from the international balance of payments?

Mr. CHRIST. There are several ways in which we can attempt to insulate it, but it seems to me every one, except permitting the exchange rate to change, gives up an important objective.

We could impose a large tax on capital outflows, as Governor Robertson proposed, but I think this would be a mistake. I think that it would grossly distort resource allocation. It would also build up a severe balance-of-payments problem some time in the future when our foreign earnings would not increase any more because we would not be able to make investments abroad in the future, and I do not think it is wise to interfere with current trade either by imposing large tariffs or quotas.

I do not think it is a good idea to have exchange control, rationing the amount of foreign currency that people are allowed to have.

I do not see that the present foreign exchange rate is sacred, and I do not see why we must maintain it.

Chairman PROXIMIRE. You feel a logical, sensible, practical answer is just to permit the exchange rate to float.

Mr. CHRIST. Yes.

Chairman PROXIMIRE. I see, Mr. Selden, you seem to agree with that.

Mr. SELDEN. I certainly do.

Chairman PROXIMIRE. Do you agree?

Mr. DEWALD. I am not sure. I think it is an empirical question, and you cannot really answer this question until you measure the benefits of fixed exchange against the costs, and there are allegedly benefits that I, at least, would espouse.

People can make plans to trade on the basis of fixed exchange rates. Presumably the reason why fixed exchange rates make sense is associated with the fact that they stimulate trade, permit specialization and exchange, and increase the standard of living.

The peculiarity of the present situation is that fixed exchange rates are defended by policies that reduce standards of living by preventing trade and specialization.

I think that, even though it is a bit of a play on words, it is possible that we could insulate the rest of the world from us and defend the fixed exchange rate system better if we emphasized domestic stability instead of the on again, off again kinds of policies that we have had; that is, if we put domestic policy goals first, it is not inconceivable that the fixed exchange rate system would stand better than it does presently.

Mr. SELDEN. Yes.

I have always felt that if we could somehow or other achieve a stable price level that the inflation that is bound to take place in Western Europe, Latin America and other parts of the world would probably eventually turn our balance of payments toward a surplus. But that, of course, would just be pushing the problem off onto others.

I do feel that if we could follow a steady course in this country perhaps we could get by by asking our trading partners to do the adjusting through appropriate monetary and fiscal policies and exchange rate changes.

Chairman PROXMIRE. I have two more quick suggestions by the staff. One is this: In 1967, assume we would have had a 2 percent growth in the money stock. This is because of the inflationary situation which would have slowed down. How would the \$20 billion deficit have been financed?

Mr. DEWALD. By selling securities.

Chairman PROXMIRE. Well, would this have taken \$20 billion out of housing?

Mr. CHRIST. It would have taken some out of housing.

Mr. DEWALD. We argued this point earlier, and I think it is a correct argument. From the point of view of the immediate impact, if a policy to reduce the rate of monetary growth were initiated in early 1967, I think there is little question that short-term rates of interest would have increased. I am not so sure—

Chairman PROXMIRE. Short-term rates of interest?

Mr. DEWALD. Short-term rates of interest, that is, interest on securities.

Chairman PROXMIRE. Why would not all of this—

Mr. DEWALD. Well, the reason why not all interest rates would necessarily have gone up, at least not as much.

Chairman PROXMIRE. Because the price would have gone up.

Mr. DEWALD. Is associated with the fact that people anticipate what the future holds in terms of the interest that they can earn on alternatives over the entire period to maturity of a security. Hence if that lesser rate of monetary growth in early 1967 lead people in the money market to anticipate that interest rates would be lower in the future because this was a restrictive policy that would damp inflationary expenditures in the economy, then it is altogether reasonable that long-term rates of interest would have declined.

Indeed, the period of 1967 was peculiar in that short-term rates went down associated with the rapid monetary growth while long-term rates, as you know, went down very little, and then they turned around and increased very sharply in mid-1967 to the levels now that are really unprecedented.

It seems quite reasonable that if the money supply had increased at a 2-percent growth in 1967, although we cannot be sure what would have happened at the beginning of 1967, I think it quite reasonable that at the end of 1967 long-term interest rates would have been lower than they were, and short-term interest rates might have been too.

Chairman PROXMIRE. Well, may be.

Mr. DEWALD. There is one way of testing this.

Chairman PROXMIRE. It is awfully hard for me to understand how if you reduce the supply of money, you reduce its price.

Mr. DEWALD. Well, you do it on the basis that people cannot be fooled indefinitely by the changes in value of money. Money is a kind of veil in the long run. People get their pleasures out of other things than money, for the most part.

Chairman PROXMIRE. You are talking about Confederate money. [Laughter.]

Mr. DEWALD. Well, let us hope that is not an apt analogy.

No; I am talking about our money and, the reason why people demand such high rates of interest now on the loans that they make, and the reason why people are willing to pay them is because of the fact that there is general expectation of a decline in the value of money.

A person, in his right mind, that is, is not going to lend a dollar now at the rate of interest of 5 percent, if he expects the value of money to be worth 10 percent less or 5-percent less, or whatever a year from now.

Chairman PROXMIRE. So you think the trouble is that too many people feel the Federal Reserve Board is going to continue to have this expansive policy of increasing the supply of money at a rate more rapid than the growth of the economy.

Mr. DEWALD. Yes. The people in the money market and other investors are very sharp. They make a handsome living by anticipating what is going to happen to the economy over its future course.

Chairman PROXMIRE. They figure that this is the case because this is one of the two instruments, along with fiscal policy, for preventing unemployment, and they feel that—or reducing unemployment, keeping it at the lowest possible level, and they feel that the President will appoint members of the Federal Reserve Board who are going to have that in mind, and the result of that is going to be a long-term inflationary policy.

Mr. DEWALD. Yes.

Chairman PROXMIRE. Well, let me ask this other question which Mr. Henderson of the committee staff has just handed me. It is this: Why are you so confident that with stable money growth, variable performance of interest rates, on both investment capital and on money market instruments, will not induce instability in investment?

Mr. DEWALD. That must be directed at me, I guess, since that was a point I made in my paper.

I am confident of this on the basis of the fact there are strong natural tendencies for greed to rule on this matter, and speculators, otherwise known as investors, will take positions on securities when they anticipate that a price change is temporary, and to the extent that a short-term money market dealer, for example, expects that interest rates are relatively high today, and he expects them to fall, he will jump into the market to take a position in that security in order to earn a capital gain because of the expected decline in the interest rate and increase in its value in the future.

At least, this is the experience that we have observed historically in the United States when we did not have the Federal Reserve acting as a shock absorber on these things, and this is the experience, as I indicated, that you see all throughout the world.

Chairman PROXMIRE. The point that Mr. Henderson is making is that the Fed's discretion sometimes creates instability in your view, and will not rules do the same thing?

Mr. DEWALD. I am not sure I follow. Changes in the rules and regulations and changes in the rate of monetary growth introduce instability. I think to the extent that you did get a response of the economy to the changes in interest rates associated with stable monetary growth, the direction would probably be the correct one.

Chairman PROXMIER. I am going to ask Mr. Henderson to put the question.

Mr. HENDERSON. My question, Professor Dewald, was concerned with real investment. If you had variability in the pattern of interest rates that went through from the money markets to the long-term rates, and then affected real investment, is it not possible that the variability of the demand for real investment resulting from that variability of the cost of investing would be destabilizing?

Mr. DEWALD. That is always a possibility. However, presumably investments depend not only on short-term rates of interest that are going to reflect immediate day to day and week to week, changes in the demand for money, but they are presumably going to depend much more sensitively on longer-term rates of interest, and there is absolutely no reason why there should be much variability in long-term rates of interest as the result of stabilizing monetary growth.

So I see no reason why there would be increased variability in long-term rates of interest and hence, I see, no reason why there should be instability in investment.

Mr. HENDERSON. How are long-term rates of interest to be effectively stabilized in the event that the money market has unstable interest rates?

Mr. CHRIST. I do not think any explicit stabilization would be needed. If we were to see the money stock growing more steadily, not increasing its growth rate so much at some times and not decreasing in a recession, then I think the recessions would be less severe, and the need for a recovery from the bottom of a recession would be less severe. This would create an expectation of smoother increases in real output than we have now, and without such great interruptions as the business cycles have given us in recent years. I think that given a steady growth of real output, then long-term rates would not fluctuate very much. The short-term rates might.

But the long-term rates are based, as Mr. Dewald said, on expectations about what is going to happen in the future.

Mr. DEWALD. Could I comment further on that? Suppose you had a period when the monetary growth was accelerated relative to what we would have under the present regime of policy.

Consider the early 1930's again. Indeed interest rates in that circumstance might have fallen faster than they did, and from that point of view you would, of course, stimulate response in expenditure. So that even if interest rates become more variable over the cycle, associated with stabilizing variation in monetary growth, the effect, I think, is in the right direction. Rather than destabilizing the economy, the effect of those interest rate changes would be to stabilize the economy.

I cited the seasons. It is conceivable that if we had more interest rate variability over the seasons of the year, we would have less unemployment variability, which would be a good thing.

Mr. HENDERSON. May I try to paraphrase what I think your main point is, that some of the effects that have been taken into considera-

tion—for example, in Mr. Reuss' exceptions—are, in large measure, the product of, and the response of the public to, the actions of the monetary authorities.

Mr. SELDEN. I think that is correct.

Mr. HENDERSON. In other words, the stabilization in your sense would eliminate or at least very considerably reduce some of the things that are the excuse for contingency exceptions.

Mr. SELDEN. Precisely.

When he mentions corporations borrowing to build up liquidity, that whole syndrome came out of uneven Federal Reserve policy in 1965-66.

Chairman PROXMIRE. Thank you very much for a very enlightening—did you have a final point?

Mr. CHRIST. Could I make a proposal on something you said earlier?

Chairman PROXMIRE. Yes.

Mr. CHRIST. I would make this proposal: Let us encourage the Federal Reserve to let the money stock grow between 2 and 6 percent a year, and when we find them in a depression making it grow at 6 percent and saying that is not fast enough, then I would be happy to consider whether they ought not to have more latitude. So far I think they have been on the wrong side in depressions. When they are on the right side and want to go further then I would like to reconsider giving them more freedom.

Chairman PROXMIRE. You see one of the arguments made by one of the distinguished economists yesterday was that Congress would not stand still for that. Congress would insist in a period of recession or depression that they have a more expansionist policy, and in a period of inflation a more restrained policy.

Mr. SELDEN. Thank God for Congress.

Chairman PROXMIRE. When you recognize what they have done, and with very little congressional outcry, at least nothing that is very broad or deep in Congress, I think that you would get a Congress that would abide by this rule and have more influence on the Federal Reserve Board than you have ever had before.

Mr. SELDEN. As a bare minimum, and I think the panelists from yesterday would surely agree to this, too, the Federal Reserve should never, never let the money stock decline under any circumstances. If we could even have that much of a guideline I think that would be a clear gain.

Chairman PROXMIRE. Never let the money stock decline?

Mr. SELDEN. Decline. Well, we realize that the weekly series are going to be jagged.

Chairman PROXMIRE. Over a period longer than a month.

Mr. SELDEN. Over a period longer than, say, a month; yes.

Chairman PROXMIRE. Regardless of how inflationary the situation is?

Mr. SELDEN. I would say so.

Mr. CHRIST. The longrun nature of this rule comes in here. I think if the money stock had just gone up 20 percent the preceding month there might be a case for letting it decline 19 percent this month. But, you see, we are proposing that there should be a steady rate of change here, and if we can—

Chairman PROXMIRE. It would not be a steady rate of change.

Mr. CHRIST. No, a 20-percent rise would not. That is exactly the point. But if we could have a fairly steady rate of change then it would be a very good rule not to permit the money stock to decline ever.

Chairman PROXMIRE. Once again thank you for a superb job, very, very helpful and enlightening, and it is especially useful because on next Wednesday, May 15, we are going to have George Mitchell and Daniel Brill here to respond and give them equal time.

Mr. CHRIST. Thank you very much. Senator Proxmire.

Mr. DEWALD. Thank you, Mr. Chairman.

Mr. SELDEN. Thank you, Chairman Proxmire.

Chairman PROXMIRE. Thank you, gentlemen.

(Whereupon, at 12:10 p.m., the committee adjourned, to reconvene at 10 a.m., Wednesday, May 15, 1968.)

STANDARDS FOR GUIDING MONETARY ACTION

WEDNESDAY, MAY 15, 1968

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met at 10 a.m., pursuant to recess, in room S-407, the Capitol, Hon. William Proxmire (chairman of the joint committee) presiding.

Present: Senators Proxmire and Miller.

Also present: John R. Stark, executive director; William H. Moore, senior staff economist; John B. Henderson, staff economist, and Donald A. Webster, minority staff economist.

Chairman PROXMIRE. The Joint Economic Committee today holds the third of its series of four hearings on "Standards for Guiding Monetary Action." We welcome as witnesses Governor Mitchell and Mr. Brill of the Federal Reserve Board.

Governor Mitchell comes to bring us the experience of two long and distinguished careers, as a tax official in the State of Illinois, where he was for a while director of finance, and as a central banker, first with the Federal Reserve Bank of Chicago, and now as a member of the Board of Governors of the Federal Reserve System.

I might add, most important of all in many respects, the fact that he originated in the State of Wisconsin. I am very proud of that, in Richland Center. His fine character and intelligence were nourished in the soil of our State.

Mr. Brill is the Fed's staff man par excellence, senior adviser to the Board of Governors, Director of the Division of Research and Statistics, and Economist of the Federal Open Market Committee. Since the Federal Reserve System is the agency charged by the Congress with the task of managing the Nation's money, your evidence, gentlemen, will carry the weight of responsibility and experience.

I think that you are familiar with the testimony that we have had from some of the Nation's outstanding monetary economists, both supporting and opposing the positions taken by the Federal and supporting and opposing the suggestions that the Congress provide definite guidelines.

Governor Mitchell, you may go right ahead.

STATEMENT OF GEORGE W. MITCHELL, MEMBER, BOARD OF GOVERNORS, FEDERAL RESERVE SYSTEM; ACCOMPANIED BY DANIEL H. BRILL, DIRECTOR, DIVISION OF RESEARCH AND STATISTICS, BOARD OF GOVERNORS, FEDERAL RESERVE SYSTEM, AND ECONOMIST, FEDERAL OPEN MARKET COMMITTEE

Mr. MITCHELL. I am pleased to have this opportunity to appear before this committee to discuss the principles of conducting monetary policy as part of an overall economic stabilization program. My formal statement is addressed to a question that has been widely discussed in the past several years, and in which this committee already has demonstrated an active interest: what financial variable or variables should be used as intermediate targets of monetary policy? More specifically, in assessing whether monetary policy has been tight or easy, what interpretation should be assigned to the movements in the stock of money, as against movements in other financial variables such as broader measures of liquid assets, credit flows and terms, money market conditions, or the level and structure of interest rates?

On a question as complex and as controversial as this, there are bound to be differences in views among observers—even among those whose vantage points are very similar. Consequently, I could not hope to express adequately the judgments of the Board as a whole, nor shall I try to do so. The opinions to be expressed are my own.

The central question with which I shall be dealing—the intermediate targets of policy—has been debated extensively in the professional journals, although without sufficient agreement having been reached to provide any automatic guide for monetary policy decisions. Some economists affiliate exclusively, or primarily, with changes in the rate of credit expansion, either in terms of total credit expansion or some critical segment thereof, such as bank credit. Others look principally to changes in the economy's liquid assets, either in the aggregate or in some segment of the total, such as the money stock. Others look principally to the terms and conditions on which funds can be borrowed, regarding changes in the level and structure of interest rates as the basis for establishing the course of monetary policy.

To set forth the conclusion of my argument briefly, it seems to me that in our dynamic economy, no single variable—whether it be the money stock, money plus time deposits, bank credit, total credit, free reserves, interest rates, or what have you—always serves adequately as an exclusive guide for monetary policy and its effects on the economy. It follows from this that excessive concentration of our attention on any single variable, or even on any single group of related variables, would likely result in a potentially serious misreading of the course and intensity of monetary policy.

It may be helpful to establish the rationale for this conclusion in rather general terms first, and then appraise, in this context, the conduct of monetary policy in some recent critical periods. Monetary policies pursued by the Federal Reserve do have an important effect on the Nation's money stock. While our knowledge of the effects that reserve injections have on the time dimension of monetary expansion is imprecise, the Federal Reserve generally could make the money stock grow or decline in line with what was thought to be appropriate for economic stabilization purposes. But it is a mistake to assume that

Federal Reserve policies are the only factor influencing the money stock. It is equally mistaken to assume that policy actions do not extend beyond the money stock to affect growth rates of other financial assets, expectations of market participants, and the terms on which borrowers in a variety of different credit markets find funds available to finance spending plans. Failure to appreciate the potentially disturbing effects of policy actions on aspects of the monetary and credit environment other than the money stock could easily lead to serious mistakes in monetary management.

We must, and do, guide Federal Reserve policies with a careful assessment of the effects those policies have on the money stock. But in interpreting movements in the money stock over time it is essential to recall that they movements are the result of the interaction of many forces: The behavior of the nonbank public, acting in response to its desire to hold money and other financial assets; the behavior of Federal Reserve in supplying bank reserves, and in setting discount rates, reserve requirements, and ceiling rates that banks may pay on time deposits; the behavior of the commercial banks in using the reserves supplied to them by the Federal Reserve; the behavior of all financial institutions in bidding for the savings of the public. It is erroneous to interpret changes in the money stock as though they represented exclusively the result of the operation of a guidance system for the economy administered by the central bank. Variations in money holdings over any period represent the supply behavior of the central bank acting together with the demand factors existing in the private sector of the economy.

A meaningful interpretation of changes in the growth rate of the money stock must try to take into account, therefore, the factors underlying the public's demand for money and its ability to substitute between money balances and other financial assets. It is particularly important to assess properly what is happening to growth rates of other financial assets that are likely to be close substitutes for money in the public's financial asset portfolio. Our monetary history, as I read it, does not indicate that there is any unique financial asset, or combination of financial assets, which satisfies the public's liquidity preference.

Indeed, over the past decade—and especially in the past 5 or 6 years—there have been significant changes in the public's preference for various types of liquid assets. For example, in the late 1950's we observed that the growth rate of time deposits of commercial banks was beginning to respond to changes in monetary conditions. Monetary policies that limited the overall supply of bank reserves and bank credit tended to raise rates of interest on market securities. Because rates paid on time deposits by commercial banks were generally less flexible, these deposits became less attractive to the public, relative to market securities, and their growth rate slowed. Expansive monetary policies, contrariwise, tended to accelerate time deposit growth.

Manifestly, a given dollar increment to bank credit associated with a rise in time deposits need not be any the less expensive, in terms of its effects on spending, than if the increase in bank credit were supported by a rise in demand deposits—and hence by a growth in the stock of money. Indeed, it might be more expensive, since banks might channel funds received through time deposit growth into types

of uses more likely to stimulate economic activity. For some time, therefore, we have taken into account the growth rate of commercial bank time deposits, as well as the money stock, in trying to steer the course of monetary policy.

But the meaning to be assigned to any given growth of time deposits is not easily determined. It means one thing if rapid growth in time deposits reflects aggressive bidding for these deposits by the banking system, with the public responding to banks' efforts to obtain loanable funds through this route by reducing money balances. The meaning would be very different if the funds attracted to time deposits at commercial banks represented funds diverted from the close competitors of banks in the savings field—the mutual savings banks and savings and loan associations. Still a third meaning would be suggested if an increase in time deposits represented funds that someone would otherwise have invested in Treasury bills, while the banking system puts the funds into mortgage loans.

Thus, interpretation of the economic impact of changes in commercial bank deposits involves understanding the sources from which funds flow into these assets, and the reasons for these flows. And increasingly, it has become evidence that the posture of monetary policy—as it affects yields on market securities and the desire and ability of funds to bid for funds—influences also the flows of funds to nonbank thrift institutions, and through them the supply of funds seeking long-term investment, especially in mortgages. When the effects of policy spread this pervasively through the financial structure, efforts at setting the course of policy by specifying a relatively inflexible pattern of behavior for a single financial variable, such as the money stock, could produce seriously disequilibrating changes in economic activity.

The problems we face are not likely to be solved by concocting alternate definitions of money, in hopes that by doing so we will find the magic statistical series whose behavior tells us just what we need to know to establish the posture of monetary policy. Undoubtedly, our understanding of monetary processes is improved by expanding our vision beyond the narrowly defined money stock and its immediate determinants, but we should not expect to find a magic divining rod for monetary management. What we need is a better understanding of the meaning of changes in money and in other liquid assets, not new definitions of what money is.

This point can perhaps be illustrated briefly by reference to the debate in the course of policy during the early 1960's, when growth in the money stock was quite moderate, but growth rates in total bank credit were relatively high. In 1962, particularly, growth of the money stock receded to only about 1½ percent, while the growth of bank credit—under the impetus of an 18 percent rise in commercial bank time deposits—increased to almost a 9 percent rate. Earlier in the postwar period, that high a growth rate of bank credit had been associated with strongly expansive monetary policies. The result was a critic's paradise; Federal Reserve policy could alternatively be criticized as exceptionally expansive, or unusually restrictive, depending on the monetary variable used by the critic.

I argued at that time—and I would still argue now, given the benefit of hindsight—that both of these interpretations of monetary policy

were inaccurate. The growth of time deposits in 1962—and more generally, throughout the early years of the 1960's—reflected partly a reduction in the public's demand for demand deposits. This reduced demand for money was a response to both the higher rates banks paid on time deposits, and the spread in the use of negotiable CD's by large corporations as a liquid investment medium. Slow growth of the money stock was thus reflecting predominantly a reduction in the public's desired money holdings relative to income. But, in part, time deposit growth also reflected an increase in the banking system's role as an intermediary in the savings-investment process. Banks were bidding for funds that would otherwise have been channeled directly by savers to market securities, or indirectly through nonbank thrift institutions to the mortgage market. High growth rates of bank credit were in large measure a reflection of the increased intermediary role of the banks. On balance, I have always thought that the posture of monetary policy in 1962 was properly described as essentially accommodative, or perhaps moderately expansionary, rather than unusually stimulative or unusually restrictive.

The best evidence that this interpretation is the proper one stems from what was happening at that time to interest rates, and what happened subsequently to economic activity. If policy had been unusually restrictive, as the slowdown in money growth suggested, we should have expected to see a sharp rise in interest rates—followed by a subsequent marked slowing in GNP growth, or at least in those sectors of the economy most sensitive to monetary policy, such as residential construction. If policy had turned exceptionally expansive as suggested by the marked increase in bank credit growth, we should have expected to see a marked decline in interest rates, and a subsequent surge of spending, particularly in those areas most responsive to policy.

What in fact happened was neither of these. Long-term interest rates were gently declining through most of 1962, while short-term interest rates remained relatively stable throughout the year. GNP growth did slow down temporarily in late 1962 and early 1963, but this moderation in the rate of expansion could scarcely be attributed to tight money. The homebuilding industry—a good barometer of the effects of policy on spending—experienced a generally rising level of activity during the year, made possible by relatively ample supplies of mortgage money.

Interest rates, therefore, provide potentially useful information as to the course and intensity of policy, and can never be ignored in setting the targets of policy. Observing interest rate changes can help immeasurably in assessing the meaning of changes in money and other liquid asset holdings. Of course, given sufficient time, the impact of monetary policy on interest rates tends to disappear. Expansive monetary policies which initially lower interest rates will eventually increase spending, and the resulting rise in credit demands and income will tend to push interest rates back up again. Nonetheless, there are lags between monetary policies and their final effects on spending and incomes—and in the interim, the impact of monetary policies will be recorded in interest rates. Interest rate changes, consequently, are often of substantial value as indicators of the posture of monetary policy.

Of course, using changes in an interest rate or a matrix of interest rates as the sole guide for policy would be as misleading as depending solely on changes in the stock of money. For one thing, some of the important effects of monetary policy in credit markets do not show up in interest rates, but in other aspects of loan contracts—down payments, maturities, or the ability of a borrower to get credit at all. These changes in credit availability may well be as significant as interest rate movements in stimulating or restricting particular types of spending. More important, perhaps, is the fact that changes in interest rates result from changes in credit demands as well as supplies. As with the money stock, interest rate changes are partly the result of Federal Reserve policy, but they are partly a product of the behavior of the nonbank public, the commercial banks, and other financial institutions.

If we are to make use of interest rate movements as guides to policy, then, we clearly cannot assume simply that monetary policy is moving toward restraint every time interest rates rise, or conversely that falling interest rates always imply greater monetary ease. Interest rate movements have to be interpreted in the light of accompanying changes in such financial quantities as the money stock, commercial bank time deposits, and claims against nonbank savings institutions. Similarly, interpretation of changes in financial quantities, such as in the money stock, must be made in the context of changes in the prices and yields of a wide range of financial assets among which investors may choose to hold their funds. Thus, neither financial prices nor quantities alone tell us enough of the story to permit either to serve as an exclusive guide to policy.

Moreover, at each juncture the interplay of quantities and prices in financial markets take on substantive meaning as a guide to policy only in light of developments in the real sectors of the economy. For it is only by disentangling the complex inter-relationships between financial markets and markets for real goods and services that we can hope to assess adequately the separate roles of both demand and supply factors in determining quantities and prices of financial assets.

This analysis does not lead to any obvious and simple prescription for gaging and directing the course and intensity of monetary policy. This is regrettable, not just because it maximizes the potential for disagreement among policymakers and observers evaluating the same set of facts, but also because it implies that we have found as yet no simple device for circumventing the arduous tasks involved in making judgmental decisions at every step of the game.

I would not want to pretend that our economic judgment—or that of any other economic policymaking body—is infallible. But I would argue that the procedures we do follow—blending judgment with comprehensive, quantitative analysis of current and prospective developments—have produced better results than would have been achieved by following any of the simple rules advocated by some economists. I have already described how misleading it was to have described the course of monetary policy in 1962 by relying solely on changes in the money stock. Let me turn to a more recent—and more controversial—period, the conduct of monetary policy since the middle of 1965. A frequently voiced criticism of policy in this period, as typically set forth by those who judge the posture of policy either exclusively or

mainly on the basis of the growth rate of the Nation's money stock, is that monetary policy became excessively stimulative shortly after the middle of 1965, and remained so until the late spring or early summer of 1966. The high rate of growth of money balances during this period, it is contended, was a principal source of the inflationary pressures we suffered in 1966. Also, it is alleged that monetary policy became excessively restrictive in the late spring or early summer of 1966, and remained so until late in the year—as the monetary authorities characteristically overreacted, it is said, to their earlier mistake of excessive ease. This criticism goes on to argue that monetary policy once again swung too far in 1967, producing an unusually high rate of expansion in the money stock that set the stage for a revival of inflationary forces late in 1967 and on into the current year.

There is an alternative interpretation of monetary policy during this period, derived from a more careful and comprehensive view of developments in the real economy and in financial markets from late 1965 to date, that accords more closely with the unfolding facts of the situation. As this committee knows well, the problems of excess demand, economic instability and inflation that have plagued us for nearly 3 years first made their appearance in the summer and early fall months of 1965. Our defense effort in Vietnam had just begun to be enlarged, and defense orders were pouring out in volume. At the same time, growth in the stock of money accelerated from a rate of about 3 percent in the first half of 1965 to about 6 percent in the final 6 months of that year.

Whatever one's views on the relative importance of the defense buildup, as opposed to the rise in the monetary growth rate, as factors in the ensuing increase in the growth rate of aggregate demand, hindsight points clearly to the view that prompter and more vigorous efforts should have been taken to counter the inflationary head of steam that was developing in the latter half of 1965. By imposing measures of fiscal restraint then, and adapting monetary policies to the altered environment, we might have preserved the balanced, orderly growth that we had been enjoying over the previous 4 years. We did not, largely because the magnitude of the defense effort (that was getting underway then, and the reverberations it was having in virtually every corner of the economy, were not fully recognized until late in 1965. Given the knowledge that we have presently—which was not then available—the course of monetary and fiscal policies in the latter half of 1965 looks inappropriate.

Once a program of monetary restriction was initiated in December of 1965, however, we moved to a posture of restraint much more quickly and decisively than the figures on the money stock alone would indicate. The accompanying chart shows the percentage changes, at annual rates, of the money stock, money plus time deposits at commercial banks, and savings accounts at a major nonbank thrift institutions. (These percentage changes are calculated from 3-month averages to smooth out some of the erratic monthly movements in these series.) The chart indicates some rather critical differences in the timing of these three series in the period from mid-1965 to mid-1966. Thus, though the money stock continued to rise briskly over the early months of 1966, the growth of money and time deposits together began to decline in the late fall months of 1965. And the growth rate of nonbank

savings accounts was already declining sharply by the end of 1965, as depositors of these institutions responded to the attraction of rising yields on market securities and on commercial bank time deposits.

Thus, the supply of credit represented by the growth of all these financial assets together began to decline well ahead of the downturn in the rate of expansion in money. This decline in supply, operating jointly with the heavy credit demands arising from rapid growth in current spending, underlay the marked and pervasive rise in interest rates we were experiencing in the first quarter of 1966. Monetary restraint was beginning to develop in financial markets early in 1966, even though rapid money stock growth continued.

If any doubt existed that monetary restraint was beginning to pinch before it became evident in the banking figures, those doubts should have been laid to rest by what happened to the volume of homebuilding during 1966. It is widely recognized that monetary policy affects spending for goods and services only with a variable and often a rather considerable lag, and that it has a larger impact on housing than on any other sector of the economy. In 1966, however, housing starts leveled out in the first quarter and then began to drop abruptly in the second, reaching a trough in October. This timing of the response of housing starts to financial restraint can be explained, I believe, only by recognizing that the principal indicators of monetary restraint in early 1966 were not recorded in the money stock, but in the steep decline in the inflows of funds to nonbank financial institutions. Had we guided policies solely by the money stock in early 1966, we could easily have overlooked altogether the strong effects on housing that monetary restraint was in fact producing.

But as the year 1966 progressed, an increasing intensity of monetary restraint was signaled by almost every indicator of monetary policy customarily observed. Growth in the money stock was halted for a period of 7 to 8 months and the expansion in commercial bank time deposits declined markedly after midyear. Large banks, particularly, were put under severe strain, as the maintenance of ceilings on large CD's at 5½ percent—while yields on competing financial assets were rising rapidly—led nonfinancial corporations and other large investors to shift their funds out of the CD market. Inflow of funds to nonbank intermediaries, meanwhile, continued at low levels through the summer and early fall months. These signs of monetary restraint in the quantities were also reflected in interest rates, which rose rapidly during the summer of 1966 to the highest levels in about four decades.

Perhaps a case could be made for the argument that some of the financial indicators in the summer and early fall of 1966 overestimated the degree of monetary restraint generated by policy actions. Some of the financial pressure suggested by the declining growth rate of commercial bank deposits, for example, was being cushioned by large inflows of funds from abroad—in the form of increased liabilities of our banks to foreign branches. But the relief to the bank system as a whole was relatively limited. The fact of the matter is, I believe, that monetary restraint became quite severe in the summer and early fall of 1966, a conclusion that would have been drawn from a wide variety of indicators of monetary policy.

As noted earlier, some critics of Federal Reserve policy have concluded that monetary policy became excessively tight during this

period and point to the slowing of real growth in output late in 1966 and on through the first half of 1967 as confirmation of their point of view. I would not question that some of the restrictive effects on spending of earlier tight monetary policies were still being recorded in the first half of 1967—although it may be noted that outlays for residential construction began to rise as early as the first quarter of that year. What I would question is the contention that the inventory adjustment of early 1967 was entirely, or even primarily, caused by tight money in 1966.

The undesired buildup of inventories that occurred in the last quarter of 1966 reflected mainly the inability of business to foresee the slowdown in final sales that resulted when consumers began to exercise more cautious buying attitudes. Personal consumption expenditures had been rising at a rate of about \$8 to \$9 billion per quarter in the year ended with the third quarter of 1966—and so far as anyone knew at that time, they might well have continued to do so. But consumer buying slowed materially in the fourth quarter, as a major increase occurred in the personal savings rate, and consumers continued to exercise caution in their buying habits throughout 1967. At best, this behavior of consumers can be contributed only in small measure to tight money in the summer and fall months of 1966. Many other factors were undoubtedly of fundamental importance—including a reaction to the rapid income growth and the buildup of stocks of durable assets in the immediately preceding years, resistance to rising prices, and the general uncertainties emanating from our involvement in Vietnam.

But whatever its origin, the economic slowdown of early 1967 did require compensating adjustments in monetary policy to keep the economy from slipping into recessionary conditions. Fortunately, the inventory correction of early 1967 was anticipated in time to take the initial steps toward monetary ease in the fall of 1966, and this helped to bolster residential construction through the first half of 1967. With fiscal policy also turning expansive and helping to bolster final sales substantially during the first half of 1967, excess inventories were worked off relatively quickly, and by July industrial production had begun to turn up again.

The pickup in business activity after midyear 1967 was foreseen by a number of forecasters, including our own staff at the Federal Reserve Board. Why, then, did monetary policy not take earlier and more decisive steps to reduce the rate of expansion in the money stock and in bank credit during the latter half of the year? There are two parts to the answer to that question.

First, the high rate of expansion in the money stock during the final 6 months of last year greatly overstates the actual degree of monetary ease promoted by monetary policy. What it represented was the supplying of funds through monetary policy to permit the satisfaction of a sharp increase in liquidity preference on the part of non-financial corporations. Their desires to rebuild liquid asset holdings stemmed only in part from the experience with tight credit policies in 1966. Of more fundamental importance were the trends in corporate liquid asset management over the previous several years, together with the heavy toll on corporate liquidity resulting from the acceleration of tax payments that began in 1966.

In the years immediately prior to 1966, businesses in the aggregate had little need to concern themselves with their liquidity positions or with the availability of bank loans or other sources of funds to meet their credit needs. Partly as a consequence of this, additions to liquid asset holdings were relatively modest. Thus, increases in liquid asset holdings of nonfinancial corporations were less than \$1 billion in each of the years 1964 and 1965.

Businesses entered the period of accelerated tax payments, therefore, with little preparation for meeting a heavy excess of tax payments over accruals. For nonfinancial corporations, payments exceeded accruing liabilities by about \$2 billion in the second quarter of 1966 and by about \$5 billion in the second quarter of 1967. With credit markets taut during a large part of this period, liquid asset holdings were run down by nearly \$3 billion in the year ended in mid-1967, in reflection of the heavy needs for funds for accelerated payments of taxes and other purposes.

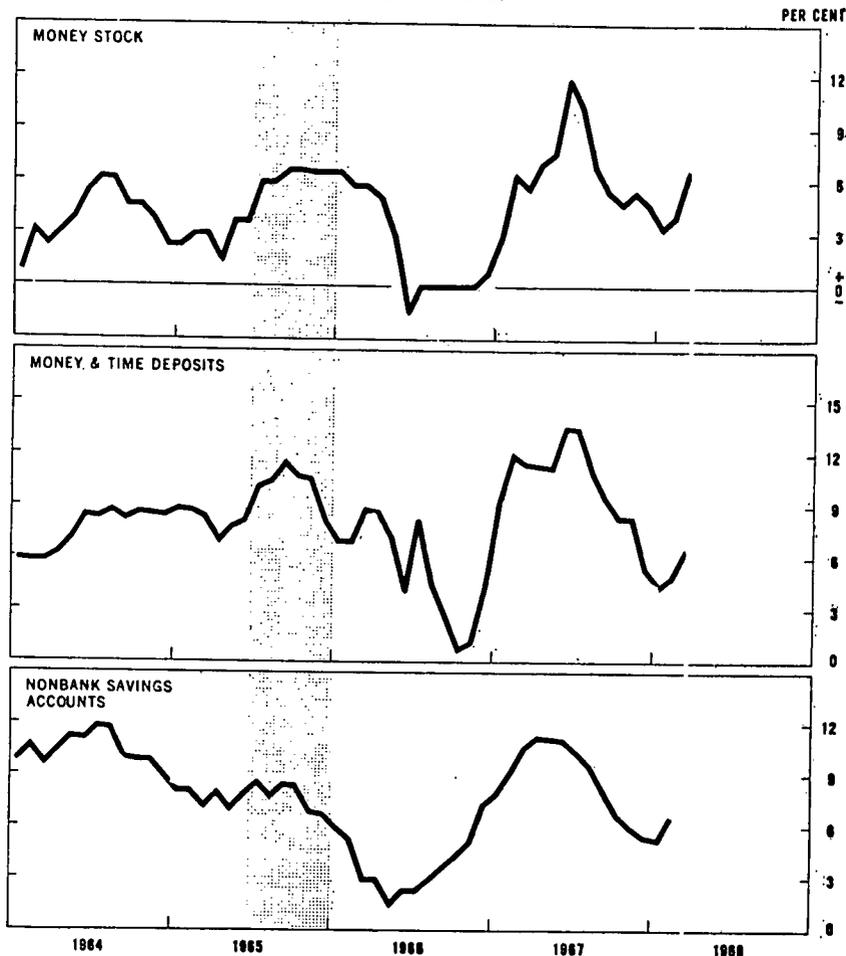
Many businesses, consequently, took the opportunity afforded by more ample credit availability in 1967 to do something about their liquidity positions. Corporate long-term security issues began to rise rapidly in reflection of these increased liquidity demands during the spring of 1967, and they remained at exceptionally high levels until late in the year. Observers close to financial markets reported that an unusual increase in liquidity preference was responsible. The demand for money had thus risen for reasons not associated with intentions to spend for goods and services. This is the kind of increase in demand for money which monetary policy can meet, by permitting an increase in the supply, without inflationary consequences.

The behavior of interest rates during the latter half of 1967 provided the confirmation needed that this interpretation was on the right track. Interest rates on longer term securities had begun rising in the spring months in response to the rapidly growing supply of corporate long term borrowing. Short-term rates, however, continued to decline until shortly before midyear. After midyear, however, interest rates began to rise drastically across the range of maturities, and the increases were much too rapid to be explained by the effects of rising incomes and economic activity generating increased demands for credit. They were reflecting increased demands for quick assets to restore balance sheet liquidity—demands that were not being fully satisfied by the rate of growth in money and time deposits permitted by monetary policy. It seems evident that monetary policy was much less expansive in 1967 than the high rate of monetary growth, taken by itself, might seem to imply.

Nevertheless, had it been known that timely fiscal restraint was not going to be forthcoming, monetary policy would have been less expansive over the summer and fall of 1967, in order to achieve a posture more consistent with a return to price stability. Earlier adoption of a program of monetary restraint would have been difficult, in light of the turbulent state of domestic and international financial markets but it would not have been impossible. Such a program was not adopted earlier, I believe, largely because those of us responsible for making monetary decisions found it almost inconceivable that this Nation would once again, following the painful experience of 1966, choose to rely exclusively on monetary policy to moderate the growth in

aggregate demand and slow inflationary pressures. Let us fervently hope that the brightening prospects for fiscal restraint we presently see on the horizon provide justification for that expectation.

FINANCIAL ASSETS -- Annual Growth Rates



Chairman PROXMIRE. Thank you very much, Governor Mitchell. Governor Mitchell, apparently you and the Board feel that the Congress should not require that the Board follow a policy of a gradual but definite increase in the money supply, say between 2 and 6 percent or 2 and 5 percent, 3 and 6 percent. I am told that you are also opposed to an annual requirement of an annual announcement by the Board setting forth what your monetary policy would be, so that the Congress might be in a position to judge the Board's performance by its own standard.

I understand that the Board is also very much opposed to any congressional requirement that you purchase "Fanny May" obligations in order to support the housing market.

It seems to me that although the Constitution makes it clear that the Congress has the authority to coin money and regulate the value thereof and has this money power very clearly, that the position of the Board is that the Congress should delegate that authority to the Board and then get lost. In other words, listen to these very fine and very erudite and quite persuasive arguments that you gentlemen make to us, but do not ever suggest any policies that would direct the Board to do anything. Give the Board the discretion and rely on the Board's judgment to do the right thing.

Mr. MITCHELL. Well, I think that the Board's position with respect to various monetary variables is not adequately described by the question you raise.

Chairman PROXMIRE. First I want to ask the overall question. Is there anything at all that the Congress can do in terms of affecting monetary policy that you think would be sensible and wise, or can Congress do nothing?

Mr. MITCHELL. My view would be that Congress would not be doing the right thing if it suggested to the Board a very narrow band of growth in the money supply, just that single target.

Chairman PROXMIRE. I do not agree with your view of course, but I understand your objection to that particular kind of monetary guidance.

My question is, do you think Congress has any—Congress obviously has the authority to do anything it wishes in this regard.

Mr. MITCHELL. Certainly.

Chairman PROXMIRE. But do you think it would be wise for Congress to give any sort of guidance of any kind to the Board that affects the monetary policy?

Mr. MITCHELL. I think if the state of the art or the state of our own knowledge were such that Congress could prescribe a better rule, one that would achieve a better result than what we are able to achieve now, it would be a fine thing to do. But I do not think you can do it. I do not think the state of the knowledge is such that you are able to do it.

Chairman PROXMIRE. Let's get into the specifics.

We argue that the state of the knowledge is such that it is necessary to prescribe this. In other words, the lags are great, as you have specified in your presentation here.

Mr. MITCHELL. That is right.

Chairman PROXMIRE. The lags are great between policies that you decide to follow.

Mr. MITCHELL. That is right.

Chairman PROXMIRE. And the consequences of those policies, income and so forth. And because the lags are great, and because you cannot foresee accurately economic conditions at the time the policies will take their effect, that for this reason it might be wise to follow some kind of a general principle or a rule rather than to go by the seat of your pants.

Mr. MITCHELL. Well, I do not think we go by the seat of our pants. Any policy decision is made with a projection as a background.

The projection can be explicit or implicit. In our case our projections before the Federal Open Market Committee and before the Board are explicit. They may not be perfect, because the state of the forecasting art is not that good. But over a short-time horizon, I think they have been quite good.

Some of the monetary lags are short. The effect on expectations is immediate. If monetary policy is moving sharply, the lock-in effect is almost immediate.

Chairman PROXMIRE. The lock-in effect? What is that?

Mr. MITCHELL. Well, if you bought a Government security, say when interest rates are 5 percent and the interest rates go to 6 percent, the value of your Government security has dropped substantially.

Chairman PROXMIRE. I am talking about the effect on the fundamental objectives of the Employment Act, you know.

Can you give us any examples in which you can contend that monetary policy has a fairly quick effect on employment or on the housing industry or anything of that kind?

Mr. MITCHELL. Yes.

Well, I think that the effect of monetary policy is to defer decisions on projects that are in the formulation stage. One of the best examples is the Chesapeake Bay Bridge. The Chesapeake Bay Bridge was on the drawing boards, the plans were complete for, if I recall correctly, a period of about 3 years, but they were unable to sell the bonds because they were revenue bonds, and the market would not take them.

Now, that was a project that was vulnerable to the level of interest rates.

If the level of interest rates had been eased, the project could be financed. If the level of interest rates was raised, it could not be financed, and when it was eased they did sell the bonds, and this meant that the project came into being. Now, the amount of money was large and it was spent over a long period of years.

Chairman PROXMIRE. Are you saying that the Federal Reserve Board can follow policies that will promptly result in a change in interest rates?

Mr. MITCHELL. That—

Chairman PROXMIRE. That will promptly result. For instance, that you can increase the supply of money at a more rapid rate, which will result in a reduction in interest rates?

Mr. MITCHELL. Yes, certainly.

Chairman PROXMIRE. In how long a period?

Mr. MITCHELL. Well, it depends upon the market that you are talking of. In some markets the effect is immediate. In other markets it is more delayed.

Chairman PROXMIRE. Of course you do not know, do you?

In other words, in 1967 you followed a policy of increasing the money supply rather rapidly and interest rates kept going up.

Mr. MITCHELL. In the long-term markets.

Chairman PROXMIRE. The price of money kept going up?

Mr. MITCHELL. In the long-term market, that is true.

Chairman PROXMIRE. You have explained here the reasons for that.

Mr. MITCHELL. That is correct.

Chairman PROXMIRE. But that did happen, and the effect in terms of the housing industry therefore could not be foreseen, could it?

Mr. MITCHELL. Well, the effect on the housing industry of actions—

Chairman PROXMIRE. The tendency can be foreseen?

Mr. MITCHELL. That is right.

Chairman PROXMIRE. You might argue if you had not adopted this policy, if you had not increased the money supply by the policies you had followed, interest rates would have gone even higher, and they would have had a greater restraint on the housing industry than you had; is that correct?

Mr. MITCHELL. What the model builders in effect do is construct a forecast or projection of how the economy is going to perform, and what we attempt to do is to use this model to estimate how the monetary variables are going to perform. But this type of analysis, and this type of operation, is in its—I was tempted to say, in its infancy. The studies continue to go along, and a great deal of progress has been made.

To give you some evidence of this progress, I would just like to refer to the directives that the Federal Open Market Committee uses. I have copies of the directives here for the past year.

The second clause of the directive contains the instructions to the manager of the System's open market operations. Now, there has been a quantitative variable in all of these directives, with the exception of three. For example, here is the directive for January 10, 1967:

To implement this policy and taking into account the forthcoming Treasury financing system open market operations until the next meeting of the committee shall be conducted with a view to attaining somewhat easier conditions in the money market, unless bank credit appears to be expanding significantly faster than currently anticipated.

I want to address myself to what we mean by "bank credit expanding significantly faster than currently anticipated."

The measure of bank credit that we use is the credit proxy, and a credit proxy is computed on the basis of average daily deposits at banks. In other words, from the liability side of the balance sheet. We do not have daily records on bank assets, but we do have daily reports on their liabilities. So we get changes in the movement of their liabilities, and we assume that these changes are proportional to the changes in their assets.

This is a quantitative variable similar to what we call M-2, which is Milton Friedman's money supply figure. The main differences between the credit supply proxy and the money supply series are that the credit proxy includes Government deposits and M-2 does not; the credit proxy applies to member banks only; while M-2 applies to all banks; and M-2 includes coin and currency. Despite these differences the movements in these two series are quite similar.

We not only have up-to-date estimates of what is happening to bank credit, through credit proxy, but we have a projection of the credit proxy, and when it says in the directive, "appears to be expanding significantly faster than currently anticipated," that means then as currently projected.

Now this directive, therefore, said to the manager, "Maintain somewhat easier conditions in the money market, but if you find the bank credit is expanding faster than it is expected to expand in the projection, then do not ease quite as much as you had previously."

Chairman PROXMIRE. My time is just about up, but let me ask two questions, to try to point up how far you are willing, or how far you think the Board would think it wise to cooperate with the Congress.

Again I am sure you recognize the authority of the Congress in this respect.

Supposing you were required or were asked, requested to come before the Congress after each quarter in which you had either not increased the money supply at the rate of 2 percent, or had increased the money supply at a rate of more than 6 percent, to explain the reason for it, come before this committee, for example; this would not strain you?

Mr. MITCHELL. No.

Chairman PROXMIRE. You would just come up and tell us why you did it.

Would there be any objection to that?

Mr. MITCHELL. No, I do not think so.

Mr. Brill just reminded me we do it twice a year in the Federal Reserve Bulletin now in effect.

Chairman PROXMIRE. You do it in the Bulletin, but we would prefer to have you come up and question you in detail and in public—a vigorous cross-examination.

Mr. MITCHELL. It would not be onerous, not at all.

Chairman PROXMIRE. The other question is whether or not you think it would be useful for the Board to set forth at the beginning of the year as specifically as it could its notion of what kind of monetary policy the economy called for, similar to the kind of program the President sets forth in his Economic Report.

Mr. MITCHELL. Yes.

Well, this gets to be kind of troublesome. A lot of the meaning, the influence of monetary action is on expectations.

Chairman PROXMIRE. You would not be stuck with it and of course you would be able to come up every quarter anyway to explain why you varied from the general guide rule.

Mr. MITCHELL. Well, I think the Board feels it has an obligation under the Employment Act of 1946 to aim at maximum growth with stability, and these are the words that we use. They are in our directives.

Whether or not you could spell this out, appropriately spell this out publicly against the projections you have for GNP for the year—

Chairman PROXMIRE. I think it would help you, I think it would help the business in this country, I think it would help the Congress to have a much better understanding.

If, for example, at the beginning of this year Mr. Martin comes to us and said, "We expect that we are going to have a very difficult inflationary challenge facing the economy, and therefore we think that the monetary policy must be one of restraint," and indicated to some extent that they were going to try to exercise that restraint, then you see we would be in a position to do a number of things.

One thing, we could study disintermediation; what we could do about that. We would also be in a position to do what we could, as the Congress, to adopt appropriate fiscal policies. It would be consistent with the monetary policy that you called for.

Mr. MITCHELL. Well, if we took the Council's projection of GNP—

Chairman PROXMIRE. Take your own.

Mr. MITCHELL. We would use that one and adapt our projection of the monetary variables to that particular model, but that is not the only model that could be used. You could have other models. But I think the most practical model for us to work with is the Council model. In fact, we are doing the things that you are talking about now, Mr. Chairman. But we are doing them internally.

Chairman PROXMIRE. That is it. We want to know. It would be very helpful if we knew. And I think this public expression would mean that we would have a basis for judging your performance much better than we do now.

My time is up. Senator Miller?

Senator MILLER. Thank you, Mr. Chairman. Governor Mitchell, I wonder in connection with your statement at the end, if I could get a clear picture of what is often referred to as monetization of the national debt.

Suppose that in a given period of let's say 6 months, as a result of fiscal action taken by the Congress, there is an amount of \$10 billion added to the national debt, a deficit of \$10 billion. This has to be covered by borrowing, let's say short- or mid-range securities are issued. Now, where does the Federal Reserve Board come in to react to this addition to the national debt, as a result of which there is an increase in the money supply?

Mr. MITCHELL. Well, if the Treasury decides to borrow as long as it can, say 6 or 7 years, they are borrowing savings, and we do not have anything more than a sort of sideline underwriting operation to perform.

If the Treasury goes short for this, and sells securities to the banking system, we have to supply reserves to the banking system, and then the banking system, if it is under enough pressure from us, sells the securities out, and competes in the short-term market. The success of this operation depends upon how much pressure the banking system is under. If it is not under much pressure, it would continue to hold the securities and therefore the money supply would rise.

Senator MILLER. How would that happen?

Mr. MITCHELL. Well, if we supply reserves, the banking system buys the securities and deposits are rising, Government deposits rise originally and then the Government deposits are spent and it gets into the hands of the public.

Senator MILLER. On a 1-for-1 basis?

Mr. MITCHELL. Yes.

Senator MILLER. Cannot action be taken by the Federal Reserve to make it 2 for 1 or 3 for 1?

Mr. MITCHELL. Well, we would not supply any more reserves in the first instance other than to enable the banks to buy the issue.

Senator MILLER. Then I would like to have you carry on to show how this can be expanded.

Mr. MITCHELL. Let's say the Government has borrowed \$5 billion. That is a balance in the commercial banks, and as they spend that \$5 billion, then those balances become demand deposits of individuals and corporations.

Here again one does not know. Maybe the corporations and individuals do not want demand deposits, they want time deposits, so you might get a shift from demand into time deposits. It depends upon the reaction of the business community. If the banking system is under pressure to get rid of these securities, then this has a deflationary impact.

Senator MILLER. How do the open market transactions of the Board affect the expansion of the money supply, based upon this increase in my example of \$10 billion in the national debt, in the financing thereof?

In other words, what I am getting at is this: As I understand it, with the addition of \$10 billion to the national debt, and the financing necessary, there is a foundation laid for the Federal Reserve Board to increase the money supply, not just by \$10 billion but by upwards of \$20 or \$30 billion, and that this is done or can be done through the open market policies of the Board, what is known as monetization of the national debt.

Mr. MITCHELL. Yes.

Senator MILLER. I would like to have you give us a picture of how that works.

Mr. MITCHELL. Well, when the Treasury sells \$10 billion worth of debt, it sells it to the banking system, not to us.

Senator MILLER. OK.

Mr. MITCHELL. But if in our open market operations we buy say \$10 billion from the banking system, that is something else again.

Senator MILLER. Yes.

Mr. MITCHELL. They now have a reserve base on which their average expansion is 10 times.

Senator MILLER. All right.

So that if you indeed wanted to expand the money supply—

Mr. MITCHELL. This is the way you do it.

Senator MILLER. Then you would purchase the \$10 billion?

Mr. MITCHELL. That is right.

Senator MILLER. From the banks?

Mr. MITCHELL. That is right.

Senator MILLER. And that would increase their lending capabilities?

Mr. MITCHELL. Roughly 10—

Senator MILLER. For \$100 billion?

Mr. MITCHELL. Yes.

Senator MILLER. Of addition to the money supply; is that not so?

Mr. MITCHELL. Money supply and time deposits. You would have to specify whether you are talking about M-1 or M-2, but I would say over time, given a little time, you would have expanded bank lending capacity by something like 10 times, yes.

Senator MILLER. Yes. Well then, this would appear to be a very vital consideration in whether or not there is an excessive increase in the money supply.

Mr. MITCHELL. Certainly.

Senator MILLER. I have heard criticism of the Federal Reserve Board for being responsible for the inflation, as a result of the excessive expansion of the money supply through this technique. What does the Federal Reserve Board have to say about that, in defense of that?

Mr. MITCHELL. Yes. The technique, like the surgeon's knife, you know, depends upon how it is used, for good or for bad, and obviously our conviction is that we have not overused this tool.

Senator MILLER. If you have not overused the tool, then where does this inflation come from?

I grant you that—

Mr. MITCHELL. I think it comes really from the Government deficit.

Senator MILLER. All right, so you can blame the Congress for the Government deficit, because the Congress has seen fit to spend more than it takes in, and it has laid a foundation there.

Mr. MITCHELL. That is right.

Senator MILLER. But it seems to me that once that foundation has been laid, the house of inflation will not be built unless the Federal Reserve Board comes along and builds on to it through the expansion of the money supply through this monetization of the debt.

Mr. MITCHELL. Well, there are other ways out of this dilemma. The Congress could have a \$20 billion deficit, and if it were financed out of savings there would not be any inflation problem.

Senator MILLER. Right.

Mr. MITCHELL. But financing it out of savings is impossible to do, given the kind of restraints that we have now. It would require a longer term instrument, at higher rates—

Senator MILLER. All right.

Mr. MITCHELL (continuing). Than presently can be paid on Government securities.

Senator MILLER. So you have the banks buy them.

Mr. MITCHELL. So the banks buy them on a short-term basis. Banks and other investors. Banks are really underwriters here for a while. Of course they are large holders of Government securities too.

Senator MILLER. All right, but if you then turn around and permit those banks to expand their credit capability by 10 to 1, as a result of buying those, through your open market operation, then you have started to build that house of inflation, have you not?

Mr. MITCHELL. Well, we have tried not to permit this to happen to any larger degree than is necessary

Senator MILLER. Of course I am sure you honestly tried to do something about that.

Mr. MITCHELL. Yes.

Senator MILLER. But the fact seems to me to be inescapable that if you had not permitted this to happen, that we would not have had the inflation that we have.

Mr. MITCHELL. Well, I suppose if we had pushed a lot harder, we could have driven housing starts down another 200,000 or 300,000 but I do not know. Most people felt that was a terrible convulsion we had in the latter half of 1966. It was about as vigorous monetary restraint as we have had in the last 15 or 20 years.

Senator MILLER. Of course nobody wants to drive down housing starts, but it is possible, is it not, that those housing starts could have been assured by some other mechanism or some other activity. And I fail to see why an expansion of 10 to 1 through your open market policy would be necessary.

Maybe you would only have to expand it by 3 to 1.

Mr. MITCHELL. That ratio is fixed by the reverse requirement. If reserve requirements were raised, it would be less.

We did raise reserve requirements too. We raised them, if I recall correctly, twice.

Mr. BRILL. Yes.

Mr. MITCHELL. And the increases in reserve requirements reduced the expansive capability of this. This is one of the techniques of monetary restraint. It has been used.

Open market operations I think have always been on a minimum basis in terms of Government financing, and yet it is impossible to have a deficit of this size without having some monetary expansion rather than not having it.

Senator MILLER. I understand that you have changed the reserve requirements.

Mr. MITCHELL. Yes.

Senator MILLER. As a tempering influence on this.

Mr. MITCHELL. Yes.

Senator MILLER. But taking a hard look at the amount of the inflation, the question is whether or not you have done enough.

Mr. MITCHELL. This is a question of judgment, I think. We did as much as we thought we could.

Senator MILLER. As I understand the position of the Board is that you have been doing about the best you can and that monetary policy cannot do what fiscal policy fails to do.

Mr. MITCHELL. Yes, sir; I think that is right.

Senator MILLER. And I generally have tended to accept this, but I am just wondering what would happen if the Board changed its reserve requirements during a period of inflation, and said "We are going to exercise such reserve requirements that the monetization of the debt structure at a ratio of 10 to 1 is not going to come about. It may come about on a ratio of 2 to 1, but not 10 to 1. And if this caused a down-turn in the economy, then let fiscal policy get going. And then we will change.

Have you ever thought about doing something like that?

Mr. MITCHELL. Well, I think that in the summer of 1966, when we took the strongest stand we could think of taking, that we were close to disorderly markets in municipal securities. We had no growth in the money supply whatever. We had high interest rates, and the banking system was I think deeply concerned about their ability to take care of their customers.

Now I think that is about as taut a monetary system as you can run.

Senator MILLER. That is so, but it did not stay that way.

Mr. MITCHELL. It did not stay that way, but then one of the reasons was we got that tremendous inventory accumulation, and we were threatened with a dip into something much more than a "mini" recession. I think this is the reason the policy had to change.

Senator MILLER. But that was not your fault, if I may suggest it.

Mr. MITCHELL. No, it was not.

Senator MILLER. And I note here in your statement that you say that "Had it been known that timely fiscal restraint was not going to be forthcoming," then your monetary policy would have been less expansive.

Mr. MITCHELL. Yes, sir; that is in 1967.

Senator MILLER. That is right.

Mr. MITCHELL. I think that would have been the right thing for us to do, but as I said in my statement, we felt quite sure that fiscal action would come along and it would not be very much longer, but you know it went from week to week and month to month and nothing happened.

Senator MILLER. Would it not have been more prudent to have said, "We expect fiscal restraint to be taken, but we are going to wait until it hatches out"?

Mr. MITCHELL. It probably would have been, in retrospect; yes, sir.

Senator MILLER. Yes. I want you to know I am sympathetic with the Board and I am quite critical of the failure of the Congress to take fiscal action, but I think that the Board is in a strong bargaining

position, because of its independence, to force the fiscal policies which have not yet come about. I for one would hope that you might use that lever that you have, which I think the country would be better off with if you had.

My time is up, Mr. Chairman.

Chairman PROXMIRE. Governor Mitchell, a number of very able and competent monetary economists have said the Federal Reserve Board has a poor record in their view of adjusting monetary policy to serve the best interests of our country. They point to the fact, for example, that in the recessions of 1949, 1954, 1958, 1961—as well as, of course, the most conspicuous example was in the thirties—they let the money stock decline.

This just seems absolutely wrong and it is hard now with hindsight to understand how there can be any justification ever for that kind of policy. At the same time now all of us recognize, as Senator Miller stressed so well, that we are in a period of inflation, and none more eloquently or more emphatically than the Chairman of the Board of Governors of the Federal Reserve Board, Mr. Martin, and yet your money supply is being increased rather rapidly and you look at the charts that you have at the back of your presentation and you see all of your reflections of monetary policy are pointing toward expansion, according to the latest information I have—April 17. The latest figure they have on the money supply, it is up another \$1.5 billion from March. March was \$900 million over February, and they are both well over a year ago of course. It is continuing to expand at a rate of about 6 percent.

It just looks as if this does not add up in terms of the overwhelming apparent need to restrain the economy and therefore to restrain, have monetary policy, have a restraining influence.

The reason I ask this once again is I want to come back to the fact that the Congress ought to have a little more to say about monetary policy.

Mr. MITCHELL. Again I think it is a case of what magnitude you are looking at, and with what kind of a background. Now let us take our magnitude, which is the credit proxy, and which you can think of as being Milton's money supply, M-2.

Chairman PROXMIRE. You are not talking about the English poet. You are talking about the Chicago economist, Professor Friedman?

Mr. MITCHELL. I am sorry; yes, Professor Friedman. We speak too familiarly of him, but he is well known by everyone.

Chairman PROXMIRE. He is kind of a poet too.

Mr. MITCHELL. At any rate, using the bank credit proxy, since December it has been rising at a rate of 3.7 percent, and from May to November of 1967 it rose at a rate of 11.3. Now that is quite a drop in the rise of that proxy. It is a very substantial drop.

Chairman PROXMIRE. From May to November it rose at a rate of what?

Mr. MITCHELL. 11.3.

Chairman PROXMIRE. What year?

Mr. MITCHELL. 1967.

Chairman PROXMIRE. Do you think that was wise?

Mr. MITCHELL. Well, we have been over that already. I think in retrospect—

Chairman PROXMIRE. It is still rising and it is rising at a substantial rate.

Mr. MITCHELL. 3.7, I believe.

Chairman PROXMIRE. It certainly is not a restraining rate right now.

Mr. MITCHELL. 3.7? Oh, yes, I think it is.

Chairman PROXMIRE. It is rising at a rate more rapidly than the real GNP has been growing historically. So you could argue that this is—

Mr. MITCHELL. This is about what real GNP is, is it not, 4 percent?

Chairman PROXMIRE. I am talking about the longrun growth in GNP. It is true that real GNP grew rapidly the first quarter of the year.

Senator MILLER. Would the Chairman yield at this point?

Chairman PROXMIRE. Sure.

Senator MILLER. Are you saying, Governor Mitchell, that the increase in the money supply or that the rate is premised upon the real increased GNP as a satisfactory measurement?

Mr. MITCHELL. I was just saying—

Chairman PROXMIRE. I brought the GNP in.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. My point is that if the money supply is growing at a more rapid rate than the rise in the GNP, then you can argue it has an expansionary influence in the economy.

Mr. Brill is shaking his head, I see—otherwise you can argue it tends to have a restraining influence on the economy. Why not?

Senator MILLER. What I am trying to bring out is whether or not the Board uses that kind of a guide in its considerations of the growth rate of the money supply.

Mr. MITCHELL. You would not take a 1-to-1 relationship here. If GNP is rising at 4 percent, that does not mean that money supply should rise at 4 percent for the simple reason that turnover is rising so rapidly.

Chairman PROXMIRE. But turnover is a function in part of the money supply.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. If you vary the money supply rate of growth, the velocity will tend to vary in response.

Mr. MITCHELL. No; it is increasing as a result of technological changes. In New York City now, turnover of demand deposits is two and a half times a week, 128 or 130 times a year, and 10 years ago it was half that. Turnover has doubled in a decade.

So money supply does not have to rise as fast as GNP, in order to provide its transaction function.

Chairman PROXMIRE. You are making an argument against yourself. Then you are arguing that the 3.7—is it a 3.7 increase in the money supply?

Mr. MITCHELL. That is in the proxy.

Chairman PROXMIRE. In the proxy?

Mr. MITCHELL. Yes; in the proxy.

Chairman PROXMIRE. At any rate, the money supply increased more rapidly than that?

Mr. MITCHELL. That is right, it did.

Money supply between May and November increased 8.4 percent and since December it has increased 5.6. Let me give you the others.

Time and savings deposits at banks were increasing May to November 14.7, now increasing 5.5. That is a two-thirds reduction in the rate of that increase. And deposits of thrift institutions increased May to November 9.1, and now it is 6.1, a drop of a third there.

This is quite a change in these annual rates.

Chairman PROXMIRE. All I am saying is that there is some prima facie case that the Federal Reserve Board's conduct in monetary policy can be criticized.

As I say, the recessions of 1949, 1954, 1958, 1961, the monetary supply was going down. You can make all kinds of rationalizations that there were other reasons or that it was not really quite as bad as it might seem, yet on the other hand, it does seem perverse. It does not make sense.

Would you agree with the position taken by Professor Christ, who said he thinks that the Federal Reserve Board should never decrease the money supply, never permit it to decrease over a period of say a quarter?

Mr. MITCHELL. It depends on what was done in the previous quarter. You may have a situation—

Chairman PROXMIRE. Then you would disagree?

Mr. MITCHELL. Yes.

Chairman PROXMIRE. You would say there are circumstances in which you ought to reduce it?

Mr. MITCHELL. Sure.

Chairman PROXMIRE. Here is what I think is the kind of thing he is getting at. He is pointing out that you did have this very hard to understand and explain situation that occurred last year, in which the money supply was increasing rapidly and the price of money was going up at the same time. Interest rates were high, although the money supply was increasing.

It is hard to understand. He argued, and the other economists seemed to agree, that one reason is because the Fed was expected to continue in the future to increase money supply at a rapid rate. This was inflationary, and because under these circumstances the economic reaction to the expectation of inflation is to follow policies that tend to drive up the interest rates, people are less likely to lend money if they expect it is going to have a much lesser value in the future. They are going to ask for higher rates before they do lend it.

They argued therefore that if the Federal Reserve were committed to a policy of not increasing the money supply at a more rapid rate than 6 percent per year, that you would not have that kind of expectation, and interest rates would be inclined to be lower.

Mr. MITCHELL. I think that the argument that a steady increase in the money supply gives everyone a uniform expectation about the future, which is basic to Milton Friedman's argument—

Chairman PROXMIRE. Yes.

Mr. MITCHELL (continuing). Falls apart when you get disequilibrating events such as we had in the fall of 1965, with a major change in the Government deficit and the Vietnam spending. It hasn't anything to do with money supply.

Chairman PROXMIRE. We understand that; but you see one of the disequilibrating factors—it would be a fluctuating money supply that could go way up or way down and is likely to continue to increase

maybe at a 10 percent rate if you expect the monetary authorities to adopt a philosophy that would lead to that.

One of the stabilizing factors would be a solid expectation that the money supply would increase at a regular rate, somewhere between 2 and 6 percent or 3 and 5 percent, something of that kind.

Mr. MITCHELL. But if you had not had some difference in the rate—

Chairman PROXMIRE. Money supply cannot do everything, but it can stabilize itself.

Mr. MITCHELL. I think this is tantamount to saying that you do not want to use monetary policy for stabilizing purposes.

Chairman PROXMIRE. Well, you would like to use it for stabilizing purposes, but you cannot foresee the future, and there are lags involved, and under these circumstances you think that about the best you can do is to use it, but use it within limitations?

Mr. MITCHELL. Yes.

Chairman PROXMIRE. That are moderate?

Mr. MITCHELL. Yes. I just do not agree with this, because I think we are learning to use it better all the time. I think the farther you go into monetary archeology, you know, the less helpful it is.

The thing to do is to be looking at the tools, and the equipment and the statistical improvements that are being made, and the improved knowledge that we have of the behavior of these monetary variables. That is why I come back to what you said in the first place.

Could you not share with us the kind of analysis that you are making of the movement of monetary variables against the projection of GNP? This is the type of analysis that is being improved, and though it is far from perfect it is better than it was and every year it gets better than it was the year before.

Chairman PROXMIRE. You see what we are getting at, however, now, is that I think at least somebody of economic competence in the universities and elsewhere feels that the Board's policies in the past have not been as good as they should be, and in the future they are unlikely to be good for reasons of lags, the state of the art and so forth. No criticism of the people involved.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. And it seems to me we probably cannot have a rigid rule, at least I do not think Congress will adopt it, and I know the Federal Reserve Board would fight it, and it might not be wise.

However, how about stressing once again this compromise notion, that the Congress could suggest a gradual increase of the kind we have here. We could have regular public hearings in which we could ask questions, not just a report in some document that nobody reads, but hearings with the press present and members of the committee here to ask questions on it, and then in addition to this, we could have at the beginning of the year an expression by the Board of what their intention is with regard to monetary policy, recognizing the President's Economic Report and recognizing the needs of the economy prospectively.

Mr. MITCHELL. Well, I do not see any objection to any of this except the part about a regular increase in the money supply. I think that this prejudices the—

Chairman PROXMIRE. Again you are not bound by it. All you have to do is justify, explain why.

Mr. MITCHELL. I understand that, but I think that it would be unwise to focus on this one variable, when there are others that may be much more important.

Chairman PROXMIRE. Well, the answer there of course is that if we do not focus on one variable, given the finite ability of the Congress and of all of us here on this side of the table, if you give us all these variables that we talk about and discuss, we are going to be lost. We have to get this as simple as we can.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. And as reasonable as possible, so that people at least understand this element of it, and then be in a position to evaluate your arguments as to why you depart from it.

Mr. MITCHELL. Well, then, I would say on the occasion when you hear the Council of Economic Advisors on the outlook for the economy, there is not any reason that I can see offhand why you could not hear the Federal Reserve on the financial outlook.

The outlook for financial variables, that could be expected given this projection for the economy—

Chairman PROXMIRE. We do not want it that erratic or informal. We want a regular quarterly hearing, at least whenever there is a departure in Federal Reserve policy, so that we will be in a position to be enlightened, the Congress will. We can make our report, make our criticism, make our suggestions, have whatever influence we think we ought to have and perhaps the banking committees of the Congress ought to have on Federal policy at that point. I think it is a matter of getting, eliciting more debate, discussion, and therefore more understanding of something that is so vital and important for this country's economic health.

Mr. MITCHELL. You see what you are asking for is the kind of process that now goes on within the Federal Reserve System.

Chairman PROXMIRE. But that is not enough. The trouble is—

Mr. MITCHELL. But it is no great problem to translate it into your needs, if all you are saying is, given this kind of an economic projection, what kind of financial flows and what kind of monetary problems are we likely to encounter in the period for which—

Chairman PROXMIRE. Congress I think eventually might come to a position—if they have regular reports of this kind—might come to a position where it feels it would be wise to limit the money supply. It may come to a position where it thinks it would not be.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. But at this point there are not enough Members of Congress who followed this or who are interested in it or know about it, and one reason is because we have not had this regular reporting and regular examination of this, and because it has been—gentlemen like you come up who are extremely learned and give us all kinds of rationalizations and justifications, many of which are eminently justified but are just confusing to Members of the Congress, the press and the public, if they try to put it in some kind of an understandable perspective.

Mr. MITCHELL. Well, it is not a simple problem.

Chairman PROXMIRE. Of course it is not, and I do not want to try to oversimplify it.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. But I want to try to get one kind of a specific guideline to which we can stick.

Senator MILLER?

Senator MILLER. May I underscore what the chairman has said. I think Senator Proxmire has made a very good suggestion here, and I would hope that the Board would respond favorably to it.

A regularly scheduled quarterly meeting or hearing would give people a wonderful opportunity to come out with your position on money matters and also your warnings, if warnings are indicated, on fiscal restraint that Congress should follow. As it is now, we get it on an ad hoc basis about once a year or once in a while when there is a serious period in the economy.

We will see some statement by the Chairman of the Federal Reserve Board, and I must say I do not think that most of our colleagues respond the way they would or could, if they knew that every quarter there was going to be some kind of a report, and it was going to be accompanied by strong recommendations regarding fiscal policy. It might exert a very good influence on the Members of Congress, and would help you in turn to do your job.

Governor Mitchell, in your statement you say:

"What I would question is the contention that the inventory adjustment of early 1967 was entirely or even primarily caused by tight money in 1966."

I wonder if that same rationale could apply in reverse, so that you might also say that you would question a contention that the inventory adjustment of 1966 was entirely or even primarily caused by easy money in 1965.

In other words, does the tight money or the easy money have—

Mr. MITCHELL. I think it does have some influence, but I do not think it is the primary factor.

I believe that the tight money in the summer of 1966 did have something to do with the attitude of consumers toward spending, and it may be that easier credit conditions also have a different or the reverse effect, but it was not the primary factor.

Senator MILLER. But your warning is not to try to pick out one particular effect as the explanation for everything?

Mr. MITCHELL. That is right.

Senator MILLER. And that warning of yours would apply not only in a tight money situation—

Mr. MITCHELL. Yes.

Senator MILLER. But in an easy one?

Mr. MITCHELL. In an easy one too, yes, sir; that is right.

Senator MILLER. Do you think it is desirable that the banks' and thrift institutions' policies be put under one policy?

Mr. MITCHELL. Well, they compete in the same markets, and therefore, if the regulatory authorities do not coordinate their regulations, you can have a pretty serious competitive impact on one or the other of these types of institutions.

Senator MILLER. That is so, and the timelag can be pretty disastrous on some institutions.

Mr. MITCHELL. Well, the coordination as it has been practiced I think has been quite good.

Senator MILLER. I can recall a 6- or 9-month period when the savings and loans were in very bad shape out in my area as a result of the time-lag.

Mr. MITCHELL. Was it before the legislation on the coordination?

September 1966 is when we got the coordination legislation. We did not have it before that.

Senator MILLER. That is correct.

Mr. MITCHELL. And part of the problem I think in your State might have been due to a State law.

Senator MILLER. That was a part of the problem. I think the coordination came about in December, I believe.

Mr. MITCHELL. We had trouble in Missouri, Iowa, Tennessee, and Indiana.

There are several States that had ceiling rates that caused difficulties.

Senator MILLER. Yes.

Mr. MITCHELL. For the financial intermediaries.

Senator MILLER. Well, you think the coordination is working out all right?

Mr. MITCHELL. Yes, sir; I do.

Senator MILLER. In 1967, as you pointed out, the Board accompanied the great corporate demand for liquidity, or accommodated it, I should say.

Mr. MITCHELL. Yes.

Senator MILLER. And in doing so, added to the stock of money that was to be held rather than spent quickly?

Mr. MITCHELL. Yes.

Senator MILLER. But in doing this, was not the Federal Reserve Board preventing interest rate trouble then at the risk of inflationary trouble now?

Mr. MITCHELL. That is a hard question, but I am inclined to think that the effort to achieve this additional liquidity on the part of corporations, after their liquidity had been driven down by the tax acceleration program, was an entirely legitimate one and should not have been thwarted.

A lot of it was also achieved by paying the highest interest rates U.S. corporations have ever paid for long-term money. And so I think they felt very strongly about achieving that liquidity position.

Moreover, many commercial banks were increasing their compensating balance requirements, which, in effect, required their borrowers to have more money in demand deposits. So I do not believe that it was an unwise thing to do, I did not think it was unwise then and I do not think so in retrospect.

But I have to admit that the question you are asking is a proper one, and unquestionably some risks in this direction were taken, but as far as the corporations are concerned, their liquidity position still remains quite good. They have not, up to this point, run it down.

Senator MILLER. I can appreciate the fact that you have to weigh values.

Mr. MITCHELL. Yes.

Senator MILLER. In making your judgments, and you might say well, the need for this corporate demand to be met is so urgent that we

will take action to meet it, even though there may be a risk which we are not sure is going to be fulfilled of inflation, and which we hope may be offset by fiscal policy. This leads me to my last question, and that is, what does the Board have by way of priorities for guidance in reaching these decisions?

Do you have anything in writing on it, or is this something that is talked about from time to time?

What are the priorities?

Mr. MITCHELL. Well, I think the top priority is stability, and an equal priority is given to maximum growth.

Senator MILLER. The top priority is stability?

Mr. MITCHELL. Stability and growth.

Senator MILLER. But stability—

Mr. MITCHELL. I ought to define stability.

Senator MILLER. Yes.

Mr. MITCHELL. I mean economic stability, and then we believe, in order to achieve economic stability and maximum growth, we do need price stability.

Senator MILLER. Yes; and so it would seem to me that the No. 1 priority would be to hold down inflation.

Mr. MITCHELL. Well, Chairman Martin often says we are the only Government agency concerned with money exclusively, and therefore it has a high priority with us, but I think that is perfectly true.

Still, the larger goal I think of all economic stabilization is to provide the Employment Act for jobs and growth.

Senator MILLER. Yes; and one other thing, and that is stable money.

Mr. MITCHELL. Stable money, this is right.

Senator MILLER. Agreed. Now, when Congress legislated that, those were the two objectives, not one?

Mr. MITCHELL. That is right.

Senator MILLER. Full employment and a stable dollar?

Mr. MITCHELL. Yes.

Senator MILLER. I do not recall there was anything said in the legislative history indicating that the Board should give precedence to one over the other.

Mr. MITCHELL. There are times, you know, when you have to be more concerned about one than the other. Right now you have to be more concerned about price stability than you do about jobs, because there are more jobs than we can fill anyway.

Senator MILLER. It has been that way for quite some time now, has it not, the last 2 or 3 years, as I recall?

Mr. MITCHELL. Yes.

Senator MILLER. The rates have been pretty low?

Mr. MITCHELL. Very low.

Senator MILLER. But in other words, what you are really saying is that as far as the priorities are concerned, the Board is concerned with those two objectives?

Mr. MITCHELL. That is right.

Senator MILLER. As national economic policy?

Mr. MITCHELL. That is right.

Senator MILLER. You may put one ahead of the other?

Mr. MITCHELL. It depends on the environment of the time.

Senator MILLER. At a certain particular period of time?

Mr. MITCHELL. That is right.

Senator MILLER. And it looks like the employment thing has been satisfied, but we have not been doing very well on the other one, have we?

Mr. MITCHELL. That is correct.

Senator MILLER. And your position would be that the Board has been doing about all it could on it, and that it is the fiscal policy of Congress which must make up for what the Board cannot do with respect to that second objective. Would that be your position?

Mr. MITCHELL. I think that is right; yes, sir.

Senator MILLER. Even though you recognize that it might have been prudent to have not increased the money supply in anticipation of what did not take place by way of physical restraint in 1967?

Mr. MITCHELL. I will agree if you will let me add some other monetary variables to money supply.

Senator MILLER. Please do.

Mr. MITCHELL. Mr. Chairman, could I ask Mr. Brill if he would like to say something.

Chairman PROXMIRE. Yes, indeed, we would like to hear from Mr. Brill.

Mr. MITCHELL. He may wish to amplify something that I may not have adequately covered.

Maybe you would like to say something, Mr. Brill, about the "chart shows" we use to illustrate these issues and to pinpoint them.

Mr. BRILL. Mr. Chairman, I think Chairman Martin alluded to these "chart shows" during the course of the hearings on the President's economic report.

This is a staff exercise we undertake with some regularity, but particularly at the beginning of each calendar year, when the Economic Report of the President becomes available, incorporating the economic outlook in GNP terms as developed by the Council of Economic Advisers. We collaborate with the Council and consult with them in the course of this work, and then try to analyze the monetary policy that would be consistent with an economy unfolding as the Council's projection would indicate.

In the course of that analysis, what falls out are estimates of what would be an appropriate increase in various financial variables: what would be the appropriate course of interest rates, money supply, money supply and time deposits, flows through financial intermediaries? This is all one world and what we try to do is present a picture of what the financial part of the world would look like consistent with the GNP part of the world as indicated in the Council's report.

This, of course, is subject to whatever one's evaluation is of the likelihood of the Council's estimate of GNP being realized, which in turn depends on one's assessment of such things as congressional action on expenditures and revenues, business attitudes toward investments, consumer willingness to spend. But it is one benchmark.

We have been doing this sort of analysis for several years, and presenting it in the form of a slide-show presentation—a chart show—that we then reexamine from time to time during the course of the year to see how the economy is deviating from this pattern and what implications this has for developments in financial markets.

I think this is a type of presentation perhaps that might be con-

sistent with what you are suggesting, but it is oriented to a particular view of the real world, that is shown in the report of the Council.

Senator MILLER. Will the Chairman yield?

Chairman PROXMIRE. Yes.

Senator MILLER. You indicate that great attention is focused on GNP. I presume you are talking about real increased GNP, real dollars?

Mr. BRILL. We have to focus on both, Senator, because the demands in financial markets are related to the total dollar volume of activity that is being financed. The price pressures that emerge are related to the real demands on resources, so that in our analyses we try to focus on both, since they both have different parts to play.

Senator MILLER. We have had testimony before this committee by some very fine economists who have indicated that while these are interesting and important figures, that even more meaningful would be per capita real increased GNP.

There is also some thinking that that should be leavened with the per capita increased dollar debt.

Has there been any consideration given to taking those kinds of ratios and comparisons into effect also?

Mr. BRILL. Yes, sir; particularly over longer periods of time. For short-run analyses, what is going to happen in the next 2 or 3 quarters, the change in the population usually is not great enough to affect the main contours of the analysis. But over longer periods of time—

Senator MILLER. Would you say a year?

Mr. BRILL. I would say probably longer, 2 to 3 years. The time periods might be shorter when we are experiencing reversals in the rate of change in population, which we have had in the postwar period.

I might note that in the committee print that included the reply to Congressman Reuss' proposals with respect to monetary policy, one of the documents incorporated is a staff analysis extending over a much longer part of the postwar period, and in that there was, as I recall, quite a bit of material on a per capita basis. Of course, once one gets into a longer time span, then population changes are quite important.

Senator MILLER. It seems to me one real look of increased dollars per capita would be quite feasible, also real dollar increased per capita debt would be entirely feasible and it would be a very important consideration as to how our economy is doing.

I must confess some misgivings over the fact that I do not see much attention being focused on this per capita look and the debt side of the picture. I am particularly aware of this in the agricultural sector; because, for example, I noticed a statement in the President's state of the Union message that net income per farm over the last 10 years had gone up 55 percent. Then you wonder why the farmers are not dancing in the streets, and you look at the other side of the ledger and you see net debt per farm has gone up 110 percent.

It would seem to me that this debt picture ought to be taken into account. I mentioned that so that you possibly can focus on that.

I know you are always trying to improve your statistics and your data, and I hope you will look into this.

Mr. BRILL. Yes, sir.

Senator MILLER. Thank you.

Chairman PROXMIRE. Along this line I wonder, Governor Mitchell and Mr. Brill, if you think it would be wise or proper for the Federal Reserve to give to the Congress the quarterly justifications for the internal—I understand you have now an internal Federal Reserve Board projection for fulfilling the Council of Economic Advisers' gross national product estimate projections.

Do you have those?

Mr. MITCHELL. Well, it depends upon the way the economy is unfolding. If changes are taking place, these projections are revised. If changes do not seem to be taking place—

Chairman PROXMIRE. That is right.

Mr. MITCHELL. That justify the revision, we do not do it.

Chairman PROXMIRE. Would it not be helpful to the Congress to get these? After all, we have great faith in the Board.

Mr. MITCHELL. Yes, I think it might be helpful.

Chairman PROXMIRE. And in its staff.

Mr. MITCHELL. I think we might be able to help.

Chairman PROXMIRE. Would you take it up and find out if we can get those beginning the first week in July?

Mr. MITCHELL. Certainly.

Chairman PROXMIRE. Now I would like to ask you, Governor Mitchell, about the fact that yesterday the price of gold reached its highest point—I understand, the dollar reached its lowest point—in recent years. I wonder if you have any observations on this in terms of whether this might represent a breakdown or at least a worsening in cooperation among the central banks, whether this means that this two-price system is getting into trouble or whether you had expected it and that we can ride it out?

Mr. MITCHELL. I do not have any knowledge of what has taken place in the last few days, which would enable me to comment.

How much did the price of gold go up? Over \$40?

Chairman PROXMIRE. Oh, yes; it is \$40.10.

Mr. MITCHELL. \$40.10.

Chairman PROXMIRE. That was the latest price this morning, \$40.10.

Mr. MITCHELL. Well, I think that the position of the major central banks is reasonably clear, and that the two-price system will be able to function. I think the threat to it probably comes from the price of gold dropping under \$35 an ounce rather than rising more. There is a large overhang of gold in the market bought by speculators during the run.

Chairman PROXMIRE. Is it not true that South Africa, for example, is not selling gold now?

Mr. MITCHELL. They are not selling gold now, but they will have to sell sooner or later.

Chairman PROXMIRE. They are the biggest producer?

Mr. MITCHELL. Yes, they are.

Chairman PROXMIRE. The biggest supplier.

Mr. MITCHELL. But they will have to sell before too long, and these two elements of supply I think put real pressures on the price of gold on the downside and not on the up side. I think you have to expect that for several months we are going to have a market that is strongly affected by rumors of lack of central bank cooperation, by rumors of any sort that will suit the purposes of the people who want to sell the gold that they have previously bought at a profit.

Chairman PROXMIRE. In general, you and the Board feel that this two-price system is working reasonably well then?

Mr. MITCHELL. Yes, sir.

Chairman PROXMIRE. Let me ask you in connection with the gold situation, and I want to get back to another thing very quickly, but you did not refer to the Fed's international responsibilities at all, especially in reply to Senator Miller. But sometimes this has been used by those who are defending the Board's position, saying that you have to run contrary to what seems like a logical monetary policy to cope with domestic problems, because the balance of payments is so urgent.

Governor Robertson testified before the Senate Banking Committee that we ought to insulate the balance-of-payments problem with a comprehensive interest equalization tax, so that the monetary policy can always be consistently appropriate for the domestic situation.

Do you think this is feasible absent floating exchange rates; feasible with the present kind of a system we have?

Mr. MITCHELL. Well, just to take these answers up seriatim, the reason I did not say anything about it is I think domestic and international objectives both are working in the same direction.

Chairman PROXMIRE. Right now?

Mr. MITCHELL. Yes, right now.

Chairman PROXMIRE. But as I understand it, Senator Miller asked you your top priorities and you said your top priorities are employment and stability, domestic employment and domestic price stability. You left out of account at that point the balance of payments.

Mr. MITCHELL. Yes.

Well, the international situation can be disequilibrating to the domestic objectives all right, and I think my preferred method of dealing with this disequilibrium on the capital flow side is with a tax rather than with the kind of voluntary programs we have at the present time.

But we must have domestic price stability. If the rest of the world has more price stability than we can maintain, then we are constantly getting into trouble on the trade side. So the domestic goals and the international trade goals are consistent.

But the capital flows can be a serious source of difficulty and I think if they are causing difficulty it is better to deal with them through a tax arrangement such as the interest equalization tax rather than the voluntary program we now have.

Chairman PROXMIRE. The economists whom I asked about this last week rather consistently indicated that they did not think this was sustainable, that the interest equalization tax would be self-defeating, that you would get into a position in effect of protectionism on your capital flows, that it just does not work out, that if you are going to do that you have to go with floating exchange rates or it just is too much of a short-term solution.

Mr. MITCHELL. Well, that is one of the other arguments, that if you want to free up monetary policy to deal with domestic situations, you need flexible exchange rates to go with that.

But that is not the only alternative. There are others.

One of the alternatives is using the tax system.

Chairman PROXMIRE. And you think that can be a long-term solution?

Mr. MITCHELL. Yes. I do not think that the voluntary restraint program can be regarded as a long-term solution. It is definitely a short-term one.

Chairman PROXMIRE. Why has the Board taken this position on Fanny May purchases?

Not only the Joint Economic Committee and both Banking Committees of the Congress, but the Congress itself passed legislation authorizing the Board, to buy the obligations of FNMA to support the housing market.

Several times now you have said that one of the reasons why you are following a policy of expanding the money supply, at least not a very restrictive monetary policy in spite of inflation, is that you do not want to kill the housing market.

One answer is to have the Federal Reserve Board directly buy Fanny May obligations, so that the differential between the interest rates on Federal obligations, regular Federal obligations and mortgages, could be narrowed. So that you could have at least some influence on bringing down the cost of money for those buying homes.

Mr. MITCHELL. Well, let me put it this way: If we dealt in agency issues on a relatively marginal basis, you know, just in small amounts without the intent of doing anything to the rates—

Chairman PROXMIRE. That is not what we want, of course.

Mr. MITCHELL (continuing). Of significance, you can make arguments in favor of this, but I think the major argument against this is that some issues are really too small, they ought to be pooled.

Chairman PROXMIRE. What we want is for you to deal in a big way.

Mr. MITCHELL. That is what I understand.

Chairman PROXMIRE. To bring the cost of money down for housing.

Mr. MITCHELL. Yes. Let's say we have some kind of a bank credit or a proxy that we are watching, which tells us when we are injecting too much credit—you can use your money supply and, say, I use bank credit—and we have agreed that this is about what we want to achieve.

Now if in this situation we have to buy housing issues, we would have to sell Treasury issues—

Chairman PROXMIRE. Yes.

Mr. MITCHELL (continuing). And the sale of the Government issues—

Chairman PROXMIRE. Or at least not buy as many Government issues, depending on what your policy is in general?

Mr. MITCHELL. Well, I think, we would have to be selling off some Government issues, and this would put a lot of strain on Government issues.

Chairman PROXMIRE. You cannot have everything.

Mr. MITCHELL. That is right.

Chairman PROXMIRE. The point is that we would recognize that the housing industry is the one that has been most vulnerable?

Mr. MITCHELL. Yes.

Chairman PROXMIRE. To monetary restraint.

Mr. MITCHELL. Well, Government—

Chairman PROXMIRE. It has suffered very greatly as you emphasized so well in 1966.

Mr. MITCHELL. That is right.

Chairman PROXMIRE. And it could suffer badly again. In fact, I think that if we are going to follow the kind of policy that the inter-

national balance of payments might dictate and so forth, we may end up with a policy of restraining inflation that we might have another serious problem for housing, at least it will not grow at the rate that all of us want it to. So that this is a very real practical problem now?

Mr. MITCHELL. Yes, it is.

Chairman PROXMIRE. For the future?

Mr. MITCHELL. That is right.

Well, I think that under these conditions large-scale purchases of agency issues by the System would probably pull funds out of savings and loan associations, in this kind of a market you are talking about because funds would be attracted to other market instruments that would have higher rates of yield, including Government securities, and whatever the Federal Reserve was trying to get into the housing industry by disgorging Treasury issues and buying housing issues would result in the S. & L.'s and mutual savings banks losing savings funds. And investors who have a choice would be less interested in housing mortgages and more interested in market instruments.

Now you have seen this—

Chairman PROXMIRE. We can do our best, at least we can do something by way of legislation to see that S. & L.'s stay in housing.

Mr. MITCHELL. You could do this, but investors do not have to stay with S. & L.'s.

Chairman PROXMIRE. They do not have to.

Mr. MITCHELL. They do not have to go through an intermediary.

Chairman PROXMIRE. There is some friction in this area. Is there not a tendency—

Mr. MITCHELL. Oh, yes.

Chairman PROXMIRE (continuing). At least for some groups to tend to go into housing?

Mr. MITCHELL. That is right.

Chairman PROXMIRE. It seems to me at least on the short run that it might be wise for Congress and the Federal Reserve to adopt policies that would do our best to make funds available here.

Mr. MITCHELL. Well, I agree with you that we do not want—

Chairman PROXMIRE. We ought to at least try it.

Mr. MITCHELL. Housing at any rate is having a lot of trouble.

Chairman PROXMIRE. If we do not try it, we do not know of course.

Mr. MITCHELL. Yes.

Chairman PROXMIRE. Is that right?

The Federal Reserve Board has never done this?

Mr. MITCHELL. No.

We have used repurchase agreements. Dealers have used these agency issues for—

Chairman PROXMIRE. You see, you could have made the same argument on Operation TWIST that you cannot keep short-run Government obligation interest rates high and long term low.

Mr. MITCHELL. It worked for a while.

Chairman PROXMIRE. It worked for a while?

Mr. MITCHELL. That is right.

Chairman PROXMIRE. In the same way, it seems to me you might be able to have some influence at least in reducing the rates on housing obligations.

Mr. MITCHELL. I think a lot depends on the economic environment at the time whether you can achieve this. If the Government is running a \$20 billion deficit and all of a sudden you are going to have the Federal Reserve sell \$5 billion in Government securities, it is not a very practical operation, but if the Government were in a more balanced position, maybe it would be more feasible.

Chairman PROXMIRE. That brings me to the last question I want to ask you this morning. That pertains to this situation:

Assume that the Congress does pass the tax increase and the more substantial spending cut of \$6 billion, a \$10 billion appropriation reduction, do you foresee that this could have a significant effect on easing the monetary situation?

Mr. MITCHELL. If they did pass it? Did you say if they did pass it?

Chairman PROXMIRE. If they do pass it. Say it is put into effect on June 1.

Mr. MITCHELL. I think Mr. Brill is better able to comment on the effects on the markets. I think interest rates expectationally would drop rather significantly.

Chairman PROXMIRE. Do you think interest rates would drop?

Mr. MITCHELL. Yes.

Chairman PROXMIRE. Significantly?

Mr. MITCHELL. Yes. I think that would be the first reaction.

Chairman PROXMIRE. Mr. Brill?

Mr. MITCHELL. And I think also that the financial flows into the—

Chairman PROXMIRE. How promptly would that drop come about in your view, if we pass it on the 1st of June? Will you get a drop this summer or fall?

Mr. MITCHELL. Oh, yes, you would get it sooner than that.

Mr. BRILL. I would suspect it would be significantly sooner than that. I do not think we can pinpoint it to weeks, but the reversal of market expectations is the initial impetus that will be felt.

Chairman PROXMIRE. The principal reason is because this would reduce the deficit and the Federal Government therefore would not be out on the market bidding up interest rates by trying to sell obligations?

Mr. MITCHELL. People would be trying to take advantage of the existing level of interest rates on the assumption it was going to get lower.

Chairman PROXMIRE. I see.

Mr. MITCHELL. And so they will push the rate down quickly.

Chairman PROXMIRE. You would have, not a deflationary but a noninflationary attitude?

Mr. MITCHELL. It would change their whole attitude, their whole time horizons with respect to the level of interest rates, and they would say, "I am going to get as much as I can with these rates because later on I cannot." And that should bring rates down pretty fast.

Chairman PROXMIRE. Do you want to add something, Mr. Brill?

Mr. BRILL. As I said, I think the expectational effect would be the initial impact. Subsequently, it would depend on the volume of flows, whether there was pick-up in borrowing by the private sectors. Of course initially, even with the proposed legislation, Federal financing

demands rise seasonally at this time of year, so the flows for a while would still be high, but there would be such a change in market attitudes that—

Chairman PROXMIRE. It is funny, you would stress attitude and expectations. There is a strong expectation now, I think a view that there is about a 3-to-1 or 5-to-1 chance that this tax package will go into effect rather promptly. It may not be \$6 billion, it may be 4, but it will be close to it and it will have close to the same effect.

You would think the market would discount this.

Mr. MITCHELL. The market has been disappointed too many times. They have discounted four or five times in the past. Nothing happened and they got shellacked so they are not going to do it this time until they see the whites of its eyes.

Chairman PROXMIRE. The conferees have agreed to this. They want to wait until the President actually puts his signature on it.

Mr. MITCHELL. I think that is right. I think it is because they have been burned on it before.

Chairman PROXMIRE. You think it would be that significant and decisive?

Mr. MITCHELL. I think so.

Mr. BRILL. It removes a very substantial amount of potential borrowing.

Chairman PROXMIRE. What would the Federal Reserve Board do to accommodate to this? Anything?

Would you expect a change in policy under these circumstances?

Mr. MITCHELL. I do not think I could really say much about that until you have a chance to observe the environment.

The only thing I would feel fairly sure about now is that the interest rate structure would change, and this is going to have some effect on the competitiveness of the intermediaries against the market. By that I mean that inflows of savings funds into the savings and loan associations, at the rates they are presently offering would probably rise and they in turn, coming into funds of this sort, would be willing to enter into more commitments.

Chairman PROXMIRE. Where is this money coming from?

People's incomes would be reduced by the tax increase, and by the spending reduction.

Mr. MITCHELL. There are tremendous flows of funds from repayments of mortgages, as you know, that have to be reinvested.

Chairman PROXMIRE. They would be coming in anyway?

Mr. MITCHELL. The flows of funds are enormous, and at the margin they are large enough to have very substantial effects on rates.

Chairman PROXMIRE. That is very interesting and very, very helpful.

Thank you, gentlemen.

Senator Miller?

Senator MILLER. I just wanted to ask a couple of questions on this point.

As I see it, we are faced with a \$30 billion budget deficit for the next fiscal year, and if Congress does indeed pass this package, we will be getting about \$10 billion more in revenue and \$6 billion reduction in spending, we would still end up in the neighborhood of a \$14 billion budget deficit.

With that amount of a deficit to cover, I take it you would not anticipate that these interest rates would stay substantially lower very long. I can understand the psychological reaction which you referred to, and of course everybody, most people at least, would like to see interest rates come down, but I am wondering if that could be sustained in the face of this, if things go on the way they appear to be going.

Mr. MITCHELL. Well, the goal of the policy is to retard the pace of activity. I would think rather that interest rates that are absolutely at historical highs would come down and stay below those historical highs.

Senator MILLER. You said that they would come down, you thought they might come down significantly. I do not know what you mean by that.

I suppose you mean in the neighborhood of 1 percent would be a significant drop, would it not?

Mr. BRILL. That would be a significant drop; yes, sir.

Senator MILLER. With the \$14 billion budget deficit staring us in the face, if Congress takes this action, you have a very substantial deficit to cover.

Chairman PROXMIRE. If the Senator would yield, I think there is a difference of opinion on that. The Senator may well be right, but I think there are those who argue that there would be a \$6 billion deficit with the tax package, that is a \$20 billion deficit without it, and Senator, if you put this combination into effect, it would be reduced by \$14 to \$16 billion, in which case it would be \$4 or \$6 billion deficit, but you may well be right.

Senator MILLER. I do not think anybody knows. I am just using the figure of \$10 billion from revenue, which I believe is being used as a benchmark, and a \$6 billion reduction in spending, so you have a \$16 billion impact on the deficit approximately.

Chairman PROXMIRE. I start with the \$20 billion deficit, and you start with a \$28 billion deficit.

Senator MILLER. I am not referring to the current fiscal year, but to the next fiscal year.

Chairman PROXMIRE. 1969.

Senator MILLER. But assuming that it ends up with let's say \$12 to \$14 billion budget deficit to cover, I take it that we could not be too euphoric or sanguine about the interest rates coming down much lower.

Mr. MITCHELL. I think we ought to get Mr. Brill to comment on this. I think he is better equipped to do so than I am. What would you say?

Senator MILLER. Please do.

Mr. BRILL. I think there are two or three considerations.

One is that the order of magnitude of what the change in the deficit would be would bring the number remaining to be financed lower than 14. I am not sure it would be as low as 6, but I think lower than 14 that would remain after passage of the proposed legislation. I must admit I do not have a precise number, just the impression from what I have seen to date.

I think there are two other considerations. One is that if the increase in taxes has its effect in cooling off private spending, there will

be somewhat less private demand. That may not be a very large amount, because initially people may try to borrow to compensate for some of the income.

Chairman PROXMIRE. Save a little less?

Mr. BRILL. Save a little less, but I think on balance, if the program is effective it will reduce private spending, including spending financed by borrowing.

Third, if the whole program is effective in reducing the rate of inflation, I would imagine there would be less inhibitions on the Federal Reserve in terms of the supply of funds. So that if all of these factors work, and they all work in the same direction, work in the right order of magnitude, one could see a lower level of interest rates persisting even after the initial expectational impact. But it does depend on all factors breaking right.

Senator MILLER. But it would still probably be at a pretty high level.

Mr. BRILL. Oh, I doubt whether anybody is considering return to the rates that were reached, say, in the winter of 1958, which were abnormally low.

Senator MILLER. Thank you.

Thank you, Mr. Chairman.

Chairman PROXMIRE. Thank you, gentlemen, very, very much for a fine job, most helpful. We are looking forward to the information which you indicate will be forthcoming.

Mr. MITCHELL. Very good.

Chairman PROXMIRE. We will include in the record, at the end of today's proceedings, a submission from Mr. Brill.

Tomorrow we are going to hear from three experts from the banking and insurance community, and we will meet in this room at 10 o'clock.

(Whereupon, at 1:10 p.m., the committee recessed, to reconvene at 10 a.m., Thursday, May 16, 1968.)

(Mr. Brill's submission follows on page 156:)

CAN THE GOVERNMENT "FINE-TUNE" THE ECONOMY?*

If we're going to generate much argument this evening, we'll have to begin by redefining the subject of our debate. The announced topic, "Can the Government 'Fine-Tune' the Economy?" isn't likely to find me in disagreement with my fellow panelist. "Fine-tuning," as economists have taken over the phrase from a sister discipline—TV watching—implies the Government twiddling dials to offset every minor tendency of the economic picture to waver or fade or to lose its focus on full employment and price stability. Obviously I haven't that much faith in the powers of economic prognostication or therapy, and I doubt that Harvey Segal does either.

Nor do I see much basis for argument in the explanatory note on the program:

Adherents of Keynes and the "new economics" believe strongly that the Government can and should use fiscal and monetary measures to maintain economic stability and growth. However, many question the wisdom of Government intervention in the economy.

As I understand the views of anti-Keynesians, including those who write editorials for the Washington Post, the question is not whether there should be Government intervention in the economy. Tinkering with the money supply—even to stabilize its growth rate—is intervention, as much as is tinkering with tax rates. The questions which divide us are not those relating to whether the Government should intervene in the economic process, but rather how the Government should intervene, when it should intervene, and for what purposes it should intervene.

Disputes over issues such as these are certainly within the province of legitimate economic controversy. My concern tonight, however, is only in part with the substance of this argument. It is equally with the methods by which the arguments are being carried on. In the transition from scholarly disputes, conducted in the learned journals and at professional meetings, to public debate on policy issues conducted in newspaper columns and congressional hearings, our profession seems to be losing its cool. It is showing an alarming tendency in its (freely offered) policy prescriptions and advice to ignore the important qualifications so carefully noted in a professional setting. And there are times when references to facts and time periods seem to be mainly on the basis of whether or not the results appear to provide support for a pet thesis. In short, debate in the arena of political economy has begun to lose those elements of scholarly humility and objectivity which are so essential in any scientific inquiry. My plea

*Discussion paper by Daniel H. Brill, Board of Governors of the Federal Reserve System, to the Washington chapter of the American Statistical Association, Feb. 28, 1968.

NOTE.—The views set forth in this paper are the responsibility of the author alone, and do not necessarily reflect the views of others in the Federal Reserve System.

tonight is for a return to a little more scientific dispassion and a little less polemics.

Though I am sure all of us deserve to be given stern lectures on this score, I'll start tonight by chastising my money-supply friends. The hallmark of the contemporary anti-Keynesian is his disdain for the use of fiscal tools of stabilization policy, just as the hallmark of the primitive Keynesian a generation ago was his disdain for monetary policy. On what theoretical grounds does this reversion to economic monotheism rest? An elegantly simple—and therefore attractive—formulation of the theory of causal forces in the determination of changes in aggregate economic activity and prices, buttressed by voluminous (if not always persuasive) statistical evidence to support the thesis. Changes in the money supply emerge as the major determinant of changes in nominal income. From an exhaustive study, covering the monetary evidence of almost a full century of U.S. experience, the most distinguished proponent of the theory—Professor Friedman—arrives at the following conclusion:

While the influence running from money to economic activity has been predominant, there have clearly also been influences running the other way, particularly during the shorter run movements associated with the business cycle. * * * Changes in the money stock are therefore a consequence as well as an independent source of change in money income and prices, though, once they occur, they produce in their turn still further effects on income and prices. Mutual interaction, but with money rather clearly the senior partner in longer run movements and in major cyclical movements, and more nearly an equal partner with money, income and prices in shorter run and milder movements—this is the generalization suggested by our evidence.

While my own reading of the evidence puts less weight on money as a causal factor than does Friedman's, I do want to call attention to the judiciousness with which he words his conclusions. Money matters, and is apparently a "senior partner"—though, note, even so only a partner—over longer run episodes and major cycles in the economy. But in the short run, changes in money may be as much a result as a cause of economic fluctuations. More importantly, the statement leaves a clear field for factors other than money as causal forces affecting changes in economic activity, particularly so with respect to milder and shorter run economic fluctuations—presumably of the kind we have had since World War II.

What happens, however, when Professor Friedman begins to interpret recent economic history for a lay audience? Take, for example, his interpretation of economic events since mid-1965, in the October 30, 1967, issue of Newsweek. It turns out, as you might expect, that the villain of the piece is monetary policy—which permitted too rapid a growth in money supply up to April 1966, too slow a growth from then till December 1966, and too rapid a growth in 1967. Did the massive buildup of defense spending from mid-1965 on, without adequate offset by higher taxes, have much to do with aggregate demands on goods and services and on the behavior of prices? Not much apparently. "What happens to taxes," says Mr. Friedman, "is important. It may affect the level of Government spending. It may affect the rate of interest that accompanies whatever monetary policy is followed. But it is not decisive for the course of prices."

Thus, in scholarly works, nonmonetary factors are assigned significant weight in influencing activity and prices in shorter economic

changes; in writing for popular consumption, nonmonetary factors fade into insignificance: It is money that matters and money only, for all practical purposes.

What justifies these divergent interpretations, from a guarded and qualified reading of monetary history to the relatively unqualified conclusions on the causes of recent fluctuations in money income and prices? I don't find support for the money, only interpretation of recent developments in either Friedman's own evidence concerning the long sweep of U.S. history since 1867, or in the behavior of monetary variables and economy over the postwar years. If money were tightly linked to money income, then income velocity would be stable, or at least it would change only slowly and in a predictable fashion. If such a statistical association existed, and were to be useful for shortrun policy decisions, the evidence would have to show a constant or predictable relation between changes in money and changes in money income.

I don't see that Friedman's own evidence satisfies these conditions. Velocity fluctuates widely in the short run. Friedman takes comfort from the facts that over the nine decades for which he compiled the relevant statistics, the year-to-year changes in velocity were most often less than 10 percent, and that the changes most often fell within a range of plus or minus 15 percent of the long-term trend in velocity. But a 10 percent fluctuation in velocity, or a deviation of 15 percent from trend, is hardly an adequate standard for determining the usefulness of a guide to public policy. For example, a difference of 10 percent in the velocity of a given money stock, at today's level of the money stock, would result in a difference of about \$80 billion in GNP. The Council of Economic Advisers gets roasted when the errors in its annual forecasts are a fraction of that amount. Moreover, the cyclical amplitude of velocity has tended to be even wider than the year-to-year changes. This record obviously would not encourage one in assuming that changes in the money supply are a sufficiently consistent and tight predictor of the course of the economy as to warrant the exclusive dependence on money stock changes as the tool of economic stabilization.

Nor do I think that problems raised by this kind of instability of velocity can be avoided by relating the demand for money to permanent income, rather than to current income, as Mr. Friedman does. It is possible to explain some of the movements in measured velocity by this device, but not all of them. In some respects, indeed, the introduction of permanent income as the variable to which money demand reacts raises some knotty problems for Mr. Friedman's own evidence on the lags between policy actions and their effects on income. Jim Tobin points out, in an unpublished paper, that if the demand for money changes only as slowly as permanent income changes, then an injection of money into the economy should have a prompt and powerful bang on activity. Mr. Friedman himself has acknowledged as much, when he has argued that shortrun money multipliers should be larger than longrun money multipliers. But this seems inconsistent with his own statistical findings—and those of others—that suggest a long lag between an injection of money and its effects on activity. Friedman can't have it both ways; the effect of money stock changes can't be both prompt and delayed. I haven't seen this theoretical dilemma resolved, either in Friedman's work or elsewhere.

Neither do I find any basis in Friedman's findings to explain why there should have been a change from the long-term declining trend in velocity to a rising trend in the decade and a half after World War II. Over this period, the income velocity of money (defining money to include time deposits) rose from about 1947 to 1957, leveled out for a few years, and then hit its postwar high in 1960. Using Friedman's formula for calculating money income from the money stock, one would have expected a vastly lower level of income than what was actually obtained by 1960. Why doesn't Friedman's thesis work in the postwar period?

There is an explanation—supported by extensive statistical analyses—which centers around the behavior of interest rates as a major factor determining postwar changes in the demand for money. But Friedman rejects this thesis, arguing that it fails to explain the behavior of velocity before World War II, and that it doesn't explain all of the rise in velocity in the postwar period.

Of course, it would be nice to have a single explanation for all economic phenomena over the entire span of recorded history. But I don't see why an explanation covering a period different in many characteristics from earlier stages of our history would not be acceptable, particularly if the explanation is both plausible and has substantial statistical support. Certainly, the interest rate explanation makes as much sense as the thesis tentatively advanced by Friedman, that people have become so convinced that there will never be another major recession they feel confident in holding smaller cash balances relative to their transactions needs. Clutching at the straws of the "confidence" explanation seems out of character for so careful a craftsman as Friedman. Even he himself seems to find it a bit hard to swallow, as noted in his statement: "This qualitative account is plausible but alone can hardly be convincing."

Perhaps it's because the alternative—the behavior of interest rates—opens a wedge in what would otherwise be a beautifully monolithic structure. Let interest rates in your life and it causes more trouble than women. Once the "inexorable" link between changes in money and changes in activity is broken, one then has to trace the monetary influence on economic fluctuations through a circuitous route via effects of demands for and supplies of funds on interest rates and the effects of interest rates on spending, and to admit the role of fiscal policy in affecting incomes directly and the demands for funds directly and indirectly. Life for the economist becomes messy, and the beautifully pat solution to all economic questions doesn't seem to serve as well.

Scientific inquiry does indeed put a premium on the simplest answer to complex questions. But scientific inquiry also demands a willingness to reexamine the best-designed theoretical structure if the actual observations stubbornly refuse to fit the structure.

Neither is scientific inquiry fostered by debating policy issues in a context almost completely devoid of reality. Abstraction is, of course, a necessary part of scientific inquiry. Furthermore, it is quite proper to consider solutions that might be feasible under ideal conditions. But a scientist offering immediate operating advice is under obligation to examine the viability of his solution under actual conditions, which in an imperfect world are often very far from ideal.

For example, recommendations to keep the money supply growing at a constant rate of between 3 and 5 percent per annum might or might not iron out all wiggles or cycles in economic activity in the long run. But in the short run, it could raise hell in an economy replete with imperfections and rigidities in its financial structure. I am not defending or excusing these imperfections. In fact, the Board has strongly recommended a number of changes in one important area—housing finance—to remove some of the rigidities which contribute to a disproportionate channeling of monetary restraint onto the housing industry. And I'm delighted by the current proposals of the administration to introduce more flexibility into the structure of housing finance.

But even with extensive reforms in this area, we do have to live with the fact that major participants in the financial system are stuck with portfolios that change only slowly. They are, therefore, ill-equipped to survive a rapid and very large change in financial conditions, such as might be encountered in a circumstance where strongly rising credit demands were accompanied by a monetary policy rigidly adhering to a "Friedmanian" rule of monetary expansion. And serious impairment of the solvency of any major element in the financial system could well shake confidence in the rest of the structure. No responsible public official can ignore the potential effect of actions that—with the best of long-run intentions—might endanger the viability of the whole financial system in the short run. This failure to recognize the difference between assumed conditions and actual conditions, does not enhance the reputation of economists as advisers to men who, by their decisions, shape the destiny of our economy.

The cause of science is certainly not advanced by becoming more strident in defense of a theory that doesn't fit the facts. Unfortunately, that seems to be what has been happening. From the judicious conclusion that "money matters," we have moved on to the battle cry "*only* money matters." Semantic warfare among monetary economists would be amusing but not terribly serious, were it not for the alarming fact that policy makers have started to take economists seriously. When economists graduate to this stage of importance, their social responsibilities demand more attention to the potential consequences of their advice.

Unfortunately, this responsibility hasn't been displayed in the contemporary dispute on fiscal policy, which seems to be producing gamesmanship instead of balanced appraisals of economic development and policy needs. If the economy pauses because of a major strike, the current production figures are trumpeted as proof of general economic weakness that doesn't justify a tax increase. If activity rebounds after a strike is over, the earlier analysis is forgotten and the rebound is depreciated as merely the result of termination of the strike. If retail sales are sluggish, or new orders drop for a month, these aspects of the current flow of economic data are emphasized. But if unemployment falls below the full employment level, emphasize that women left the labor force or that employment increased only slightly. Ignore the possibility that women may have decided to stay home during the snow storms of January, or that the same storms may also have held down the rise in male employment, particularly among outdoor workers, such as in construction. And if consumers begin to spend a little more freely,

and price and wage increases accelerate, then raise the hoggoblin of recession later in the year. After all, the economy always looks weaker to economists 6 months from now.

But it's not enough to distort the interpretation of the current flow of economic information. The true holder of the monetary faith has to prove that heresy has never led to heaven. If the devil seduced us into fiscal actions in the past, prove that the economy had to pay for its sins until it repented. Just this past week we were treated to a fine example of such religious fervor displacing scholarly analysis. An analysis. An editorial in the Washington Post contended that fiscal restraint had been ineffective in the time of the Korean war, and that it wasn't until the money supply—that magic variable—was brought under control that inflation was curbed. The editorial concluded with an admonition to us—I use the editorial “us,” since it was addressed to “Mr. Martin and his colleagues”—to learn something from his story.

Let me assure you that we have looked very carefully at the Korean experience, and have frequently revisited the statistics and the literature evaluating economic policy actions in this period. And let me assure you also that I find almost nothing in support of the editorial's position. It is true that consumer prices rose by almost 13 percent over the 3 years of the Korean war. But what the editorial failed to point out is that over half of this rise occurred in the first 7 months of the war, when the control apparatus was being created, and the rest of the price rise dribbled out over the remaining 30 months.

During the summer and fall of 1950, direct controls were imposed on consumer credit and mortgages, priorities were established for purchases of a number of materials, and voluntary and mandatory price and wage stabilization program were instituted. Income taxes were raised in two steps, the first effective in October of 1950 and the second in January 1951. It was in this period, when the fiscal and selective control mechanisms were just being established, that prices soared. The consumer price index rose at an 11-percent annual rate, and wholesale prices at a 25-percent annual rate, between June 1950 and January 1951. But after January, the CPI slowed down dramatically, except for one final spurt in the last half of 1951; the increase over the 30 months from January 1951 to July 1953 was at an annual rate of only 2 percent. The wholesale price index—never mentioned in the editorial—actually peaked in the first quarter of 1951 and declined thereafter.

All this occurred long before the turnabout in the magic variable on which the attention of the Washington Post seems to be riveted. In the first year of the war the money supply rose at a 4-percent annual rate. From June 1951 to December 1951 it hopped up to a 7-percent rate of growth, then fell back to a 4-percent rate through 1952. It didn't really decelerate until after December 1952, long after price pressures had been brought under control.

Admittedly, one can argue as to whether it was the tax actions or the selective controls that slowed the pressure of consumer demands—or, for that matter, whether it was simply a reaction on the part of consumers following an earlier spending spree. But I do think it's important to note that there was a moderating in a number of private sector demands, including inventory investment and business capital outlays, long before the significant slowing that occurred in the money

supply after 1952. The case against fiscal restraint is certainly not proven—nor is the case for exclusive dependence on monetary restraint—by artful averaging that obscures the significant turning points in economic pressures.

It seems to me that this editorial is another example of the extent to which zealous protagonists of a cause permit themselves to be blinded to any other explanation of events. Friedman just can't see interest rates; Segal just can't see fiscal policy. Neither the state of economic welfare nor the state of the economic art is being advanced by this sort of "tunnel vision." And it unfortunately tends to engender strident and unbalanced argument on the other side.

For example, we're having drummed into us, ad nauseam, that wise economic policies have enabled the economy to enjoy 7 consecutive years of expansion. This stretches the facts some, of course, since growth in real GNP did halt, briefly, in the first quarter of last year. But a more fundamental objection to this sort of overstatement is that it extends, by implication, more credit to the profession of economics than is warranted. I don't really see much for our craft to boast about in the record of the first 5 years of this period. It shouldn't have taken the combined wisdom of our profession 5 years to figure out how to reduce the unemployment rate from 7 percent to 4 percent. We apparently didn't learn much from the lessons of the thirties and forties, to have taken so long to achieve full employment. Or if we learned the lesson professionally, we certainly failed in learning how to persuade policymakers. Neither do we deserve any gold stars for having maintained reasonable price stability in the early 1960's, not with the unemployment prevalent then.

These past 2 years, when we have been operating at relatively high use of resources for most of the time, provide a better testing of the economist's capability. Does the record show that we know how to manage a full-employment economy, once we achieve one? If I may be permitted to continue to act like Professor Samuelson and award grades to policymakers, I'm not disposed to grant a gold star for this period either. After all, the Employment Act of 1946, which established the objectives of Government economic policy, stipulates multiple goals of "maximum employment, production and purchasing power." We seem to have done pretty well by the employment criterion, but have failed pretty miserably on the price score, with potentially serious consequences for sustainability of domestic expansion and international financial stability.

Must we, then, abandon hope for making any contribution to balanced economic expansion? Must we despairingly fall back to the nihilism underlying Professor Friedman's policy prescriptions? You know, of course, that his recommendations for an unswerving increase in the money supply—month by month, day by day—is based not so much on his faith in the efficacy of a stable expansion in the money supply as on his lack of faith in economists. He stated, to a congressional committee:

I am saying that in the present state of our knowledge—my knowledge, your knowledge, the knowledge that economists in general have—we simply do not know enough to be able to know what way the wind is going to blow next year sufficiently to be able to adjust it.

Despite the failure to achieve all the goals of the Employment Act, I think the record of economists' diagnostic ability is better than Professor Friedman suggests. Looking back to the record of the past 2 years, I would chalk up the score for Washington-type forecasters—of which I number myself one—about as follows: a late start in recognizing the implications of the upsurge in defense requirements after mid-1965, and an even later start in recommending an appropriate and timely combination of policy actions; a pretty good job of recognizing the intensity of demand pressures in 1966, but lack of success in promoting a balanced program of restraint policies; prompt and correct calling of the shots in late 1966, as inflationary pressures crested, with appropriate policy measures recommended and set in train; a very accurate projection of the contours of economic activity in 1967, with appropriate policies recommended but not sold—even yet.

Admittedly, as one of the local forecasting fraternity, my evaluation may be too generous. And the importance of our economy to world stability demands and deserves even better performance than this, from both economists and policymakers. We still have much to learn about using the tools of stabilization policy in a full employment economy, and the present limits of our knowledge should be reflected in a greater humility in advancing and evaluating policy recommendations.

But I don't find the recent record so discouraging as to be willing to abandon our efforts to learn. I may be an incorrigible optimist, but my faith in man extends even unto economists.

STANDARDS FOR GUIDING MONETARY ACTION

THURSDAY, MAY 16, 1968

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met at 10:10 a.m., pursuant to recess, in room S-407, the Capitol, Hon. William Proxmire (chairman of the joint committee) presiding:

Present: Senator Proxmire; and Representatives Reuss and Rumsfeld.

Also present: John R. Stark, executive director; William H. Moore, senior staff economist; John B. Henderson, staff economist, and Donald A. Webster, minority staff economist.

Chairman PROXMIRE. The Joint Economic Committee will come to order. Today's hearing is the fourth and final hearing of the Joint Economic Committee study, "Standards for Monetary Management."

Having had the testimony of distinguished academic economists, many of whom have had direct experience with the problems of policy-making and yesterday having heard Governor Mitchell and Dr. Brill of the Federal Reserve System on the viewpoints of the policymakers themselves, we now turn to the representatives of the financial community.

We welcome today three outstanding analysts of the money and Government securities market, Mr. Guy Noyes, Mr. Tifford Gaines, and Mr. Orson Hart.

Mr. Noyes, who is senior vice president and economist of the Morgan Guaranty Trust Co. of New York, has a fairly recent experience in seeing policy from the inside. Until late 1965 he was Director of Research and Statistics of the Board of Governors of the Federal Reserve System and economist to the Open Market Committee.

Mr. Gaines, too, has been at one time a central banker. He went from the Federal Reserve Bank of New York to the position of vice president in charge of Government bond operations of the First National Bank of Chicago, and he is now vice president and economist at the Manufacturers Hanover Trust Co. of New York.

Among the biggest participants in the Government securities market are the insurance companies. Mr. Orson Hart, vice president and director of economic research for the New York Life Insurance Co., will explain how he advised on the management of an insurance company's portfolio.

Gentlemen, I might say that I think it is proper and desirable at this point that I make some kind of recapitulation of the reason for the proposed guideline limitations which the Joint Economic Committee is considering and may well propose.

As you know, we have had suggestions of this kind in our Joint Economic Committee reports for each of the last 2 years. It is based on the following reasoning:

No. 1, that the economy should, from an optimum standpoint, grow at a rate which reflects the growth and productivity in the economy, which varies from perhaps 2 percent to 3 percent, sometimes a little less or a little more; and the growth in the work force, which together would suggest a real growth of around 4 percent perhaps, a little less or a little more. That a neutral monetary policy would therefore provide for a growth in the money supply to reflect the growth in the real gross national product, on the assumption that, as I say, the resources are utilized.

The 4 percent growth, however, should of course be tempered on the down side or the up side, depending upon the situation, and we suggested that 3 to 5 percent or 2 to 4 percent, and it has been suggested 2- to 6-percent.

The reason for the limitation is that there has been a record of what appears to be perverse action by the Federal Reserve Board. In each of the recessions—1949, 1954, 1958, 1960—the Federal Reserve Board decreased the monetary supply. We know the monetary supply is only one indication, only one evidence, maybe not even the best evidence by a long shot, of monetary policy; but it is one, and it is a simple one, and it is one many people understand.

Therefore, in view of the fact that the policy has been perverse, and we have had an even more appalling example in the 1930's, when reserve requirements were doubled in 1937, at the time when we had terrific unemployment, and underutilization of resources, we feel that perhaps it might be well worth considering the possibility of this kind of limitation.

I might say one more thing before I ask you to go ahead. Yesterday I think we arrived at a position which may be a little more realistic from a political standpoint. We feel that rather than try to press through the Congress a mandatory money supply limitation which is very hard to get with the unanimous opposition of the Federal Reserve Board, and such relatively little interest on the part of many Members of Congress, that it might be desirable to provide for a 2- to 6-percent suggested limitation, and at the end of any quarter in which the Federal Reserve Board fails to increase the money supply by at least 2 percent, or increased it by more than 6 percent, that they come up before the Joint Economic Committee and explain why they did it; and that in the second place, that we follow a policy of requesting the Federal Reserve Board to make a monetary report at the beginning of each year, like the President's Economic Report, setting forth the expectations that they have for monetary policy during the coming year as specifically as they can make them, with indications of why they think restraint or expansionary policies are called for and desirable, and then, of course, that could be explained; any deviations from it could be explained at the time of the quarterly hearings.

We feel that this might be a way of getting a much greater discussion, interest, understanding, rationalization on the part of the Fed. Many of the thinks they do now are very well reasoned, but nobody

knows about it. Nobody knows the reasoning. We think this might be a way of getting into it.

So I apologize for that long explanation, but I think maybe it will be helpful to you. And I want to thank you for your prepared statements.

As recipients of the impact of Federal policymaking and as respondents to the challenge of reading the future of the markets and of the intention of the Fed, I am sure you are going to give a good explanation of your viewpoints, so you go right ahead.

Our first witness, and we may as well move from left to right, as that is the usual course, is Mr. Gaines.

STATEMENT OF TILFORD C. GAINES, VICE PRESIDENT AND ECONOMIST, MANUFACTURERS HANOVER TRUST CO., NEW YORK, N.Y.

Mr. GAINES. Mr. Chairman, it is a pleasure to be here today. I will plunge right into the statement.

Chairman PROXMIRE. Fine.

Mr. GAINES. An attempt to develop more precise guidelines for Federal Reserve policy than those contained in the Federal Reserve Act and in the Employment Act of 1946 should start with an appraisal of what effects Federal Reserve policy might be expected to have and of the process through which these effects are achieved.

Many analyses have imputed to the Federal Reserve far greater power than it actually has, and have related monetary policy to the economic process through channels that are not fully relevant to the strategic areas of impact of policy.

In any given set of economic circumstances, Federal Reserve policy can have a regulating but not controlling influence upon the size and composition of credit flows, upon the level of interest rates, and upon money supply—however defined. To be effective, policy must be constrained by the need to keep financial markets functioning normally. Efforts to force credit or money growth into an arbitrary mold, without regard to the demand for credit and money that the economy is generating, could have wholly unpredictable consequences upon the ability of the financial markets to function and thereby upon economic stability.

Orderly monetary policies from one year to the next in combination with orderly fiscal policy can help to avoid extreme swings in the demand for credit and money; but when such swings do occur, responsible Federal Reserve policy can do no more than temper them.

The policies pursued by the Federal Reserve System in 1966 and 1967 offer excellent illustrations of the limits within which monetary policy can be responsibly effective.

During the summer and fall of 1966 the Fed, out of concern for the inflation spiral that had developed, attempted to do more than monetary policy is able to do. It should not be held responsible for the disintermediation from the savings institutions and the troubles for residential construction that occurred at that time. The disintermediation resulted from the existence of large, interest-sensitive deposits in many savings institutions, including commercial banks, and their withdrawal could have been prevented only by pegging market interest rates and thereby permitting unlimited credit growth.

The Federal Reserve is responsible, however, for forcing a huge contraction in bank certificates of deposit that created very real dangers for the orderly functioning of the financial markets. The crunch, as it has come to be called, has had pervasive and continuing effects upon the credit demands of business corporations and upon the willingness of banks to enter into new credit commitments.

On the other hand, Federal Reserve policy in 1967 was responsibly adjusted to the limits within which it could be effective given the total demand for credit and money. Net credit raised by nonfinancial sectors of the economy rose to a record high of \$82 billion, some \$10 billion more than the previous record set in 1965. Yet, funds raised by private borrowers were less than in 1965, and also less than in 1966, in spite of the much higher dollar level of economic activity; the difference was Federal Government borrowing.

If the Federal Reserve had attempted to squeeze more out of the private sector in order to finance the huge Government deficit, the consequences for interest rates, for the ability of the credit markets to function, and for the economy could have been most upsetting.

GUIDELINES FOR POLICY

The guideline for Federal Reserve policy most often proposed is in terms of some target rate of growth in money supply, usually defined as demand deposits and currency in circulation. In an operational sense, this is not the most useful guideline since it is not as much subject to direct Federal Reserve influence as either credit flow or interest rates. While changes in money supply are influenced by Federal Reserve policy, the influence tends to be at a second remove rather than at the direct point of entry of the central bank into the economic process.

Again, 1966 and 1967 experience is illustrative. The failure of money supply to grow in the last half of 1966 resulted primarily from more intensive use of demand deposit balances occasioned by the difficulty many business concerns and individuals encountered in getting access to credit.

While part of the phenomenon no doubt represented voluntary economizing on money to take advantage of the high rates of return available on short-term investments, most of it probably was an involuntary response to credit tightness.

The unusually large rate of growth in money supply in 1967 was due partly to the rebuilding of cash balances to desired levels once credit was again available. More importantly, however, it was a backlash effect from the 1966 credit crunch.

In an effort to build good will with their banks to help assure access to credit in the event of another 1966-type crunch, most business concerns increased their compensating balances—usually with some encouragement from their banks. As a consequence, demand deposits increased proportionately more in New York and other money centers than elsewhere; that is, at banks the bulk of whose deposits are from business concerns.

Monetary analyses often seem to imply that the Federal Reserve is able to regulate money supply growth to whatever target it might choose. In this analysis the Fed creates reserves, the banks create

credit, and the holders of demand deposits passively absorb whatever deposits are generated.

In actual fact, demand deposits are only one among a variety of financial claims, and holders of deposits, determine through a rational allocation of their resources the size of their demand deposits and, therefore, the size of the money supply. If fiscal and monetary policies are successful in maintaining an orderly rate of economic growth, the money supply will grow in some easily predictable relationship to the growth in the economy. But the process runs from economic growth to a need for more money rather than from monetary growth to economic advance.

A money supply guideline employing a broader definition of money to include commercial bank time deposits is even less meaningful. In the eyes of the saver, except as risk considerations may enter in, and in economic significance there is no difference between savings at commercial banks or savings and loan associations, mutual savings banks, credit unions, et cetera.

In the eyes of the investor and in economic significance there is no difference between investing in bank certificates of deposit or Treasury bills, finance paper, Government agency obligations, et cetera.

To select commercial bank liabilities as the critical variable in developing a policy target is not only irrelevant, it runs the risk of having policy respond to what is nothing more than normal period-to-period adjustments in the relative competitiveness of various saving or investing media.

Probably the most useful guideline for Federal Reserve policy would be in terms of net credit raised by the private nonfinancial sector of the economy.

As indicated earlier, the existence of unusually large Government credit demands will ordinarily require some limitation upon private credit, stopping short of restraint that would damage the economy. Unusually large Government surpluses leading to debt retirement would ordinarily call for some effort to encourage private credit usage.

With this marginal adjustment to the demands of the public sector, however, it should ordinarily be feasible to construct estimates of the amounts and types of credit that would be required to support the desired rate of economic growth. Targets so derived would be strategic since it is through alterations in credit flows that the Fed has its immediate effect upon the economy, and they would be operational since the Fed is able to have direct influence upon credit flows.

None of this is intended to suggest that there is anything like an invariable relationship between rate of economic growth and net private demands for credit. There is a close relationship between residential construction and demand for mortgage credit and between sales of durable consumer goods and the demand for installment credit.

In the case of business credit demand, however, variations in internal cash flow, shifting tax dates, and so forth, influence the amount of external credit required to support any given rate of growth-in-business activity. These influences are broadly predictable within a flow of funds model, however, and may be allowed for in setting targets.

Credit is used only because it is needed to cover expenditures. The availability of credit and the rate of credit growth, therefore, are immediately relevant for the total of final purchases in the economy.

Moreover, the Federal Reserve is able to have a relatively direct effect upon the total of credit used. Part of this effect is through the influence the Fed is able to have upon interest rates.

Interest rates probably are not as effective a rationing device as are prices in other markets, but interest rates do unquestionably have some influence on decisions as to whether or not credit should be used.

A more important effect of Federal Reserve policy upon total credit growth is upon the ability and willingness of commercial banks to lend. Through regulation of bank reserves, the Federal Reserve has considerable power to control the availability of funds to banks, and thereby, the availability of bank credit.

In our complex credit markets, there is considerable latitude for borrowers to shift to commercial paper or other media when bank credit is not available, as happened in 1966, so that regulation of the ability of banks to lend does not provide precise regulation of total credit actually used. But the very process of forcing credit flows through other channels does create frictions that have a limiting effect upon credit used and upon credit-supported economic activity.

Interest rate changes probably should be viewed as the consequence of the effort to regulate credit flows rather than as a target in setting guidelines for policy. Given responsible fiscal and monetary policies, it is unlikely that the private economy would generate changes in the demand for credit that would cause interest rates to fluctuate widely. There would be justification, however, in establishing guidelines for Federal Reserve policy in maintaining a viable relationship between interest rates in the United States and in the international money market.

One of the most promising developments of the past decade has been the emergence of a truly international money market and, more recently, of an international bond market. It will be impossible in the future for any industrialized nation, including the United States, to pursue autonomous credit and monetary policies that do not take account of this market.

Once it is possible to remove the present restraints on international credit flows, interest rates in our market will be closely tied to and influenced by interest rates in the international money market. The operation of market forces will tend to maintain interest rate structures here and abroad in line with one another, with the necessary allowance for the cost of hedging the investment.

In executing domestic monetary policy in this setting of a broad and fluid international money market, the Federal Reserve from one time to the next will wish to move our interest rate structure marginally above or marginally below interest rates abroad, depending upon the economic circumstances at the time.

For example, at a time of relatively slow economic growth in our economy, Federal Reserve policy aimed at promoting credit availability would lead to interest rates in this country moving somewhat below interest rates abroad. At such a time, the U.S. trade balance should be relatively strong so that the outflow of short-term funds induced by this interest rate differential would be appropriate.

At times of unduly rapid and inflationary growth in this country, Federal Reserve efforts to limit credit availability would lead to higher interest rates here than abroad, inducing a flow of funds into the U.S.

market that would be consistent with the pressures one would expect at such a time upon our trade balance. In effect, pursuit of the proper policy with respect to credit flows would automatically lead to the type of interest rate relationships described here, so that the interest rate relationship would be more a reflection of policy than a target of policy.

Finally, a critical guideline for Federal Reserve policy should be to avoid unduly sharp shifts in one direction or another, shifts that would be reflected in widely fluctuating interest rates. In the face of the huge Government deficits that have had to be financed last year and this year, the Federal Reserve System has had no choice but to permit credit growth at a faster rate than is desirable, with the sheer pressure of the demand for credit creating historically high interest rates.

If one may assume that fiscal policy in the future will be better adapted to economic requirements, however, it should be possible for the Federal Reserve to vary the impact of its policies as economic circumstances warrant by relatively minor degrees that would not occasion wide interest rate movements.

In summary, then, my proposal is that Federal Reserve policy be guided primarily toward regulating credit flow rather than money stock. Working through the financial flows model recently developed by the Federal Reserve System, it should be possible to measure with some degree of exactitude the total of credit flow consistent with optimum utilization of labor and material resources and, therefore, optimum real growth rate. Pursuit of such a policy would, over time, in all likelihood generate a fairly regular rate of growth in the money stock, but this outcome would be a secondary consideration rather than the object of policy.

With the proper fiscal policy, the appropriate monetary policy aimed at growth-supporting credit flows would not require sharp policy swings from one year to the next or sharp movements in interest rates. Such policy would set an orderly framework for sustained economic growth and for steady development of the scope and usefulness of the international money market.

Mr. Chairman, I think an analogy might be helpful here. In regulating the speed of an automobile, we could regulate it by looking at the odometer and the speed with which the odometer changes, but it ordinarily is more useful to regulate it by looking at the speedometer and regulating our gas consumption that way.

Thank you.

Chairman PROXMIRE. Thank you very much.

Mr. Hart?

**STATEMENT OF ORSON H. HART, VICE PRESIDENT AND DIRECTOR
OF ECONOMIC RESEARCH, NEW YORK LIFE INSURANCE CO.,
NEW YORK, N.Y.**

Mr. HART. Thank you, Mr. Chairman.

I appreciate very much the committee's invitation to me to testify on this important matter. The statements of previous witnesses that I have read have addressed themselves, for the most part, directly to the questions of standards for monetary policy.

I will offer a few comments later on the relation of fiscal to monetary policy, but it seems to me that I can be most helpful to the committee if I confine myself mostly to the response of the life insurance business to the exercise of monetary policy. Standards to guide the Federal Reserve Board, whether formulated by the Board or by Congress, must take into account the impact of credit policy on the operations of financial institutions.

Let me start with the development of net investment funds by life insurance companies and then move on to what the various statistics show about the response of the companies to changes in monetary conditions.

Like all savings institutions, life insurance companies compete for a share of the consumer's dollar, with the implicit intention of diverting income into the capital market. The principal asset producing contracts under which life insurance is sold are long-term and they tend to accumulate funds for investment in a very stable, rising trend. The essential instrument in this accumulation is the level premium which produces reserves in the early policy years to offset the higher mortality costs as the policies age.

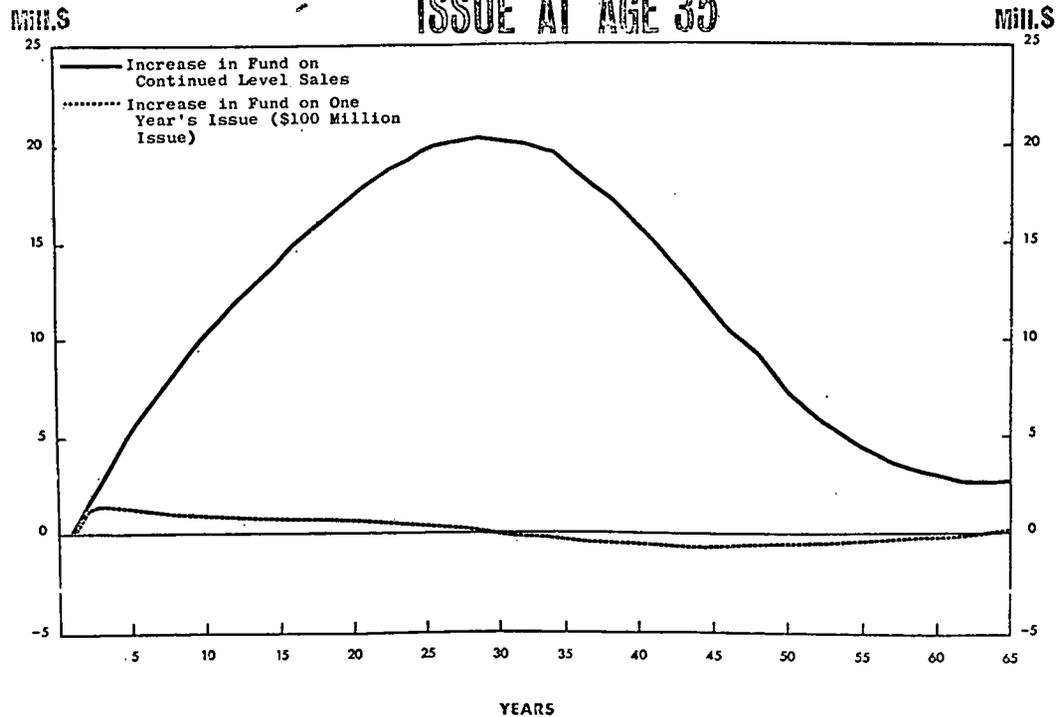
I am sure the committee does not want me to go into detail on the arithmetic technicalities of level premiums, but you should know that an increase in the net sales of life insurance is necessary to maintain the upward thrust of fund accumulation and asset growth to cover reserves. One percent a year is not quite enough to do this on a year-in and year-out basis in an established company. Five percent, however, does quite nicely, and 10 percent produces really spectacular results.

These facts are illustrated in the first two charts at the end of this testimony. The first chart shows the annual increase (or decrease) in funds on a single year's net sale of \$100 million of whole life insurance (age 35), as well as the increase in funds for continued sales of \$100 million each year. The second chart shows the results when net sales rise at a 1 percent, a 5 percent, and a 10 percent annual rate.

As you can see from chart I, the annual fund growth on policies issued in a single year continues for about 30 years but on a declining scale after the first few years. The growth becomes negative after 30 years and continues so, virtually to the expiration of the last policy. Even if additional sales of \$100 million a year are made, the annual increase in funds starts to decline after about 30 years, as withdrawals are made to meet the rising mortality costs.

Chart I

ANNUAL FUND GROWTH, ISSUE AT AGE 35



To overcome this arithmetic, the companies must sell additional issues each year and the net sales trend must be upward. Thus if you will look at chart II, you can see that a 1-percent increase will not preclude a small decline in fund accumulation and asset growth after about 30 years, but that an increase of 5 percent will produce a steady rise, and a 10-percent increase, as noted above, will be very productive indeed.¹

Of course, there are many kinds of life insurance, such as annuities and pensions, that also create asset gains. However, whole life policies loom largest in the aggregate and all require a rising trend in net sales if they are to contribute to the asset gains of the companies. The curves may be shaped differently, but the principle is the same—rising net sales are necessary to produce fund and asset growth.

As you probably all know, net sales of life insurance have been rising for many years. The savings performance of the industry thus reflects a cumulative process that persistently diverts funds from the general income of the public into the capital market. The arithmetic of life insurance does not react to the usual forces of the marketplace; as a result, life insurance savings, essentially the reserve accruals of the companies, comprise the most stable of all the sources of capital market funds.

However, this is not the whole story. For life insurance companies, like other financial institutions, invest their entire cash flow, including repayment of investments made in earlier years, not just the savings they divert from the general income of the public. Some of these repayments, like the amortization and partial prepayments of mortgages, are very stable. Others, however, like the redemption of securities and other repayments of mortgages, while relatively stable in periods of credit restriction 10 years ago, proved much more vulnerable to market conditions in 1966.

Furthermore, policyholders have a contractual right to borrow on their policies and repay the resulting loans at their convenience, options they are utilizing on an increasing scale, particularly when funds become unavailable through normal channels.

These developments are illustrated in chart III, which shows the principal elements in the basic cash flow of the companies for the past 10 years.²

To provide some reference points, the chart is marked for periods of monetary ease, monetary neutrality, and monetary stringency, principally as set forth by Eugene Banks, "Institutional Investment Guides."³

¹ Visualize this as a whole series of curves at 1-year intervals similar to the dotted curve in chart 1, but with each curve slightly larger than the preceding one. A summation of such curves is what is shown in chart 2.

² The series is quarterly and is based on reports from companies accounting for 70 percent of the industry's assets. Beginning in 1967, the statistics cover several additional companies and are not strictly comparable with the figures for the earlier years. However, the additional companies were small and the distortion is not large enough to destroy the essential continuity of the series.

Source: Life Insurance Association of America.

³ A service furnished institutional investors by Brown Bros., Harriman & Co.

Chart II

ANNUAL FUND GROWTH, AGE 35, INCREASING NET SALES

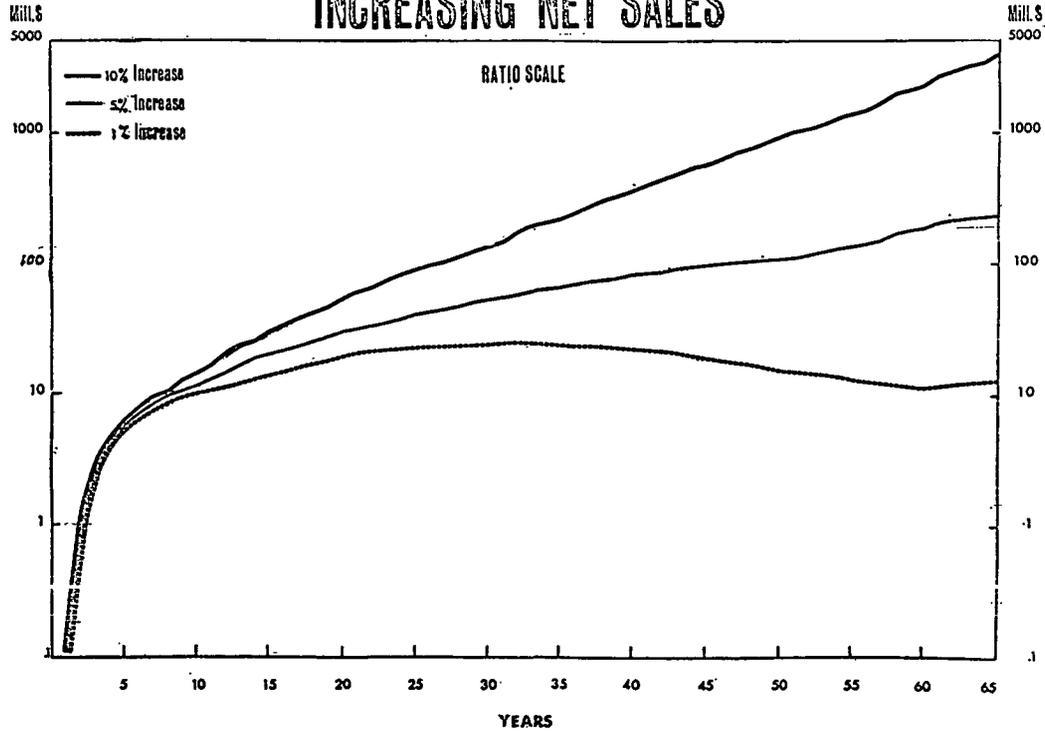
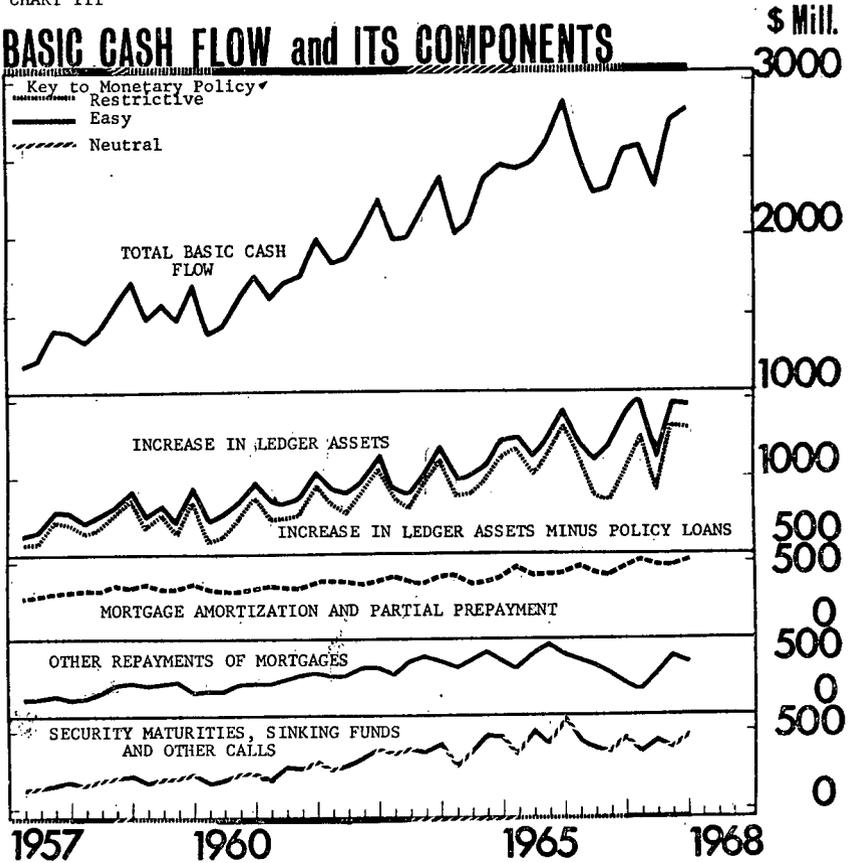


CHART III

BASIC CASH FLOW and ITS COMPONENTS



As you can see, the rise in ledger assets (reflecting reserve accruals) is steady and persistent, apparently not much affected by changes in monetary policy even in 1966. The amortization and partial prepayment of mortgages also seems to be pretty impervious to capital market conditions. But security repayments and other repayments on mortgages, only moderately affected by the credit tightness of 1959-60, apparently lose their relative immunity when credit changes are substantial, as they were 2 years ago.

Note also that when ledger assets are adjusted for the net increase in policy loans, the impact of credit tightness was apparent in 1959-60 and significant in 1966.

There is an obvious explanation for this growing response of policy loans to monetary conditions. Although interest rates today are much higher than they were 10 years ago, the right of most policyholders to borrow from the companies is pegged by contract at not more than 5 percent. This of course is a valuable right available from no other financial institution, and its value rises the higher interest rates go. The result is that when funds become sufficiently tight in normal channels, a natural consequence of monetary restraint, policyholders resort

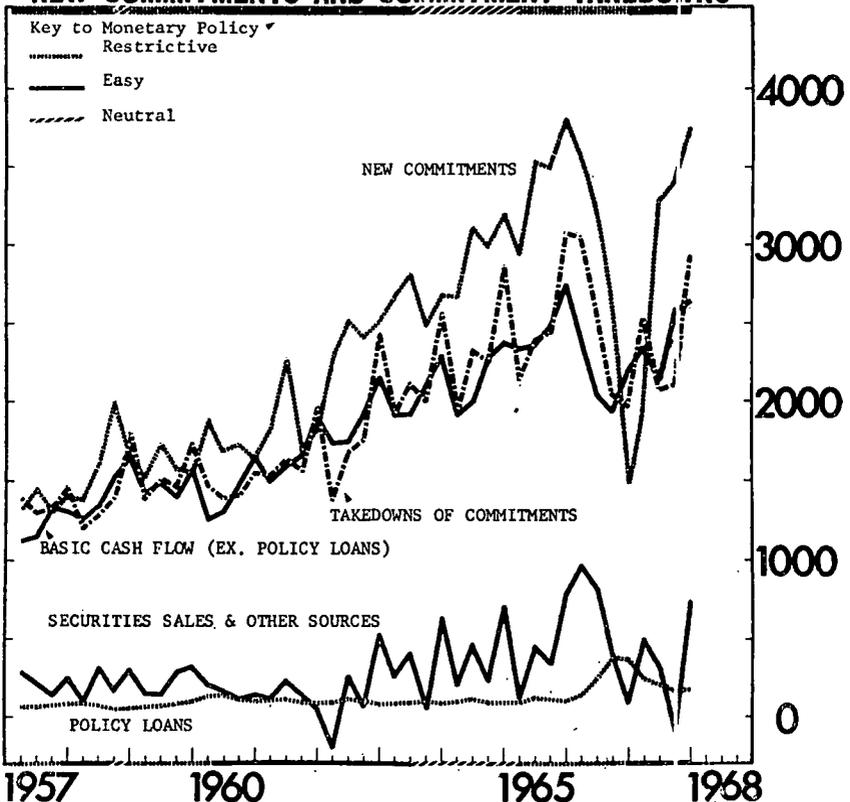
to borrowing from the companies on an increasing scale. Apparently the funds are used mostly for business purposes and hence are diverted from the companies but not from the capital market itself—a form of direct investment that has the effect of disintermediating the life insurance business.

Because of these developments, little in evidence 20 years ago, the investment operations of the life insurance companies are becoming increasingly responsive to the influence of monetary policy. Changes in cash flow very soon are reflected in commitment policy. Most of the larger companies commit ahead and rely on their cash flow to meet the eventual takedowns. If the flow falls short of expectations, additional sums can usually be generated from sales of securities or from bank loans, but these are temporary havens of limited resources. Unless an early recovery in cash generated is confidently expected, commitments must be curtailed.

This essentially is what the record shows as illustrated in chart IV.¹

CHART IV

LIFE INSURANCE COMPANY CASH FLOW, NEW COMMITMENTS AND COMMITMENT TAKEDOWNS



¹ Like the cash flow statistics, the commitment series includes several new companies beginning in 1967. The commitment and cash flow series do not cover the same companies but they do account for close to the same proportions of the industry's assets.

Source: Life Insurance Association of America.

Although responding moderately, as noted above, to the credit restrictions of 1959-1960 cash flow has been steady and rising during most of the past decade. Month after month policy loans remained in a flat trend, posing no discernible threat to the availability of investment funds.

The companies responded to this apparent growth in cash availability by stepping up their commitments, selling securities or occasionally borrowing from the banks when cash flow ran short, as it did from time to time for some companies. In fact, supplementary sources of funds such as funds generated by the sale of securities began to be drawn upon more heavily in 1962. The rise probably reflected the sale of both bonds and stocks, the profit on the latter offsetting the loss on the former, and the overall transactions enabling the companies to raise their average rate of investment return. New commitments rose sharply from 1960 when cash flow recovered from the 1959-1960 credit restrictions, until the new restrictions in 1966 again reduced cash flow.

Early in 1966 policy loans began to rise as national monetary policy tightened and cash flow came under increasing pressure. Sales of securities were stepped up to provide additional funds, but now neither the stock market nor the bond market were behaving well and it was soon evident that commitments would have to be curtailed. As policy loans continued to increase, a number of companies entered the banks for supplementary funds and commitments were sharply reduced. Life insurance money became extremely tight; investments in residential mortgages, commercial mortgages and securities all were greatly affected as the companies adjusted their operations to their declining cash flows.

To sum up with respect to the response of life insurance companies to the impact of monetary policy, it appears that both the savings they divert from the general economy and the amortization and partial prepayments on mortgages are persistent and largely unaffected by monetary policy. However, the redemption of securities and other repayments on mortgages, which account for a large proportion of the cash flow of the industry, were sharply affected by the 1966 changes in credit conditions. Moreover, as interest rates have risen, policyholders increasingly have used the life insurance companies as banks of last resort.

No doubt many, if not most, of the policy loans in the hands of the banks in 1966 have shifted to the life insurance companies. The potential drain from this source must be less today than it was 2 years ago. Still we must conclude that under the conditions that faced us in 1966 and may be facing us again now, a tight monetary policy very likely will reduce the flow of funds through the life insurance companies and compel them to curtail their commitments.

Now let me turn for a moment to guidelines for monetary action and conclude my testimony with a few comments on the relation of fiscal to monetary policy.

I can dispose of the guidelines quickly because I am very much in agreement with Professor Chandler's views expressed here a week ago. Every time I wrestle with proposals to stabilize the growth in the money supply, I find myself ending up just about where he did—once you allow all the necessary qualifications to the stabilizing rule you find you have pretty much restored freedom of action to the Board.

As to fiscal and monetary policy, I take it that the overall objective of both is to keep total spending, public and private, in balance with the output of goods and services. Monetary policy can limit total spending but it cannot limit Government spending, which comprises a sizable part of the total. Fiscal policy can limit Government spending, but its effects on private spending may be largely frustrated unless it is backstopped by appropriate monetary policy.

I think, therefore, that under most economic conditions fiscal and monetary actions are supplementary, not alternative instruments, and should be used together as parts of a coordinated economic policy.

At this time when national economic policy clearly is oriented toward the fullest possible production of goods and services, it is particularly important to have sensible and effective fiscal and monetary policy. The substantial inflation we are now experiencing, with all its consequences domestically and on our external balance of payments, can be blamed in large measure on the shortcomings of fiscal policy and the indecisive monetary policy that has resulted.

This may not be the right forum for comments on public policy, but I am sure we are all agreed that the inflation must be halted. I think this can be done with the least economic disturbance if the rise in Government expenditures is tempered along with the rise in private expenditures, and this means the coordination of fiscal and monetary policy to achieve a common objective.

Chairman PROXMIRE. Thank you very much, Mr. Hart.

I think this is the right forum for comment on public policy. I cannot think of a better one. That is why we asked you here.

Our final witness this morning is Mr. Noyes.

STATEMENT OF GUY E. NOYES, SENIOR VICE PRESIDENT AND ECONOMIST, MORGAN GUARANTY TRUST CO., NEW YORK, N.Y.

Mr. Noyes. Mr. Chairman, I could condense the oral presentation of my statement almost to the vanishing point, I think, because the suggestion that I have—to the extent that I have one—seems to me to be very closely in line with the sort of procedure you explained in your opening statement as emerging from the hearings yesterday.

I might also say before I start, that my personal views are closely in accord with those presented by Mr. Gaines when it comes to the proper framework for analysis of monetary influences. I have focused in my statement on the relationship of changes in monetary policy to changes in the demand deposit component of the money supply, because I thought that would be responsive to the committee's immediate interests.

As I understand it, my particular assignment is to say a few words about the response of financial institutions, and particularly commercial banks, to changes in monetary policy, and to relate this, to the extent that it is possible, to the degree of precision with which it is possible for the monetary authorities to regulate the rate of growth of the money stock.

Before I turn to these specifics, however, it may be useful if I identify myself in terms of broad philosophical—or one might almost say ecclesiastical—affiliation. My early training in economics was not in what has come to be known as the Chicago school, but it was in a school

which could hardly be said to deemphasize the importance of changes in the money stock.

The chairman of the economics department at the University of Missouri, when I was an undergraduate there, had been a student and protege of Irving Fisher and coauthored with him his classic work on the purchasing power of money. Later when I moved on to do my graduate work at Yale, Professor Fisher had retired from active teaching, but he continued to participate in the informal seminars and his influence continued to be felt.

I have never regretted my exposure to this analytical framework which, as you probably know, generated the long-accepted equation of exchange: $MV = PT$. Nor in my subsequent education, both formal and informal, have I had any occasion to abandon much of what I learned in that earlier period.

The longrun relationship between money and prices and between stable economic growth and stable monetary growth is overpoweringly convincing. It is so convincing in fact that there is always a strong temptation to assume away the problems which are really at the heart of these hearings.

If we assume that the net impact of all economic forces other than monetary policy would be such as to produce an adequate and stable rate of economic expansion, then it is obvious that an intelligently conceived rule administered in more or less automatic fashion by the monetary authority would be most unlikely to upset the pattern of stable growth. But it is also most unlikely that discretionary authority in the Federal Reserve System would lead to anything other than a stable and adequate rate of monetary expansion in these happy circumstances. It is when the economy is disturbed and distorted by a war, an international payments crisis, a spiraling boom in capital spending, a highly inappropriate fiscal policy, or some similar phenomenon, that neither a rule nor discretionary freedom in the Federal Reserve is likely to produce results that are wholly satisfactory to anyone and when differences of view emerge as to which alternative would minimize the damage—which may be considerable in any case.

The problem that confronts the monetary authorities, and the Congress when it considers the desirability of laying down more rigid guidelines in terms of money or otherwise for the monetary authority is that there is no way you can be certain that, in an overzealous effort to offset other, and perhaps transitory, developments in the economy, flexible monetary management may not contribute itself to instability.

On the other hand, if you deny it full flexibility of movement, you cannot be sure that you will not thereby prevent it from offsetting forces in the economy which would produce serious and long-lived distortions or prevent it from accommodating surges in economic growth that can and should be financed.

It is clear that concern for such contingencies has led Congressman Reuss to propose a more complex guideline. And it is hard not to be sympathetic to his effort. But it is also hard to write that kind of a rulebook. And, as some of the testimony you have already heard indicates, even if you accept the idea of a "rulebook," it is very difficult to get any agreement among so-called experts as to what it should say.

My own view is a moderate one. I think the case for a more stable rate of monetary expansion is being well made, by a group of very able and articulate people, inside the Federal Reserve, in the Congress, in the economic profession, and in the private financial community. Its light seems hardly likely to be lost under a barrel.

And after all, in 1963, 1964, and early 1965, we had a reasonably stable rate of monetary expansion, in the 3- to 5-percent range, reasonably stable prices, a steady decline in unemployment, and a good steady increase in real GNP. It was not monetary policy but fiscal policy that started rocking the boat, and the Federal Reserve got precious little thanks for the restrictive moves it made in order to hold the average rate of money supply growth down to 6 percent in the last half of 1965.

No one can say just how fast and how far interest rates would have moved up in the fall of 1965 if the Federal Reserve pursued policies that held the increase in money to 5 percent instead of 6 percent. But it is a fair guess that the rise would have been sufficient to escalate the Joint Economic Committee's criticism of Fed policy, in its March 1966 report, from harsh to apoplectic.

Let me turn now, more specifically, to the response of commercial banks to changes in policy. And to avoid the semantic morass that sometimes develops in these discussions let me include what some would call nonchanges in policy that result in rather drastic changes in money market conditions. By this I mean significant movements up or down in variables like free reserves and interest rates which might result from efforts to avoid major changes in the rate of growth in reserves or the money stock—developments which would be viewed by most of us as changes in policy, but by some as simply adherence to an existing policy defined in terms of money.

First, we must at least touch base with the iron law of "total reserves available to support private demand deposits." This is simply total reserves less those reserves utilized to meet the reserve requirements on time and Government deposits, which are, of course, excluded from the narrowly defined money supply. Theoretically, it is possible to measure accurately and currently the magnitude of this figure. And the Federal Reserve can make this figure anything it chooses if it is determined to do so—on a week-to-week, if not a day-to-day, basis.

Finally, at least 99 percent of the time, the commercial banks, in the aggregate, must adjust their demand deposit liabilities promptly—within a reserve averaging period—to the net reserves available. The linkage is not absolutely rigid, because there are always some excess reserves in the banking system, but the Federal Reserve knows this and knows how much they are. So, if its sole target is the demand deposit component of the money supply, it can offset changes in the level of excess in a matter of a week or two at most.

Pursuing the iron law, we would include that it is not a question of whether banks adjust their demand deposit liabilities promptly to changes in reserve availability, but only how they do it. In short, it is theoretically irrefutable that the Federal Reserve can, within a matter of weeks, force the banking system, and the economy, to accept any moderate change in the money stock it chooses.

It is not quite correct to say the Fed can make the money supply level whatever it chooses, because large changes in short periods would

create some institutional problems—but no one is talking about large abrupt changes anyway. So this qualification has no practical significance.

Perhaps I should not presume to speak for them, but I have always assumed that what people meant when they say “the Federal Reserve cannot control the money supply in the short run” is that it cannot do so as a practical matter—that the result of an effort to hold the rate of expansion stable would create disorderly conditions in financial markets at unacceptably frequent intervals.

I have never been altogether comfortable when opponents of “the rule” rest their case too heavily on this argument. It is hard to prove, one way or the other—and in any event it lowers the quality of the dialog to the *reductio ad absurdum* level.

I have discovered nothing in my relatively brief experience as a commercial banker that leads me to question the proposition that, with rare exceptions, the Federal Reserve could, by its policy actions, force the commercial banking system to so manage its assets and liabilities as to produce a reasonably stable rate of growth in the narrowly defined money supply in the 3 to 5 percent annual rate range. Such a policy would only rarely produce acute financial market problems and then with ample warning so that modifications could be made.

I would go even further and say that from a narrow, self-interest point of view commercial banks would probably benefit from such a policy. It would, after a brief period, considerably simplify the problems of bank asset and liability management, especially if it were accompanied by the removal of all interest rate ceilings—as most advocates of a rule recommend.

How does the adjustment mechanism work so far as commercial banks are concerned? In fact, it appears strangely enough to work just about the way the textbooks say it should work. The initial adjustment takes the form of transfers—one way or the other—of financial assets between the banks and the nonbank public. In the first instance, the banking system adjusts to lesser reserve availability by selling securities from its portfolio to the public and thereby extinguishing demand deposits.

Of course, an individual bank may borrow, but if the Fed holds fast to its reserve target some other bank is forced to sell an asset. In reverse, banks respond to increased reserve availability by buying securities from the nonbank public and thereby increasing demand deposits.

For all practical purposes this happens so fast in either direction one can almost say that there is no lag at all—1 or 2 weeks at the most. If you really believe that money is the only thing that matters, you can stop there. The significant change has occurred when some depositor somewhere exchanges his deposit for a Treasury bill and aggregate demand deposits are reduced by an equivalent amount, or vice versa.

But most of us—and this certainly includes both bankers and Members of Congress—cannot be quite so Olympian in our attitude. The remainder of the adjustment process, and its effect on interest rates, and conditions in credit markets is a matter of serious concern.

In order not to extend this statement unduly, let me focus on bank adjustment under one assumption, rather than taking both restrictive and expansionary assumptions. The case which is of most concern

to all of us, especially at the moment, is the one in which bank loan demand is vigorous and, at existing interest rate levels, this component of total bank credit alone is tending to expand by more than the growth being allowed by current monetary policy in the demand deposit component of the money supply. In other words, the adjustment process in case of a "squeeze."

Initially, as I said, banks respond to a "shortfall" in total reserves by liquidating readily salable investments. On some occasions, a substantial increase in loans can be accommodated through this process with no other major balance sheet changes or disturbance to financial markets. For example, from 1948 to 1951, total loans increased at an average annual rate of 11 percent, while the money supply grew at an average rate of only 2 percent. In this period, banks' U.S. government security holdings declined at a 3-percent rate.

On other occasions banks have accommodated loan demand by moving more aggressively to attract savings and other time deposits.

In 1964-65 the money stock went up at a 4.2-percent average rate, while total loans increased at 13½-percent rate. On still other occasions, in the squeeze—or crunch if you like—of late 1966, for example, the impact on loan expansion was quick and direct, the rate of loan expansion was brought practically to a halt. It was six-tenths of 1 percent from October to November.

I cite this historical experience simply to illustrate the fact that bank response to a lesser rate of monetary expansion than would accommodate current loan demand varies.

It depends, of course, on the condition banks are in at the outset, on their ability and freedom to attract funds from the market and from other institutions, and on the strength and structure of the loan demand that confronts them.

In the present circumstances, I think it is fair to say that the adjustment process is likely to involve some of all the ingredients in the historical examples I have cited. Banks undoubtedly acquired some liquid investments, over and above the bare minimum, during 1967. They can, and undoubtedly will, accommodate some loan demand in excess of the presently permitted rate of monetary expansion by selling liquid investments. They have some ability and freedom to compete more aggressively for time deposits and at least until very recent weeks they have managed to keep total time deposits rising. That they will continue to be able to do this is open to question. Banks are obviously also moving to moderate loan expansion—or at least to produce lower rate of expansion than would otherwise prevail—by more restrictive lending policies.

Clearly, all these things tend to push interest rates up. In order to sell portfolio investments to nonbank investors, banks must offer them at attractive prices—or higher yields. To attract time deposit money they must pay more and to discourage borrowing they must charge more.

And to the extent they succeed they will undoubtedly push some borrowers into other markets—rather than out of the market completely—and increase credit demand, and rates, in those markets.

How these effects permeate financial markets and the economy is another story for another witness. But perhaps I have said enough to suggest to you why I believe that focusing just on the rate of growth

of the money stock, and not taking into account the variations in the adjustment process that are not only possible, but likely, in a particular period, would be a mistake.

The amount of interest rate escalation that would flow from any particular rate of money supply expansion is relevant to its impact on the economy. The effect on the structure financial flows is also relevant.

Whether banks are or are not able to adjust by "liability management" or are forced to absorb the full impact on the asset side of their balance sheet makes a tremendous difference in the ripples that flow through the economy from their adjustment to a specified rate of monetary expansion.

It is easy to be dissatisfied with any existing procedure. Even a hostess with an excellent chef is never satisfied that her dinners are being prepared and served exactly according to her wishes.

In the monetary area the relationship between the Congress and the Federal Reserve is obviously not altogether satisfactory from anyone's point of view.

While they may not say so in so many words, I am sure that the Federal Reserve feels they could do a better job if the Congress would just leave them alone and let them do it. The Congress, and especially the individual Congressman, is bound to feel at the same time that the Fed is not sufficiently responsive to suggestions.

I have grave doubts that a "rule book" would correct this—any more than the purchase of a cookbook would solve the hostess' problem.

There is no evidence that the Federal Reserve is pathologically averse to targets or guidelines. On the contrary, there is ample evidence in the record that they are experimenting with them almost continuously, and as I have said, that there are able people within the System who are continuing to argue effectively for the use of some form of money supply growth rate as a principal operating guide, if not the only one. Leaving it to the Federal Reserve System to test and develop its own rules together with regular and meaningful reports to this committee and the two banking committees on its progress, or the reasons for lack of progress, is probably the best way to move toward more systematic and generally accepted guidelines—and less reliance on vague and admittedly imprecise phrases in monetary policy actions.

Chairman PROXMIRE. I am going to have to go down for rollcall in a couple of minutes, and I have some questions I am going to ask Mr. Rumsfeld to ask for me in my absence. But before I go, I would like to say that these are three very excellent papers and we very, very much appreciate them. You have made a real contribution here.

I am very interested to see that although some of you may disagree I think that you have all made substantial arguments in the direction of some kind of effort on the part of Congress to persuade the Federal Reserve Board to adopt policies of using monetary policy in a somewhat more moderate way than they have in the past.

I gave the five examples of recessions in which the Fed decreased the money supply, which goes against all conventional wisdom, and I suppose you might find particular rationalizations in each case, but the most conspicuous example right now in my mind is that they have been increasing the money supply in the last year or so, and they have continued to do it in a very inflationary period.

I can understand their arguments. They say interest rates would be a lot higher if they did not provide more money, but one of the

reasons interest rates are high is because the expectations we are going to have further inflation.

One of the reasons why the public expects further inflation is that they expect the Fed to pump so much money into the economy. So that if they adopt on a permanent basis a policy of not increasing the money supply so rapidly when we are in an inflationary period, it seems to me that this might help stem inflation, because expectations and psychological attitudes are so important in inflation itself.

Having said that, I am going to ask Representative Rumsfeld if he would like to follow on these questions. I will be back in about 5 minutes.

Representative RUMSFELD. First, I would also like to join the chairman's comment that these papers are most interesting. Possibly one or more of you might like to comment on the chairman's last statement.

Mr. GAINES. I agree completely with the proposition that Federal Reserve policy should avoid the extreme swings that have sometimes characterized it in the past. I do not think that the extreme swings, however, as they are reflected in interest rates, could be avoided just by establishing a money supply target or guideline.

On the question of interest rates, it seems to me that a good many of the financial difficulties that the country has encountered in recent years have resulted from the wide movements in interest rates.

To be specific, Federal Reserve policies in 1966, along with credit demands, resulted in market rates of interest moving above the traditional levels that our economy had had any experience with. The results of this were the dislodgement of huge amounts of relatively hot or interest sensitive money from the savings institutions and the "crunch" in the real estate market that we experienced.

Subsequently, the Federal Reserve in the first half of 1967 followed policies that resulted in interest rates that were once again well below the rates available in the savings institutions, so a lot of the hot money flowed back into them. It has since been disintermediated again at the currently prevailing high rates of interest. So long as we have savings institutions, such as savings and loan associations that are not able to adjust their own rates of return on their portfolios quickly to these swings in interest rates, it seems to me that policies that result in wide swings in interest rates that first suck hot money into the institutions and then pull it out create a dangerous kind of situation.

I believe that if a set of policies could be developed over a period of time that resulted in a relatively stable level of shorter term interest rates. Then the savings institutions would be able to operate on a sounder basis from 1 year to the next without having to be concerned about vast movements of savings money in and out.

This objective cannot be achieved simply by zeroing in on a money supply growth target. It has to be concerned with the broader flow of credit funds through the economy which is not always measured by money supply movements.

Representative RUMSFELD. Let me pose some of these questions that the chairman wants our record to include.

Take the case of 1967, when the money stock grew by 6.5 percent. What would have been the consequences of strict adherence to a rule of 5-percent maximum growth? Would the outcome have been preferable to the actual course of events?

Mr. HART. I am trying to work the arithmetic out, but I would think off hand that if we had restricted the growth in demand deposits to 5 percent instead of 6.5 percent, the public would have tried to raise the money in some other fashion, and I suppose this would have brought greater pressure on the whole capital market structure.

Representative RUMSFELD. Your judgment then is that it would not have been preferable?

Mr. HART. I do not think it would have been preferable right at that point, but I guess I am not too happy about seeing these wide swings, either.

I wish there was some way we could reduce the swings, but I am a little troubled as to how you do it.

Representative RUMSFELD. It seems to me that the question recognizes the fact that you are dealing with the lesser of two evils.

Mr. HART. Somebody who wanted demand deposits would have to give them up then, would they not?

Representative RUMSFELD. If the pressure came in the way which you have described.

Mr. HART. Yes. Well, if you have 6.5 percent and you are going to cut it to 5, somebody who wants to hold demand deposits is not going to hold them, because there will be fewer demand deposits.

Now, I assume that if you could not have a demand deposit, you would probably want to hold something else close to it. I think this might have caused quite a bit of pressure in the markets.

Mr. GAINES. Mr. Rumsfeld, I would like to respond to that if I might. It seems to me it is awfully important to distinguish among types of demand deposits. A growth in demand deposits of any given size that does reflect an increase in liquidity in the economy, an increase in the availability of funds that can be spend at the option of the owner of those deposits, is relevant. But in 1967, in my interpretation of what occurred, the largest part of the increase in the money stock, in the demand deposit component of the money stock, represented an increase in compensating balances at the larger commercial banks. This is borne out by the fact of more rapid increase in demand deposits at the larger banks than elsewhere in the economy.

Now, these compensating balances were obtained by the banks because the banks were in the driver's seat last year, after the 1966 credit experience. Banks were able to get the 20 percent or so compensating balances that they had been talking to their customers about for a number of years before that. Compensating balances are not truly spendable funds. They do not increase the liquidity of the holder of the balances in the same way that normal growth in money supply would.

This was a distinctly different type of increase in money stock. If one could sort out or separate out the compensating balance component of last year's growth in money stock to arrive at an estimate of what the true growth in spendable funds was, I think we would find that the growth in money stock last year was well within the 3- to 5-percent band that the committee is concerned with.

Mr. NOYES. Do you want me to have a go at that question, too?

I do not disagree with anything Mr. Gaines has said; but with all of the benefit of hindsight now, we can say that it might have been desirable to deprive some of these corporations of the liquidity that

they were able to accumulate in 1967; because it would have made them somewhat less enthusiastic spenders in the first half of 1968, which I gather we all agree is a period in which we would do well to have a little cooler economy than we have had.

I think if you want to be more precise, it is probably better not to look at the total year 1967, but break it up a little. The very rapid rate of monetary expansion carried through, shall we say, the summer of 1967, when money stock was continuing to rise at 7- and 8-percent annual rates—

Chairman PROXMIRE. Ten percent, wasn't it, during that period?

Mr. NOYES. It depends upon the period. You can get a period that is 10 percent, you can get a little longer period at 7 or 8 percent.

Chairman PROXMIRE. For 6 months, it was?

Mr. NOYES. Yes. I think with the benefit of hindsight, you can now say it was probably unfortunate; because it did put corporations—through just the process Mr. Gaines has been explaining—in a more liquid position, and therefore in a better position to proceed with high expenditure rates in the subsequent period—that is, the first half of 1968.

Now if you look at the monetary policy since November of 1967, you find that the rates of expansion have been, on average, much more moderate. The narrowly defined money supply has increased at about 4.9 percent, a little less than 5 percent, since early November. The rate of increase in time deposits has been about 6.5 percent.

Senator PROXMIRE. You see our argument is that it should be 2 percent.

Mr. NOYES. Well, 2 percent, in the present circumstances, might create conditions which you might find would be worse than the disease. I do not know that the others on the panel would agree with me on that.

Senator PROXMIRE. What this does, of course, is to make it necessary to follow other policies to try and overcome the disintermediation. Obviously it might have a devastating effect on the housing industry, unless you at the same time have the Federal Reserve Board do its best to support the housing industry through buying FNMA obligations and that kind of thing.

Mr. NOYES. You are acutely aware, I am sure—

Senator PROXMIRE. Of course, it also puts pressure on Congress to change its fiscal policies in a hurry.

Mr. NOYES. The monetary mechanism does not work with a completely flexible institutional framework; so dramatic changes in the rate of interest, even if they might be desirable in some aggregate sense, can create very severe institutional problems.

Mr. GAINES. Mr. Chairman, could I respond to your suggestion? Congressman Reuss in his January statement proposed that the Fed attempt to promote lower rates of interest in the mortgage market than would otherwise obtain.

I cannot think of a better way to guarantee that there would be an absolutely inadequate supply of mortgage funds, and therefore—

Senator PROXMIRE. Adequate or inadequate?

Mr. GAINES. Inadequate.

Senator PROXMIRE. Inadequate?

Mr. GAINES. Yes, sir; an inadequate supply of mortgage funds and therefore a real crunch in the building industry. Savings and loan associations have very little choice but to lend on residential mortgages. They presumably would continue to channel their money into this field. But the life insurance companies, the mutual savings banks, and the commercial banks with the opportunity to buy 7-percent corporate bonds definitely would not buy 6½- or 6¾-percent mortgages. Consequently, you would dry up the supply of mortgage money if you tried to make this market noncompetitive with other markets, with terrible consequences for building.

Senator PROXMIRE. We have done this kind of thing to some extent. We have put differential ceilings on the interest that S. & L.'s pay and banks pay in order to get more money into S. & L.'s and help. We acted on the CD problem—not we, the Federal Reserve Board acted on the CD problem—and as you know, what was happening, money was coming out of savings and loans, going into certificates of deposit and, therefore, going into industry and out of housing.

By remedying that situation, changing the situation, it did help the S. & L.'s, in spite of the fact the interest rates are higher now than they were in 1966 when S. & L.'s were suffering. I do not think you can just throw up your hands and say there is nothing you can do.

I would agree in the long run you have to adopt fiscal policies and monetary policies that make sense.

Mr. GAINES. I think, though, that in the allocation of the funds within an institution, you have to be concerned with the interest rate relationships on the alternative use they have for those funds. For example, in New York State right now, with its 6-percent usury ceiling on mortgages, there are for all practical purposes no mortgage loans being made. The consequence, of course, is devastating for the homebuilding industry in the State.

Senator PROXMIRE. You would certainly agree you can get into all kinds of trouble with controls if they are only temporary and so forth.

You have seen that especially in the international control area. But at the same time, I think this is just a matter of having usury laws which are obviously way out of date, most inappropriate.

I would like to ask each of you gentlemen to respond directly, however, to the proposal we have been trying to develop in the hearings, that we have a 2- to 6-percent area, say, reasonable target for increase in the monetary supply; and when the Federal Reserve Board varies from that during a quarter, that they come up and tell the Congress through this committee, why they did so.

Do you think that would be constructive or do you think that perhaps we can get a better target?

I takes it, Mr. Gaines, that you feel that maybe we ought to forget about the money supply, and go into bank credit or some other measure that would be more desirable and wiser.

Mr. GAINES. Yes; I would think that the Congress might ask the Federal Reserve to report at quarterly intervals or whatever on what is happening in total credit flows. These flows will be reflected in what happens to money supply, of course.

Senator PROXMIRE. We want to do more than just say what is happening in total credit flows.

What I am afraid of is that they will file a report and the committee may have hearings, and that is the end of it. If we set guidelines and it is modified or improved, then we have a target for them to shoot at and we have a basis for focusing our inquiry and we have a basis perhaps for getting greater understanding on the part of members of the committee, the Congress and the public of what the Federal Reserve Board is doing and why.

I think the main trouble here is a lack of communication and understanding. This monetary policy can be very complex and very hard for Members of Congress to understand, and many of us feel that it has been most perverse, many of the ablest people in the academic area feel that is the case.

Mr. GAINES. I agree that it has been perverse on a good many occasions and I would have no strong objection to a money supply target, so long as there was a great deal of flexibility in the interpretation of the ranges of that target, and so long as the Fed had an opportunity to explain why at one time or another it had permitted rates of growth outside those ranges.

Senator PROXMIRE. Let me just interrupt to say supposing we had had a situation where in the second quarter of 1967, after the money supply had been increased at the rate of 10 percent, the Federal Reserve Board had had to come before this committee and explain why, when the President was calling for pretty drastic fiscal action and we were all recognizing inflationary pressures, why, the Federal Reserve Board was indulging in what seemed to be policies that were inflationary. Under those circumstances do you think it would have had a good effect on the Federal Reserve Board as well as a very good effect on the Congress?

Mr. GAINES. I agree with you. You could have asked the question not only in terms of money supply, though, but you could have asked why 90-day Treasury bills were trading at 3.35, what possible justification was there for that given the economic outlook and so on. The difficulty with money supply, I think, is this: Take the entire decade of the 1950s. During that period business corporations were steadily learning how to manage their cash better. If you look at the performance of the New York and the other big city banks, during that decade, and into the 1960's, you will find that there was no growth in demand deposit totals at all. Their business customers were learning to operate on lower balances, year by year.

Senator PROXMIRE. That is fine.

Mr. GAINES. Suppose that you had had a 3 to 5 or 2 to 6 percent or some such target rate of money supply growth. That could very well have been too large.

Senator PROXMIRE. Sure.

Mr. GAINES. Under the circumstances of the 1950's.

Senator PROXMIRE. Then they come up and say why. We ought to change it because there is greater efficiency in the use of money, the velocity is increasing.

Mr. GAINES. That is why I said I would be quite agreeable to the idea of targets so long as there is great deal of flexibility in interpreting what was the appropriate target. But again, in 1967 I interpret the large increase in money supply first to the decided upward shift in the liquidity preference function as a result of the 1966 crunch, and second, to the pressure the banks were putting on their customers to

increase compensating balances, and compensating balances are not usable money from the standpoint of the business depositor.

You were out of the room when I made this point. If it were possible to adjust the figures for last year, as to how much of the increase in money stock was compensating balance money, rather than truly usable demand deposits, I think you would find that the rate of growth in money supply was toward the lower end of a 3 to 5 percent range of growth, rather than the 7 percent or whatever it was that actually came out.

This is the kind of explanation you could ask of the Federal Reserve, and I think that they should respond to.

Again, you have to have flexibility at both ends of any guidelines that are set.

Senator PROXMIRE. Of course, the flexibility is not the fact that it would be completely suggestive and there is nothing mandatory about it. There is no law that prohibits them in anyway but it would require an explanation.

Mr. GAINES. Actually, though, Senator, we have moved so far ahead in our understanding of financial flows, not that we understand them completely today by any means, and in the development of a financial model, the MIT model that the Fed has been working on for some time, I doubt that it is really necessary any longer to use as primitive a measure of Fed performance as money supply.

Senator PROXMIRE. I notice that Mr. Hart, in speaking of the insurance industry, said that they would be better served, with the millions and millions of people involved, better served by a policy of moderate expansion in the money supply rather than these fluctuations that go up and down.

Mr. Noyes said the same thing about the banks, so that these great industrial areas where so many Americans have very deep and big interest, would be better served by this kind of a policy.

It seems to me if the Congress is going to influence the Fed to follow that kind of a policy, one way to do is to establish this guideline and then require a justification because they obviously are not following that kind of a policy now.

However, they can rationalize what they are doing; they have followed a policy especially lately of the widest kinds of fluctuations; sometimes even in periods of recent recessions, reducing the money supply and in a period of inflation increasing it.

As I say, this is something that hurts the banks, hurts the insurance companies, and many people feel hurts the whole economy.

Mr. Hart, would you like to comment on this?

Mr. HART. I guess in a philosophical way I like the idea of some kind of stability here that is according to law rather than according to some man's will. But every time that I wrestle with this thing, as I said in my statement, I find it very difficult to come up with any kind of a rule that seems to me to make very much sense.

There are always exceptions, and when you allow for the exceptions, you seem to get back to about where you are now.

However, I do not see anything wrong with asking the Fed to report, say, quarterly to Congress on what they have done, and if you want to gear it around the money supply, it is probably as good as any other single measure.

Still I would think bank credit, total bank credit expansion, and the movements therein would be more appropriate than the money supply under current conditions, and I certainly would want to know something about total reserves.

In any event, however you do it, I don't see any reason why the Fed should not be called upon at some appropriate interval to explain what they have done, and why they did it.

Senator PROXMIRE. Mr. Noyes?

Mr. NOYES. Well, I can comment very briefly, Senator. I think the thing that disturbs some of us about the use of the narrow money supply target is not that it would not work all right as a trigger, but the implication involved that the committee has reached a conclusion that this is the critical target.

We do not feel it is the critical target.

While you can use it as a trigger for these reports, we are reluctant to see you adopt it and give it—

Senator PROXMIRE. Why isn't it proper to have a stable and regular increase in the money supply within certain limitations?

Again, I say if it is not, let them say why.

They can always increase it 10 percent or cut the money supply although I do not think we ought to do that, but if they do, let them explain it.

Mr. NOYES. I do not object to that, sir.

Senator PROXMIRE. I know you don't object to that, but you seem to imply there is something wrong with, say a 2 to 6 percent range.

Mr. NOYES. Let me be perfectly clear. I do not really object to it as using it as a basis for the proposed reporting procedure. The thing that troubles me about it is that it seems to give the endorsement of this committee to the narrowly defined money supply as the critical variable, and I do not feel, and I think many of my colleagues do not feel, that this is in fact the critical variable.

Senator PROXMIRE. This committee has done this for 2 successive years. We have done it by both the Republicans and Democrats agreeing, with almost complete unanimity. Congressman Reuss suggested some rather big areas of amendment or modification here, but the committee as a whole has taken the position that this ought to be regular.

You are saying that perhaps we should not do this. You see—

Mr. NOYES. No; I am afraid you have misunderstood me, sir.

Senator PROXMIRE. Let me just finish by saying what I am getting at is that I think that Congress has been impotent, very feeble in this whole area of influencing monetary policies. The Federal Reserve Board, rightly or wrongly, has controlled monetary policy completely, and we think they have made some very serious mistakes on the basis of our analysis, not only in the long past, but in the recent, in the very recent past.

I think we have a duty, in view of the destructive impact it has had on the economy, of trying to develop some influence on the Fed that will make their monetary policies more constructive. How can we do it if we do not have a 2 to 6 guideline for monetary growth?

Mr. NOYES. Let me be responsive specifically to that. It would be more comfortable if instead of saying a 2 to 6 percent rate of increase in the narrowly defined money supply you said a 7 to 10 percent increase in either total bank credit or the broadly defined money supply.

Senator PROXMIRE. Broadly defined money supply?

Mr. NOYES. To include time deposits.

Then I think I would be still more comfortable, and I know Mr. Gaines would be more comfortable, it instead of using either of these money supply concepts you said the Federal Reserve should come up and explain why total credit flows have not expanded at a rate equal to the rate of growth expansion in current dollar GNP or something like that.

Don't hold me to this precise wording. I am not trying to put words in Mr. Gaines' mouth about the precise guideline to use for total credit flows. Maybe he can suggest it, but a total credit flow guideline as the trigger for their report to you, rather than a narrowly defined money supply guideline, would be preferred.

Senator PROXMIRE. At any rate, then, to try and get this, I guess all three of you agree that we should use a better measure than money supply. You all also agree that it would be useful for this committee to suggest a guideline in something like this area without any mandatory legal action, and then ask the Federal Reserve Board to come up on a quarterly basis when they exceed the units and say why they did and justify it, with the press present so the Congress gets as full an understanding of this as possible, and we can recommend whatever actions seem necessary on the basis of developing an expertise over some years in this whole area.

Mr. HART. Why can't you ask them, Senator, to explain the basic movements in these credit structures? I mean that is really all you need to ask them, it is not, without tying it into any particular—

Senator PROXMIRE. It seems to me we have to have some kind of a trigger, a focus.

Mr. HART. You want a measuring stick somewhere?

Senator PROXMIRE. I think that is right, yes. You see, as I tried to enunciate at the beginning of the hearings this morning, you can make an assumption that this committee has made, that the money supply, other things being equal, ought to keep pace with the growth in the gross national product caused by increased productivity and increase in the work force, and to the extent that this is a growth of 4 percent, the money supply ought to grow at 4 percent.

Now, if you have a range between 2 and 6 percent, presumably, there will be a tendency, a proper tendency on the part of the monetary authorities, to stabilize the economy by going at the lower end when you have inflationary tendencies and at the higher end when you have recession.

There are very great compensating elements here.

Obviously, if in the depression of the 1930's instead of decreasing the monetary supply the monetary authorities had insisted on increasing it at 6 percent, it would have had a much more desirable effect on the economy than what they did.

Obviously, in a period like we are experiencing now, instead of increasing the money supply as they did last year by a very big amount, increased it at 2 percent, it would have had a very distinct restraining effect. So that looking at it from the standpoint of taking away the discretion of the Federal Reserve to a considerable extent, hoping they will take it away themselves with this kind of guidance, that you will have in the future a better monetary policy than we have had in the past.

So many people feel it could not be worse.

Mr. HART. But you do not really want to take their discretion away, do you? You are just a little unhappy in the way they have used it.

Senator PROXMIRE. We want them to explain it in detail as they have gone off the beam, why they have done so.

Mr. HART. That is right, and I think everybody would welcome an explanation. I do not mind the peg point, so to speak. If you want to name 2 to 8 percent it sounds all right to me, but if you convey the implication that somehow this is the right range, and that any departure from it is somehow a very exceptional thing, I just wonder what its impact on Board policy would be.

Personally, I would rather see a sort of quarterly report, in which the Board explained what it had done on each one of these major variables.

I doubt if you could really ask them to explain the total credit flow.

Senator PROXMIRE. Yes.

Mr. HART. Because there are a lot of things that I do not suppose they can control or perhaps even explain to you. But you certainly can ask them to explain their own actions.

Senator PROXMIRE. I think, looking at it from the standpoint of a scholar, Mr. Hart, which I am sure you are—

Mr. HART. Not a very good one.

Senator PROXMIRE (continuing). And an expert in this area, I think that that probably would be more satisfactory.

Looking at it from the standpoint of a Senator, a Member of Congress, I think that something as clear, as simple as the money supply, a focus of that kind and range will get a more desirable dialog begun between the two.

Mr. HART. Why can't you tell them, then, that since the long-term growth in the money supply is 4 percent or something like that, more or less like the economy, you would like an explanation when it exceeds this level.

Get away from the idea that there is something wrong about exceeding or falling short of this level.

Senator PROXMIRE. They have been wrong in the past. We want to do more than say the long range is this and in the future we hope to do this. We want to say that our feeling is that whenever you gentlemen have had these drastic fluctuations in the money supply in the past you have almost always been wrong, not because they have not been right about the conditions at the current time, but because, as has been documented repeatedly, there are lags between the time they put a policy in effect and the time it has an effect on incomes, gross national product, and so forth. The lag is substantial.

Mr. HART. As you point out, there have been periods when there is virtually no growth and they may have been wrong there, so you get it both ways. The proper range, in other words, may be a very wide one for best public policy.

Senator PROXMIRE. Let me ask—I am so delighted to have Congressman Reuss here because he has contributed so tremendously as a member of the committee.

Mr. GAINES. Mr. Chairman, could I say—

Senator PROXMIRE. I just want to say he has contributed, as one member of this committee, to this particular concept.

I think he initially suggested it, pressed hard for it, and he was also the one who suggested a rather substantial modification in it.

I have a couple of more questions before I yield to Congressman Reuss.

Mr. Gaines?

Mr. GAINES. Just a very brief comment on something which you said, that the money supply is a clear and simple guideline. I believe that the three of us here, and our economist colleagues, generally, would agree that the Congress should take more direct interest in Federal Reserve policies than it has, and that it is most appropriate to set up some measurement by which you could judge whether or not the Federal Reserve is behaving properly.

Senator PROXMIRE. Right.

Mr. GAINES. But our concern, I believe, at least mine, is that the money supply is not a clear and simple concept.

As a matter of fact, if I knew exactly what money supply was, I think I would be more inclined to agree with you.

Let me cite just one illustration.

Most companies in the United States of any size at all operate from day to day in an overdraft position on their checkbooks. They are relying upon the time it takes for checks to clear to maintain the kind of balances that their banks demand of them.

Now, there has been much talk of the checkless society in the future where all the computers of the companies and the banks would be linked together, with funds shifted instantaneously. If we were to put that system into effect tomorrow, most of U.S. business would be overdrawn immediately and the money supply would be cut in half.

Now, with this major uncertainty as to what in the world money supply actually is, and with movement in this direction as something that is conceivable for the future, what kind of adjustments are you going to have to make in the guidelines for money supply to be the guide that you wish it to be for the Federal Reserve?

Senator PROXMIRE. Well, my answer to that would be that it is true that there are all kinds of changes. Another change was suggested in the efficiency with which demand deposits are used, and so forth.

I think it is necessary to develop some kind of guideline. The reason I suggest money supply, that several responsible economists have suggested this, and it is a concept which is appealingly simple to me because, after all, if the money supply is what the Constitution gives the Congress control over, specific control over, and the interest rates of course is the price of money, and the economy does revolve around money and the money supply. I think you can make a very strong case for bank credit and I think that is something that the committee ought to consider most carefully, in view of the fact that you gentlemen have proposed it and other economists have also said the money supply is not the target we ought to use.

Let me just get in a couple more questions and then yield to Congressman Reuss.

Mr. Gaines, you said something about the Federal Reserve having keyed our interest rates to interest rates abroad, at times in the past, so that we can affect the flow of capital by varying our interest rates,

so that if we want an inflow of capital, our interest rates are a little higher, all things considered, than interest rates abroad, a little lower if we can stand an outflow.

I asked Mr. Robertson about this, because I was very concerned, and this has been a great concern of our committee. So often at times there have been conflicts between our balance-of-payments position on the one hand, and the needs of our domestic economy.

Obviously, we cannot have a situation where we have unemployment, and a kind of need to stimulate the economy on the one hand and an adverse balance-of-payments situation which would suggest that we ought to have monetary restraint and high interest rates.

Under these circumstances which do we do?

Governor Robertson's position is that we should never govern our monetary policy with respect to international balance of payments, that we should insulate ourselves by using, he suggested, a very comprehensive equalization tax. Some economists have questioned this and said you cannot do it. If you are going to do that, you are going to have to have a floating exchange rate, a flexible exchange rate. That is the only way you can in the long run.

My question of you then, do you think it desirable that you ask the monetary authorities to try and serve these two masters, or do you think you should give priority to the domestic economy and try, in one way or another, to insulate our balance of payments by such a device as interest equalization tax more comprehensively applied?

Mr. GAINES. Well, my comments were directed to the future actually rather than what has been the case in the past.

If in the future we continue to have the type of aberrations in fiscal policy, and either compensating or complementary aberrations in Federal Reserve policy that lead to the types of economic movements we have had and therefore to the very broad swings in short-term interest rates, we just won't be able to permit our money market to be tied intimately to the international monetary market, because rates internationally have not moved over the wide ranges that our own domestic rates have moved over.

If, however, your purpose is achieved in the monetary policy area of a more stable year-to-year policy, and if simultaneously we have more responsible fiscal policies in the future than we have had, I think we can foresee a time when the variations in our economic growth rate from one year to the next are likely to be rather minor, and therefore one in which interest rate fluctuations properly can be minor from one period to the next.

This would be most desirable, of course, from almost any point of view. But one consequence of it would be that we would then become full participants in the huge international money market that has been developed.

Our market is now closely linked to the Euro-dollar market, but it tends to be a one-way sort of linkage because of the restraints on credit flows out of this country. We are not in a position at the moment to feed dollars abroad when our rate structure would suggest that.

Rates of interest in any given maturity in the Euro-dollar market are almost identical to rates of interest on domestic CD's of the large banks in the United States, after one allows for the added costs of the reserves on these CD's. In other words, the operation of the large

banks in this country in the Euro-dollar market has already established a very, very close relationship of movement in these rates. I would think in the future, in the development of the international economy generally, if it is consistent with our own domestic economic needs, it would be very desirable to try to move in this direction of linking our own money market intimately to the international market.

Senator PROXMIRE. If we do, what do we do about the domestic economy, in the event we have a situation where the international money market conflicts?

Mr. GAINES. As I say, if we continue to have the types of fiscal and Monetary policies that we have had recently, I am afraid that it will not be possible for use to bring down the walls around our country so as to participate fully in the international market.

Chairman PROXMIRE. You are going farther than that, though. We could have very wise fiscal policies, monetary policies, and just have a situation in which those policies are not as effective as they might be. There were periods in the thirties when our monetary and fiscal policies might have been construed as wise.

We ran a big deficit and we had monetary policies during part of that time made sense. Sometimes they did not. But we certainly had very low interest rates, extraordinarily low interest rates.

I understand the Treasury bills were 1/100 of what they are now, literally 1/100, not 10 percent but 1/100.

Mr. GAINES. They were actually negative on some occasions.

Chairman PROXMIRE. They were. They were actually negative. It still did not do the job. Under those circumstances to do what we did in 1937, to double reserve requirements, because of the international balance-of-payments situation just does not make sense.

Mr. GAINES. Mr. Chairman, I choose to believe, perhaps naively, that the record of our own economic performance, fiscal policy and monetary policy in the period 1961 to 1965 indicated that the millennium is not impossible, that we do know enough about the way the economy operates to establish policies that will sustain orderly rates of economic growth indefinitely, with minor deviations around that growth trend.

What I am saying is that I think that the millennium of a recession and depression-free economy is decidedly possible.

Chairman PROXMIRE. It is very interesting when you said that, because you said that in your statement.

It seems to me that this is clear: This millennium arrived when the Fed followed a policy of keeping the increase in the money supply about at the level that we are shooting at in our guidelines.

Mr. GAINES. And it was also a period in which fiscal policy was not creating impossible problems for the Federal Reserve.

Chairman PROXMIRE. Let me just ask one more question and then I want to turn it over to Congressman Reuss. I will be right back.

I would like to ask Mr. Noyes if he would comment on this. I suggest that not only this guideline with reports on a quarterly basis, but also, and this would be a matter of law, if we could get it through the Congress, a proposal in which the Federal Reserve Board would make a monetary report each year, like the President's Economic Report, in which they would set forth the economic conditions and

how they expected to meet them, what their program was on the monetary basis, giving us a basis for evaluating what they do in the course of the year, and criticizing what they propose, and not holding them to it necessarily, because of course when they come in, as the President's economic people do, they could say why they are changing the position during the year.

At least then we would have them setting forth their own targets, their own reason for following certain policies.

Do you think this would be a constructive and useful device or not?

Mr. NOYES. I do not see any harm in it, Senator. I think you would probably find that it would suffer from one of the same problems that you find in the President's Economic Report, and that is that no responsible public official is ever inclined to predict disaster, even if he may feel in his bones that there is a little disaster out ahead, and these projections all tend to take on a little "pie in the sky" quality.

That is, you tend to get projections of desirable relationships, which one would hope would materialize.

Chairman PROXMIRE. In in January of 1968, William McChesney Martin was presenting a report to the people and to the Congress on monetary policies for 1968, would he not have said that we need monetary restraint as well as fiscal restraint and we would have spelled out how he expected to—

Mr. NOYES. Yes, but he would probably have assumed that the fiscal restraint that he thought was necessary would materialize and have built you a nice model based on the that assumption, which would have looked like a nice, well-balanced 1968.

Chairman PROXMIRE. This would be a very good forum for him to make a pitch for this kind of fiscal policy, it might have had a desirable effect.

Mr. NOYES. I said I have no objection to it. I just wouldn't want you to expect too much of it. I think people in any such reports are inclined to project idealized conditions as emerging, rather than perhaps being fully realistic about the problems that confront us.

Chairman PROXMIRE. Right now the monetary policy does not seem to come from anywhere or go anywhere. To some extent the monetary authorities can say they cannot do very much about it. Their conditions, fiscal policy conditions or other conditions take it out of their hands.

If they were required to do what the President has to do and the Council of Economic Advisers has to do, and what most boards of directors of corporations insist that their officials do for them, set forth a plan for the year and how they intend to go about it, it seems to me that this committee and the Congress would be in a much better position to influence monetary policy.

Mr. NOYES. As I say, I have no objection, but I think you will find that this will not be perhaps quite as productive as you might hope, because of the fact that there is a natural and understandable tendency to assume the best of all worlds in such a project, that is, to assume that all the other right things are done, that peace comes early in Vietnam and that military expenditures can be cut down and so on, so that you get the thing so it fits together with a nice 4 percent real growth trend over the year.

And you tend to get the kind of model, to be honest about it, in the President's Economic Report. It has never, in the time I can remember, said that the country is going to wrack and ruin in the year ahead, because we are doing all the wrong things. It always says there are a few adjustments needed and we are going to make them.

Chairman PROXMIRE. The President is elected and he has to look forward to an election perhaps or he has to think with more concern about other people who are up for election much more than the Federal Reserve Board. They are appointed, just one appointment for 14 years.

Under these circumstances, it seems to me they could have more objective critical—

Mr. NOYES. Perhaps.

Chairman PROXMIRE. And less political.

Mr. NOYES. Perhaps, but again, as I say, as long as you do not expect too much, I think the presentation of the sort of report you describe is probably a good idea.

Chairman PROXMIRE. Any other observations on that? I will be right back.

Congressman REUSS?

Representative REUSS. Thank you, Mr. Chairman. This has been a most useful line of inquiry you have pursued with our witnesses, and a most useful set of hearings. I have read all the papers that have been presented, including the three excellent papers this morning. I unfortunately have not been able to get to the hearings until now, but I am delighted to be able to pursue some of the lines that the Chairman has been pursuing.

You three gentlemen and substantially all the other witnesses have said that the monetary policy followed by the Fed ought to be "discretionary", but I do not think that any of you mean by that that it ought to be philosophically chaotic and without any thinking through beforehand by the money managers of what the general guidelines ought to be.

Mr. HART. Oh, no.

Representative REUSS. By coming out in favor of what is said to be a purely discretionary policy, you are coming out against any artificial oversimplified congressionally legislated mandate, and saying this would not be good, but you are not saying that the Fed should fly by the seat of its pants or make monetary judgments by reading the entrails of animals.

It seems to me actually that the situation is not unlike the practice of medicine as it existed from the days of Hippocrates until about 150 years ago, where medical practice was confined mainly to leeching and blood letting, and did more harm than good.

It could be that monetary science is now in the position of medical science several generations ago, and that we are going to have to learn as we go.

Would you also agree that by and large the basic record that we have of monetary management—the published minutes of the Open Market Committee—give us only in the most general terms the rationale of the monetary policy of the Fed, and particularly in quantitative terms, it does not really tell us very much?

Mr. GAINES. As a matter of fact, Mr. Reuss, for those of us in the private market, whose results are influenced by what the Fed does, we are in the position of having to read entrails when we read the statements.

Representative REUSS. Yes.

I want to return to that point in a minute. I want to pursue that phase of the discussion about which there seems to be some agreement between you and the Chairman just a few minutes ago.

It does appear that the purely "money supply, narrowly defined" guideline of the Joint Economic Committee in the last couple of years is oversimplistic, and at least as far as Mr. Gaines is concerned, it tends to concentrate on a result rather than on a cause, that is to say the money supply probably is in large measure the result of the overall credit availability, and hence to define the target in terms of money supply at the very least is picking out one of the less important elements in looking at it.

Is that a fair statement of your paper, Mr. Gaines?

Mr. GAINES. Yes.

Representative REUSS. And actually, both Mr. Hart and Mr. Noyes, in their papers at least, did not violently diverge from your view.

Is that fair enough, gentlemen?

Mr. NOYES. Yes. As a matter of fact, I indicated in my oral remarks, Congressman, that I really agreed basically with Mr. Gaines, although I had focused somewhat more narrowly on the money supply, in order to be responsive to the committee's wishes on this occasion.

Representative REUSS. About the only thing to be said, I suppose, for the extreme Milton Freedman view of "just look at the money supply and nothing else" is that if the money managers do not know what they are doing, there is less capacity for harm, if they do it that way, but really I think we all agree we ought not to necessarily settle for such a regimen.

Would it not be possible to do much better than I did in my little essay a couple of months ago to spell out guidelines for Federal Reserve policy?

Would it not be possible to refine those draft suggested guideposts to remove from them a couple of points which are probably quite questionable indeed, like the point I had in there on recognizing cost-push inflation, which I think has been pretty well shot down and it is unnecessary to shoot it down again, and by emphasizing a little more clearly than was done, the overall credit aspect of monetary policy.

Would it not be possible to construct a set of draft guideposts, and then provide as your last point in the guideposts that whenever the Federal Reserve chances upon a set of circumstances not envisaged by these guideposts, which, due to the ignorance of moral man, was not possible to put into these guideposts, then it should feel free to diverge from them, but to state clearly the reasons for its divergence, and, to incorporate an idea that was discussed here a moment ago, to report to the Congress and the public every quarter, let's say, on what it had actually done?

What about making some progress in that direction? Why is that not useful?

Mr. HART. I think it is.

Mr. GAINES. Mr. Reuss, I think it would be useful as a first approximation of the sort of measure that you are working toward. It might be useful for the Congress to ask the Federal Reserve System, in recognition of the responsibility the Congress does have in this area, to propose the sort of guidelines, the framework of guidelines within which they would report to the Congress.

Representative REUSS. In a sense that was what I was trying to start in our Economic Report of this year, when I took a stab at it in my supplemental views, and sent it to the Fed. You no doubt have read the Fed's comments on it, and also Mr. Mitchell's interesting testimony of yesterday. Many of the Fed's comments are well taken. Some points I had in there deserved to be shot down and were.

But we still do not know what the Fed's policy is, and it would seem to me, to take up Mr. Gaines' suggestion, that it would be fair enough to ask the Fed, all seven Governors, to come back to us with a composite statement of what they think the rules wherein they shall walk should be.

Mr. GAINES. Yes.

Representative REUSS. With the exit clause for unforeseen contingencies that I have mentioned.

Mr. GAINES. The people in the Fed would be the first ones to deny that they understand fully the exact way the financial flow process in this country works. On the other hand, they have expended a great deal of excellent talent in their linkage studies and in the development of the MIT model.

Representative REUSS. The MIT study?

Mr. GAINES. Yes.

Representative REUSS. That is most important.

Mr. GAINES. I would think they would at least be able to suggest to you the kinds of guidelines in terms of credit flow and credit growth, as related to money supply and the rest, that would be appropriate for congressional interest.

Representative REUSS. Of it they cannot so respond, if they have to say back to the Joint Economic Committee, "Look, gentlemen, very frankly we are in the position that physicians were in in the 18th century and we do not really know whether our ministrations are helping or hurting the economy," then it would be fair for us to come back and say, "Well, this is a frank admission, and until you do, until the MIT-Fed study is more in hand and those equations are more properly plugged in, why do you not just do like Freedman suggests, more or less, perhaps with a little wider band?"

Would that be a fair rejoinder, if they come in saying, "Look, frankly, we do not know what we are doing"?

Mr. GAINES. I think that if the state of knowledge is not yet sufficient for them to provide a more sophisticated framework, that money stock would be an acceptable first approximation. It at least does get Congress involved in the process.

Chairman PROXMIER. I would be a little afraid, if the Congressman would yield at this point, they would come back with a really sophisticated combination which they would make sure that very few outside of maybe Congressman Reuss and a few others would understand, and they would have a terrible time explaining it to anybody.

Mr. HART. I was just going to say, Congressman, I do not think they would come back and tell you that they do not know what they are doing, but if they did, I think I would feel a lot happier if you had a broader set of parameters than just this money-supply concept.

Where do you fit CD's into the picture? I do not know. I have often wondered. I would rather see a broader set, including reserve changes, a system that gives a broader purview of the whole credit market. Otherwise, I doubt if their reports are going to mean very much to you.

Representative REUSS. I am with you. I wrestled with the angel through the night myself on this one, and if I could have done better, I would.

Let me at this point ask, and I will only assign this task to those who volunteer it, would any of you gentlemen be willing to take a crack at evolving a set of parameter type guideposts that we could keep in our pocket here until such time as the Fed came back to use with its proposal?

I do feel, very frankly, that the essay I attempted a couple of months ago could usefully be edited and expanded to include specifically more reference to total credit than it does.

Would anybody be willing to try another essay, just speaking for himself?

Mr. GAINES. I think I speak for all of us when I say that staff limitations, if nothing else, would make it presumptuous for us to try to summarize the work that has been done within the Federal Reserve. More properly, this should come from the Federal Reserve.

I am not trying to beg off on it.

Representative REUSS. Perhaps we could come back at you three after we have received a response from the Fed.

Mr. GAINES. Yes.

Representative REUSS. Because there is no doubt they are doing some of the pioneering work, particularly in conjunction with MIT.

Mr. HART. That is right.

Representative REUSS. Let me now raise a subject that is of interest to all you three gentlemen. In saying that the Fed's open-market policy minutes are oftentimes delphic, and give the people in the market like yourselves quite a task of interpretation, you have touched on another important aspect of Federal Reserve communication.

What is there to be said, if anything, for the apologia you sometimes hear from the Fed, mostly unofficially, which runs something like this:

"We have to be cryptic and delphic, or we will help speculators, and counterproductive movements will be set in train."

I have never really understood or believed in that apologia. It seems to me that if the Fed agreed on and published some rather clear parameter-type guideposts, you people who operate in the money market or near the money market could, of course, have a better idea of what the Fed is doing, but that your resulting actions would not necessarily be counter to the public interest.

I do not exactly see the Fed's point. Would somebody comment on that?

Mr. NOYES. I have not said anything for a while. I might as well get into the act.

I think sometimes System officials put too much weight on this point. Of course, again you can go to extremes, clearly you do not want the room bugged and have three people in the financial community listening to the bug and not the others. This would create just the problem you suggest.

As long as you do not push disclosure too far, secrecy does not make much sense.

There is a problem though that I wanted to comment on as you were speaking. I am acutely conscious of it because of my long period inside the Federal Reserve.

You do have to remember that you are talking about 12 people, when you ask, "What does the Fed think?" It's just as if you were talking about the much larger number in Congress, and ask, "Why did the Congress do something?" You get into great difficulty summarizing it. The Congress has not refused to act on taxes for any one reason. Each Congressman had his own views and his own reasons for not acting.

I have participated in many Federal Reserve meetings, an honest summary of which might go something like this:

One man would say, "I think we ought to have a higher rate of monetary expansion because I am concerned about what is happening in the housing industry, and I think this is a good and sufficient reason. With all of the problems we have in our cities, going to 6 percent monetary expansion instead of 5 in this period is justified on housing grounds alone."

And somebody else would say, "Well, I think we ought to go to 6 percent too, but I am not a bit worried about housing. The thing that concerns me is that if we hold it at 5, we will have disorderly conditions in the money market."

You come to the next fellow and he says, "I am a farmer and interest rates are already 7 percent and I think any time they are over 6 percent, money is too tight and we ought to ease up so I am for a higher rate of expansion too."

Finally you come to still another one, and he says, "Well, I happen to think that I have unusually good foresight, and that the lagged effect of the present policy is going to hit right in the middle of a recession, which I see 6 months ahead. So I am also going to vote for a higher rate."

Then you look to the poor secretary down at the end of the table and say, "Now summarize in a few clear, specific words why it was that we went to a 6-percent rate of monetary expansion instead of a 5-percent."

Each fellow had his own reasons. It is awfully hard to make a non-molothic group talk with a single clear voice.

Representative REUSS. My point was not to kill the piano player, or to fire the secretary. He does the best he can, poor fellow—or poor girl.

But my difficulty is the lack of any overall philosophical framework in which the money managers in their triweekly meetings seem to move. Maybe they have one, and it is not revealed, but I certainly do not know.

Mr. NOYES. What I am saying is that much of the time they do not have a single clear specific reason for their action that they all agree upon. When he was a member of the Open Market Committee, Mr. Malcolm Bryan, then president of the Federal Reserve Bank of Atlanta, used to have a measure of total reserve growth, which he spoke about

at every meeting and he often explained his vote specifically in terms of this indicator of Federal Reserve policy.

But you could not say that the Federal Reserve policy was being directed to obtain a specific rate of total reserve growth. This was just Mr. Bryan's indicator, which he liked and in which he often found sufficient reason for his contribution to the total vote.

Representative REUSS. Of course I think Congress and the public has the right to know the inputs into this process.

If, for instance, there is a man aboard the ship today who is applying this—and this is one-twelfth of the voting power—we ought to know it.

We also ought to know what the agreement or lack of agreement there is on the part of members of the Open Market Committee.

Mr. NOYES. I understand; and I am very sympathetic.

Representative REUSS. If, and I am purely guessing, three of them follow a "look at the money supply" view, three of them follow a "look at interest rates" view, and six of them follow a "look at credit" view, and they factor it out on a 6-3-3 basis; we ought to know that, and we do not. Until we do, Congress has delegated the constitutional power to coin money and regulate the value thereof, without giving the slightest guidelines to the coiners of money and regulators of the value thereof.

Mr. GAINES. Mr. REUSS, I think one reason why any statement from the Federal Reserve has the impact that it does is because there are so few intelligible statements. We have all become accustomed to reading these entrails, taking each comma seriously when we see the minutes of the Open Market Committee. Obviously, something more can be done. Initially it might have an upsetting effect, but once we got accustomed to them speaking more openly, I think we would not react too badly.

However, it would be absolutely impossible and I think irresponsible to go the full way in making available to the public or to the Congress the detailed minutes of each meeting. For example, Mr. Coombs from the New York Fed, in reporting on the foreign exchange market, has to say things he does not want to get outside of that room.

Representative REUSS. Let me interrupt and say I completely agree with you.

All that I was talking about was a set of self-governing ordinances to be adopted by the Fed, and subject to change in the light of current further learning, so that we put them through the same intellectual drill that we are putting ourselves through, and also so that the public, and particularly the concerned public, can know what the rules of the game are.

Mr. HART. I would agree. I think that if there are times when the votes of the Board members and the Open Market Committee are as widely diversified as Jack has just suggested in his example, we certain ought to know it.

Mr. NOYES. But you will recall the the outcome of my imaginary vote was 4 to 0. Everybody wanted to increase the money supply growth rate from five to six. But they had a different reason, which each felt was the most important reason for it. I was purposely showing there was no divergence at all in the outcome, each person felt the really important reason for doing it was different.

Chairman PROXMIER. May I interrupt at this point?

You know the committees of Congress have the same problem. We have committee reports we have to make, and we are as diverse as the members of the Federal Reserve Board, perhaps more so, we come from different parts of the country. We have different viewpoints. We represent different parties and different ideological approaches within the parties and yet we do have majority and minority reports and very often they are unanimous, and we find that the staff of course in most cases will write the report, and members of the committee will try to subscribe to it.

If they have a difference that is very important, they might state that as a minority view.

Mr. NOYES. That is very close to what the Federal Reserve policy record is now.

Chairman PROXMIRE. This would be very useful. I do not know if that is what Congressman Reuss had in mind, but it seems to me if they could get together on a statement to which they could all subscribe expressing their philosophy and their reasons, and free of course to put in the minority view, to indicate if something is extraordinarily important and the reason that they subscribe to the increase or decrease, this would be very useful.

What I am saying is that it is not at all really difficult. Human beings have to do this all the time, the Supreme Court and so on. It can be done and it seems to me extraordinarily useful to us.

Mr. NOYES. It is done in the policy record, but the language gets so fussy that you do not like it and I do not like it, and I guess nobody likes it.

Representative REUSS. During your absence, Mr. Chairman, I have had a fine opportunity to explore on a "where do we go from here basis" with the members of the panel, and the consensus seems to be that this committee might well usefully go on from here by asking the Fed to articulate what its guideposts are in as quantitative terms as possible, and indicating whether there are any disagreements among the members of the Board of Governors and the members of the Open Market Committee over that articulation, and that we then examine it and perhaps on trial basis and with quarterly reports see how it is working in application.

Whatever articulation there is would have an open end exit clause, so that if new factors came into play, the Fed could do what it thought had to be done.

Chairman PROXMIRE. I think that is very good. That is along the line that I was suggesting before. We suggest stepping in because you have to get into the water in some way or another, get the money supply, the range, let them comment on it, refine and improve it, and as long as it is done in a way that will increase our understanding rather than obscure it.

Thank you very, very much, gentlemen.

I do want to say I welcome all of you. Mr. Noyes happens to work for a company for which I worked.

Mr. NOYES. I am aware of that.

Chairman PROXMIRE. I was a J. P. Morgan associate and was paid the magnificent salary of \$25 a week.

Mr. NOYES. It has gone up since then.

Chairman PROXMIRE. I am glad to hear that. I came to them with two degrees, one from Yale and one from Harvard, and I was worth \$25 a week to them. I hope you are doing better. I am sure you are.

Mr. NOYES. The people who come to them with the credentials you have are, I can assure you.

Chairman PROXMIRE. Before we adjourn, I have some comments to go along with additional materials to be included in the record.

Since Prof. Milton Friedman's name has been mentioned so frequently during these hearings, I think it appropriate to note that we invited him to appear at these hearings but were unable to work out mutual satisfactory timing. I would like, however, to include in the record Professor Friedman's presidential address delivered to the 80th Annual Meeting of the American Economic Association last winter which is entitled "The Role of Monetary Policy." I think this will add a great deal to our record as a recent restatement of his position.

Useful also, I believe, would be an article from the bulletin of the Federal Reserve Bank of New York of March 1968 entitled "Lags in Monetary and Fiscal Policy" by Mark H. Willes.

I would like to include in the record a recent address by Prof. Robert Weintraub.

Also included, of course, are the materials supplied to the Joint Economic Committee by the Federal Reserve System which served as background materials for these hearings.

THE ROLE OF MONETARY POLICY*

By Milton Friedman**

There is wide agreement about the major goals of economic policy: high employment, stable prices, and rapid growth. There is less agreement that these goals are mutually compatible or, among those who regard them as incompatible, about the terms at which they can and should be substituted for one another. There is least agreement about the role that various instruments of policy can and should play in achieving the several goals.

My topic for tonight is the role of one such instrument—monetary policy. What can it contribute? And how should it be conducted to contribute the most? Opinion on these questions has fluctuated widely. In the first flush of enthusiasm about the newly created Federal Reserve System, many observers attributed the relative stability of the 1920s to the System's capacity for fine tuning—to apply an apt modern term. It came to be widely believed that a new era had arrived in which business cycles had been rendered obsolete by advances in monetary technology. This opinion was shared by economist and layman alike, though, of course, there were some dissonant voices. The Great Contraction destroyed this naive attitude. Opinion swung to the other extreme. Monetary policy was a string. You could pull on it to stop inflation but you could not push on it to halt recession. You could lead a horse to water but you could not make him drink. Such theory by aphorism was soon replaced by Keynes' rigorous and sophisticated analysis.

Keynes offered simultaneously an explanation for the presumed impotence of monetary policy to stem the depression, a nonmonetary interpretation of the depression, and an alternative to monetary policy for meeting the depression and his offering was avidly accepted. If liquidity preference is absolute or nearly so—as Keynes believed likely in times of heavy unemployment—interest rates cannot be lowered by monetary measures. If investment and consumption are little affected by interest rates—as Hansen and many of Keynes' other American disciples came to believe—lower interest rates, even if they could be achieved, would do little good. Monetary policy is twice damned. The contraction, set in train, on this view, by a collapse of investment or by a shortage of investment opportunities or by stubborn thriftiness, could not, it was argued, have been stopped by monetary measures. But there was available an alternative—fiscal policy. Government spending could make up for insufficient private investment. Tax reductions could undermine stubborn thriftiness.

The wide acceptance of these views in the economics profession meant that for some two decades monetary policy was believed by all but a few reactionary souls to have been rendered obsolete by new economic knowledge. Money did not matter. Its only role was the minor one of keeping interest rates low, in order to hold down interest payments in the government budget, contribute to the "euthanasia of the rentier," and maybe, stimulate investment a bit to assist government spending in maintaining a high level of aggregate demand.

These views produced a widespread adoption of cheap money policies after the war. And they received a rude shock when these policies failed in country after country, when central bank after central bank was forced to give up the pretense that it could indefinitely keep "the" rate of interest at a low level. In this country, the public denouncement came with the Federal Reserve-Treasury Accord in 1951, although the policy of pegging government bond prices was not formally abandoned until 1953. Inflation, stimulated by cheap money policies, not the widely heralded postwar depression, turned out to be the order of the day. The result was the beginning of a revival of belief in the potency of monetary policy.

*Presidential address delivered at the Eightieth Annual Meeting of the American Economic Association, Washington, D.C., December 29, 1967.

**I am indebted for helpful criticisms of earlier drafts to Armen Alchian, Gary Becker, Martin Bronfenbrenner, Arthur F. Burns, Phillip Cagan, David D. Friedman, Lawrence Harris, Harry G. Johnson, Homer Jones, Jerry Jordan, David Meiselman, Allan H. Meltzer, Theodore W. Schultz, Anna J. Schwartz, Herbert Stein, George J. Stigler, and James Tobin.

This revival was strongly fostered among economists by the theoretical developments initiated by Haberler but named for Pigou that pointed out a channel—namely, changes in wealth—whereby changes in the real quantity of money can affect aggregate demand even if they do not alter interest rates. These theoretical developments did not undermine Keynes' argument against the potency of orthodox monetary measures when liquidity preference is absolute since under such circumstances the usual monetary operations involve simply substituting money for other assets without changing total wealth. But they did show how changes in the quantity of money produced in other ways could affect total spending even under such circumstances. And, more fundamentally, they did undermine Keynes' key theoretical proposition, namely, that even in a world of flexible prices, a position of equilibrium at full employment might not exist. Henceforth, unemployment had again to be explained by rigidities or imperfections, not as the natural outcome of a fully operative market process.

The revival of belief in the potency of monetary policy was fostered also by a re-evaluation of the role money played from 1929 to 1933. Keynes and most other economists of the time believed that the Great Contraction in the United States occurred despite aggressive expansionary policies by the monetary authorities—that they did their best but their best was not good enough.¹ Recent studies have demonstrated that the facts are precisely the reverse: the U.S. monetary authorities followed highly deflationary policies. The quantity of money in the United States fell by one-third in the course of the contraction. And it fell not because there were no willing borrowers—not because the horse would not drink. It fell because the Federal Reserve System forced or permitted a sharp reduction in the monetary base, because it failed to exercise the responsibilities assigned to it in the Federal Reserve Act to provide liquidity to the banking system. The Great Contraction is tragic testimony to the power of monetary policy—not, as Keynes and so many of his contemporaries believed, evidence of its impotence.

In the United States the revival of belief in the potency of monetary policy was strengthened also by increasing disillusionment with fiscal policy, not so much with its potential to affect aggregate demand as with the practical and political feasibility of so using it. Expenditures turned out to respond sluggishly and with long lags to attempts to adjust them to the course of economic activity, so emphasis shifted to taxes. But here political factors entered with a vengeance to prevent prompt adjustment to presumed need, as has been so graphically illustrated in the months since I wrote the first draft of this talk. "Fine tuning" is a marvelously evocative phrase in this electronic age, but it has little resemblance to what is possible in practice—not, I might add, an unmixed evil.

It is hard to realize how radical has been the change in professional opinion on the role of money. Hardly an economist today accepts views that were the common coin some two decades ago. Let me cite a few examples.

In a talk published in 1945, E. A. Goldenweiser, then Director of the Research Division of the Federal Reserve Board, described the primary objective of monetary policy as being to "maintain the value of Government bonds. . . . This country" he wrote, "will have to adjust to a 2½ percent interest rate as the return on safe, long-time money, because the time has come when returns on pioneering capital can no longer be unlimited as they were in the past" [4, p. 117].

In a book on *Financing American Prosperity*, edited by Paul Homan and Fritz Machlup and published in 1945, Alvin Hansen devotes nine pages of text to the "savings-investment problem" without finding any need to use the words "interest rate" or any close facsimile thereto [5, pp. 218-27]. In his contribution to this volume, Fritz Machlup wrote, "Questions regarding the rate of interest, in particular regarding its variation or its stability, may not be among the most vital problems of the postwar economy, but they are certainly among the perplexing ones" [5, p. 466]. In his contribution, John H. Williams—not only professor at Harvard but also a long-time adviser to the New York Federal Reserve Bank—wrote, "I can see no prospect of revival of a general monetary control in the postwar period" [5, p. 383].

Another of the volumes dealing with postwar policy that appeared at this time, *Planning and Paying for Full Employment*, was edited by Abba P. Lerner and Frank D. Graham [6] and had contributors of all shades of professional opinion—from Henry Simons and Frank Graham to Abba Lerner and Hans Neisser. Yet Albert Halasi, in his excellent summary of the papers, was able to say,

¹ In [2], I have argued that Henry Simons shared this view with Keynes, and that it accounts for the policy changes that he recommended.

"Our contributors do not discuss the question of money supply. . . . The contributors make no special mention of credit policy to remedy actual depressions. . . . Inflation . . . might be fought more effectively by raising interest rates. . . . But . . . other anti-inflationary measures . . . are preferable" [6 pp. 23-24]. *A Survey of Contemporary Economics*, edited by Howard Ellis and published in 1948, was an "official" attempt to codify the state of economic thought of the time. In his contribution, Arthur Smithies wrote, "In the field of compensatory action, I believe fiscal policy must shoulder most of the load. Its chief rival, monetary policy, seems to be disqualified on institutional grounds. This country appears to be committed to something like the present low level of interest rates on a long-term basis" [1, p. 208].

These quotations suggest the flavor of professional thought some two decades ago. If you wish to go further in this humbling inquiry, I recommend that you compare the sections on money—when you can find them—in the Principles texts of the early postwar years, with the lengthy sections in the current crop even, or especially, when the early and recent Principles are different editions of the same work.

The pendulum has swung far since then, if not all the way to the position of the late 1920s, at least much closer to that position than to the position of 1945. There are of course many differences between then and now, less in the potency attributed to monetary policy than in the roles assigned to it and the criteria by which the profession believes monetary policy should be guided. Then, the chief roles assigned monetary policy were to promote price stability and to preserve the gold standard; the chief criteria of monetary policy were the state of the "money market," the extent of "speculation" and the movement of gold. Today, primacy is assigned to the promotion of full employment, with the prevention of inflation a continuing but definitely secondary objective. And there is major disagreement about criteria of policy, varying from emphasis on money market conditions, interest rates, and the quantity of money to the belief that the state of employment itself should be the proximate criterion of policy.

I stress nonetheless the similarity between the views that prevailed in the late 'twenties and those that prevail today because I fear that, now as then, the pendulum may well have swung too far, that, now as then, we are in danger of assigning to monetary policy a larger role than it can perform, in danger of asking it to accomplish tasks that it cannot achieve, and, as a result, in danger of preventing it from making the contribution that it is capable of making.

Unaccustomed as I am to denigrating the importance of money, I therefore shall, as my first task, stress what monetary policy cannot do. I shall then try to outline what it can do and how it can best make its contribution, in the present state of our knowledge—or ignorance.

I. WHAT MONETARY POLICY CANNOT DO

From the infinite world of negation, I have selected two limitations of monetary policy to discuss: (1) It cannot peg interest rates for more than very limited periods; (2) It cannot peg the rate of unemployment for more than very limited periods. I select these because the contrary has been or is widely believed, because they correspond to the two main unattainable tasks that are at all likely to be assigned to monetary policy, and because essentially the same theoretical analysis covers both.

Pegging of Interest Rates

History has already persuaded many of you about the first limitation. As noted earlier, the failure of cheap money policies was a major source of the reaction against simple-minded Keynesianism. In the United States, this reaction involved widespread recognition that the wartime and postwar pegging of bond prices was a mistake, that the abandonment of this policy was a desirable and inevitable step, and that it had none of the disturbing and disastrous consequences that were so freely predicted at the time.

The limitation derives from a much misunderstood feature of the relation between money and interest rates. Let the Fed set out to keep interest rates down. How will it try to do so? By buying securities, This raises their prices and lowers their yields. In the process, it also increases the quantity of reserves available to banks, hence the amount of bank credit, and, ultimately the total quantity of money. That is why central bankers in particular, and the financial community more broadly, generally believe that an increase in the quantity of money tends

to lower interest rates. Academic economists accept the same conclusion, but for different reasons. They see, in their mind's eye, a negatively sloping liquidity preference schedule. How can people be induced to hold a larger quantity of money? Only by bidding down interest rates.

Both are right, up to a point. The *initial* impact of increasing the quantity of money at a faster rate than it has been increasing is to make interest rates lower for a time than they would otherwise have been. But this is only the beginning of the process not the end. The more rapid rate of monetary growth will stimulate spending, both through the impact on investment of lower market interest rates and through the impact on other spending and thereby relative prices of higher cash balances than are desired. But one man's spending is another man's income. Rising income will raise the liquidity preference schedule and the demand for loans; it may also raise prices, which would reduce the real quantity of money. These three effects will reverse the initial downward pressure on interest rates fairly promptly, say, in something less than a year. Together they will tend, after a somewhat longer interval, say, a year or two, to return interest rates to the level they would otherwise have had. Indeed, given the tendency for the economy to overreact, they are highly likely to raise interest rates temporarily beyond that level, setting in motion a cyclical adjustment process.

A fourth effect, when and if it becomes operative, will go even farther, and definitely mean that a higher rate of monetary expansion will correspond to a higher, not lower, level of interest rates than would otherwise have prevailed. Let the higher rate of monetary growth produce rising prices, and let the public come to expect that prices will continue to rise. Borrowers will then be willing to pay and lenders will then demand higher interest rates—as Irving Fisher pointed out decades ago. This price expectation effect is slow to develop and also slow to disappear. Fisher estimated that it took several decades for a full adjustment and more recent work is consistent with his estimates.

These subsequent effects explain why every attempt to keep interest rates at a low level has forced the monetary authority to engage in successively larger and larger open market purchases. They explain why, historically, high and rising nominal interest rates have been associated with rapid growth in the quantity of money, as in Brazil or Chile or in the United States in recent years, and why low and falling interest rates have been associated with slow growth in the quantity of money, as in Switzerland now or in the United States from 1929 to 1933. As an empirical matter, low interest rates are a sign that monetary policy *has been tight*—in the sense that the quantity of money has grown slowly; high interest rates are a sign that monetary policy *has been easy*—in the sense that the quantity of money has grown rapidly. The broadest fact of experience run in precisely the opposite direction from that which the financial community and academic economists have all generally taken for granted.

Paradoxically, the monetary authority could assure low nominal rates of interest—but to do so it would have to start out in what seems like the opposite direction, by engaging in a deflationary monetary policy. Similarly, it could assure high nominal interest rates by engaging in an inflationary policy and accepting a temporary movement in interest rates in the opposite direction.

These considerations not only explain why monetary policy cannot peg interest rates; they also explain why interest rates are such a misleading indicator of whether monetary policy is “tight” or “easy.” For that, it is far better to look at the rate of change of the quantity of money.²

Employment as a Criterion of Policy

The second limitation I wish to discuss goes more against the grain of current thinking. Monetary growth, it is widely held, will tend to stimulate employment; monetary contraction, to retard employment. Why, then, cannot the monetary authority adopt a target for employment or unemployment—say, 3 percent unemployment; be tight when unemployment is less than the target; be easy when unemployment is higher than the target; and in this way peg unemployment at, say, 3 percent? The reason it cannot is precisely the same as for interest rates—the difference between the immediate and the delayed consequences of such a policy.

² This is partly an empirical not theoretical judgment. In principle, “tightness” or “ease” depends on the rate of change of the quantity of money supplied compared to the rate of change of the quantity demanded excluding effects on demand from monetary policy itself. However, empirically demand is highly stable, if we exclude the effect of monetary policy, so it is generally sufficient to look at supply alone.

Thanks to Wicksell, we are all acquainted with the concept of a "natural" rate of interest and the possibility of a discrepancy between the "natural" and the "market" rate. The preceding analysis of interest rates can be translated fairly directly into Wicksellian terms. The monetary authority can make the market rate less than the natural rate only by inflation. It can make the market rate higher than the natural rate only by deflation. We have added only one wrinkle to Wicksell—the Irving Fisher distinction between the nominal and the real rate of interest. Let the monetary authority keep the nominal market rate for a time below the natural rate by inflation. That in turn will raise the nominal natural rate itself, once anticipations of inflation become widespread, thus requiring still more rapid inflation to hold down the market rate. Similarly, because of the Fisher effect, it will require not merely deflation but more and more rapid deflation to hold the market rate above the initial "natural" rate.

This analysis has its close counterpart in the employment market. At any moment of time, there is some level of unemployment which has the property that it is consistent with equilibrium in the structure of *real* wage rates. At that level of unemployment, real wage rates are tending on the average to rise at a "normal" secular rate, i.e., at a rate that can be indefinitely maintained so long as capital formation, technological improvements, etc., remain on their long-run trends. A lower level of unemployment is an indication that there is an excess demand for labor that will produce upward pressure on real wage rates. A higher level of unemployment is an indication that there is an excess supply of labor that will produce downward pressure on real wage rates. The "natural rate of unemployment," in other words, is the level that would be ground out by the Walrasian system of general equilibrium equations, provided there is imbedded in them the actual structural characteristics of the labor and commodity markets, including market imperfections, stochastic variability in demands and supplies, the cost of gathering information about job vacancies and labor availabilities, the costs of mobility, and so on.³

You will recognize the close similarity between this statement and the celebrated Phillips Curve. The similarity is no coincidental. Phillips' analysis of the relation between unemployment and wage change is deservedly celebrated as an important and original contribution. But, unfortunately, it contains a basic defect—the failure to distinguish between *nominal* wages and *real* wages—just as Wicksell's analysis failed to distinguish between *nominal* interest rates and *real* interest rates. Implicitly, Phillips wrote his article for a world in which everyone anticipated that nominal prices would be stable and in which that anticipation remained unshaken and immutable whatever happened to actual prices and wages. Suppose, by contrast, that everyone anticipates that prices will rise at a rate of more 75 per cent a year—as, for example, Brazilians did a few years ago. Then wages must rise at that rate simply to keep real wages unchanged. An excess supply of labor will be reflected in a less rapid rise in nominal wages than in anticipated prices,⁴ not in an absolute decline in wages. When Brazil embarked on a policy to bring down the rate of price rise, and succeeded in bringing the price rise down to about 45 per cent a year, there was a sharp initial rise in unemployment because under the influence of earlier anticipations, wages kept rising at a pace that was higher than the new rate of price rise, though lower than earlier. This is the result experienced, and to be expected, of all attempts to reduce the rate of inflation below that widely anticipated.⁵

³ It is perhaps worth noting that this "natural" rate need not correspond to equality between the number unemployed and the number of job vacancies. For any given structure of the labor market, there will be some equilibrium relation between these two magnitudes, but there is no reason why it should be one of equality.

⁴ Strictly speaking, the rise in nominal wages will be less rapid than the rise in anticipated nominal wages to make allowances for any secular changes in real wages.

⁵ Stated in terms of the rate of change of nominal wages, the Phillips Curve can be expected to be reasonably stable and well defined for any period for which the *average* rate of change of prices, and hence the anticipated rate, has been relatively stable. For such periods, nominal wages and "real" wages move together. Curves computed for different periods or different countries for each of which this condition has been satisfied will differ in level, the level of the curve depending on what the average rate of price change was. The higher the average rate of price change, the higher will tend to be the level of the curve. For periods or countries for which the rate of change of prices varies considerably, the Phillips Curve will not be well defined. My impression is that these statements accord reasonably well with the experience of the economists who have explored empirical Phillips Curve.

Restate Phillips' analysis in terms of the rate of change of real wages—and even more precisely, anticipated real wages—and it all falls into place. That is why students of empirical Phillips Curves have found that it helps to include the rate of change of the price level as an independent variable.

To avoid misunderstanding, let me emphasize that by using the term "natural" rate of unemployment, I do not mean to suggest that it is immutable and unchangeable. On the contrary, many of the market characteristics that determine its level are man-made and policy-made. In the United States, for example, legal minimum wage rates, the Walsh-Healy and Davis-Bacon Acts, and the strength of labor unions all make the natural rate of unemployment higher than it would otherwise be. Improvements in employment exchanges, in availability of information about job vacancies and labor supply, and so on, would tend to lower the natural rate of unemployment. I use the term "natural" for the same reason Wicksell did—to try to separate the real forces from monetary forces.

Let us assume that the monetary authority tries to peg the "market" rate of unemployment at a level below the "natural" rate. For definiteness, suppose that it takes 3 per cent as the target rate and that the "natural" rate is higher than 3 per cent. Suppose also that we start out at a time when prices have been stable and when unemployment is higher than 3 per cent. Accordingly, the authority increases the rate of monetary growth. This will be expansionary. By making nominal cash balances higher than people desire, it will tend initially to lower interest rates and in this and other ways to stimulate spending. Income and spending will start to rise.

To begin with, much or most of the rise in income will take the form of an increase in output and employment rather than in price. People have been expecting prices to be stable, and prices and wages have been set for some time in the future on that basis. It takes time for people to adjust to a new state of demand. Producers will tend to react to the initial expansion in aggregate demand by increasing output, employees by working longer hours, and the unemployed, by taking jobs now offered at former nominal wages. This much is pretty standard doctrine.

But it describes only the initial effects. Because selling prices of products typically respond to an unanticipated rise in nominal demand faster than prices of factors of production, real wages received have gone down—through real wages anticipated by employees went up, since employees implicitly evaluated the wages offered at the earlier price level. Indeed, the simultaneous fall *ex post* in real wages to employers and rise *ex ante* in real wages to employees is what enabled employment to increase. But the decline *ex post* in real wages will soon come to affect anticipations. Employees will start to reckon on rising prices of the things they buy and to demand higher nominal wages for the future. "Market" unemployment is below the "natural" level. There is an excess demand for labor so real wages will tend to rise toward their initial level.

Even though the higher rate of monetary growth continues, the rise in real wages will reverse the decline in unemployment, and then lead to a rise, which will tend to return unemployment to its former level. In order to keep unemployment at its target level of 3 per cent, the monetary authority would have to raise monetary growth still more. As in the interest rate case, the "market" rate can be kept below the "natural" rate only by inflation. And, as in the interest rate case, too, only by accelerating inflation. Conversely, let the monetary authority choose a target rate of unemployment that is above the natural rate, and they will be led to produce a deflation, and an accelerating deflation at that.

What if the monetary authority chose the "natural" rate—either of interest or unemployment—as its target? One problem is that it cannot know what the "natural" rate is. Unfortunately, we have as yet devised no method to estimate accurately and readily the natural rate of either interest or unemployment. And the "natural" rate will itself change from time to time. But the basic problem is that even if the monetary authority knew the "natural" rate, and attempted to peg the market rate at that level, it would not be led to a deterministic policy. The "market" rate will vary from the natural rate for all sorts of reasons other than monetary policy. If the monetary authority responds to these variations, it will set in train longer term effects that will make any monetary growth path it follows ultimately consistent with the rule of policy. The actual course of monetary growth will be analogous to a random walk, buffeted this way and that by the forces that produce temporary departures of the market rate from the natural rate.

To state this conclusion differently, there is always, a temporary trade-off between inflation and unemployment; there is no permanent trade-off. The temporary trade-off comes not from inflation per se, but from unanticipated inflation, which generally means, from a rising rate of inflation. The widespread belief that there is a permanent trade-off is a sophisticated version of the confusion between

"high" and "rising" that we all recognize in simpler forms. A rising rate of inflation may reduce unemployment, a high rate will not.

But how long, you will say, is "temporary"? For interest rates, we have some systematic evidence on how long each of the several effects takes to work itself out. For unemployment, we do not. I can at most venture a personal judgment, based on some examination of the historical evidence, that the initial effects of a higher and unanticipated rate of inflation last for something like two to five years; that this initial effect then begins to be reversed; and that a full adjustment to the new rate of inflation takes about as long for employment as for interest rates, say, a couple of decades. For both interest rates and employment, let me add a qualification. These estimates are for changes in the rate of inflation of the order of magnitude that has been experienced in the United States. For much more sizable changes, such as those experienced in South American countries, the whole adjustment process is greatly speeded up.

To state the general conclusion still differently, the monetary authority controls nominal quantities—directly, the quantity of its own liabilities. In principle, it can use this control to peg a nominal quantity—an exchange rate, the price level, the nominal level of national income, the quantity of money by one or another definition—or to peg the rate of change in a nominal quantity—the rate of inflation or deflation, the rate of growth or decline in nominal national income, the rate of growth of the quantity of money. It cannot use its control over nominal quantities to peg a real quantity—the real rate of interest, the rate of unemployment, the level of real national income, the real quantity of money, the rate of growth of real national income, or the rate of growth of the real quantity of money.

II. WHAT MONETARY POLICY CAN DO

Monetary policy cannot peg these real magnitudes at predetermined levels. But monetary policy can and does have important effects on these real magnitudes. The one is in no way inconsistent with the other.

My own studies of monetary history have made me extremely sympathetic to the oft-quoted, much reviled, and as widely misunderstood, comment by John Stuart Mill. "There cannot . . ." he wrote, "be intrinsically a more insignificant thing, in the economy of society, than money; except in the character of a contrivance for sparing time and labour. It is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it; and like many other kinds of machinery, it only exerts a distinct and independent influence of its own when it gets out of order" [7, p. 488].

True, money is only a machine, but it is an extraordinarily efficient machine. Without it, we could not have begun to attain the astounding growth in output and level of living we have experienced in the past two centuries—any more than we could have done so without those other marvelous machines that dot our countryside and enable us, for the most part, simply to do more efficiently what could be done without them at much greater cost in labor.

But money has one feature that these other machines do not share. Because it is so pervasive, when it gets out of order, it throws a monkey wrench into the operation of all other machines. The Great Contraction is the most dramatic example but not the only one. Every other major contraction in this country has been either produced by monetary disorder or greatly exacerbated by monetary disorder. Every major inflation has been produced by monetary expansion—mostly to meet the overriding demands of war which have forced the creation of money to supplement explicit taxation.

The first and important lesson that history teaches about what monetary policy can do—and it is a lesson of the most profound importance—is that monetary policy can prevent money itself from being a major source of economic disturbance. This sounds like a negative proposition: avoid major mistakes. In part it is. The Great Contraction might not have occurred at all, and if it had, it would have been far less severe, if the monetary authority had avoided mistakes, or if the monetary arrangements had been those of an earlier time when there was no central authority with the power to make the kinds of mistakes that the Federal Reserve System made. The past few years, to come closer to home, would have been steadier and more productive of economic well-being if the Federal Reserve had avoided drastic and erratic changes of direction, first expanding the money supply at an unduly rapid pace, then, in early 1966, stepping on the brake too hard, then, at the end of 1966, reversing itself and resuming expansion until at least November, 1967, at a more rapid pace than can long be maintained without appreciable inflation.

Even if the proposition that monetary policy can prevent money itself from being a major source of economic disturbance were a wholly negative proposition, it would be none the less important for that. As it happens, however, it is not a wholly negative proposition. The monetary machine has gotten out of order even when there has been no central authority with anything like the power now possessed by the Fed. In the United States, the 1907 episode and earlier banking panics are examples of how the monetary machine can get out of order largely on its own. There is therefore a positive and important task for the monetary authority—to suggest improvements in the machine that will reduce the chances that it will get out of order, and to use its own powers so as to keep the machine in good working order.

A second thing monetary policy can do is provide a stable background for the economy—keep the machine well oiled, to continue Mill's analogy. Accomplishing the first task will contribute to this objective, but there is more to it than that. Our economic system will work best when producers and consumers, employers and employees, can proceed with full confidence that the average level of prices will behave in a known way in the future—preferably that it will be highly stable. Under any conceivable institutional arrangements, and certainly under those that now prevail in the United States, there is only a limited amount of flexibility in prices and wages. We need to conserve this flexibility to achieve changes in relative prices and wages that are required to adjust to dynamic changes in tastes and technology. We should not dissipate it simply to achieve changes in the absolute level of prices that serve no economic function.

In an earlier era, the gold standard was relied on to provide confidence in future monetary stability. In its heyday it served that function reasonably well. It clearly no longer does, since there is scarcely a country in the world that is prepared to let the gold standard reign unchecked—and there are persuasive reasons why countries should not do so. The monetary authority could operate as a surrogate for the gold standard, if it pegged exchange rates and did so exclusively by altering the quantity of money in response to balance of payment flows without “sterilizing” surpluses or deficits and without resorting to open or concealed exchange control or to changes in tariffs and quotas. But again, though many central bankers talk this way, few are in fact willing to follow this course—and again there are persuasive reasons why they should not do so. Such a policy would submit each country to the vagaries not of an impersonal and automatic gold standard but of the policies—deliberate or accidental—of other monetary authorities.

In today's world, if monetary policy is to provide a stable background for the economy it must do so by deliberately employing its powers to that end. I shall come later to how it can do so.

Finally, monetary policy can contribute to offsetting major disturbances in the economic system arising from other sources. If there is an independent secular exhilaration—as the postwar expansion was described by the proponents of secular stagnation—monetary policy can in principle help to hold it in check by a slower rate of monetary growth than would otherwise be desirable. If, as now, an explosive federal budget threatens unprecedented deficits, monetary policy can hold any inflationary dangers in check by a slower rate of monetary growth than would otherwise be desirable. This will temporarily mean higher interest rates than would otherwise prevail—to enable the government to borrow the sums needed to finance the deficit—but by preventing the speeding up of inflation, it may well mean both lower prices and lower nominal interest rates for the long pull. If the end of a substantial war offers the country an opportunity to shift resources from wartime to peace time production, monetary policy can ease the transition by a higher rate of monetary growth than would otherwise be desirable—though experience is not very encouraging that it can do so without going too far.

I have put this point last, and stated it in qualified terms—is referring to major disturbances—because I believe that the potentiality of monetary policy in offsetting other forces making for instability is far more limited than is commonly believed. We simply do not know enough to be able to recognize minor disturbance when they occur or to be able to predict either what their effects will be with any precision or what monetary policy is required to offset their effects. We do not know enough to be able to achieve stated objectives by delicate, or even fairly coarse, changes in the mix of monetary and fiscal policy. In this area particularly the best is likely to be the enemy of the good. Experience suggests that the path of wisdom is to use monetary policy explicitly to offset other disturbances only when they offer a “clear and present danger.”

III. HOW SHOULD MONETARY POLICY BE CONDUCTED?

How should monetary policy be conducted to make the contribution to our goals that it is capable of making? This is clearly not the occasion for presenting a detailed "Program for Monetary Stability"—to use the title of a book in which I tried to do so [3]. I shall restrict myself here to two major requirements for monetary policy that follow directly from the preceding discussion.

The first requirement is that the monetary authority should guide itself by magnitudes that it can control, not by ones that it cannot control. If as authority has often done, it takes interest rates or the current unemployment percentage as the immediate criterion of policy, it will be like a space vehicle that has taken a fix on the wrong star. No matter how sensitive and sophisticated its guiding apparatus, the space vehicle will go astray. And so will the monetary authority. Of the various alternative magnitudes that it can control, the most appealing guides for policy are exchange rates, the price level as defined by some index, and the quantity of a monetary total—currency plus adjusted demand deposits, or this total plus commercial bank time deposits, or a still broader total.

For the United States in particular, exchange rates are an undesirable guide. It might be worth requiring the bulk of the economy to adjust to the tiny percentage consisting of foreign trade if that would guarantee freedom from monetary irresponsibility—as it might under a real gold standard. But it is hardly worth doing so simply to adapt to the average of whatever policies monetary authorities in the rest of the world adopt. Far better to let the market, through floating exchange rates, adjust to world conditions the 5 per cent or so of our resources devoted to international trade while reserving monetary policy to promote the effective use of the 95 per cent.

Of the three guides listed, the price level is clearly the most important in its own right. Other things the same, it would be much the best of the alternatives—as so many distinguished economists have urged in the past. But other things are not the same. The link between the policy actions of the monetary authority and the price level, while unquestionably present, is more indirect than the link between the policy actions of the authority and any of the several monetary totals. Moreover, monetary action takes a longer time to affect the price level than to affect the monetary totals and both the time lag and the magnitude of effect vary with circumstances. As a result, we cannot predict at all accurately just what effect a particular monetary action will have on the price level and, equally important, just when it will have that effect. Attempting to control directly the price level is therefore likely to make monetary policy itself a source of economic disturbance because of false stops and starts. Perhaps, as our understanding of monetary phenomena advances, the situation will change. But at the present stage of our understanding, the long way around seems the surer way to our objective. Accordingly, I believe that a monetary total is the best currently available immediate guide or criterion for monetary policy—and I believe that it matters much less which particular total is chosen than that one be chosen.

A second requirement for monetary policy is that the monetary authority avoid sharp swings in policy. In the past, monetary authorities have on occasion moved in the wrong direction—as in the episode of the Great Contraction that I have stressed. More frequently, they have moved in the right direction, albeit often too late, but have erred by moving too far. Too late and too much has been the general practice. For example, in early 1966, it was the right policy for the Federal Reserve to move in a less expansionary direction—though it should have done so at least a year earlier. But when it moved, it went too far, producing the sharpest change in the rate of monetary growth of the postwar era. Again, having gone too far, it was the right policy for the Fed to reverse course at the end of 1966. But again it went too far, not only restoring but exceeding the earlier excessive rate of monetary growth. And this episode is no exception. Time and again this has been the course followed—as in 1919 and 1920, in 1937 and 1938, in 1953 and 1954, in 1959 and 1960.

The reason for the propensity to overreact seems clear: the failure of monetary authorities to allow for the delay between their actions and the subsequent effects on the economy. They tend to determine their actions by today's conditions—but their actions will affect the economy only six or nine or twelve or fifteen months later. Hence they feel impelled to step on the brake, or the accelerator, as the case may be, too hard.

My own prescription is still that the monetary authority go all the way in avoiding such swings by adopting publicly the policy of achieving a steady rate of growth in a specified monetary total. The precise rate of growth, like the precise monetary total, is less important than the adoption of some stated and known rate. I myself have argued for a rate that would on the average achieve rough stability in the level of prices of final products, which I have estimated would call for something like a 3 to 5 per cent per year rate of growth in currency plus all commercial bank deposits or a slightly lower rate of growth in currency plus demand deposits only.⁶ But it would be better to have a fixed rate that would on the average produce moderate inflation or moderate deflation, provided it was steady, than to suffer the wide and erratic perturbations we have experienced.

Short of the adoption of such a publicly stated policy of a steady rate of monetary growth, it would constitute a major improvement if the monetary authority followed the self-denying ordinance of avoiding wide swings. It is a matter of record that periods of relative stability in the rate of monetary growth have also been periods of relative stability in economic activity, both in the United States and other countries. Periods of wide swings in the rate of monetary growth have also been periods of wide swings in economic activity.

By setting itself a steady course and keeping to it, the monetary authority could make a major contribution to promoting economic stability. By making that course one of steady but moderate growth in the quantity of money, it would make a major contribution to avoidance of either inflation or deflation of prices. Other forces would still affect the economy, require change and adjustment, and disturb the even tenor of our ways. But steady monetary growth would provide a monetary climate favorable to the effective operation of those basic forces of enterprise, ingenuity, invention, hard work, and thrift that are the true springs of economic growth. That is the most that we can ask from monetary policy at our present stage of knowledge. But that much—and it is a great deal—is clearly within our reach.

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⁶ In an as yet unpublished article on "The Optimum Quantity of Money," I conclude that a still lower rate of growth, something like 2 per cent for the broader definition, might be better yet in order to eliminate or reduce the difference between private and total costs of adding to real balances.

LAGS IN MONETARY AND FISCAL POLICY*

By Mark H. Willes

Current debate about a tax increase reflects a fundamental problem in the timing of changes in monetary and fiscal policy. In essence, the short-run objective of these policies is to moderate swings in the economy, stimulating when the economy is slack and restraining when it is taut. But a change in policy may not affect economic conditions immediately. In this case, policy-makers must anticipate economic changes and take action on the basis of expected future conditions. Effective policymaking requires knowledge of the causes and lengths of the lags of monetary and fiscal policy.

WHY POLICY EFFECTS LAG

Lags of monetary and fiscal policy can be traced to several causes, as shown in Figure 1.

Recognition lag. It takes time to recognize that the economy has changed in such a way as to require a change in policy. Assume, for example, that a business decline should be offset by an easing of policy. Although such a decline actually begins at point t_0 in Figure 1, it will be some time before reports evidencing the decline will be received by various Government agencies. More time will pass while these reports are aggregated and analyzed. Most analysts will not be content with one piece of information; they will want supporting evidence from several economic series over some period of time before they will be ready to conclude that they are confronting a general decline in business rather than simply a transient fluctuation in one statistic. Time elapsing between the start of the decline (t_0) and when this decline is recognized (t_1) has been dubbed by economists as the recognition lag.

Action lag. Once the need for a policy change is recognized, it takes decision-makers time to alter policy. This lag is shown in Figure 1 as the period between points t_1 and t_2 . Action lags can be caused by several things. First, not all those with policy responsibilities may be convinced of the need for change; this may delay action. Second, it may take time to work out details of the change and to go through the administrative exercises necessary to implement them. Finally, there might be political or other economic objectives which lead to policymakers to put off any policy change. For example, a change in monetary policy might be delayed if such action would hamper a current or prospective Treasury financing operation. Or, an easing of policy to stimulate business might be put off because it would conflict with a desire to protect the balance of payments.

Responsiveness to more than one objective need not always extend the length of the action lag, however. It could cause policymakers to change policy before they recognized a general movement in business, thus producing a *negative* action lag. This could happen, for example, if a decline in the money supply or an increase in unemployment led to an easing in monetary policy even though a downturn in general business conditions was not yet evident.

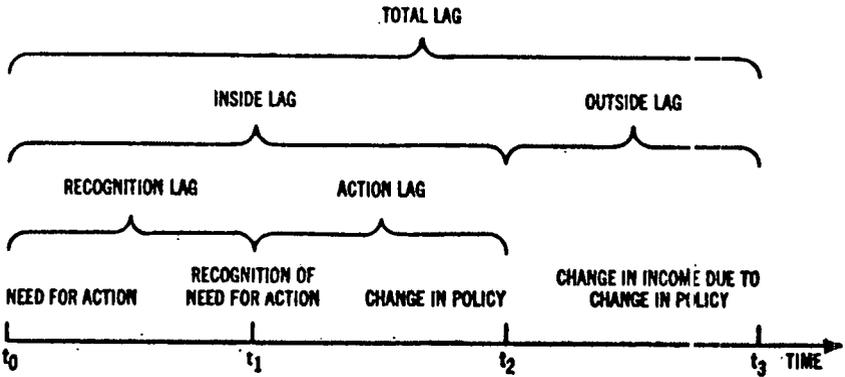
Inside lag. The sum of the recognition and action lags, called the inside lag, does not, therefore, depend solely on the ability of policymakers to recognize and respond to some economic change. Its length depends also upon what is used as a base for measurement and how this base relates to changes in other conditions that also influence policy decisions. The inside lags are influenced by policy trade-offs and priorities as well as speed of data collection and analysis, administrative procedures, and other commonly recognized factors.

Outside lags. After policy is changed, it takes time for the effects of the change to work their way through the economy and alter spending. This outside lag is shown as the space between points t_2 and t_3 in Figure 1.

*From March 1968, *Business Review*, Federal Reserve Bank of Philadelphia.

Figure 1

SCHEMATIC OF THE LAGS OF MONETARY AND FISCAL POLICY



Causes of outside lags are difficult to analyze because they involve complex aspects of the way the economy works. Economists have incomplete knowledge of all the relationships involved. Some of the main factors can be discussed in a general way, however. The outside lag associated with income tax changes, for example, depends on the time required to alter the disposable income of individuals and corporations and their spending. Adjustments by corporations probably tend to be more sluggish than those by individuals. Corporate cash positions generally are not affected so quickly as are those of individuals, corporate planning and spending tend to be longer, and so on. These differences between individuals and corporations likely diminish as corporate tax payment schedules are accelerated.

Changes in Government expenditure policies may influence the pace of economic activity quickly. In some cases, placement or cancellation of orders for goods can cause changes in production and income before any actual alteration in Government spending takes place. Even without this, release of additional funds to an ongoing project often will stimulate spending immediately, while a cutback in actual expenditures generally will have immediate depressing effects on national income. Similarly, changes in transfer payments (like unemployment benefits) or purchase of services usually will cause an almost immediate alteration in disposable income and spending. On the other hand, newly appropriated funds for projects involving considerable planning or organization may begin to find their way into the spending stream only after some months. Similarly, reduced appropriations may not produce an immediate cut in spending if unused previous appropriations exist.

The link between changes in monetary policy and spending is not so direct as in the case of fiscal policy. Economists are still debating exactly what the channels are. Some think monetary policy is linked to the real sectors of the economy primarily through interest rates. An increase in rates inhibits investment and perhaps consumption and thereby causes a reduction in the rate of growth of income. Other economists view the monetary mechanism as involving primarily the quantity rather than the cost of money. As individuals and corporations adjust to changes in their actual and desired holdings of money, they change their expenditures on goods and services, thus altering the level of national income. Still other economists focus on availability of credit, arguing that a change in monetary conditions alters banks' willingness to lend. Bank lending behavior, in turn, influences the amount of investment and consumption expenditures that can be financed and therefore the level of income.

The first step in each these theories is the response of banks to changes in monetary policy. Banks may or may not adjust quickly to changes in monetary policy depending on their current reserve position, loan demand, interest rate

expectations, and so on. The longer banks delay in making adjustments, the longer the outside lags of monetary policy.

Proponents of interest-rate theories acknowledge that interest costs are often only a small fraction of the cost of a good or service, so a change in the rate may exert little influence on many spending decisions. Even in those cases where interest costs do matter, it may take time for them to affect aggregate spending. Some projects may already be under way. The cost of curtailing them may be greater than the cost of continuing under more expensive financing conditions. On the other side, it takes time to plan and carry out investment and other projects. A decline in interest costs may lead to increased spending, but only after a long start-up period.

Changes in the quantity of money also may affect spending totals only after a lag. Alterations in spending may be more closely associated with long-run than short-run changes in the money supply. In the short run, individuals and businesses may try to use their existing money balances more or less intensively, thereby avoiding the need to make significant spending adjustments.

HOW LONG ARE THE LAGS?

On the basis of what economists know about how the economy works, they have attempted to get some idea of how long these lags are.

Inside lags. The Federal Reserve generally has been able to recognize cyclical changes in economic activity within three months of their occurrence [8].¹ Since there is no reason to believe that analysts in the executive and legislative branches of the Government are not equally good in recognizing shifts in the economy, this suggests that the recognition lag for monetary and fiscal policy is probably about three months.

In the postwar period, the action lag of monetary policy as measured in relation to cyclical turning points usually has been zero. At times, however, it has been negative as the monetary authorities responded to factors that preceded cyclical declines in the economy [5].

In monetary policy, the decisionmaking group is relatively small and homogeneous. It can and does act quickly. In contrast, fiscal policy decisions are made by Congress and the President. The larger number of people involved increases the likelihood of diversity of opinion and objectives, slowing down the decision-making process. In addition, the administrative machinery is complex. As a result, while fiscal policy decisions have at times been made in less than a month, on some occasions many months have passed before agreement has been reached on a course of action. The fate of the 1966 tax increase proposal is a case in point. More than a year has passed since the President first suggested the increase, and it has been over seven months since the 10 percent surcharge proposal went before Congress. Lags in planning and appropriations have also meant delays in making changes in Government expenditures.

Consequently, while it is difficult to make precise statements about the action lags of fiscal policy, it is clear that many months can pass before a policy change is made. This compares with the zero or negative action lags of monetary policy and goes far to explain the preference of many for the use of monetary rather than fiscal policy for stabilizing the economy in the short run.

*Outside lags.*² Outside lags of fiscal policy are often relatively short. Changes in personal income taxes generally produce significant changes in disposable income and consumption spending within a month or two [1]. Changes in corporate tax rates take longer to have an effect. One study has suggested three or four months [1]. Similarly, if action is taken directly on Government expenditures, income can be affected within a few months. A broad range of expenditure and income tax policies, therefore, can have a significant effect on national income within a period of one to three months. This is one estimate of the range of outside lags of fiscal policy.

For monetary policy the situation is more complicated. As noted earlier, estimates of outside lags depend partly on what is viewed as the most important short-run link between monetary policy and the real sectors of the economy.

¹ Numbers in brackets refer to references listed at the end of this article.

² The discussion might seem to imply that the outside lag is some discrete time period. Action is taken, and the impacts are registered on the economy at some single point in the future. Actually, it is more likely that the effects of a given policy change will be distributed over a period of time. A significant proportion of these effects may be clustered within a short interval, but then perhaps not. Generally the term "outside lag" is used to denote the time it takes for a policy change to have a "significant" effect (often difficult to define) on the economy, or the time it takes for a policy change to have its peak effect.

The one element common to most theories of the relationship between monetary policy and economic activity is the process of adjustment by banks. Recent evidence suggests that banks make adjustments to monetary changes quickly—within a month or two [2] [5] [7]. This type of evidence leads those who focus on credit availability to conclude that changes in monetary policy are quickly felt by bank borrowers and depositors and that income changes follow shortly thereafter.

Actions of the monetary authorities and banks produce changes in the money supply. Quantity theorists start with this change in money supply to measure what they consider the most significant part of the outside lag of monetary policy. The best-known study of this lag found that changes in income lagged changes in the quantity of money by an average of about fourteen months using one type of formulation, and by about five months using another method of comparison [3]. Other studies obtained similar results.³

Most investigators have used a change in interest rates as the starting point to measure the major component of the outside lag of monetary policy. Their estimates vary widely, but the minimum lag found has been about three months with many estimates ranging up to eighteen months and more.⁴ There is little concentration of estimates at any point in the three- to eighteen-month range, so that on the surface an estimate of almost any length within this range seems equally likely.

LAGS AND PUBLIC POLICY

Table 1 presents a range of estimates for the various components of the lags of monetary and fiscal policy suggested in the previous section. While these ranges are not all-inclusive, they do include the thinking and findings of most economists.

Table 1

RANGE OF ESTIMATES OF THE AVERAGE LAGS OF MONETARY AND FISCAL POLICY (in months)

	Inside Lags		Outside Lags	Total Lags
	Recognition Lags (1)	Action Lags (2)	(3)	(4)
Monetary Policy	3	0	1-20	4-23
Fiscal Policy	3	1-15	1-3	5-21

Table 1 suggests several conclusions which have important implications for public policy:

1. Estimates of the lags of monetary and fiscal policy differ widely.
2. Monetary and fiscal authorities are doing a relatively good job in recognizing changes in the economy.
3. Monetary authorities generally act promptly but the effects of action may take considerable time to be felt.
4. Fiscal authorities often act slowly but the effects are usually felt fairly quickly.

³ See [6] for a summary of some of these studies.

⁴ For summaries of some of these studies see [4].

Inasmuch as changes in policy—especially monetary policy—take time to be effective, it is necessary to anticipate. Given the objective of trying to reduce fluctuations in economic activity, monetary and fiscal policy should have a stimulative effect when the economy is declining and a restraining effect when it is increasing. If outside lags are very long, a change of policy initiated at the beginning of a change in the economy may not begin to have any substantial effect until the need is past. Instead, it may have its greatest effect when the direction of the economy has reversed and the opposite policy is called for. In such case, changes in monetary and fiscal policy would aggravate fluctuations in the economy. The shorter the outside lags, the less likely is a distortion of this kind and the more effective are the policies in reducing undesired fluctuations in economic activity. Policy changes, therefore, sometimes need to be out of step with current fluctuations in the economy, coming *before* the need arises so that their effects will be felt at the appropriate time.

This puts a premium on business forecasting. Good forecasts, by "recognizing" a change before it occurs, in effect make the recognition lag negative and greatly improve the timing of monetary and fiscal policy by compensating for the other lags. If the outside or action lags are very long, good forecasting is essential for monetary and fiscal policy to be effective in helping the nation achieve its economic objectives. Even if the outside or action lags are not long, good forecasting can contribute significantly to the timeliness of policy actions.

Another way to reduce the over-all lags of monetary policy is to reduce the action lag. For fiscal policy there is considerable room for movement. Most proposals involve giving the President authority to make changes in taxes or expenditures without waiting for the full process of Congressional review and determination. There may be ways to speed up Congressional action as well.

The length of the outside lags of monetary and fiscal policy is determined by responses to policy changes of many individuals and businesses. It is not known whether or not anything can be done about this reaction time. Perhaps research will reveal possibilities of influencing the outside lags of monetary and fiscal policy by changing the types or mix of tools employed.

Some economists, convinced that the lags of monetary and fiscal policy are long, have suggested that the Government get out of the stabilization business. They advocate replacing current reliance on discretionary policies with a set of rules that would hold the monetary and fiscal environment stable rather than try to have it counter short-run fluctuations in economic activity. This would not reduce cyclical fluctuations but, it is argued, would keep them from being aggravated by well-intentioned but inappropriate Government policies.

Many economists do not go this far. They think the lags are at the short- rather than the long-end of the ranges given in Table 1 or they are confident that lags can be reduced. They see discretionary monetary and fiscal policy helping in a significant and positive way to reduce undesired fluctuations in the economy.

Much has been done toward understanding lags and in dealing with them, but much more remains. One thing is certain. Policy decisions and actions must be made and interpreted with the problem of lags clearly in mind. Policymakers and the public must look to the future if they are to obtain the conditions they desire in the present.

TECHNICAL APPENDIX—MEASUREMENT OF THE LAGS

Measurement of lags of monetary and fiscal policy is difficult. Notions of the exact nature of the lags are not completely developed and the methodological and statistical problems involved are formidable. These factors account, at least in part, for a wide divergence of opinions and estimates of the length of the lags.

Inside lags. Conceptually, measurement of the inside lags is fairly straightforward but in practice is often complicated by lack of suitable data and difficulties in interpreting available data. What is required is an indication of when those with policy responsibilities recognize changes in the economy and when they *decide* to change policy. Since these lags generally relate to unannounced judgments and intentions of policymakers, currently available time series will not do. These series may well be influenced by other factors and give a misleading impression of the length of the recognition and action lags.

Consequently, in [8] the official minutes and staff memoranda of the Federal Open Market Committee for the years 1952-1960 were used to see how long it took the monetary authorities to recognize cyclical turning point in general economic activity (NBER reference dates were used as a benchmark). It was assumed that this would be a good indication of the length of time it takes the monetary authorities to recognize significant changes in any target economic variable. These records, reflecting policy decisions as well as statements on the economic outlook of policymakers, were also used to measure the action lag of monetary policy.

Comparable data are not available for the fiscal authorities, so an assumption was made that the recognition lag was the same for fiscal as for monetary policy. Also, no formal attempt was made to estimate the action lag of fiscal policy. The record of explicit attempts to take counter-cyclical fiscal action, especially on the tax side, is relatively short. This makes it difficult to say anything definite about the action lag of fiscal policy. Experiences of the 1962 and 1967 tax proposals suggest that the action lag may easily be a year or more. On the other hand, some excise tax legislation, the speed-up or slow-down of some Government procurements and expenditures, and other fiscal measures have been handled by the Congress or the President relatively quickly. In short, the nature of political and legislative processes gives little meaning to the idea of an average action lag for fiscal policy. A range rather than a point estimate gives a better indication of the length of this lag, and experience may be too limited to set a definite upper bound on this range.

Outside lags. Measurement of outside lags of monetary and fiscal policy is plagued by conceptual as well as methodological and statistical problems. It was noted in the accompanying article that the outside lag is not a discrete phenomenon. Rather, the effects of a policy change are *distributed over*: a number of subsequent periods. Economic theory provides little help in deducing the precise shape of this distribution. It may well vary from one economic sector to another, and different policy actions might result in different distributions as well.

Some investigators assume a policy change has limited immediate effects on the economy but that these effects build up as time passes, reach a peak in some future time period and then subside. Others assume that a policy change has its greatest effect initially, and that these effects then become smaller in each subsequent period. Still other assumptions are possible. Depending on the assumption used and the statistical formulations employed, the shape of lag distributions can vary widely. Since the term "outside lag" is generally interpreted as meaning the time it takes for a policy action to achieve a certain percentage of its total effects, or to reach its peak effect, these different distributions can imply greatly different estimates of the outside lags of monetary and fiscal policy.

Numerous statistical formulations and techniques are used to try to estimate the distributed lags associated with policy changes. In [2], an adjustment coefficient for banks that can be converted into a lag distribution is estimated by correlating (in a multiple regression) changes in excess reserves (dependent variable) with the stock of excess reserves at the beginning of each period (independent variable). In [7], the distributed lag in bank adjustments is estimated by regressing deposit changes (dependent variable) against current and lagged changes in unborrowed reserves (independent variables). Coefficients of the independent variables describe the lag structure.

Lag distributions describing relationships between changes in interest rates or income and various types of expenditures have been estimated by the use of a variety of functional forms and statistical methods. Generally they involve including as independent variables in a multiple regression equation lagged observations of the dependent variable (e.g., plant and equipment expenditures) or lagged observations of the independent variable (e.g., interest rates or income). The resulting coefficients and lag distribution depend significantly on the functional form used, the constraints imposed on the coefficients, and the statistical estimating procedures followed. These factors account in part for the different estimates of the outside lag of monetary policy recorded in [4]. The results for fiscal policy contained in [1] reflect similar considerations.

Those who focus on the quantity of money as the main link between monetary policy and the economy generally do not actually estimate the shape of the entire lag distribution. Instead, they compare turning points in income with turning points in the money stock to see how long the former lags the latter [3], or they correlate lagged changes in the money stock with income or changes in income [6]. The assumption is that these procedures yield an estimate of the weighted

average interval between action and effects. The entire lag distribution is compressed into one number.

Economists are not agreed on the best way to estimate the outside lags of monetary and fiscal policy. Much progress has been made in recent years, but much is yet to be learned. A real concern of many, especially in the case of monetary policy, is that in spite of the sophisticated techniques used, we have still been unable to isolate the effects of policy changes from all of the other things which influence the pace of economic activity. This separation is essential if the lags are to be measured correctly.

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CURRENT MONETARY POLICY: A CRITICAL APPRAISAL

By ROBERT WEINTRAUB*

I asked this question on a final exam in a Money and Banking course many years ago.

Assume that you are Chairman William McChesney Martin of the FRB. What policies do you recommend that the Fed pursue to stop a burgeoning inflation?

This was the last of a long hard series of questions and one student wrote, "I've had enough trouble with this exam without assuming I'm someone I'm not." Period! I won't tell you what grade I gave this fellow for that answer. To do so would tell you more about me than I'm sure you want to know. What you want to know, I think, is how I think the question I asked on that exam should be answered. What I think about using monetary policy to combat inflation is, in any case, the central theme of my talk.

To begin with we can have no doubt whatever that Chairman Martin is concerned right now in April, 1968 with the problem of burgeoning inflation. He said so Friday a week ago. I quote, "The nation is in the midst of the worst financial crisis since 1931." And, he continued, "In 1931 the problem was deflation, today it is inflation and equally intolerable."

Before coming to grips with the policy question of what the Fed should do to stop inflation I want to answer two preliminary questions. The first of these is whether Chairman Martin's present concern with inflation is relevant and realistic. This is a fair question for two reasons. First, and I say this with all due respect, McChesney Martin sometimes chases ghosts. I'm sure you all remember that four years ago at Columbia he saw the ghost of 1929 lurking in a dozen "disquieting similarities." The spectre he raised then didn't scare me and it shouldn't have scared anyone. It simply didn't exist. The second reason this question is a fair one is that Martin's concern with inflation is not new. Back in 1959 he told the Senate Finance Committee that the Federal Reserve is "always fighting inflation." The list of such citations could be greatly multiplied, for in the seventeen years since Martin became the ranking officer of our monetary authority—i.e., the Fed, the primary objective of U.S. monetary policy has been the avoidance of inflation. Viewed in the perspective of our monetary history in these seventeen years this concern with inflation has been excessive. Between 1951 and 1968 the CPI rose only by 28.5 per cent, and nearly half of the total rise occurred in five years, in 1956, '57 and '58 and 1966 and 1967. For the WPI the record shows the total rise was only 10 per cent between 1951 and 1968. Moreover, the record was one of complete stability except for 1956, '57 and '58 and the last two years. Clearly inflation has not always been a major problem in the seventeen years that McChesney Martin has been Chairman of the FRB. Nonetheless, particularly during the first decade of Martin's stewardship "tight-money" policies were pursued relentlessly to combat inflation and at times the costs exceeded the benefits. Because the fight against inflation, however noble, involves the risk of deflation. If carried too far, tight money policies end in recession. Since 1951 the pursuit of tight-money ended in recession three times. We suffered recessions in the wake of tight-money policies first between July, 1953 and August, 1954, second between July, 1957 and April, 1958 and third between May, 1960 and February, 1961. Add also that tight money caused what has been termed a "mini-recession" in the latter part of 1966 and first half of 1967. (Some equate tight money with high and increasing interest rates, others with little or no growth in the money stock. The recession episodes cited followed periods when money was tight whether defined in terms of interest rates or money supply.)

*University of California at Santa Barbara. Address before the California Bankers Association, Group Seven, Santa Barbara, Calif., Apr. 27, 1968.

Of course the fact that the use of monetary policy to combat inflation can bring on recession doesn't mean we should not use or even hesitate to use monetary measures to fight inflation when rising prices are a "clear and present" danger. It simply means that we must do so judiciously. Everyone can agree to this, for to say we must use monetary policy judiciously means different things to different men. Sooner or later, if we are to say anything substantive, we must define exactly what we mean as an operating procedure by a judicious monetary policy. I'll get to this definition later if you don't mind. For now it suffices to say a judicious monetary policy necessarily requires that the Fed is not fooled by events into believing it is doing something when it is doing nothing. This is a larger order than it may appear at first glance as we will later see.

But now let us answer the question under discussion. Is Chairman Martin's present concern with inflation relevant and realistic? It is. Today inflation definitely is a clear and present danger. Witness, for example, that in the first quarter of this year the CPI rose at annual rate of 4 per cent. We have to look back to the first six months of the Korean War to find U.S. prices rising this rapidly. There can be no doubt then that Chairman Martin's concern with inflation is both relevant and real.

My second preliminary question is what is causing this inflation we now are experiencing. In the abstract context of economic theory the proximate causes of inflation are (1) private expenditures by householders and businesses, and (2) Government purchases of goods and services. "Let's", as Al Smith said, "look at the record."

First let's look at the components of private spending: consumption and investment. In percentage terms consumption increased by 5.6 per cent in 1963, 7.0 per cent in 1964, 8.0 per cent in 1965, 7.6 per cent in 1966, and at an annual rate of 5.5 per cent in both the first and second halves of 1967. Since the current rate of increase of consumption is about what it was back in 1963 and 1964—years marked by a remarkable degree of price stability—consumption spending would not appear to be a major element in the inflation we now are experiencing. But it will prove to be a strong future force for inflation if it should again grow at the 7.5–8.0 per cent rate that obtained in 1965 and 1966.

Let's look now at investment spending, including both investment in structures and equipment and inventory changes. This expenditures item has been a major inflationary factor in recent months. In 1963 investment spending increased by 4.9 per cent. In 1964 it rose by 7.9 per cent, in 1965 by 14.3 per cent, and in 1966 by 9.9 per cent. In the first half of 1967 investment fell at the annual rate of 19.2 per cent. The bulk of the fall reflected a decline in the growth of business inventories. This decline was the principal symptom of the mini-recession we suffered early last year. But partly because of renewed investment in inventories total investment increased rapidly in the second half of 1967 and acted to prevent the small business downswing of early 1967 from becoming a full-scale recession episode. At the same time, however, the rise in total investment in the second half of 1967, which for the record was at an annual rate of 16.2 per cent, has put considerable current upward pressure on prices.

Let me last call your attention to government purchases of goods and services, including state and local spending as well as federal purchases. In 1963 government spending rose by 4.6 per cent, in 1964 by 5.0 per cent, in 1965 by 6.0 per cent and again in 1966 by 6.0 per cent. In the first half of 1967 the rise in this item was at the whopping annual rate of 16.1 per cent. In the second half of 1967 the rate of increase in government purchases of goods and services dropped to an annual rate of 8.3 per cent. Today it is very nearly axiomatic in economics that increases in government spending act to increase national income in nominal terms and hence, as a corollary, prices when employment is full or nearly full and the growth of output constrained. Since employment was nearly full in 1967 the rise in government spending early that year put enormous inflationary pressure on the economy and though this pressure was reduced in the second half of 1967 it was still strong by historical standards.

In summary, trends in government spending and private investment are currently strongly inflationary. Fortunately however, government spending appears now to be rising at a rate the economy can absorb without substantial inflation, that is, at less than 10 per cent per year. But unfortunately private investment now is burgeoning at a rate that portends substantial future inflation. This item, recall, rose in the second half of 1967 at an annual rate of 16.2 per cent. And lastly, there is consumption. This item increased only moderately in 1967, by 5.5 per cent. It has not yet contributed substantially to the current inflation. But it may do so before the year is out. Indeed proponents of the 10 per

cent surtax believe consumption spending will rise substantially and greatly aggravate the current inflation unless Congress passes the surtax.

But where does monetary policy fit into the picture? The answer is that monetary developments affect consumption and investment spending. But this is a purely formal answer. We want to identify the links that relate monetary policy to consumption and investment, and also we want to identify the role monetary policy has played in the current inflation.

How does monetary policy affect consumption and investment? A fullblown answer to this question requires at least a full year of study. Moreover, we do not know all of the details of the transmission process. But the main elements of the chain of causation are known and can be set forth in a few minutes. Let me take the time to do so by sketching the adjustments of the economy to a policy of monetary expansion.

Monetary expansion is a two-pronged policy. One prong is defined by decreases in interest rates and the other by increases in the nation's money stock. The interest rate effects of monetary expansion are well-known. To illustrate, with a 5 per cent interest rate a corporation can raise \$100 million by selling (for simplicity) a default free bond with a coupon yield in perpetuity of \$5 million per year. At 4 per cent \$100 million can be raised by selling a default free bond with a coupon yield of \$4 million per year in perpetuity. Clearly, corporations are more likely to invest in a \$100 million project when their future annual interest obligations are \$4 million than when they are \$5 million. Thus decreases in interest rates act to increase investment.

By the same line of reasoning decreases in interest rates also tend to increase consumption. For consumers buy durable goods and, for example, a 1 per cent interest rate reduction reduces the cost of financing a \$5,000 consumption loan by \$50 per year where (for simplicity) interest is computed and paid annually on the initial loan for the full term of the loan and the principal is paid in full at the end of the term.

Money supply increases, the second prong of monetary expansion, affect consumption and investment because the public cannot be forced to hold larger money balances, than it desires to hold in view of its total wealth and the structure of returns to different assets including money. If the nominal stock of money therefore increases, or, in the context of a growing economy, grows more rapidly than warranted by the growth of the nation's wealth and the structure of yields, the public will try to reach the desired level of cash balances by reordering its spending patterns. Households will increase their spending on consumers' goods. Producers, who demand and hold the overwhelming bulk of the economy's money balances, finding that they have excess working capital, will increase inventories and other new investment commitments such as new orders for consumers' goods and plant and equipment expenditures.

In summary, monetary policy affects consumption and investment, and thereby prices, via intervention of interest rates and money balances. We turn now to assessing the role played by monetary policy in the current inflation. This is not an easy task. For we arrive at one conclusion if we look at interest rate trends and another if we judge the thrust of monetary policy by changes in the money stock.

The trend of interest rates has been up, up and up and almost without pause since the last trough in business activity back in February, 1961. To illustrate the trend, in February, 1961 the daily average of yields on 91 day Treasury bills was 2.42 percent and the daily average of yields on Treasury bonds maturing or callable in 10 or more years was 3.81 per cent. In January, 1963 the same variables were respectively 2.91 per cent and 3.89 per cent. In January, 1965 they were 3.83 per cent and 4.15 per cent. In January, 1966 they were 4.58 per cent and 4.43 per cent. In January, 1967 they were 4.72 per cent and 4.40 per cent. In January, 1968 they were 4.99 per cent and 5.18 per cent. And last week the bill rate was 5.46 per cent and the long term rate was 5.27 per cent. Recalling that economic theory asserts that investment and purchases of consumer durables are stimulated by low and falling interest rates, the trend of interest rates in recent years makes one wonder whether there is something wrong with that part of our theory that links monetary policy to investment and consumption (and thereby to prices) via intervention of interest rates.

In fact there is something wrong with that part of our model. It is incomplete. It ignores the feedback effects of money supply changes. Increases in the quantity of money have far reaching repercussions on the economy's real variables and there is feedback from these variables to interest rates. Initially, in-

creases in the money stock cause interest rates on financial assets and credit instruments to fall. But this effect is ephemeral. It is short-lived precisely because lower interest rates impel increases in investment and consumption spending. For as employment and economic activity expand, product prices and the dollar returns to capital, that is present and expected profits, also rise. Product prices rise directly because of the increases in spending. Profits rise because capital resources are used more intensively and the goods produced with these resources sell at higher prices. (If this troubles you think of what happens to land rents in the wake of population increases.) In turn, because of the rise in prices and profits it now pays to sell financial assets and buy consumer and capital goods. In the final analysis, as a consequence there is a tendency for interest rates on financial assets and credit instruments to rise with monetary growth and economic expansion. As Milton Friedman has put it, "monetary growth will also make for higher interest rates, as changed price expectations overcome the liquidity effects of rapid monetary growth."

This is an extremely important point. It can't be overemphasized. It means we cannot judge the thrust of monetary policy by looking at interest rate trends. On the one hand, increases in interest rates may mean that money is "tight"; for the initial impact of a policy of monetary restraint on interest rates is to raise them. On the other, increases in interest rates may mean that we are in the midst of a boom with product prices and yields on real capital rising because of feedback from monetary expansion and the public, accordingly, selling financial assets and credit instruments (and hereby bidding up their yields) so they can obtain funds to buy the higher-price consumer goods and higher-yield capital goods. Thus interest rate trends are an unreliable indicator of the thrust of monetary policy.

We can however, without any hesitation or doubt whatever, judge the thrust of monetary policy by what is happening to the money stock. If it is rising rapidly policy is expansionary, no ifs, ands or buts. More on this in a moment.

Now, let's look at the behavior of our money stock. The facts show that the nation's money stock has expanded very rapidly recently whether defined inclusive or exclusive of time deposits in commercial banks. I prefer to use the narrow conventional definition which equates money with circulating media, that is, the usage that defines money as a social good. Back in February, 1961 the public's holdings of currency and demand deposits (seasonally adjusted) added up to \$141.6 billion. In January, 1963 the total was \$148.0 billion. The money stock had increased at annual rate of 1.6 per cent in these twenty-three months. In January, 1965 the quantity of money was \$160.0 billion. Between 1963 and 1965 it had increased at an annual rate of 4.0 per cent. In January, 1966 the money stock was \$168.4 billion; it had risen by 5.2 per cent in 1965. In January, 1967 the money stock was \$169.6 billion; it had increased only 0.7 per cent from a year earlier and in fact had fallen after June, 1966. In January, 1968 the quantity of money was \$182.4 billion: It had risen by 7.5 per cent in 1967. For the record, in the second half of 1967 the annual rate of increase was only 5.1 per cent and so far this year the money stock has risen at an annual rate of 5.5 per cent reaching \$184.1 billion in mid-April.

Manifestly, money supply policy was strongly expansionary in 1967 and there is at most scant evidence that it is now being moderated. Recalling the theoretical link between money supply and consumption and investment spending it is difficult not to conclude, and totally reasonable to conclude, that a major underlying cause or root of the current inflation is monetary policy as specified by growth of money stock.

We have come full circle, back to our original and central question. What should the Fed now do to slow, if not halt, the current burgeoning inflation? Hopefully, the answer is now self-evident. To be succinct, the answer is: Moderate the growth of the conventionally defined money stock. To elaborate upon this dictum: This, then is the essence of a judicious monetary policy, if not for all seasons at least for this one. First, the Fed must stop trying to dampen spending via intervention of higher interest rates, which is its traditional operating procedure in inflation. It must stop using this tactic because we cannot readily distinguish between interest rate increases that result from its policy actions and those that feedback from increases in economic activity and in present and expected prices and profits. In periods of economic expansion, interest rates, as we have seen, tend to be pulled up by rising prices and profits, and hence in such periods the Fed can be fooled into thinking it is tightening money when in fact it is doing nothing, if its target is higher interests. The

appropriate target of monetary policy in inflationary periods is moderate monetary growth. Unlike in the case of interest rates, there is no chance that the Fed will think it is doing something when it is doing nothing if this is its target. This is because the natural tendency in inflationary periods is for accelerated, not moderated monetary growth. (Monetary growth accelerates in such periods because banks use their reserves more intensively when interest rates rise and, as we have observed, interest rates tend to rise in periods of business expansion and inflation.) Because monetary growth will moderate in inflationary periods only if the Fed acts to moderate it, the stock of money is a reliable target of monetary policy. It also is a pliable target because the Fed can closely regulate the supply of money balances. Actions taken to decrease monetary growth will tend to do exactly that in the final analysis as well as in the short run.

Second, officers of the Federal Reserve and especially Chairman Martin should stop blaming loose fiscal practices for the current inflation. There can be no doubt that the money supply changes of 1967 greatly aggravated, if they did not give birth to the current inflation. "People who live in glass houses," warns an old adage, "should not throw bricks."

Last, the Fed should moderate the growth of the conventionally defined money stock, currency plus demand deposits. I do not know precisely what the growth rate now should be. But such foreknowledge is not required, because monetary growth now should be whatever it takes to achieve the sort of price stability we had in 1963 and 1964 when the CPI increased only 1.5 per cent per year and the WPI was almost completely stable. Perhaps the current rate of monetary growth—5.5 per cent—will achieve this stability. If not, it would be judicious and prudent as well to try 5.0 per cent, and if this does not work, 4.5 per cent, etc. The important things are to decelerate the growth of the money stock until the inflation is ended and not to overreact but to decelerate gently so as to avoid recession. I am not however hopeful that this will be done except by some "happy" accident. It would be naive and romantic to think the Fed which has traditionally tried to influence total economic activity via intervention of money market and credit variables will now voluntarily decide to aim its actions at controlling the money stock in a judicious and prudent way. But it should.

Background materials on "Standards for Guiding Monetary Action"

The following section I of "Supplementary Views of Representative Reuss" is excerpted from the "*1968 Joint Economic Report*, Report of the Joint Economic Committee, Congress of the United States, on the January 1968 Economic Report of the President, together with Statement of Committee Agreement, Minority and Other Views," March 19, 1968 (S. Rept. 1016).

SUPPLEMENTARY VIEWS OF REPRESENTATIVE REUSS

While I join with my colleagues in the Joint Economic Committee report, I take this opportunity to present some additional views of my own:

I. MONETARY POLICY—THE JOINT ECONOMIC COMMITTEE VERSUS THE FEDERAL RESERVE SYSTEM

In recent years, dialog between the Joint Economic Committee, in its annual reports, and the Federal Reserve System, in the minutes of the Open Market Committee, might as well have been conducted in Urdu on the one side and Swahili on the other.

The Joint Economic Committee, in its 1967 Report, urged upon the Fed "the policy of moderate and relatively stable increases in the money supply, avoiding the disrupting effects of wide swings in the rate of increase or decrease * * * generally within a range of 3 to 5 percent per year."

Our "advice" is obviously not being followed. For the period April 1966 to January 1967, the money supply (narrowly defined as demand deposits in banks, and currency outside banks) actually declined, at a rate of 0.2 percent. From January 1967 to January 1968, it increased at a rate of 7.3 percent. To find a period when the money supply increase was within the suggested range, one has to look at the period November 1967 to February 1968, when it increased at the rate of 3.5 percent.

Obviously, the Fed had more on its mind than the money supply narrowly defined. Perhaps the Fed has some cause for complaint. It was not told, for example, why time deposits in banks, or deposits in savings and loan associations, mutual savings banks, and credit unions, were not included in its purview. It was not told what, if any, attention was to be paid to levels of interest rates, production, employment, prices, and bank reserves; to the timing of Treasury borrowings; to the balance of payments; to the housing industry.

Equally, the Joint Economic Committee has trouble making head or tail out of what the Fed is doing from the published minutes of the Open Market Committee. For example, from January 1967 to August 1967, the Fed increased the money supply at a rate of 9 percent. Yet at its meeting of July 18, 1967—at a time when the administration was stepping up its warning of inflationary pressures—the Fed declined to tighten up on its expansionary creation of money supply. The minutes of the July 18, 1967, Open Market Committee meeting give the following rationale for this action:

In the course of the Committee's discussion, considerable concern was expressed about the recent, high rates of growth of bank credit and the money supply, particularly in view of the prospects for more rapid economic expansion later in the year. It was generally agreed, however, that the Treasury's

forthcoming financing militated against seeking a change in money market conditions at present. Moreover, even apart from the Treasury financing, most members felt that it would be premature to seek firmer money market conditions at a time when resumption of expansion in overall economic activity was in a fairly early stage; and some also referred in this connection to the growing expectations that the administration would press for measures of fiscal restraint. In addition, some members expressed concern about the possibility that any significant further increases in market interest rates might reduce the flows of funds into mortgages and slow the recovery underway in residential construction activity.

Was the Fed continuing to create money at the rate of 9 percent—in the face of the Joint Economic Committee's 3 to 5 percent "advice"—because of Treasury borrowing, the level of production, expectations about future tax increases, worries about residential construction, or what? What weight was assigned to these factors? We are not told.

Obviously, the Joint Economic Committee and the Fed are not talking the same language. In an effort to get the parties to the dialog to talk the same language, the following guidelines for Federal Reserve monetary action are suggested as a basis for discussion:

The Federal Reserve System, through open-market operations, reserve requirements, and discount policy, shall endeavor to accommodate a growing full-employment gross national product by expanding the money supply (narrowly defined to include commercial bank demand deposits and currency outside banks) by 3 to 5 percent yearly, with the following qualifications:

1. *The target figure should be adjusted up or down from the above band from time to time to reflect the extent to which time deposits in commercial banks, and in savings and loan associations, mutual savings banks, and credit unions, substitute for the narrowly defined money supply;*
2. *The target figure should be on the higher side of the band in periods of less than full use of resources, on the lower side in periods of full use of resources;*
3. *The target figure should be exceeded when resources are underemployed and simultaneously businesses are making exceptionally heavy demands on credit, not for current business expenditures, but for additional liquidity in anticipation of future needs or to replenish unexpected liquidity losses;*
4. *The target figure should be exceeded to the extent necessary to reflect the increase in dollar gross national product estimated to be attributable to cost-push inflation;*
5. *The target figure need be sought only over periods, such as 3-month periods, sufficient to allow the Federal Reserve System to accommodate large Treasury borrowings, with the averaging out to occur over the remainder of the period;*
6. *Balance-of-payments considerations should affect monetary policy only through varying the maturity of the Federal Reserve System's portfolio, so as to achieve to the extent possible appropriate interest differentials as between long-term and short-term securities;*

7. *The consequences of monetary policy for the homebuilding industry should be taken into account by including Federal National Mortgage Association and Federal Home Loan Bank Board securities in the Federal Reserve System's portfolio in meaningful amounts, and by lengthening its portfolio, whenever homebuilding finance is unduly retarded by overall monetary stringency.*

I have transmitted this proposed guideline to the Fed for its comments. The Fed obviously does not agree with the Joint Economic Committee's "advice." Perhaps the advice has been too tersely stated, with insufficient regard for other factors than the money supply, narrowly defined. The above proposed guidelines are designed to elicit precisely what the Federal Reserve regards as proper monetary criteria. Perhaps the resulting exchange can enable both parties to make their future dialog more meaningful.

* * * * *

Letter to Chairman Martin from John R. Stark:

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
March 15, 1968.

HON. WILLIAM MCCHESENEY MARTIN
*Chairman of the Board of Governors of the Federal Reserve System,
Washington, D.C.*

DEAR MR. CHAIRMAN: Representative Henry Reuss, a member of the Joint Economic Committee, has asked me to transmit to you a proposed guideline for monetary policy. This guideline appears on page 45 of the enclosed Report of the Joint Economic Committee, in separate views set forth by Mr. Reuss. He is requesting the comments of the Federal Reserve Board on his guideline (at page 46, second paragraph).

I have transmitted this proposed guideline to the Fed for its comments. The Fed obviously does not agree with the Joint Economic Committee's "advice." Perhaps the advice has been too tersely stated, with insufficient regard for other factors than the money supply, narrowly defined. The above proposed guidelines are designed to elicit precisely what the Federal Reserve regards as proper monetary criteria. Perhaps the resulting exchange can enable both parties to make their future dialog more meaningful."

It would be appreciated if you will let me have the Board's comments when it is convenient.

Sincerely,

JOHN R. STARK, *Executive Director.*

Letter to Representative Reuss from Chairman Martin:

BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM,
Washington, April 19, 1968.

HON. HENRY S. REUSS,
*Joint Economic Committee,
New Senate Office Building, Washington, D.C.*

DEAR MR. REUSS: This is in response to your request, transmitted to us on March 18 by the executive director of the Joint Economic Committee, for comments on the guidelines for monetary policy set forth in your supplementary views in the Committee's recent report on the *Economic Report of the President*. We have asked our staff to analyze the proposed guidelines, and I am enclosing a memorandum they have prepared that discusses the guidelines and their implications for monetary policy, together with two articles published in the Federal Reserve *Bulletin* referred to in the memorandum. Since your

proposal raises a number of fundamental issues regarding the part the Federal Reserve System plays in economic stabilization, you may also be interested in the other materials I am enclosing, which include remarks by Governor Maisel on the relation between money and income, an article on the same subject by a member of the staff of the Federal Reserve Bank of New York, and a copy of a letter to Representative Clawson concerning Federal Reserve purchases of Federal Home Loan Bank obligations.

I have a great deal of sympathy for the feelings that must have prompted your remarks about Urdu and Swahili. Part of the trouble lies in the lack of exact knowledge on anyone's part about how monetary policy affects the economy. And all of us are plagued by the fact that the same words—even though spoken in English by Americans reasonably practiced in the art of communication—all too often mean different things to different people. But we must keep at our efforts to communicate, and I hope the enclosed materials will make some contribution to mutual understanding.

Sincerely yours,

WM. MCC. MARTIN, JR., *Chairman.*

[MEMORANDUM]

To: Board of Governors.

From: Division of Research and Statistics, Division of International Finance.

Subject: Comments on Mr. Reuss' guidelines for monetary policy.

In the Report of the Joint Economic Committee on the January 1968 *Economic Report of the President*, Representative Reuss sets forth as a basis for discussion some guidelines for Federal Reserve monetary policy. These guidelines specify that the Federal Reserve should expand the money supply by 3 to 5 per cent annually, with certain qualifications. This memorandum discusses the character of the guidelines proposed by Mr. Reuss and their implications for monetary policy.

The assumption implicit in Mr Reuss' proposal appears to be that a growth rate of 3 to 5 per cent in the money stock constitutes a long-run "norm". The proposal does recognize that short-run deviations from this norm would, from time to time, be appropriate, but these deviations would have to be justified by reference to specific factors listed. In commenting on this proposal, it may be useful to begin by considering the appropriateness of a 3 to 5 per cent growth rate in money over the longer run, and then to turn to the specific considerations that would justify short-run deviations in the growth of money balances.

The issue of how much growth in money the economy needs over the long run to promote orderly economic growth is one of the central problems faced by monetary policy. Experience indicates that the Federal Reserve should be chary of rules that seek to specify, once and for all, what growth of money over the long-run is appropriate. In an economy as dynamic as ours, factors affecting the amount of money the public may wish to hold change over time.

The experience of the period since World War II is illustrative. Throughout this period, the public has been adding to its money holdings at a slower pace than the growth of GNP, and at a sub-

stantially slower pace than the rates of accumulation of many other financial assets. Excess liquid asset holdings carried forward from the end of World War II were only partly responsible for the economization of money balances that occurred. To a larger extent, the slow growth of the public's demand for money reflected the development of new techniques of cash management by corporations that permitted economies in transactions balances. Additionally, the increasing attractiveness of such liquid assets as time and savings deposits also moderated the public's desired additions to money holdings, especially during the past decade. A fuller discussion of how such factors as these influenced the monetary needs of the economy during the postwar years was contained in an article prepared by the Staff entitled "Monetary Policy and Economic Activity: A Postwar Review," published in the May 1967 issue of the *Federal Reserve Bulletin*.

Because these factors reduced the public's demand for money, growth in the money stock over the past twenty years at an average annual rate of less than $2\frac{1}{2}$ per cent has financed an average annual increase of over 6 per cent in GNP in current dollars, and an average annual increase of almost 4 per cent in real GNP. Growth in the money stock over this period at a 4 per cent rate—the middle of the target range cited in Mr. Reuss' guidelines—would have produced a money stock at the end of 1967 more than 35 per cent above the actual figure. Surely, the amount of price inflation we would have suffered over these past two decades would have been much greater if monetary policy had been guided by the view that approximately a 4 per cent growth rate constitutes a reasonable longer-run target.

The postwar period is not, in this respect, an isolated case. We can look forward at the present time to the prospect of major changes in the public's use of money growing out of technological advances in banking that could greatly reduce the use of checks within the next decade or two. Just how these developments might alter the growth rate of money consistent with full employment and stable prices we cannot be sure. It does seem, however, that fixing any specific long-run growth target for the money supply might require suppressing technological advance in our payments system, or alternatively of running the risk of supplying excessive or inadequate amounts of money to accommodate the needs of a growing economy. Flexibility in monetary policy decisions is essential not only to problems of short-run economic stabilization, but also to permit adaptation to the evolving structure of financial markets and to changes in public demands for money.

As noted earlier, the guidelines proposed by Mr. Reuss do suggest that short-run deviations in the rate of monetary expansion would be desirable. One of the specific factors mentioned in this regard is the desirability of increasing the rate of monetary expansion to the extent necessary to reflect the increase in GNP attributable to cost-push inflation.

Acceptance of such a principle would be very likely to convert monetary policy from a tool for stabilizing the economy into a vehicle of inflation. Increases in costs are not unrelated to aggregate demands for goods and services, as these demands are reflected in markets for labor, for raw materials, for intermediate products, and for capital instruments. Price increases for these resources—which constitute cost increases for their users—are thus not independent of monetary policy,

even though the relation between monetary policy and such prices is indirect. Assuring owners of these resources that, in the aggregate, they were free to press for whatever rates of remuneration they might choose, without fear of the discipline of restraining stabilization policies, would open the door to a never-ending round of cost-price increases.

Even if the establishment of this principle were desirable, however, it could not be made operational. Rates of price advance cannot be decomposed into cost-push and demand-pull elements, except arbitrarily. Businesses do not alter prices in response to cost changes, irrespective of the state of current demand. Neither do pricing policies respond to changes in demand, irrespective of costs.

The performance of prices during 1967 attests to the intermingling of demand and supply effects in price behavior. Unit costs in manufacturing were rising quite early in the year. But with aggregate demands sluggish in the first half, these cost pressures did not result in a significant advance in industrial commodity prices until after midyear. It was not until demands for goods and services picked up in the second half of 1967 that increases in unit costs that businesses had incurred earlier—and were still incurring—began to be passed through to higher prices. The experience of 1967 indicates that cost-push pressures can be contained by limitations on aggregate demands, and conversely that over-exuberant demand facilitates transmission of cost pressures into rising prices.

Mr. Reuss' guidelines suggest also that temporary deviations in the target growth rate of money should be permitted to accommodate large Treasury borrowings. Since this is the only explicit recognition in his proposal of the relation between fiscal policy and monetary policy, the impression might be gained that monetary and fiscal policies should be determined largely independently of one another. Such a view would depend on an extreme position with regard to the determinants of money income and the causes of economic instability. A small group of monetary economists does, in fact, argue that the effect of fiscal policy on money incomes and prices is insignificant—that "money only" matters. In our view, fiscal policy plays a critical role in the determination of incomes, spending, and financial flows, and must, therefore, be an important consideration in deciding what rate of monetary expansion should be permitted by monetary policy over both the long and short run. Fiscal decisions must be taken into account in monetary policy in a more significant manner than merely by providing temporary accommodation for unusually large Treasury financing needs.

Mr. Reuss' guidelines suggest, in addition, that short-run deviations in the growth rate of the money supply may be appropriate when they reflect variations in the public's demand for money. Thus, his proposals allow for changes in the target rate of monetary expansion to the extent that growth in time and savings deposits and shares substitutes for growth in money holdings, and to the degree that business liquidity requirements rise in periods of resource slack for reasons not associated with current expenditure plans.

It may be useful to state the general principle that underlies these two qualifications. It is that the growth rate of the money stock should be altered in response to changes in the demand for money that are not associated with changes in the public's plans to spend

for goods and services. This principle seems entirely valid; problems arise, however, in trying to determine just how much the target rate of monetary expansion should be allowed to vary in accordance with it.

The year just completed provides a good example of the difficulties involved. During 1967 the money stock rose by 6½ percent, the largest increase of any postwar year. Yet it seems clear that some part of this increase should be attributed to a shift in business demands for liquidity of the kind that could be classified as a relevant "qualification" under Mr. Reuss' suggested guidelines. Business long-term credit demands—especially during the last half—were huge. These credit demands apparently were not associated with current business expenditures, but were designed to effect a significant rebuilding in corporate liquidity.

Available information, however, is much too sketchy to indicate what portion of the \$11 billion increase in money holdings in 1967 can be attributed to this factor. Furthermore, it must be recognized that additions to money holdings to satisfy liquidity preference could at some future time be a source of funds to finance inflationary pressures, if these desires for more liquidity proved to be reversible. Thus, while it is clear that the end use of current financing activities must be considered in formulating policy, this principle is difficult to incorporate with precision in any guide to policy.

Similar kinds of difficulties are encountered when we consider how target rates of money should be adjusted to take into account the growth of time deposits at commercial banks and of deposits and shares at nonbank savings institutions. This question has been of particular importance in the past decade, as commercial banks have become more aggressive in bidding for time deposits and in offering new types of instruments for the public to hold, and as nonbank savings institutions have increasingly become caught up in monetary processes.

The difficulties in this area arise from the fact that we do not have empirical information that indicates the degree to which growth in these money substitutes, or "near-moneys" as they have often been called, provides a satisfactory alternate to growth in money balances in meeting the economy's needs for liquid assets and credit. It is for this reason that some monetary economists have tried to take into account these changing public preferences for financial assets by broadening the basis on which judgments on the course of monetary policy are made—to include not just the behavior of quantities of financial assets other than money, but also the prices and yields of financial assets. Thus, if shifts in public preferences between money and other financial assets alter the significance of a given growth rate of money, perhaps a better interpretation of policy can be gained by bringing into the analysis additional evidence that might help in judging whether the growth of money and credit is too rapid or too slow. Some of the considerations involved in this extension of monetary analysis were dealt with in the article in the May 1967 *Bulletin* mentioned earlier. Also, an article entitled "Time Deposits and Financial Flows" that appeared in the December 1966 *Federal Reserve Bulletin* dealt with the pronounced effects in financial markets that have resulted from the increased competition for time deposits in recent years.

We turn now from these more detailed issues relating to establishment of target rates of monetary expansion to discuss Mr. Reuss' suggestion as to how balance of payments considerations should affect monetary policy. He proposes that balance of payments problems should be taken into account in the formulation of monetary policy only to the extent of altering the maturity distribution of the System's portfolio.

This proposal might be appropriate in a period in which domestic prices were stable or declining and considerable slack existed in the use of our labor and capital resources. Under those circumstances, domestic economic developments could not be held accountable for a less than optimum international current account surplus. Consequently an effort to encourage more favorable international capital flows by altering the differential between long and short-term interest rates would be about all monetary policy could properly undertake in the interests of international payments equilibrium. This was in effect, a basic ingredient of the policy pursued in the early years of the 1960's, before domestic economic overheating and inflation became the serious problems they are today.

But it would be inappropriate to try to establish a separation of domestic and international stabilization policies applicable at all times and under all circumstances. When both domestic and balance of payments considerations point in the same policy direction, this reinforcement quite properly influences the intensity with which current policies are pursued. Currently, for example, we are in the process of seeking solutions for the most serious balance of payments and international financial problems this country has encountered in several decades. Our domestic economic and financial policies cannot ignore the existence of these problems. The Federal Reserve has supported the selective measures taken to restrict outflows of capital. But it cannot enjoy the luxury of supposing that the problems of external equilibrium that still remain are someone else's responsibility. The stakes at issue are simply too serious.

Balance of payments equilibrium deserves a place among the goals of central bank policy—not merely for its own sake, but for what it contributes to economic and social welfare both here and abroad. The lessons of the past weeks and months indicate clearly that failure to restore equilibrium in our payments accounts could lead to very serious disturbances in the international monetary system, and therefore in the world economy.

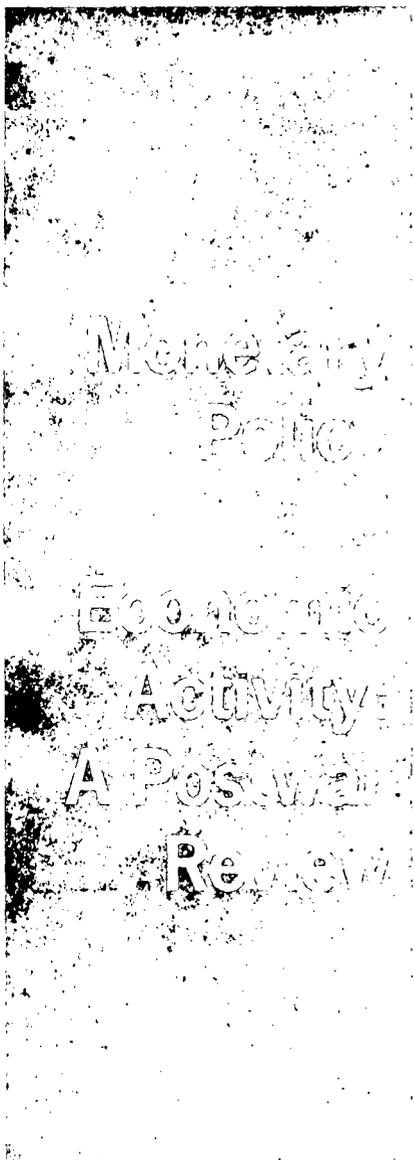
Finally, we turn to Mr. Reuss' suggestion for taking into account the effects of monetary policy on homebuilding by Federal Reserve open-market operations in the obligations of FNMA and the Federal Home Loan Banks "in meaningful amounts," and by lengthening the maturity of the System's portfolio of Treasury securities. The results which would ensue from Federal Reserve open-market operations in FNMA and FHLB issues would depend importantly on the scale of transactions contemplated. For purposes of the discussion here, we interpret his suggestion to imply System purchases in amounts sufficient to effect a perceptible reduction in borrowing costs to these agencies, relative to other market interest rates, but with these institutions still relying predominantly on the money and capital markets as the principal source for their funds.

Under those conditions, entrance of the Federal Reserve on the buy side of the market for FNMA and FHLB issues could be expected to have only a minor effect on the costs of borrowing by these agencies. Since the overall posture of monetary policy must be dictated by economic conditions, purchases of these agency issues would have to be compensated for by equivalent sales of direct Treasury debt from the System's portfolio. Consequently, interest rates on average would be affected little. There might be some tendency for rates on agency issues to decline relative to other market rates, but rates would tend to rise on the Treasury securities that were sold in order to effect open-market purchases in these agency issues. The reduced costs of borrowing by these agencies would thus tend to be offset by higher borrowing costs on other Federal obligations.

Moreover, the relative decline in rates on these agency issues would likely be small, inasmuch as there is an abundant supply of other Federal securities of comparable maturity to attract investment funds, and investors substitute freely between types of short-term debt as yield spreads change. The differential in yield between agency issues and comparable issues of direct Treasury debt reflects principally the market's evaluation of certain technical factors relating to the size, maturity, ease of marketability, and extent of Federal backing of agency issues. Such differentials can be narrowed by development of a broad private market acceptance, which could be forestalled by more active System intervention in what is, as yet, a relatively small market. A viable and broad private market for these issues would be more likely to develop over the longer-run if demand and supply forces were allowed to work with minimal direct System support.

The proposal to lengthen the maturity of the System's portfolio, the other part of Mr. Reuss' suggestion for dealing with potential problems of housing finance, seems unlikely to be of material benefit to homebuilding during a period of monetary restraint. Indeed, such maturity switches might even result in an additional constriction of mortgage fund availability. Maturity lengthening in the System's portfolio would, to some degree, reduce rates on long-term market securities relative to those on short-term instruments. This would encourage some institutional investors to acquire fewer long-term market securities and more mortgages. But at the same time, the increase in short-term rates would probably reduce the inflow of deposits and shares at nonbank thrift institutions, and this would tend to restrict funds to the mortgage market. This channel of influence stemming from lengthening of maturities in the System's portfolio might well be the more significant channel affecting mortgage fund availability.

There is still reason to be concerned that policies of monetary restraint may fall more heavily on housing than on other activities, so long as artificial rigidities and imperfections in the structure of housing finance are maintained. Measures designed to remove the impediments to a more stable flow of funds to residential construction would help to spread the burden of restraint more uniformly, and offer the greatest promise of avoiding unnecessarily sharp contractions in homebuilding.



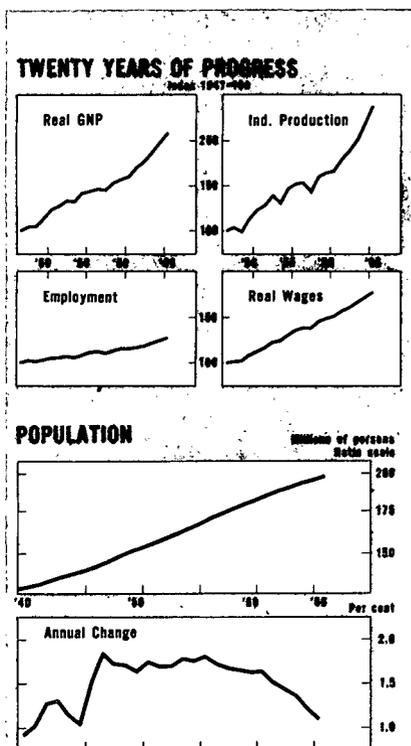
Members of the staff of the Board of Governors of the Federal Reserve System made a Staff Presentation in audio-visual form to the "Symposium on Money, Interest Rates, and Economic Activity," which was held in Washington, D.C., in April 1967, under the sponsorship of the American Bankers Association. The materials used on that occasion—with such modifications of charts and text as are necessary for printing in the BULLETIN—are shown below.

The original presentation was made by Daniel H. Brill, Senior Adviser to the Board; Robert C. Holland and Robert Solomon, Advisers to the Board; and Albert R. Koch, Deputy Director of the Division of Research and Statistics. Graphics were designed under the supervision of Mack Rowe.

The task on which we are setting out—a review of monetary policy over the entire postwar period—borders on the impossible. Just to read off the list of topics suggested to us for possible coverage would take most of our allotted time. Therefore, we will have to be highly selective.

We will spend some time discussing postwar developments in financial markets, since it is through these markets that policy actions are communicated to the rest of the economy. But we must spend time, too, on nonfinancial developments, since they determine the stance of policy and reflect how fully the ultimate goals of policy are realized. And we will consider the international as well as the domestic aspects of policy actions.

For the selection of developments in these areas on which to focus, and for the interpretation of events, let me first exonerate our principals. This is purely a staff view of the lessons of the postwar years; it is not in any way an official history of the period.



In most respects the postwar period has been satisfying in terms of over-all economic performance. Real gross national product and industrial output have risen substantially, and the effects of growth have been reflected in the expansion of employment and real wages. These developments provided the context in which monetary decisions were made over the postwar period. It is appropriate, therefore, to begin our discussion with a more detailed review of the performance of the real economy.

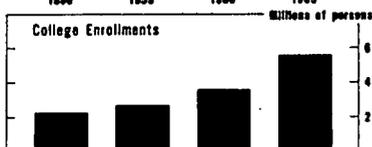
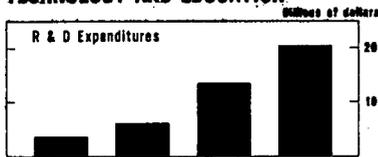
NONFINANCIAL DEVELOPMENTS

One of the most pervasive stimulants to postwar growth was the expansion in population and the large increase in demands for goods and services that it generated. The impact spread from housing, to schools, and to community facilities—sectors where outlays are relatively insensitive to short-run changes in income. Some of these outlays, however, are quite responsive to variations in credit conditions. The new-born of 20 years ago are reaching marriageable age, and a large wave of family formation is now in the offing.

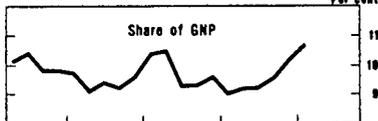
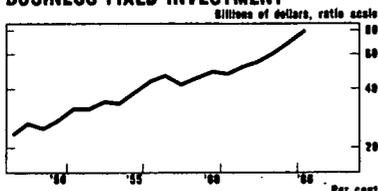
But with the birth rate declining, the annual percentage increase in population has slowed markedly since the middle 1950's. This slowing could have advantages, since earlier high birth rates have aggravated urban congestion, intensified pressure on educational facilities, and increased the burdens of Government. These pressures would be eased somewhat by a slower growth in population, but economic expansion would then have to depend more on invention and technical progress.

Research and development expenditures have been an important factor in technical progress and increased productivity—the basic ingredients of higher standards of liv-

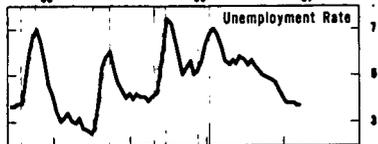
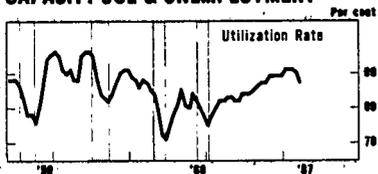
TECHNOLOGY AND EDUCATION



BUSINESS FIXED INVESTMENT



CAPACITY USE & UNEMPLOYMENT



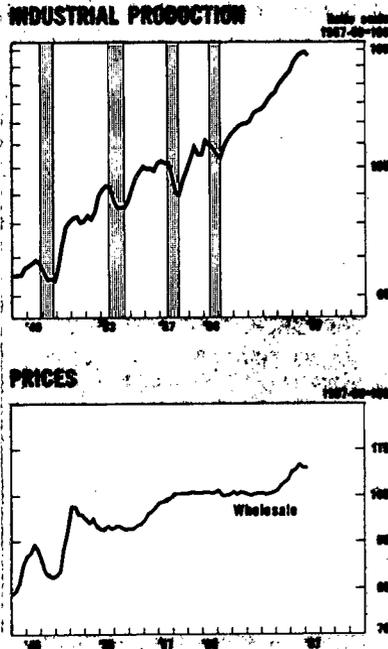
ing. Expenditures for research and development, supported in part by Federal financing, have risen dramatically since 1950. With technology changing rapidly, business investment decisions may have become less dependent on short-run prospects for sales and profits.

Investment in human capital—represented here by the rise in college enrollment—also has yielded striking returns. The effects of increased knowledge, according to one estimate, may account for as much as half of our growth in total real output.

With population, skills, and technology all advancing rapidly, the upward course of business fixed investment has proceeded with few interruptions. Earlier in the postwar period the rate of increase was relatively modest, despite large replacement needs, but investment advanced rapidly from 1955 through 1957. The slowdown in outlays after 1957 created years that investment opportunities were becoming saturated. But growth in demands and stimulative tax and credit policies resulted in an acceleration after 1961.

As a share of gross national product, expenditures for business fixed investment are not especially large—varying between 9 and 11 per cent—but they are strategic in terms of maintaining high resource use and economic growth. Providing a financial climate conducive to a high, but sustainable, rate of fixed investment clearly must remain a central objective of monetary policy.

Although the growth rates of business investment and of GNP have been large over the past 20 years, cyclical downturns have been costly. In each of the four postwar recessions, indicated by the vertical shading in the chart, the utilization rate of manufacturing capacity declined, and profits were reduced substantially.

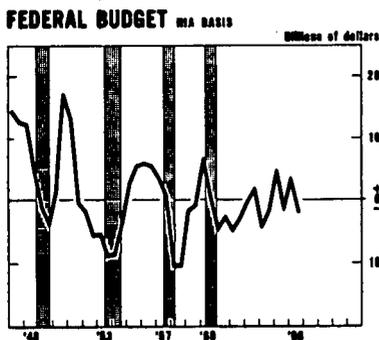
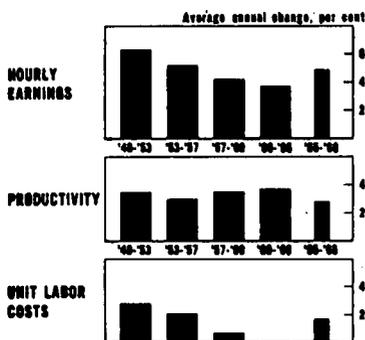


Unemployment during these recessions rose sharply—to a high of over 7 per cent during the recession of 1957–58. But there were also periods between recessions when the unemployment rate was too high, and capacity use was too low. Our problems of resource slack in the late 1950's and the early 1960's resulted from inadequate longer-run growth as well as from recessionary declines.

It is some comfort that the duration and amplitude of recessions have been reduced relative to the prewar period. Measured by the decline in industrial production, the four postwar recessions ranged in magnitude from 7 to 14 per cent. By contrast, declines of the 1920's and 1930's were much deeper and were generally longer. The current expansion since 1960 has been especially encouraging, with industrial output rising over 40 per cent between 1961 and 1966. Like compound interest, the cumulative return from steady growth is surprisingly large.

With recessions relatively short and mild, the postwar years have been free of the major price deflations of earlier periods in our economic history. Postwar periods of inflation have been episodic—usually war-induced. Wholesale prices rose sharply after World War II ended and during the early stages of the Korean conflict. The rise in 1956–57, by contrast, reflected mainly a peacetime investment boom with rising unit labor costs. After 1957, wholesale prices were stable for about 7 years, as unit labor costs leveled off, but then the pressures of Vietnam, superimposed on expanding private demands, touched off new price increases. The recent price rise, however, has been milder than those of earlier inflationary periods.

In the early postwar years consumer



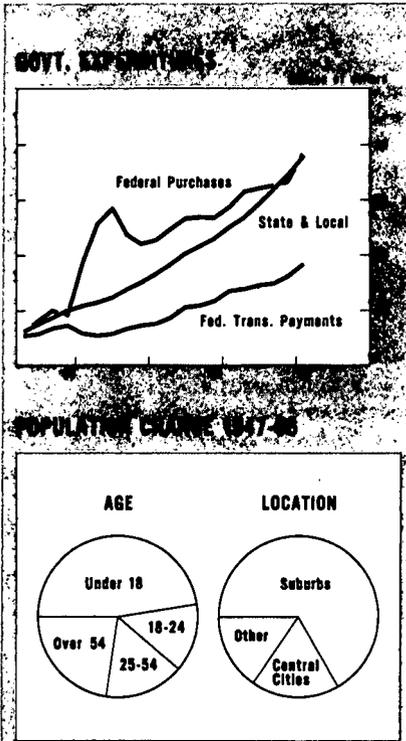
prices moved more or less in line with wholesale prices. After 1958, however, the two series began to diverge. The rise in consumer prices since then has reflected in large part increased costs of services.

An important factor moderating cost-price pressures over the postwar period has been the diminishing rate of increase in hourly earnings in manufacturing (including fringe benefits). The bars in the accompanying chart represent average annual rates of increase from one cycle peak to the next. In each successive cycle, the increase has been smaller. Meanwhile, productivity gains have continued to be rapid—averaging between 3 and 4 per cent per year. Unit labor costs, consequently, have increased progressively less, and between 1960 and 1966 they showed virtually no rise.

In the last year of the recent period, however, the pattern changed dramatically. Hourly earnings rose more rapidly—in the context of rising consumer prices, higher profits, and a tight labor market. And with gains in productivity slowing, unit labor costs rose significantly.

Avoiding inflation and recession depends on fiscal as well as on monetary policy. Deficits and surpluses in the Federal budget, as measured in the national income accounts, have contributed importantly to cyclical stability. The budget has moved toward deficit during recessions and back toward surplus during expansions.

In the most recent expansion the swing toward surplus was cut short by tax reductions, which played a significant role in prolonging economic growth. But when the expanded defense effort began in mid-1965, the rapid escalation of expenditures prevented the movement toward budget surplus that we needed to help maintain price stability.



Increased spending for the war in Vietnam was the principal source of the rise in total Federal purchases last year. Indeed, the postwar growth and fluctuations in Federal purchases have been dominated by defense requirements.

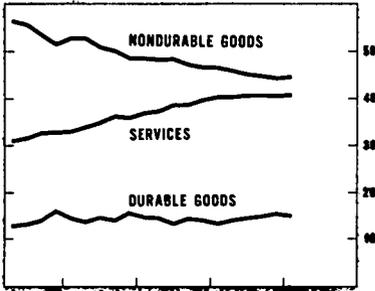
Growing pressures for nondefense government services, however, have generated substantial increases in other types of governmental spending. Thus, State and local government purchases have nearly doubled as a percentage of GNP in the past two decades, and these outlays now about equal Federal purchases. Federal transfer payments, which rose slowly in the first postwar decade, began accelerating thereafter—reflecting marked increases in social security benefits and in other social welfare programs.

These growing government expenditures can be traced, in part, to new demands created by the postwar change in population. Half of the postwar increase has been in the number of youngsters under 18 years of age. Educating this group has absorbed more than a third of State and local government spending and an increasing proportion of Federal outlays. And the large increase in the oldest age group has brought with it a sharp rise in government transfer payments.

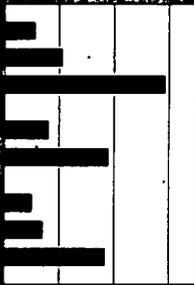
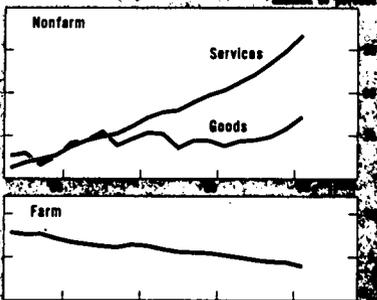
The massive migration into suburbia has also had a major influence on economic developments. Suburban growth has required huge amounts of public and private funds to build the necessary social infrastructure. Though central cities have grown also, they have lost many higher-income families. Left with a deteriorating tax base and growing urban problems, the cities have had to seek outside help in meeting rising costs.

Rising demands for services are evident, too, in the pattern of consumer outlays.

CONSUMER OUTLAYS PER CENT OF TOTAL



EMPLOYMENT

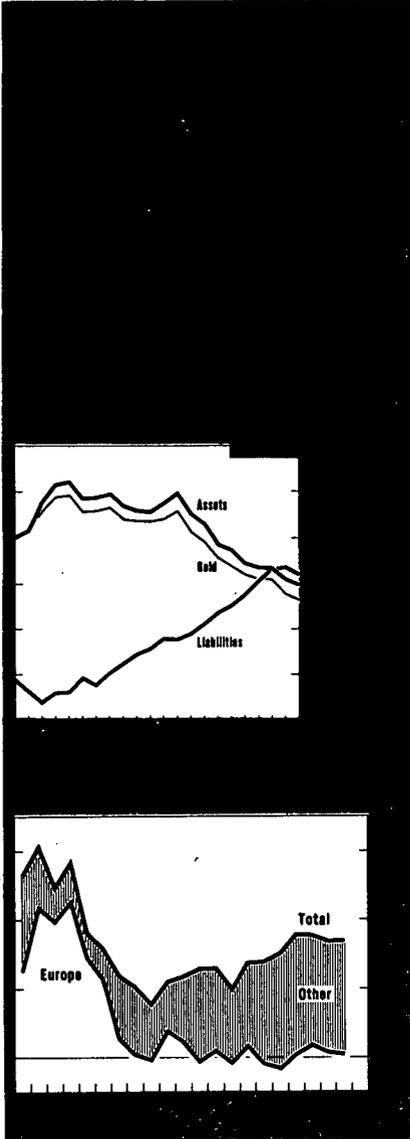


Consumers are allocating a larger portion of their outlays to better housing and to increased education and medical care, and a smaller portion to such basic nondurable goods as food and clothing. Durable goods expenditures continue to fluctuate cyclically, but over the longer run the proportion of consumers' spending on durable goods has changed little.

Growth of government and private spending for services and the rapid increase in productivity in the output of goods, have profoundly affected the structure of employment. Service employment, including persons engaged in trade and in private and public services, has increased almost uninterruptedly. Employment in the goods-producing industries, although recovering somewhat in recent years, is only a little higher now than in 1953. Farm employment, meanwhile, has declined steadily.

With a higher proportion of our work force in the more stable service sectors, cyclical unemployment problems may become less severe. But with slow growth of jobs in output of goods, and with increasing demands for highly trained workers, unemployment problems of a different kind have developed.

Last year, for example, the overall unemployment rate declined, and quickly reduced the pool of trained and experienced workers. Among adult men the unemployment rate was nearly as low as during the Korean war. But for the increasing number of teenage jobseekers, the unemployment rate has remained exceptionally high. Similarly, the rate for nonwhite workers has shown little improvement, and it remains more than double the figure for white workers. Inadequate skills and inexperience are clearly major occupational handicaps in the labor market. For white-collar and skilled



workers, unemployment rates last year were below 3 per cent, but for those without skills the rates were much higher.

Structural unemployment problems cannot be solved by aggregate monetary and fiscal policies alone. But with the social costs of unemployment extraordinarily high, the need to maintain a strong and growing economy has become more urgent.

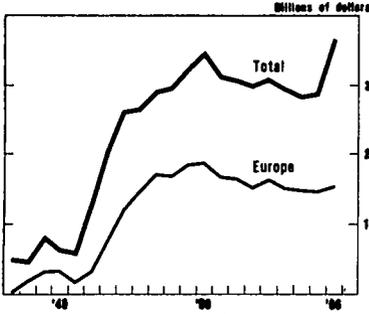
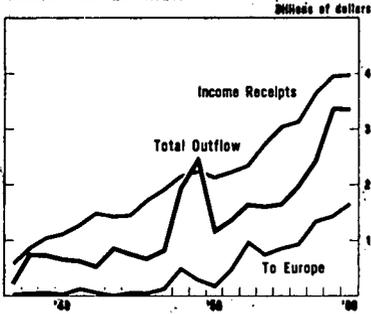
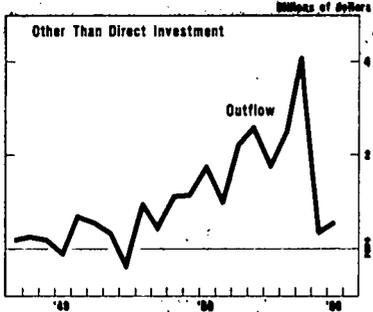
Let us now turn to the position of the United States in the world economy.

BALANCE OF PAYMENTS

It was in 1958—9 years ago—that erosion of the U.S. international reserve position, and the payments imbalance from which it stems, began to be a serious problem for the United States. The problem has proved persistent. Total U.S. reserve assets—consisting of gold, convertible currencies, and our reserve position in the International Monetary Fund—have declined by about \$10 billion since 1957, and U.S. liabilities to foreign official institutions have increased by about \$7 billion.

In order to arrest this deterioration it is necessary to achieve a better matching between our net exports of goods and services, on the one hand, and our expenditures abroad for aid, military purposes, and foreign investment, on the other.

Foreign economic aid in the first 5 post-war years averaged over \$5 billion a year, with heavy outflows to Europe. At that time, with urgent demands and severe shortages of capacity abroad, any flow of dollars from the United States pulled U.S. exports with it. Since 1952, net aid to Europe has been very small—even negative in years when large advance repayments of debts were being made. Aid to other countries continued to show a rising trend through 1962 but has since leveled off.

MILITARY EXPEND. ABROAD**DIRECT INVESTMENT****U.S. PVT. CAPITAL**

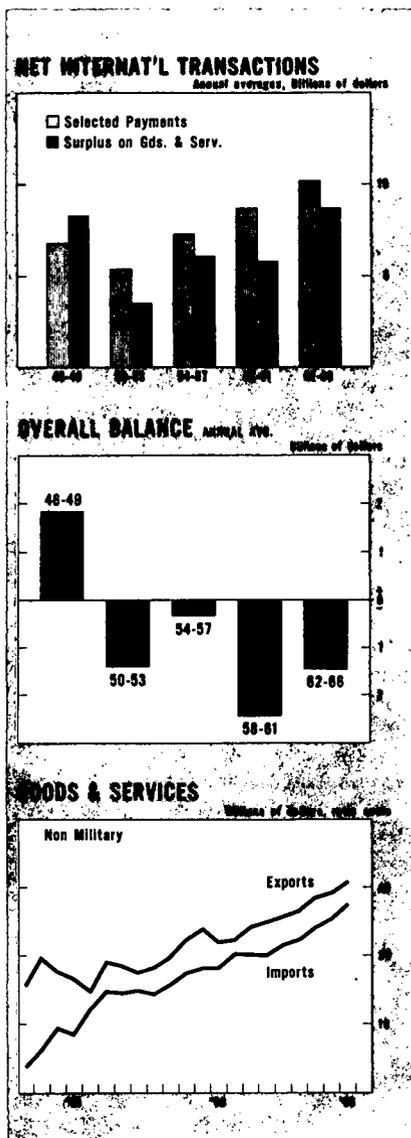
Although foreign economic aid is larger now than it was in the mid-1950's, it is a smaller proportion of GNP--about one-half of 1 per cent. Most aid is now tied to U.S. exports. In some cases this aid-tying avoids a burden on our balance of payments, but in others the tied-aid exports replace sales that might have been made for cash.

U.S. military expenditures abroad reached a peak in 1958 of about \$3.5 billion. Since then, expenditures in Europe, and also in Canada, have declined. But those in other areas have risen abruptly since 1964 because of Vietnam, and the total for all areas reached a new high last year. Sales of military equipment (not shown here) have helped to offset expenditures, and net military spending abroad remained somewhat lower last year than in 1958.

While military expenditures were gradually declining from 1958 to 1964, corporate direct investment abroad was increasing rapidly. Before 1958, direct investments were mainly in Canada and in the petroleum industry elsewhere. These bridged during the Suez crisis of 1956-57. Since 1958, flows to manufacturing affiliates in Europe have also been strongly on the rise. Last year, growth in the total outflow for direct investment was checked in response to the Commerce Department's voluntary program.

Income receipts from past investments have also had a strong upward trend and have exceeded outflows of new capital. But in recent years this excess has shrunk.

Net outflows of U.S. private capital other than direct investment have had a strong growth trend since the early 1950's. These flows were cut back sharply in 1965 and remained low last year under the influence of the interest equalization tax (IET), the voluntary credit restraint programs, and the tightness in U.S. financial markets. The IET



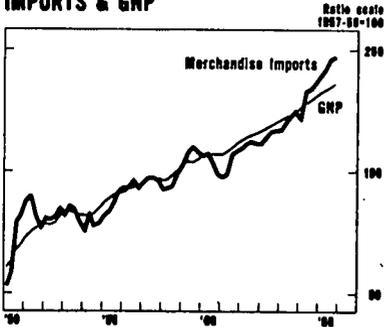
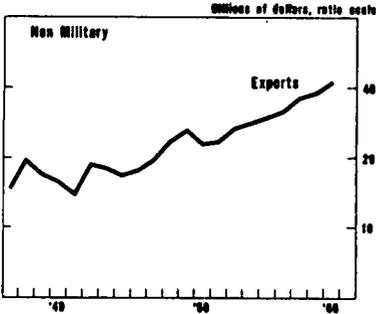
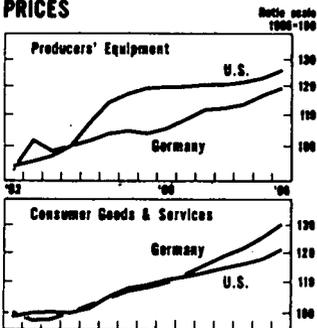
and the voluntary programs are still exerting substantial effects this year.

In the accompanying chart, we have added up, for successive periods, the selected aid, military, and investment payments just discussed. The steady increase since the early 1950's is evident.

Meanwhile, the U.S. export surplus on goods and services has also been on a rising trend since the early 1950's. But net receipts on goods and services have not been large enough to match the total payments on aid and on military and investment accounts.

Thus, the overall balance of payments—shown in the accompanying chart on the official reserve transactions basis—has been in deficit since the early 1950's. At first, these deficits were regarded as desirable, since postwar reconstruction required some building up of the gold and dollar reserves of foreign countries. But by the time the worldwide boom of the mid-1950's came to an end, the dollar shortage was clearly over, and substantial U.S. payments deficits were no longer welcome. Just at that time, the rate of deficit increased sharply—to an average of about \$2.5 billion a year in 1958-61. The new problem was to reduce these deficits. Since the early 1960's, the rate of deficit has been cut by nearly half. But it remains too large, and the accompanying erosion of the U.S. reserve position is a serious problem.

While limitations on capital outflow can contribute to the solution of this problem, heavy reliance must also be placed on a long-run improvement in the surplus of exports over imports of goods and services. Since the early 1950's, exports of goods and services, including investment income receipts, have been growing at about the same rate as imports. These more or less parallel movements have given the net balance on these transactions an increasing trend,

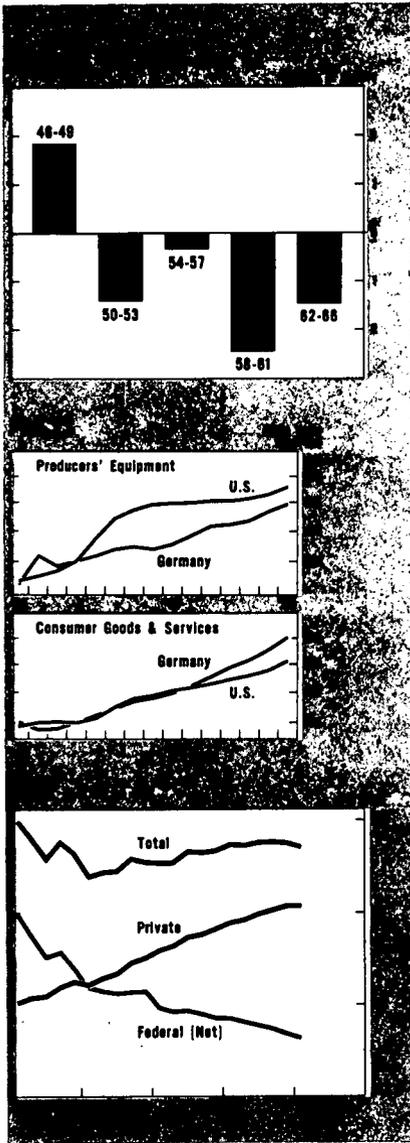
IMPORTS & GNP**GOODS & SERVICES****PRICES**

which, on a ratio scale, shows up as a steady gap.

There have been wide fluctuations, mostly of a cyclical character, in the goods and services balance. Fluctuations in demand in this country cause short-run variations in the growth of U.S. imports. Over the long run, merchandise imports have grown roughly in line with GNP. But they have declined more rapidly than GNP in recessions, shown in the chart by the shading. And they have risen much more sharply than GNP during boom periods, as in 1965-66, when domestic pressures on capacity became intense.

Similarly, exports fluctuate in response to cyclical developments abroad. Cycles in Europe, Canada, and Japan directly affect shipments to those countries. And shipments to nonindustrial countries tend also to reflect, with a lag, the fluctuations of demand in foreign industrial countries and in the United States.

Longer-run trends of both exports and imports are influenced by our competitive position in world markets. During the boom of the mid-1950's, prices in this country rose sharply, especially for producers' equipment. The price advance here for those products outpaced that in Europe, which is exemplified in the chart by Germany. Europe's better price performance in the 1950's was the result, in part, of a more rapid advance in productivity. Thus, sharply rising wages in Europe kept consumer prices moving up as fast as ours in the 1950's while Europe's industrial and export prices lagged ours. Our international competitive position may have been at its weakest in the years from 1958 to 1960. Thereafter, relative price stability in the United States—at least until last year—has been helping us to regain some of the ground lost.



But the balance of payments problem is still with us. To correct it, we must enlarge our surplus on goods and services or hold down capital outflows or both, and we must do these things in a way that is consistent with other objectives—in particular, the maintenance of a vigorous and healthy domestic and world economy.

Our balance of payments problem—represented by a persistent deficit—has as its counterpart a persistent surplus in continental Western Europe. Better equilibrium in world payments requires corrective action by Europe—action to reduce surpluses there—as well as corrective action here.

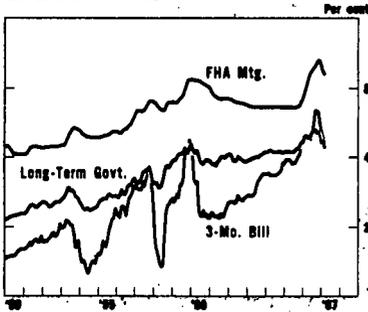
What contribution can monetary policy make to improvement in our payments position? Its main contribution is to help prevent price inflation and the sort of deterioration in our competitive position that occurred in the late 1950's. This means trying to prevent the build-up of excess demand pressures, such as we experienced in 1965-66. Although monetary policy also has some capacity for affecting capital flows, that capacity is limited if monetary policy is to perform its domestic tasks adequately. It is the influence on prices and costs that matters most for the longer-run balance of payments position.

The presentation will continue with a review of developments in domestic financial markets over the postwar period.

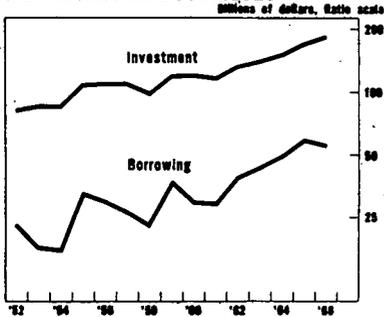
FINANCIAL DEVELOPMENTS

Postwar economic growth has been supported by a rapid increase in private debt. Measured here to include the debt of non-financial businesses, individuals, and State and local governments, private debt has risen much faster than GNP. While lengthening of maturities has moderated the debt burden, the fragmentary evidence available

INTEREST RATES



INDIVIDUALS and BUSINESSES



suggests that a larger share of current income is now being absorbed by debt service. The need for maintaining a stable growth in income to sustain repayment abilities of borrowers has thus become more critical.

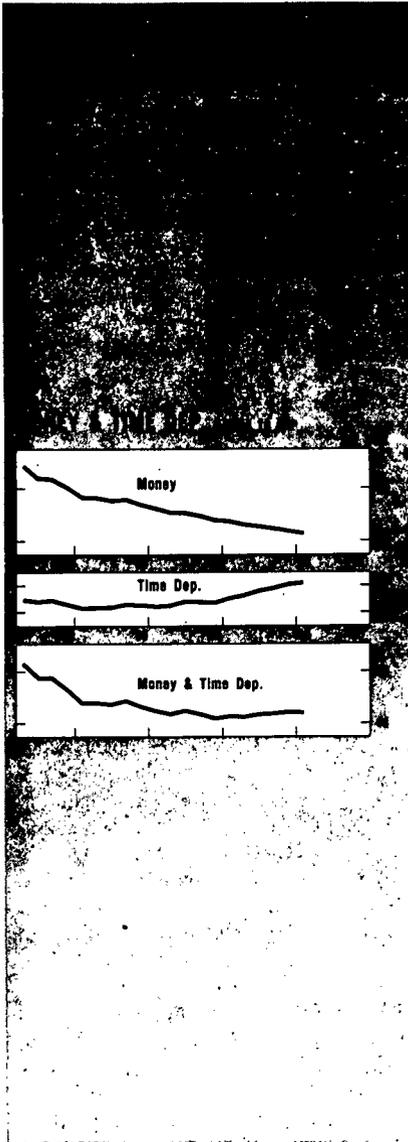
Federal debt—net of holdings by the Federal sector—dropped sharply relative to GNP in the early postwar years. In dollar amounts, net Federal debt reached its trough in 1951, but the increase since then has been slow, and the ratio to GNP has fallen further. However, with private debt rising rapidly, the ratio of total debt to GNP began to show an upward trend early in the 1950's, and the rise continued until recently. In the process the financial markets had to absorb an abundance of new securities.

Debt expansion has brought with it rising interest rates on all types of borrowing. For long-term rates on both Government and private securities (the latter represented in the chart by the FHA mortgage rate), recessionary declines were short, and rates subsequently climbed to new peaks—and to the highest levels in four decades during 1966.

Three-month bill rates, characteristically more volatile, experienced much wider cyclical swings and rose more during the entire period than did long-term yields.

While the secular rise in yields reflects mainly the strength in domestic investment and borrowing, other developments also played a role. International capital markets have become more closely interrelated, and capital needs in other countries increasingly impinge on U.S. financial markets.

The pace of borrowing by individuals and businesses has been irregular. These fluctuations reflect principally the course of business investment in fixed capital and inventories, and purchases by individuals of homes and durable goods. Since these expenditures



are heavily financed by credit, sharp surges in investment are typically accompanied by still larger increases in borrowing.

Monetary policy works largely—though certainly not exclusively—through its impact on these types of investment expenditures. Its task is to promote monetary and credit conditions that help sustain high use of resources and the maximum noninflationary rate of expansion in investment and in economic activity.

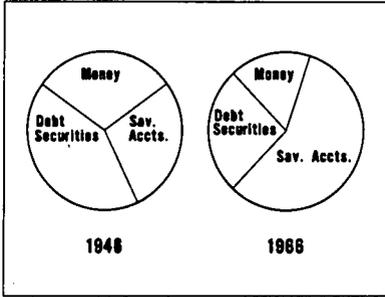
Accomplishing these objectives has called for recognition that the amount of money—that is, currency and demand deposits—needed to support a given level of GNP has been changing. Over the postwar period the ratio of money to GNP has declined—rather rapidly until 1951, and then more slowly. It could well decline further, given sufficient interest rate incentives and further development of techniques for economizing on cash. But this ratio is already at a record low, and forecasting an indefinite continuance of the trend would be hazardous, even on the eve of the checkless society.

Broadening the analysis to include time deposits of commercial banks does not clarify the economy's monetary needs. Postwar growth in time deposits has not followed the course of expansion in money. The ratio of time deposits to GNP first declined and then remained level through most of the 1950's. More recently, the ratio has increased substantially as banks have bid more aggressively for these deposits.

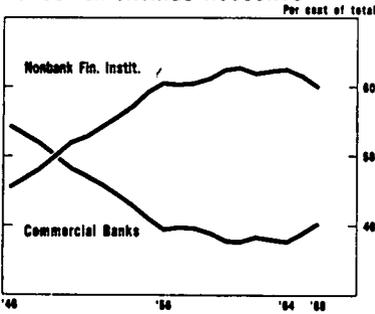
The ratio to GNP of money and time deposits taken together reflects the results of these divergent trends. This ratio declined through most of the postwar period, but then began to rise gradually during the 1960's, when time deposits were increasing rapidly.

Changes in the amounts of money and time deposits held by the public, relative to

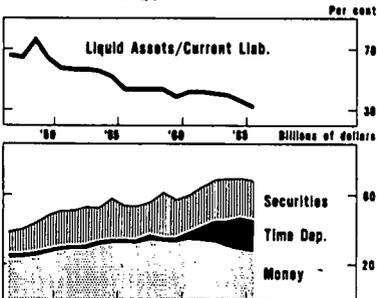
CONSUMER HOLDINGS



CONSUMER SAVINGS ACCOUNTS



CORPORATE LIQUIDITY



GNP, reflect dramatic postwar shifts in the structure of financial asset holdings, especially those of consumers. In 1946, their holdings of debt securities exceeded their money balances and also their savings accounts at banks and nonbank intermediaries. By 1966, however, consumers had built up their savings accounts to twice their holdings of debt securities and to more than three times their holdings of money. The total volume of savings accounts by this time was huge—roughly \$200 billion—and financial institutions were bidding aggressively for these funds.

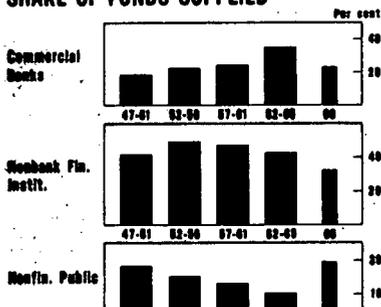
The competitive positions of banks and nonbank intermediaries in the market for consumer savings accounts have changed markedly in the postwar period. Over the first decade the interest rates offered by commercial banks were less attractive than those paid by other institutions, and the banks' share of the total stock in this market declined.

By the mid-1950's, bank appetites to compete for savings accounts had become whetted by the need for new sources of loanable funds. When Regulation Q ceilings were lifted, banks raised interest rates on deposits, and they began to hold their own in this market. During 1965 and 1966, competition intensified further, and banks—for the first time in the postwar period—gained headway in the competition for consumer savings accounts.

In the corporate sector management of liquid assets also has influenced the level and structure of financial asset holdings. The ratio of total liquid assets to current liabilities has trended downward—reflecting strong interest rate incentives to limit money holdings and the development and spread of innovations in corporate cash management.

Corporate money balances, consequently,

SHARE OF FUNDS SUPPLIED



grew slowly over the first 15 postwar years—more slowly than sales or current liabilities. Large banks became concerned about the sluggish growth of the accounts of their large customers, and in 1961 they introduced negotiable CD's to recapture a larger share of corporate liquid funds. Corporate time deposits then mushroomed, but money holdings declined.

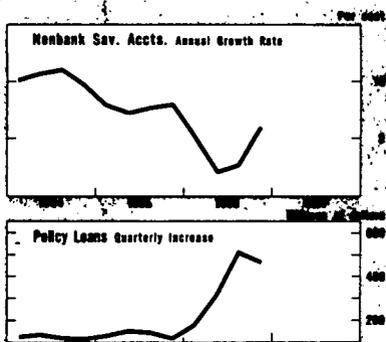
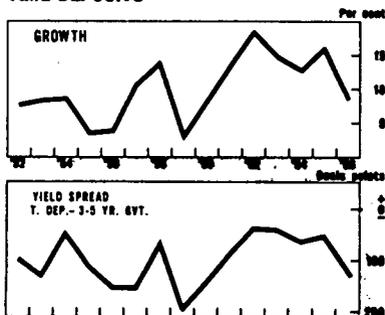
However, corporate investment in short-term securities also appears to have been reduced by this increased commitment to CD's. Thus, corporate security holdings have not increased materially since 1960, even though their total liquid assets have grown by one-fifth.

For banks, attraction of time and savings deposits from consumers, businesses, and others has significantly improved their position as suppliers of funds. In the first 5 postwar years banks supplied less than one-fifth of total funds raised; by 1962-65, on the other hand, their share had risen to over one-third.

This rising bank share was partly at the expense of nonbank financial institutions, whose share of funds supplied has diminished gradually over the past decade. But the principal offset was the reduction in funds supplied directly to borrowers by the nonfinancial public, through their purchases of market securities.

The funds attracted by banks and nonbank intermediaries through competition in rates and other terms have proved to be highly interest-sensitive. In 1966, market interest rates rose sharply—and by more than the rates on deposit-type claims, whose yields were constrained by both institutional and regulatory factors. Consequently, the nonfinancial public acquired more market securities and fewer deposit-type claims, and the shares of funds supplied by banks and

TIME DEPOSITS



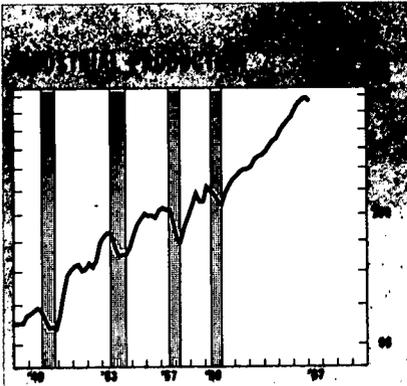
nonbank institutions declined during the year.

Last year's experience was foreshadowed by earlier fluctuations in the growth rate of time deposits at commercial banks. These variations appear to be mainly the result of changes in relative yields. The bottom panel of the accompanying chart shows the yield spread, in basis points, between the rate on 3- to 5-year Governments—a representative market security—and the average effective rate paid on time and savings accounts. Time deposits became relatively more attractive when the yield spread moved up, and in those periods time deposit growth generally accelerated. When yields on time deposits became relatively less attractive, their growth usually slowed. Movements in these two series have not been perfectly correlated, to be sure, but they have been quite similar.

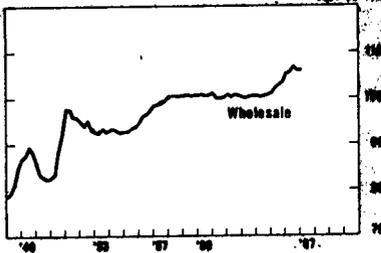
With holders of financial assets becoming more interest-sensitive, nonbank institutions have been increasingly influenced by the effects of monetary policy. Thus, the growth rate of nonbank savings accounts began to recede late in 1964, when competition from banks intensified. In last year's taut financial markets, with rates on market securities and banks' time deposits rising, net inflows to nonbank institutions dropped markedly, and then increased sharply in the fourth quarter when market rates began to fall.

The impact of monetary restraint also spread to insurance companies, where policy loans rose sharply, reducing the volume of funds available for investment in corporate securities and mortgages.

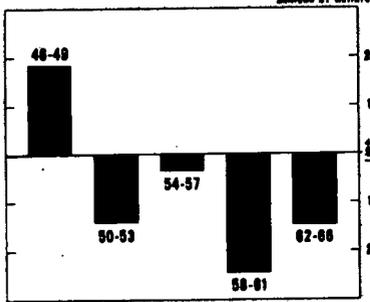
The more aggressive competition developing in financial markets over the postwar years, together with the decline in liquidity of financial institutions, has created an environment requiring a higher order of man-



PRICES



OVERALL BALANCE ANNUAL AVE.



agement, both at banks and at nonbank financial institutions. At the central bank, these developments also call for increased capability on the part of policy-makers to recognize, and to adapt to, policy impacts that are not only becoming more prompt but also more pervasive.

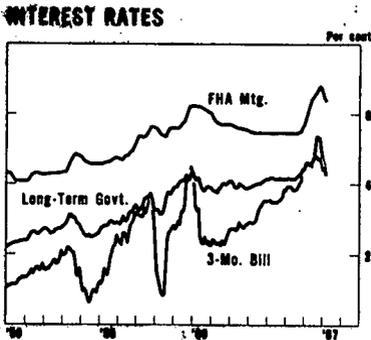
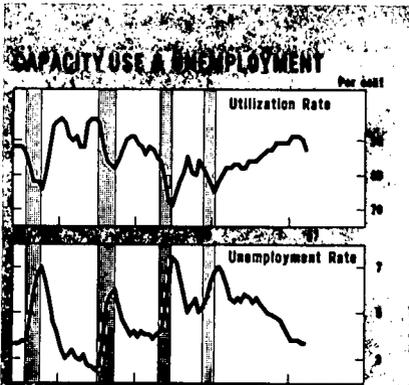
In conclusion, let us discuss the implications of our analysis for the formulation of policy.

CONCLUSION

Recognizing that there is still much to be learned about stabilization policy, we can all take some pride in the performance of the economy in the postwar period to date. Industrial output has more than doubled since 1947. In long-run perspective, the four recessions appear as brief hesitations in the general advance. Though production has turned down recently, the rapid and prolonged expansion since 1960 suggests that we may have learned something about maintaining steady growth. But even a casual look at broad economic indicators reveals unsolved problems.

For example, the unsatisfactory price record reflects mainly sudden bursts of demand, the effects of which are seldom reversed. For prices, what goes up usually does not come down. The stability of wholesale prices between the periods of strong surge indicates what can be accomplished if balanced and orderly expansion is maintained.

Improvement in our record of prices is needed in part because of the effect of inflation on our balance of payments. International payments disequilibrium has been a problem for nearly a decade. In recent years we have made some progress in reducing the disequilibrium by improving our competitive position and by using such measures as restraints on capital flows. But a problem still

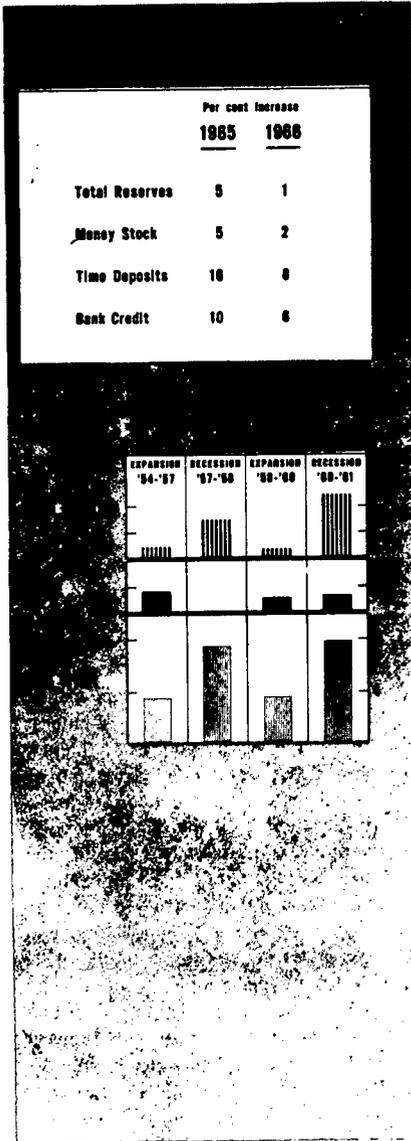


remains, and our policy goals—both domestic and international—could be jeopardized if we do not show more progress in moving toward equilibrium.

Furthermore, any pride we might take in the overall economic performance of the postwar years is diluted when we consider the amount of lost production and idle resources whether associated with short postwar recessions or longer periods of slack in resource use. The cost of recessions is high, given our pressing social needs.

To reduce further the extent and duration of these recessions, we must learn more about the underlying causes of economic fluctuations and how to forecast their occurrence. It is well known that the effects of monetary policy on the economy are not instantaneous. Since the lags are variable and sometimes substantial, poor forecasting can result in poor policy decisions. Granting that the forecasting art is still primitive, the solution, it seems to us, lies in improving the art, rather than abdicating to arbitrary rules the responsibility for stabilization policy.

One area in which improvements are needed is in the understanding of interactions between monetary policy and financial variables. Those developments we can observe—such as changes in interest rates—usually represent both the effects of policy and the public's responses to a host of other influences. Rising interest rates, for example, may stem from either restrictive monetary policies or from rising demands for credit. Moreover, interest rates are only one of the many terms in the complex equation that determines credit flows. Terms other than price, and the availability of loan funds to borrowers, can change drastically in ways that interest rates fail to indicate. But since changes in interest rates and the associated variations in prices of financial assets are the



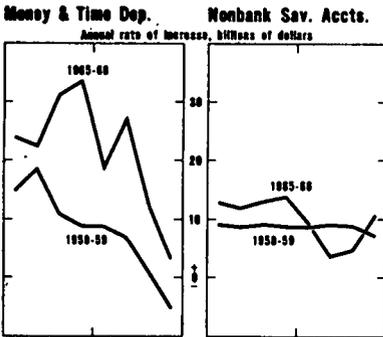
common thread that links the financial markets, their behavior is vital in any assessment of monetary policy.

Because of the difficulties in interpreting interest rate movements, some economists advocate judging the posture of monetary policy by one or more measures of monetary growth. There are times when a variety of quantity measures display parallel movements, as those shown here did between 1965 and 1966. Then, the direction of policy, at least, is clear, although the degree of restraint or ease may not be.

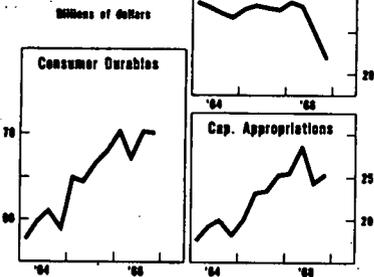
The more serious problems arise when there is a need for finer judgments on the course and intensity of policy. Here, for example, we show the annual rates of change in total bank reserves over recent periods of expansion and recession (as defined by the National Bureau of Economic Research). It appears from the total reserve measure that Federal Reserve policy was contracyclical: reserves rose more rapidly during recessions than during expansions.

But growth of the money stock during these periods suggests a different conclusion: the money stock has sometimes risen more rapidly during expansions than in intervening periods of recession. It is perhaps tempting to interpret this as evidence of misguided policy action. But the money stock is determined by the public's demand for money interacting with monetary policy; this demand is influenced by income, interest rates, expectations, and other factors. Thus, changes in the money stock must be interpreted in light of changes in other financial and nonfinancial variables that accompany them.

In contrast to the changes in money, growth in bank credit over these economic cycles was contracyclical: largest during recessions and smallest in periods of expansion.



EXPENDITURES AND APPROPRIATIONS



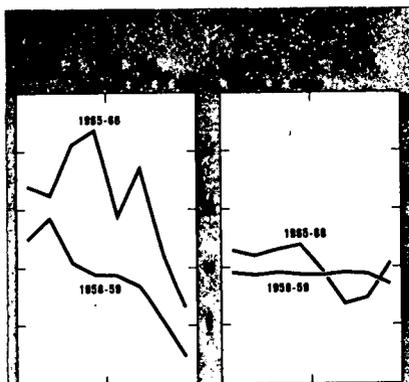
sion. To an important degree, these fluctuations in bank credit reflected changes in the growth rate of time deposits. The public switched between market securities and time deposits, as monetary policies—interacting with credit demands—altered the yield spread between these classes of assets. It would seem, therefore, that no single aggregate banking measure tells the whole policy story.

Moreover, the problems of interpreting monetary measures are magnified when the effects of policy spread more pervasively outside the banking system. During the 1950's, the effects of monetary restraint were confined mainly to a relatively narrow range of financial assets. Restrictive policies during the 1958-59 expansion, for example, reduced the growth of money and time deposits substantially, but the growth rate of nonbank savings accounts changed little.

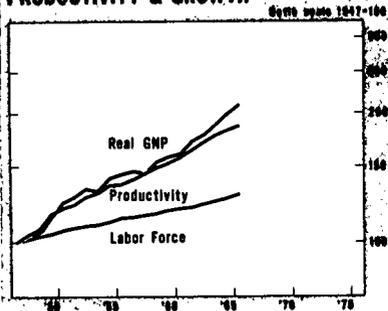
Last year, restrictive policies once again reduced the growth rate of money and time deposits. But with market rates on securities rising rapidly, and with commercial banks bidding more aggressively for available funds, net inflows of funds to nonbank savings institutions also fell abruptly before recovering late in the year.

As monetary restraint spread to nonbank financial institutions, there were marked effects on the structure of private expenditures. Though the money stock rose considerably during the first half of last year, the mortgage market came under pressure fairly quickly, and housing starts and residential construction declined sharply.

While purchases of consumer durable goods leveled off last year, and new capital appropriations of manufacturers declined after the second quarter, it seems evident that these developments were less closely related to financial restraint than was the



PRODUCTIVITY & GROWTH



decline in residential construction. Not all sectors were affected equally by monetary policy during the year. These structural effects raise important questions of equity and social priority, and it is necessary to take them into account in deciding when, how much, and what kind of policy actions are appropriate.

With monetary restraint extended to a wider range of financial assets and institutions, and with an uneven impact of restraint on spending, an assessment of monetary policy from the changes in any single variable goes further astray. Sophisticated monetary analysis does not—and need not—rest its case on the behavior of free reserves, or the money stock, or bank credit, or interest rates, or any other single factor. Recognition of the need to comprehend the interdependency among financial variables, and between financial and nonfinancial variables, underlies much of contemporary monetary research, and the Board's staff is devoting a large share of its resources to that quest. It is clear that determination and interpretation of policy require a weighing of the movements in all these variables together and jointly assessing their meaning for the ultimate targets of monetary and fiscal policy—that is, employment, production, and prices.

For in the long run, the test of the success or failure of stabilization policies depends not on the growth of the money stock, nor on the level of interest rates, nor the size of the Federal deficit, but on the extent to which monetary and fiscal policies together fulfill the potential for real economic growth that our resources make possible.

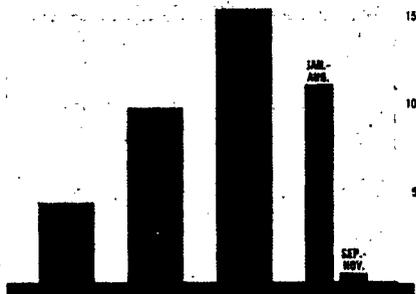
TIME DEPOSITS AND
FINANCIAL FLOWS

REPRINTED FROM
FEDERAL RESERVE BULLETIN
FOR DECEMBER 1966

INFLOWS of time and savings deposits at commercial banks have declined sharply in 1966, especially since mid-August. This decline contributed to a reduction in the availability of bank credit to borrowers.

The 1966 slowdown followed several years of very high rates of inflows of time and savings deposits at commercial banks. This success in attracting time and savings deposits since 1957—and especially in the period from 1962 through 1965—had a significant influence on the role of commercial banks in the financial system. Commercial banks as a group became not only suppliers of money, but also one of the dominant issuers of nonmoney liquid assets. By the end of 1964 their interest-bearing deposits exceeded private demand balances for the first time in history; 10 years earlier time and savings deposits at banks had been less than one-half as large as private demand deposits. With this greater inflow of time deposits, total bank deposits grew at an accelerated rate, and banks showed a marked increase in their share of the total funds supplied in credit markets.

CHART 1 Time deposit GROWTH slows since late summer '66



Data are for all commercial banks. Data for 1966 are at seasonally adjusted annual rates.

The larger time deposit inflow at banks in the first half of the 1960's was accompanied by substantial readjustments in the size and composition of financial flows throughout the economy. The public—consumers, businesses, and State and local governments—placed a greater share of its financial asset acquisitions in bank time deposits rather than in other interest-bearing assets and at the same time increased its rate of acquisition of total financial assets relative to income. Banks, meanwhile, expanded their share

of funds supplied in the markets for State and local government bonds and real estate mortgages. In the business sector, firms issued fewer securities and relied more on issues of mortgages and on loans from banks to finance their expenditures.

With the decline in inflows of time deposits in 1966, these tendencies were reversed. Banks reduced their acquisitions of securities. Their sales and runoffs of U.S. Government securities were large all year, and since midyear many also liquidated municipal bonds. Furthermore, they became increasingly reluctant to make additional loans. As a result a larger share of credit demand was met in money and capital markets at rising yields.

TIME DEPOSIT GROWTH

The greater interest of banks in competing for time and savings deposits in the last 10 years emerged from earlier postwar developments. In the first decade after World War II bank deposits did not expand so fast as the over-all economy. This slower expansion reflected in part the excess liquidity left over from wartime finance and the recurrent need to temper inflation by restrictive monetary policy actions that curbed the expansion in bank reserves and deposits.

At the same time, nonbank financial institutions were recording high growth rates as their deposits and shares gained increasingly widespread acceptance among consumers. As a result, commercial banks lost their competitive position in the market for consumer savings. Concurrently, businesses were diversifying their liquid asset portfolios—nonfinancial businesses, attracted by rising yields, turned more and more to market instruments as a repository for liquid funds, and their deposits at banks showed little growth.

With the growth of deposits limited, banks in the first postwar decade drew heavily on their previous accumulations of liquid assets to finance loan expansion. While banks had been expected gradually to liquidate part of their huge holdings of Government securities acquired during the war, the persistent erosion of liquidity due to loan expansion and liquid asset sales led banks to try to find additional sources of funds to finance customers' loan demands. Banks were thus coming under pressure to compete more aggressively for time and savings deposits.

The increase in Regulation Q ceilings at the beginning of 1957 gave banks added leeway to compete for these deposits, and the growth rate of time deposits began to accelerate soon thereafter. In the period from 1957 through 1961 time deposits at banks

PERCENTAGE INCREASE, 1946-56

Bank deposits	38
GNP	101
Nonbank deposits	172

Bank deposits are total deposits at commercial banks; nonbank deposits include savings and loan assns., mutual savings banks, and credit unions.

grew at about twice the rate of the first postwar decade. Consumers were the major source of these increased inflows—accounting for about two-thirds of the additional growth of total time and savings deposits during this period.

Four increases in Regulation Q ceiling rates in the period from 1962 through 1965 permitted banks to continue to attract deposits from consumers. But the decision of large banks in early 1961 to issue large-denomination negotiable certificates of deposit (CD's) to nonfinancial businesses broadened the area of bank competition for funds and signaled the beginning of more intensive efforts to attract deposits.

Time deposit inflows accelerated to an average annual rate of 15 per cent over the 1962–65 period. Acquisitions by consumers accounted for about one-half of the increased inflow, a smaller proportion than in the previous 5 years. On the other hand, expanded purchases by nonfinancial corporations accounted for almost one-third of the additional inflow, as compared with about one-fourth in the 1957–61 period. Large banks obtained more than one-third of their time deposit inflows from negotiable CD's in 1962–65 and accounted for most of the growth in total time deposits at all banks. But banks in all size groups, located all over the country, had accelerated time and savings deposit inflows in this period.

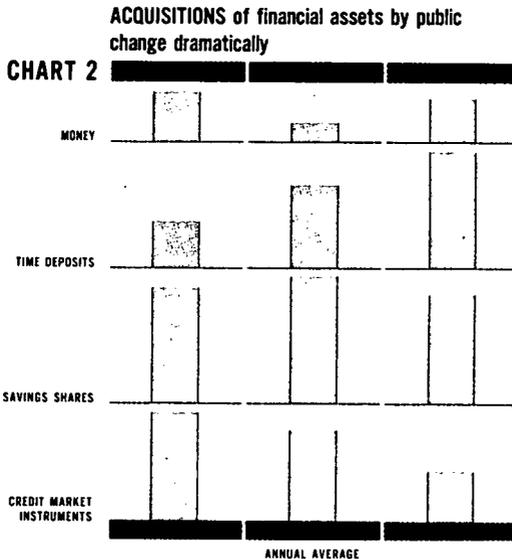
With a vast increase in their time deposits, banks expanded sharply the amount of funds supplied to credit markets in the form of loans and investments. Annual growth rates of bank credit, which averaged about 4 per cent in the first 10 years after World War II, accelerated to an average of nearly 9 per cent in the period 1962–65. The share of bank credit in the total supply of funds to nonfinancial borrowers rose correspondingly. In the 1962–65 period of accelerated time deposit growth, bank credit accounted for more than one-third of the total, compared with only about one-fifth in the first postwar decade.

PUBLIC FINANCIAL ASSET PORTFOLIOS

The larger inflows of time deposits at banks altered the percentage distribution of financial asset acquisitions of the public—with time deposits gaining at the expense of other financial assets. In the period from 1957 through 1961 the increased share of financial asset purchases by the public that were allocated to time deposits was accompanied mainly by a relative decline in the public's accumulation of money, as Chart 2 indicates. The proportion devoted to acquisitions of market securities did decline

slightly, but that going to nonbank institutions increased as these institutions competed aggressively to maintain their relative position in the market for individual savings.

From 1962 through 1965, however, the further rise in the share devoted to time deposits was accompanied by a relative increase in the money component of the public's financial asset acquisitions, even though corporations were reducing substantially the proportion of their liquid assets held as money balances. For the nonfinancial public as a whole, the rise in its time deposit share



Flow of funds data. Savings shares are claims on savings and loan assns., mutual savings banks, and credit unions. Credit market instruments include all funds supplied directly to credit markets by the private domestic nonfinancial sector.

reflected a sharp decline in its share of funds directed toward other interest-bearing financial assets. Most of the displacement of interest-bearing assets by time deposits during this period came at the expense of market securities, but the continued growth of these deposits also began to bite into the portion taken by nonbank intermediaries.

Total financial asset flows. Bank time deposit expansion during the early 1960's also was accompanied by a sharp rise in the rate at which the public acquired total financial assets. Average annual accumulations of money, time deposits, other savings de-

posits and shares, and market securities totaled just over \$20 billion in the period from 1957 through 1961, but rose to more than \$40 billion from 1962 through 1965. This growth in private financial asset flows was relatively larger than the increased flow of private income. Thus, in the consumer sector, the share of income allocated to financial assets totaled 5.1 per cent in the period from 1957 through 1961, but rose to 7.2 per cent from 1962 through 1965.

Some of this greater allocation of consumer income to financial assets reflected a smaller share of income used for purchasing consumer durable goods and housing. But most of it was associated with a much higher level of borrowing, especially in the mortgage market.

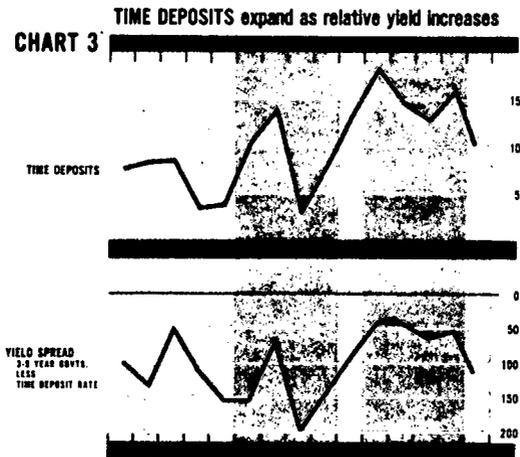
Thus, in the period from 1957 through 1961 average annual mortgage borrowing by consumers amounted to 61 per cent of their expenditures for new housing. From 1962 through 1965 mortgage borrowing rose to 81 per cent of consumer expenditures on housing. Generally easy conditions in the mortgage market in the later period encouraged a high turnover rate of existing houses and a withdrawal of owners' equity from the housing market. And with returns on time deposits and other liquid assets quite generous, consumers found it relatively inexpensive to retain liquid assets while borrowing to finance outlays for housing or for other goods and services.

Relative yields. The accelerated inflow of time deposits at commercial banks over the past 10 years thus appears to have reflected a complex series of shifts in the volume and structure of financial asset acquisitions by the public. In these shifts changes in relative yields on financial assets and in the availability of credit played a dominant role. Rates paid by commercial banks on time deposits rose relative to rates on other financial assets available for purchase by the public, and the public was encouraged to acquire more time deposits and less of other financial assets. At the same time, the abundant availability of mortgage credit on relatively easy terms encouraged the public to borrow more in relation to its expenditures. As a result, total financial asset acquisitions also rose relative to income and spending.

The role of changes in relative yields on financial assets as a factor in time deposit growth is illustrated in Chart 3. The top panel shows changes in the annual growth rate of time deposits. The bottom panel, plotted on a reversed scale, shows the number of basis points by which the yield on 3- to 5-year Government

bonds exceeds the average effective rate paid on time and savings deposits. The higher the yield-spread line, the more attractive time deposits become; the lower the line, the less attractive they become.

Changes in the yield spread between time deposits and market securities may arise from changes in offering rates by banks or, alternatively, from wide cyclical movements in market rates on securities. A good example of the response of time deposit growth to cyclical variations in market rates is provided by the 1958 to 1960 period, when rates paid by banks on time deposits changed



Time deposits at all commercial banks. Effective rate on time deposits is ratio of interest paid on deposits during year to average level of time deposits during year. Figures for 1966 are for first half; effective rate on time deposits for the first half of 1966 is estimated.

slowly. In 1959 rate spreads moved substantially against time deposits, as interest rates on market securities rose to what were then record postwar levels, and time deposit growth showed a steep decline from the 1958 highs. Then in 1960 market rates dropped, and time deposit growth turned up again.

It is clear that these cyclical swings in time deposit growth were affected by monetary policy. Federal Reserve open market operations were influencing market interest rates and were inducing the public to switch between time deposits and market securities. Policy actions that changed the availability of bank credit were thus influencing time deposit growth as well as the growth of demand balances and the money stock.

Growth in time deposits has also been spurred by favorable yield spreads caused by changes in offering rates by banks rather than by cyclical movements in market rates. Thus, the continued favorable yield spread for time deposits in the period from 1960 through 1965 reflected higher offering rates on time deposits—permitted by higher ceiling rates under Regulation Q—rather than declining market rates. Moreover, as indicated in the table,

EFFECTIVE RATES PAID AT FINANCIAL INSTITUTIONS

(Per cent per annum)

Type of institution	1952-56	1957-61	1962-65
Average effective rate at:			
Commercial banks.....	1.33	2.38	3.40
Savings and loan associations.....	2.94	3.71	4.28
Mutual savings banks.....	2.52	3.24	4.00
Spread above commercial bank rate:			
Savings and loan associations.....	1.61	1.33	.88
Mutual savings banks.....	1.19	.86	.60

NOTE.—Effective rates are ratios of total interest or dividends paid during the year to average deposits or shares during year. Data are for all insured institutions.

higher offering rates also made bank time deposits more attractive relative to deposits and shares at other financial institutions. In some localities during 1965 and 1966 the rates being offered by banks on specific kinds of time deposits exceeded those paid by local nonbank competitors.

The continued favorable yield spread permitted banks to attract greater inflows of funds and thereby to enlarge their contribution to financing economic expansion through acquisitions of loans and investments. This accelerated inflow of time deposits during the 1960's influenced borrowing and lending patterns and interest rates throughout the economy as commercial banks sought assets with higher rates of return to cover the additional cost of time deposits.

For example, banks stepped up their purchases of mortgages in the period from 1962 through 1965; the proportion of funds supplied to that market was almost twice the annual average for 1957 through 1961. With banks, as well as nonbank institutions, bidding aggressively for mortgages, total mortgage borrowing by consumers and businesses showed a large expansion.

In the market for municipal securities the structural shift in sources of finance was even more striking. Commercial banks have long been important in the municipal bond market; during

BANK'S SHARE

New mortgages:	%
1952-56	13.8
1957-61	10.2
1962-65	19.4
State and local bond issues:	
1952-56	21.8
1957-61	32.7
1962-65	72.4

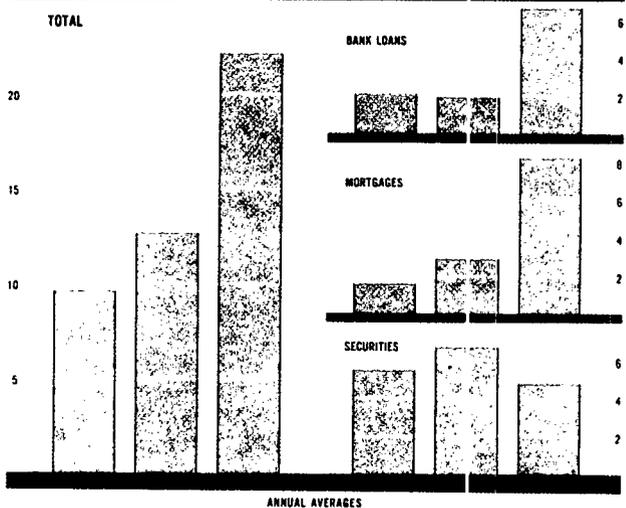
Based on flow of funds data. Percentages are averages for the period indicated.

the period 1952-56 they supplied about one-fifth of the net funds raised. As time deposit inflows rose after the 1957 change in the Regulation Q ceiling, banks increased their share of total funds supplied to this market. But the sharpest jump in bank purchases occurred in the early 1960's, when large banks began to issue negotiable CD's in volume and banks accounted for almost three-fourths of the total supply of funds in the market for municipal securities.

Businesses, like consumers, increased their total borrowings in the period from 1962 through 1965—to an annual average of about \$22 billion compared with an average of about \$12 billion in the previous 5 years. While most of the increased borrowing reflected more capital spending, businesses expanded their borrowing by more than the rise in their net investment in fixed capital and inventories.

The most striking aspect of the change in business external financing was its structure. On average, the volume of stock and bond financing was smaller in the period from 1962 through 1965 than in either of the two earlier periods shown in Chart 4, even though total external financing was much larger. Businesses

CHART 4 BUSINESS BORROWING in 1962-65 changes composition



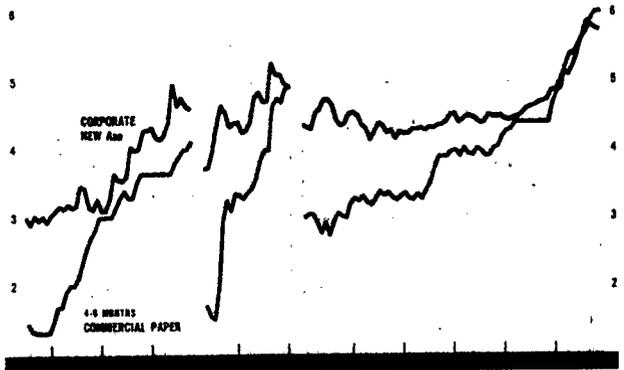
Flow of funds data for nonfinancial corporations.

apparently found credit available on easy terms at banks and in the mortgage market, and they relied relatively little on security financing. The abundance of mortgage credit at low cost encouraged a marked expansion in the volume of multifamily and commercial construction and an attendant rise in mortgage borrowing by businesses during this period.

These changes in the structure of financial flows—increased bank purchases of long-term assets, large demand for mortgages by financial institutions, and reduced financing by businesses in the open market—influenced the structure of interest rates during the expansion of economic activity in the period from 1961

LONG-TERM Interest rates stable during most of the '60's

CHART 5



Rates are monthly averages.

through 1965. Unlike developments in earlier expansion periods, long-term interest rates—represented in Chart 5 by the new-issue yield on high-grade corporate bonds—were on the whole stable or declining from early 1961 until the spring of 1965. On the other hand, yields on short-term instruments—represented by the rate on 4- to 6-month commercial paper—began to drift upward early in the expansion, but at a pace that was considerably slower than in earlier periods of economic expansion. With a gradual rise in short-term rates, there emerged a pattern of rate relationships between long- and short-term securities that was somewhat different from that of earlier expansions.

Thus, during the first 2 years of the current expansion, long-

term rates were trending downward, while short-term rates were rising. And it was not until the spring of 1965, when commercial paper rates had risen to a level near rates on corporate new issues, that long-term borrowing costs showed any significant rise. In previous expansions long-term rates had risen earlier, along with short-term rates. The relative stability of long-term rates contributed to expansion in the domestic economy, whereas the rising short-term rate helped to ameliorate short-term capital outflows.

DEVELOPMENTS IN 1966

In mid-1965 interest rates began to rise throughout the maturity spectrum because of the mounting credit demands associated with the more rapid pace of economic activity that accompanied the increase in defense expenditures. Interest rates accelerated even faster in 1966, as monetary restraint reinforced the pressures on rates caused by heavy demands for credit. By the early autumn market yields on all classes of debt instruments had risen far above earlier postwar peaks. The changing relationship between market rates and the rates paid by banks on time and savings deposits reduced the relative attractiveness of bank deposits, and the expansion in time deposits began to slow down.

Deposit flows. During the first 8 months of 1965 the deceleration in time deposit inflows of banks was relatively moderate. Yields on market securities showed substantial increases, but banks took advantage of the higher rate ceilings on time deposits established in December 1965 to maintain their competitive position. Despite large outflows of passbook savings—on which ceiling rates were not increased—total interest-bearing deposits of banks rose at an annual rate of more than 11 per cent in the period from the end of 1965 through August of 1966, compared with an average of 15 per cent for the 4 years 1962 through 1965.

The increasing competition from banks and the market, however, led to a sharp reduction in inflows of funds to nonbank intermediaries. Inflows had already slackened in 1965, but in the first three quarters of 1966 the combined inflow to savings and loan associations and mutual savings banks declined to an annual rate of just above 3 per cent.

Several developments tended to retard the inflow of bank time deposits after mid-1966. The Board of Governors in July reduced the maximum rate that member banks may pay on time deposits on which the holder has more than one maturity option. Also in July, and again in September, reserve requirements on those time deposits—other than savings accounts—in excess of \$5 million at

NONBANK DEPOSITS

Per cent increase

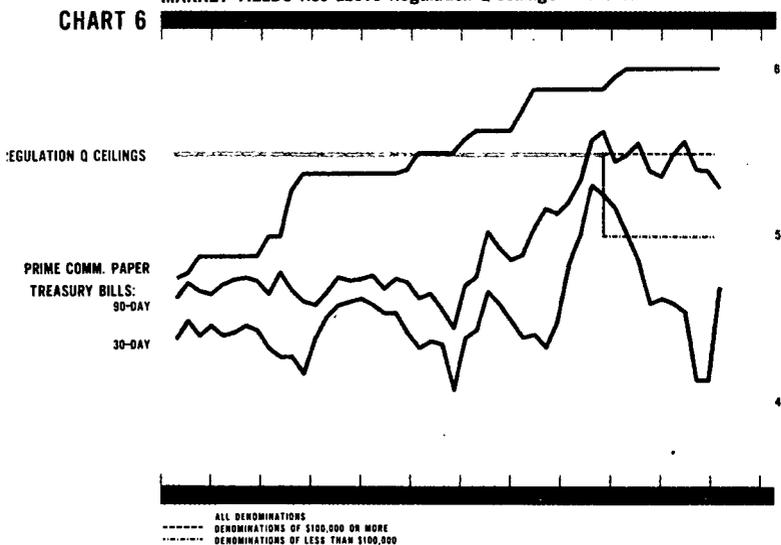
1963	11.9
1964	10.9
1965	8.0
1966 (Jan.-Sept.)	3.1

Flow of funds data for savings and loan assns. and mutual savings banks. Data for 1966 are at a seasonally adjusted annual rate.

individual member banks were raised, first from 4 to 5 per cent, and then to 6 per cent. Finally, in late September, pursuant to new legislative authority, the Board of Governors reduced the maximum rate member banks may pay on time deposits with denominations of less than \$100,000 from 5½ per cent to 5 per cent. This action—taken simultaneously with restrictions by the Federal Deposit Insurance Corporation on maximum rates paid by mutual savings banks and by the Federal Home Loan Bank Board on maximum rates paid by member savings and loan associations—aimed to reduce the competitive escalation of rates among financial institutions.

While these regulatory changes made it more difficult and costly for banks to attract time deposits, increasing market yields were also working in the same direction. Since mid-1966 most short-term market yields have exceeded the new 5 per cent ceiling on time deposits in denominations of less than \$100,000, and many were above the 5½ per cent ceiling on larger negotiable CD's during much of the late summer and autumn. With the resultant reduction in the relative attractiveness of bank time deposits,

MARKET YIELDS rise above Regulation Q ceilings in late summer of '66



Bill rates are for offering side of market and have been converted to an investment basis (differs from discount-basis rate in that it gives the return on the amount invested rather than on the face amount of the bill at maturity and expresses this return in terms of a 365-day rather than a 360-day year; the investment yield corrects a downward bias of the discount-basis yield). Latest week shown December 9.

inflows to commercial banks dropped to an annual rate of less than 1 per cent from August through November. In October seasonally adjusted time deposits at banks declined for the first time since early 1960. These developments, by reducing the ability of banks to extend loans, had the effect of reinforcing monetary restraint in the economy.

Much of the reduction in time deposit inflows since late summer has occurred at the larger banks. These banks—which deal with highly interest-sensitive depositors and are the largest issuers of negotiable CD's—had an outflow of \$3.0 billion of negotiable CD's from mid-August through November. The largest of these banks offset part of the outflow through increased borrowing from foreign branches; such borrowing increased by \$1.2 billion from August through November.

After mid-October, runoffs of negotiable CD's slowed considerably, as yields on very short-term market instruments—such as 30-day Treasury bills—declined enough to permit banks to attract funds in limited volume by selling short-term CD's. These sales, however, resulted in a sharply declining average maturity of outstanding CD's—accelerating the trend that had begun at midyear.

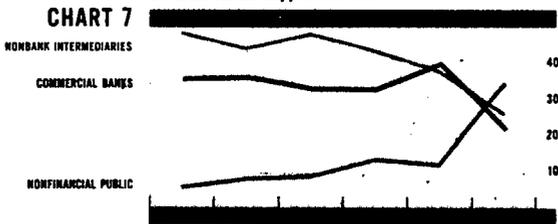
In addition to outflows of negotiable CD's, large banks in October and November began to face slower growth—and in some cases outflows—of other types of time deposits, in particular of consumer-type certificates. It is probable that this development reflected both the rollback in rate ceilings on smaller-denomination time deposits in late September and the movement of some funds by the public to longer-term market instruments in search of assured high yields for a longer period.

The pressure on large banks—particularly that generated by runoffs of negotiable CD's—reinforced the effort of the Federal Reserve to reduce the expansion of business loans by banks. During most of 1966 inflationary pressures were receiving impetus from the expansion in business capital outlays, and in the first 7 months of the year bank loans to nonfinancial businesses expanded at a seasonally adjusted annual rate in excess of 20 per cent—more than in 1965—despite some reduction in the availability of bank reserves at the initiative of the Federal Reserve. Lower time deposit inflows since late summer—and CD runoffs—reduced the ability of banks to make such loans. In addition on September 1 the presidents of the Federal Reserve Banks wrote to all member banks calling upon them to rely more on curtailment of business

loans in adjusting to liquidity pressures and permitting them more extended use of Federal Reserve discount facilities when needed to accomplish such adjustments. In the 4 months ended in November, business loans expanded at a rate of less than 7 per cent.

Credit flows. Reductions in deposit inflows at banks and non-bank financial institutions have produced a major shift in the sources of funds supplied for the financing of economic expansion. The share of total funds supplied by commercial banks fell from nearly 40 per cent in 1965 to an average of just over 20 per cent for the first three quarters of 1966. In the third quarter of 1966, the commercial banking system supplied only about 7 per cent of total funds raised by nonfinancial borrowers. The share supplied by

**PUBLIC increases its share
of total funds supplied in '66**



Flow of funds data. Denominator of each ratio is total funds raised. Numerators as follows: Bank loans and investments, nonbank depository institutions' acquisitions of credit market instruments, and domestic nonfinancial public's net purchases of credit market instruments. 1966 data at seasonally adjusted annual rates.

nonbank intermediaries also has shown a sharp decline. A much larger share of total funds has been supplied, therefore, by the nonfinancial public through direct purchases of market securities.

The increasing share of total credit supplied directly through markets has been characteristic of earlier periods of monetary restraint. In 1966, however, higher alternative yields—on bank deposits and market instruments—have cut more into the public's purchases of claims on nonbank institutions than at any other time in the postwar period. In the first three quarters of 1966 consumers allocated to nonbank depository institutions a postwar low of less than 20 per cent of their total accumulation of money, all deposits and shares, and market securities. In previous periods of restraint, this ratio had never declined below 40 per cent.

The declining share of total credit supplied to the public by nonbank institutions has resulted in a dramatic cutback in the availability of new residential mortgage financing. Most prospec-

tive mortgage borrowers have only limited borrowing alternatives in securities markets. Since many nonbank financial institutions tend to specialize in residential mortgages, the supply of financing for—and the volume of expenditures on—housing has declined sharply as 1966 has progressed.

Other borrowers—particularly some businesses—who find it difficult to obtain bank credit are able to shift their borrowing to money and capital markets. But such financing is an imperfect substitute for bank loans because of the greater inflexibility, higher interest rates, and transactions costs, as well as the institutional lags, associated with issuance of new stocks and bonds. As in earlier periods of restraint, market financing was made even more costly by the competition of increased liquidation of bank holdings of securities, and in 1966 demands of the Federal Government for funds added to the congestion in some markets.

Still other borrowers who find it difficult to obtain bank credit have only limited alternative sources of financing because they are too small to issue open market paper and securities effectively. Institutional investors in 1966 reduced their financing of firms through private placements, as prior commitments and other drains limited their availability of funds. Trade credit has been relied on heavily by many businesses, but its usefulness is limited largely to inventory financing. Most other sources of financing for these borrowers are quite costly.

Thus, the diversion of funds from claims on banks and other financial institutions by rising market yields has had a pronounced effect on credit markets. The greater cost and limited substitutability of market financing for credit obtained at financial institutions, and the institutional and structural obstacles to a smooth transfer of credit from one type of lender to another, have reduced the total borrowing of the nonfinancial public. Despite the increase in the public's purchases of credit market instruments, businesses, consumers, and State and local governments in the third quarter of 1966 are estimated to have borrowed from all sources at a seasonally adjusted annual rate of about \$60 billion, down 20 per cent from the second-quarter rate; borrowing by nonfinancial businesses was down by almost 40 per cent. While much of the quarter-to-quarter decline in the total funds raised by these sectors reflected increased financing needs in the second quarter because of accelerated tax payments, the rate of total borrowing in the third quarter by each of these sectors dropped below its 1965 rate.

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MONEY AND INCOME

Remarks of

SHERMAN J. MAISEL

Member
Board of Governors
of the
Federal Reserve System

at the

Faculty and Graduate Students Colloquium

sponsored by the

Graduate Economics Club

Yale University

New Haven, Connecticut

February 16, 1968

(277)

MONEY AND INCOME

Few things fascinate mankind as much as money. And one thing that seems almost invariably true is that, at least from the standpoint of the individual, the supply of money is seldom as plentiful as the supply of theories about it. Since even a simple theory may give significant insights into the workings of the economy and of the monetary system, it has been beneficial to have so many. I hope we will never cease to have new theories nor tire of examining the old ones along with the new.

In the course of these examinations, however, we ought to remember the warning given every beginning student of economics: stay on guard against oversimplification, especially when it is proposed that a theory be used as the basis for determining a policy that is to be applied in practice.

For purposes of study, in furtherance of the understanding of particular processes, oversimplification may be positively helpful--as when we assume "all other things remain unchanged," even though in fact they do not.

For policy purposes, however, particular theories may have marked deficiencies. They may apply only in the long run, and not at all in the short. They may describe mainly underlying tendencies and touch upon only a segment of reality. When used for policy proposals without these factors being taken into account, they may lead to prescriptions that would do more harm than good.

Economic history is full of theories that have attempted to prove that if the supply of money or credit could be made to behave in accordance with certain simple criteria, nearly all economic problems would be solved. Since scarcely anything could be more attractive or convenient, it is not surprising that the perennial search for such single, simple solutions is still in progress--and perhaps in full cry, to judge by the samples carried daily in the press of simplistic monetary proposals or policies advocated by some of our most eminent professional economists, by generally well-informed political leaders, and by well-trained financial writers.

Today I would like to discuss some of the reasons why I think that theories that accept or overemphasize (in my judgment) the money supply as the major determinant of income would serve poorly as the basis for formulating monetary policy, in contrast to those that stress the need to consider the interactions of non-monetary together with all monetary causes of shifts in income and spending.

For ease of exposition, I will use the terms "money supply theory" or "money supply only" for propositions that put most stress on changes in the money supply as the prime determinant of economic activity, and "money-income-expenditure" theory for those which stress the need to look at a broader list of variables. (While I have gone over the literature carefully and have tried to be representative in statements of views, an individual believer in either theory may well object that his views are not fairly represented. Almost anybody who has written in either area could almost

certainly come up with past statements that would enable him to disavow the theories as they are presented here.)

Briefly I feel the analysis leads me at least to conclude that while important contributions have been made to show that "money does matter," this is far from the conclusion and it leads to entirely different policy prescriptions from claims that "only money matters." The belief that control of the money supply would be the most efficient type of governmental economic policy is not supported by either the facts or theory. It pays too little attention to the basic non-monetary causes of instability and to changes in the demand for liquidity.

Because our economic system is complex, we need complex theories to analyze it. We must take into account changes in demand whether they come from government spending, from psychological factors, from endogenous cycles, from the money supply, from shifts in liquidity preferences or innumerable other forces. By considering a large number of variables which alter income, employment, and prices, we can explain and predict what is happening to the economy. Based on this knowledge, a flexible monetary and fiscal policy can be more efficient than a single variable policy in reducing the amount of instability and increasing the growth rate of the economy.

Velocity and Interest Rates

Before taking up some rather faulty assumptions upon which the money supply theory seems to me to rest, I'd like to absolve the theory of one such assumption that is, however, embraced in the associated policy prescription of a constant growth in the money supply. That is the assumption of a stable link between money and income. Stress is placed in the prescription not the theory on the stable long-run relationship between income and changes in money. Price and interest impacts on money demand under normal circumstances are said to be slight. While the velocity of money admittedly fluctuates in the short run, emphasis is on its stability over the long run.

It is this assumption that allows the relationship to be turned on its head. Money can be thought of as the tail which wags the dog. Money is exogenously determined by the Federal Reserve System. To make the public willing to hold the money stock, income must adjust to the level of money. This leads to the concept that if money grows at a constant rate, income will also grow at a constant rate. Discretionary monetary policy should be replaced by one based on a more or less constant growth in the money supply.

The theory itself points out that the demand for money depends upon interest rates as well as upon income. As a result, adjustments to changes in either the supply of money or the desire to spend can occur by alterations in interest rates and in the velocity of money. The demand for money changes with interest rates. A change in the supply of money may alter interest rates, not income.

Thus, the direct causal link between money and income is broken. An excess of money over the demand for it may cause people to buy bonds in place of, or in addition to, commodities. A rise in the demand for goods may ~~simultaneously~~ raise interest rates. A given supply of money may not halt the expansion of demand from non-monetary sources. It may support a higher income level by turning over more rapidly.

It is, of course, true that there is a way in which changes in bond prices and in velocities may affect spending. An excess of money holdings may be passed on through successive portfolios via shifts in yields on assets. People and institutions see short-term gains in selling bonds at high prices. As one does so after another, the outcome eventually will be more spending, but how much more cannot be foreseen. How high a degree of leverage the money stock can exert on income, particularly in any short or intermediate period, is questionable.

While avoiding this error of which they are at times accused, the "money supply only" theories do seem to me to neglect, ignore, or dismiss as insignificant a number of other highly important points.

Non-Monetary Causes of Spending Shifts

One is the effect on the economy of changes in spending caused by wars, changes in the size and composition of the population, alterations in technology, government programs, the expected return on capital, and shifts in exports. The impact on income may become cumulative through operation of the multiplier-acceleration process as well as through the

effects produced by changes in expectations. Progress and growth can lead, and have led, to destabilizing movements in demand. Furthermore, there is no obvious force in the economy which would prevent these movements from becoming explosive in either direction.

Monetary factors may, of course, interact with these other changes. If there are changes in the rate or level of spending, and the money supply cannot adjust, changes will be produced in interest rates, bond prices, and wealth. These changes will react in turn upon future expenditures. Those who stress non-monetary causes of instability believe that purely monetary reactions arising from a stable money supply will be too slow, and perhaps too weak, to offset the instability arising from non-monetary causes. Velocities will shift; interest rates alter; desires for liquidity will change. Because monetary influences are felt with a lag, immediate market reactions to non-monetary developments can increase rather than offset instability.

Market Imperfections May Raise the Costs of Monetary Movements

Another matter the money-supply theory appears to neglect (or assume away) is the problem of sectoral adjustments to monetary changes. It is well established that monetary changes have a differing impact on sectors of the economy. Yet the theory assumes that shifts in demand as a result of changes in interest rates or in the availability of credit will either be smooth or not excessively inefficient. In contrast, the money-income-expenditure approach points out the degree to which laws, rules,

regulations, market institutions, and market imperfections influence income, and to the extremely uneven adjustments to which these factors may lead. These uneven adjustments may in turn bring about unexpected results with heavy costs.

In constructing a theory simply to aid in understanding, as I noted at the outset, it may be proper to disregard the legal and institutional structure of the economy in order to study basic tendencies. In formulating policy, however, the economy's true reactions cannot be treated so cavalierly. Analysis for policy must consider the channels through which economic forces move. Policies do not sail the smooth seas of theoretical assumptions. They must steer their course among the rocks and shoals of laws and institutions.

Money supply theorists assume perfection in the working of credit markets, though perfection is as rare in markets as in life. The imperfections that characterize markets in practice serve in fact to reallocate credit with seriously destabilizing results. If each sector of the economy had equal access to all capital markets--as it does not--everything would work through the price mechanism and allocational goals would be well served. If markets were truly impersonal--as they are not--those with the projects promising the best return would be the ones to get the credit. But the truth is that forces other than prices play major roles in the market place.

When credit is tight (loanable funds are scarce in relation to demand in the economy), this becomes glaringly apparent. For example, there is really little in a long-standing customer relationship to tell a bank that a prime depositor has a particularly meritorious project. Yet, at times of credit stringency, he is given credit on favorable terms while other applicants with excellent projects are rationed out of the market for considerations that are perfectly logical to the bank. If markets functioned with perfect economic efficiency, this would not happen.

For the economy in general, the most important effect of high interest rates has been to restrict the flow of funds to the housing market as the bond market has attracted funds that in other times were deposited in mortgage lending institutions (due to legal interest rate constraints and the slow turnover of assets at these institutions).

Because real resources move slowly, this failure of credit to flow to its most efficient point constitutes an important stabilization problem. It is difficult to move labor geographically or to retrain a plumber to be an engineer. Also, unions can halt entry of new labor into the market just as monopoly and oligopoly halt entry of new businesses. Given this lack of real factor mobility, a temporary shift of credit may cause structural unemployment. It also may in the case of housing lead to an inflationary rise in rents and the cost of living if the supply of residences lags demand. It may be true that the resources would move given enough time. But the length of time required is much longer than is practical for the business cycle, and the reallocation is neither perfect

nor cheaply accomplished. Nobody suggesting specific policy proposals today can responsibly ignore these imperfections.

Fiscal Policy Is not Insignificant

Also ignored, neglected, or downplayed by faithful adherents to the money supply theory is the extremely significant role the government's expenditures and its deficit may play in determining the course of economic and financial developments. The expansion in expenditures caused by the war in Viet Nam has had major impacts on our economy in recent years. Wars can cause major changes in income irrespective of how they are financed. But the ease and efficiency with which resources are shifted to the war effort is not independent of tax policy and how the war debt is financed.

To prove that a money creation rule could take the place of fiscal and debt management policy, one must show that by maintaining a constant growth in the money supply changes in other policies would be reduced to insignificance. But most economists agree that the opposite is true. Tax and debt policy can create a more efficient system of transferring resources. The level of demand is not dependent entirely on the money supply and independent of the method of financing. Financing through borrowing rather than through taxing may cause significant structural changes. Most experience indicates that the level of production and the amount of resources available for the war can be influenced by fiscal and debt policy. Who pays for the war and how income is redistributed also would be different under a system which used money supply as the key policy variable.

In order to ignore the question of whether goods and services are purchased by the government or private spenders, one must assume that borrowing to reallocate resources is an efficient way of reallocating them. In addition, aggregate demand must not increase.

If the government spends the proceeds of its bond issue on real resources while only part of the funds come from household demand for real resources the latter is not true. If funds are raised by taxes, the person taxed has his wealth reduced. The reduced wealth makes it difficult for the taxpayer to borrow to augment his income. It appears that a person who turns in more money in taxes reduces his consumption by more than one who turns in this same additional amount to pay for a bond. A change in income or wealth produced by governmental expenditures may alter spending even if the supply of money is unchanged.

Since the pattern of government demand differs so much from that of household demand, an increase in governmental expenditures requires a major shift of resources. When the government borrows heavily to pay for its expenditures, bond rates may be pushed up enough to cause major alterations in the flow of funds. Some users of credit may get more, while others are fully supplied. In general, the lack of mobility of factors of production limits the effectiveness of high interest rates in reallocating resources. The impediments to accomplishment of such shifts in terms of rigidities, bottlenecks, etc. are significant and cannot be ignored. A tax program may be far more efficient in freeing the type of resources required and in insuring that no large quantities of resources lack demand.

Shifts in the Demand for Money

As economists we recognize that market equilibria can be altered by a shift in either supply or demand. For stability to result from a constant supply, demand must not shift. This, however, doesn't appear to be the case of the demand for money and credit. Desires for liquidity have shifted rapidly. We have just experienced such a major shift. In addition, expectations about future profits also may move rapidly.

Unless we can raise the cost of capital relative to expectations about future profits, we cannot slow the boom without causing grave structural disorders. There are situations in which expectations are even destabilizing for the system. An expected price inflation feeds itself by encouraging people to buy goods and to draw down money balances. This sort of expectation may not be amenable to a rule about the rate of growth of money.

Some expectations about returns on capital may be stabilizing after awhile, but there is little guarantee that the short-run problem will be costless. A sharp reduction in expected return on capital may cause major disruptions. For stability, the use of fiscal policy or discretionary monetary policy may be quite necessary in such a situation. Similarly, if expected returns promise to outpace the cost of capital, especially as in a situation where business firms are particularly liquid, fiscal policy or discretionary monetary policy may be needed to dampen the elements giving rise to those expectations. In neither case should the money supply continue to expand at a constant rate. For it to do so would in the former case not make it easy enough for people to borrow; in the latter case it would make it too easy.

What Is Meant by the Supply of Money?

The concept of the money supply is far more complex than it sometimes appears. Major differences in policy suggestions may follow from how the "money supply" is defined.

There are at least four different versions of what the money supply is. While the movements of the money supply in all four versions are related, the growth rates of the respective "supplies" may differ greatly over periods of a quarter or even a year. Whether or not these differences are significant and which versions of the money supply should be considered as a primary index for policy depends upon one's complete theory.

Sometimes money supply theorists talk as if currency in circulation and private demand deposits were all that mattered. At other times, they add private time deposits to get a larger version of the money supply. Movements of these two "money supplies" differ considerably. Because the government's cash balance is large and it rises and falls rapidly as the government takes in receipts and pays its bills, time and demand deposits also grow at a rate different from total commercial bank deposits. The behavior of total deposits of commercial banks in turn may differ considerably from those of savings banks and savings and loan associations.

Although some slippage exists, the total most directly affected by Federal Reserve operations is that of commercial bank deposits. Yet the total that seems to fit most theories best is total deposits of all institutions. Moreover, even with a constant level of deposits,

significant effects may result from alterations in the equal but opposite side of the balance sheet--loans and investments. There are many cases where the person to whom bank credit is loaned will influence the total amount of spending. To find these effects, we must look at bank loans and assets as well as the money supply.

A policy that recommends strict control of a particular monetary total must properly define the total to be controlled. The recommendation could apply to anything from free reserves to all financial assets. To be operational, two characteristics must prevail. First, the target total must be under the control of the Federal Reserve. Second, the relationship between the targeted variable and spending must be clearly defined. A choice then depends on both practice and theory.

The one thing that the Federal Reserve can control precisely is the volume of bonds in its portfolio. Although total non-borrowed reserves --those made available through purchases of government securities in the open market--are also within the reach of the Federal Reserve fairly constantly, the money supply, in contrast, is the result of interactions of the banks, the public, and the Federal Reserve. In general, the further you get from a definition of the targeted variable in terms of open market operations the more difficult it becomes to determine how Federal Reserve policy will affect it. Depending on the definition of money used, the total supply of it may be affected by public substitution between demand and time deposits, by shifts from public to private deposits, and by switches to bank deposits from other financial assets.

If control over the total money supply is all that is needed, as the money supply theorists suppose it to be, the composition of the total must be of no consequence. But if the total alone is important, there must be some unifying purpose in holding all the assets included in the total. If time deposits are included, the motive cannot be transactions. It must have to do with liquidity or some other measure. If the measure were broadened so that all interest rate effects were internalized, the relationship to income might be more stable. But broadening theory to such a measure is to eliminate the control of the Federal Reserve.

Statistical Studies

At times over-exuberant believers in the money supply theory seem to be stating that there is little use quibbling over the theory because the facts have been proved statistically, and that there is an empirical if not necessarily a theoretically valid law justifying the policy of constant growth of money supply. When we examine all the many studies in this sphere and the relevant debates, it becomes clear that no such certainty exists.

We face, of course, the typical problem of drawing conclusions about an extremely complex system from partial statistics. Looking at post-Korean data, we can correlate about half of quarterly changes in the GNP with changes in various definitions of the money stock. (Total member bank deposits or credit seem to do best.) The models giving such correlations contain lagged distributions for three to five quarters.

Similarly, we find sets of expenditure variables which give equivalent results. In each case, we must still look to other factors to account for the majority of changes that have occurred. This can be done with more complete models such as have been constructed at the Federal Reserve based upon the money-expenditure-income theories.

Our problem is not merely that of looking at a bottle that is half empty and also half full. The problem is a good deal more complex. In each case, we can by theoretical reasoning improve or dissipate the initial statistical results. Most of the models used in such tests tend to be too simple. As an example, some published studies have argued at length over the use of claimed misuse of the concepts of "turning points" to attempt to prove either theory.

A comparison of turning points in no way does justice to a model in which various factors other than money affect GNP. This is particularly true when monetary policy is expected to offset part of the expansionary force of autonomous expenditures or of a runaway in expected return on capital. The effectiveness of policy depends on the relative strengths of the two opposing forces, not on the point in time when policy changes. If a strong expansionary policy action were to be coupled with a weak downward movement in other forces, one would expect the policy's effect would be more swiftly felt than if the other forces were moving down rapidly. The necessary ceteris paribus conditions are not represented in some of the statistical work.

The fact that eminent scholars can draw different conclusions from similar data is, of course, not surprising. We are dealing with extremely complex matters. There are innumerable ways of specifying the basic models as well as of fitting data. No one can or should be convinced purely by past statistical results. One must be convinced by the underlying theories and by the ability to use the concepts in arriving at useful predictions and policy judgments.

Conclusion

My conclusion from this analysis is that a flexible package of policies based on forecasting should not be replaced by a single policy. As economists we must continue to examine theories new and old, but we ought not, without greater cause than we have yet been shown, abandon the system of analysis which looks at numerous variables and considers as relevant for policy the entire broad structure of our economy. It seems to me, on the evidence to date, that no policy based only on the control of the money supply will suffice.

While important contributions have been made to economic research to show that "money does matter" in determining the course of the economy, that is a far different thing from claiming that "only money matters," and the policy prescription to which it leads is entirely different. Policy based on a broader, more complete analysis should in my opinion lead the economy to more success in achieving the goals set for it.

Our problem in trying to use the various instruments of monetary policy to help steer the course of the economy to its goals--maximum employment and steady economic growth with relatively stable prices--is comparable to that of a bus driver trying to get to the top of a mountain. If the road were completely straight with a constant slope, it might make sense for him to lock his steering wheel in place and hold his accelerator at a fixed level. If, however, the mountain curves and changes its slope rather frequently, nothing could be more disastrous than an attempt by the driver to lock his steering gear in place and apply a constant flow of gasoline. He would be far more likely to reach his goal by using his steering wheel, his brakes, and his accelerator to help adjust to the variations in his road.

In like vein, it seems to me that the American economy is too dynamic to achieve stability from a single policy rule such as "hold the growth of the money supply constant."

The Role of the Money Supply in Business Cycles

By RICHARD G. DAVIS*

Most, if not quite all, economists are agreed that the behavior of the quantity of money makes a significant difference in the behavior of the economy—with “money” usually defined to include currency in circulation plus private demand deposits, but sometimes to include commercial bank time deposits as well.¹ Most economists, for example, setting out to forecast next year’s gross national product under the assumption that the money supply would grow by 4 per cent, would probably want to revise their figures if they were to change this assumption to a 2 per cent decrease.

In the past five to ten years, however, there has come into increasing prominence a group of economists who would like to go considerably beyond the simple assert on that the behavior of money is a significant factor influencing the behavior of the economy. It is not easy to characterize with any precision the views of this group of economists. As is perhaps to be expected where complex issues are involved, their statements about the importance of monetary behavior in determining the course of business activity encompass a variety of individual positions, positions which may themselves be undergoing change. Moreover these positions are rarely stated in quantitative terms. More frequently, the importance of money as a determinant of business conditions will be characterized as “by far the major factor”, “the most important factor”, “a primary factor”, and by similar qualitative phrases inescapably open to various interpretations.

Of course as one moves from the stronger phrases to the weaker, one comes closer and closer to the view that money is simply “a significant factor”, at which point it becomes virtually impossible to distinguish their views from those of the great majority of professional opinions. In order to bring a few of the issues into sharper focus, this article will take a look at some evidence for the “money supply” view of business fluctuations in one of its more extreme forms. Without necessarily implying that all the following positions are held precisely as stated by any single economist, an extreme form of the money supply

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¹ More rarely, other types of liquid assets such as mutual savings bank deposits are also included in the definition of money.

view can perhaps be characterized somewhat as follows: The behavior of the rate of change of the money supply is the overriding determinant of fluctuations in business activity. Government spending, taxing policies, fluctuations in the rate of technological innovation, and similar matters have a relatively small or even negligible influence on the short-run course of business activity. Hence, to the extent that it can control the money supply, a central bank, such as the Federal Reserve System, can control ups and downs in business activity. The influence of money on business operates with a long lag, however, and the timing of the influence is highly variable and unpredictable. Thus attempts to moderate fluctuations in business activity by varying the rate of growth of the money supply are likely to have an uncertain effect after an uncertain lag. They may even backfire, producing the very instability they are designed to cure. Consequently, the best policy for a central bank to follow is to maintain a steady rate of growth in the money supply, year in and year out, at a rate which corresponds roughly to the growth in the economy's productive capacity.

The implications of these views are obviously both highly important and strongly at variance with widely held beliefs. Thus they deny the direct importance of fiscal policy (except perhaps in so far as it may influence monetary policy), while they attribute to monetary policy a virtually determining role as regards business fluctuations. At the same time, they deny the usefulness of discretionary, countercyclical monetary policy. The issues involved are highly complex and cannot possibly be adequately treated in their entirety in a single article.² The present article, therefore, confines itself to examining the historical relationship between monetary cycles and cycles in general business. The article concludes that the relationship between these two kinds of cycles does not, in fact, provide any real support for the view that the behavior of money is the predominant determinant of fluctuations in business activity. Moreover, the historical relationship between cycles in money and in business cannot be used to demonstrate that monetary policy is, in its effects, so long delayed and so uncertain as to be an unsatisfactory countercyclical weapon.

The first section shows how proponents of the money supply view have measured cycles in money and exam-

² Among the many interesting and relevant issues not discussed are the advantages and disadvantages of the money supply as an immediate target of monetary policy or as an indicator of the effects of policy, the proper definition of the money supply, and the nature and stability of the demand for money.

ines the persistent tendency of turning points in monetary cycles, so measured, to lead turning points in general business activity. It argues that these leads do not necessarily point to a predominant causal influence of money on business. A second section suggests that the cyclical relationship of money and business activity may be as much a reflection of a reverse influence of business on money as it is of a direct causal influence running from money to business. A third section indicates why, for some periods at least, the tendency for cycles in money to lead cycles in business may reflect nothing more than the impact on money of a countercyclical monetary policy. Next, the relative amplitudes of monetary contractions and their associated business contractions are examined. Again it is argued that these relative amplitudes fail to provide any clear evidence for a predominant causal influence of money. A fifth section examines the timing of turning points in money and in business for evidence that the influence of money operates with so long and variable a lag as to make countercyclical monetary policy ineffective. A final section suggests that there may well be better ways to evaluate the causal influence of money on business than through the examination of past cyclical patterns.

CYCLES IN MONEY AND CYCLES IN BUSINESS ACTIVITY

As already implied, proponents of the money supply school have argued that the historical relationship between cycles in money and cycles in general business activity provides major support for their views on the causal importance of money in the business cycle. For the most part, these economists have delineated cycles in the money supply in terms of peaks and troughs in the percentage rate of change of money (usually including time deposits), while cycles in business have been defined in terms of peaks and troughs in the *level* of business activity as marked off, for instance, by the so-called "reference cycles" of the National Bureau of Economic Research (NBER).³

³ See, for example, Milton Friedman and Anna J. Schwartz, "Money and Business Cycles", *Review of Economics and Statistics* (February 1963, supplement), pages 34-38. While the procedure of these economists in comparing percentage rates of growth of money with levels of business activity can certainly be defended, it is by no means obvious that this is the most appropriate approach, and there are many possible alternatives. Thus, for example, cycles in the rate of growth of money could be compared with cycles in the rate of growth, rather than the level, of business activity. For some purposes the choice among these alternatives makes a considerable difference, as is noted later in connection with measuring the length of the lags of business-cycle turning points relative to turning points in the monetary cycle.

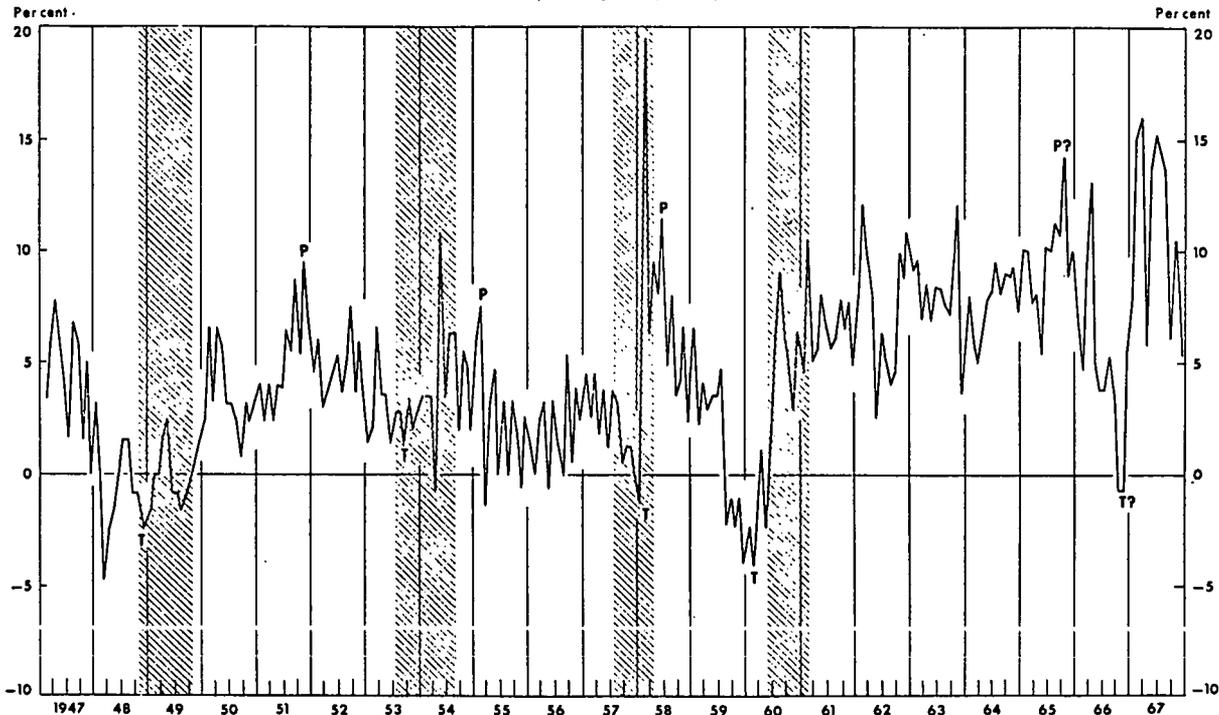
They have argued that virtually without exception every cycle in the level of business activity over the past century of United States experience can be associated with a cycle in the rate of growth of the money supply. The exceptions that are observed occurred during and just after World War II—although the events of 1966-67 may also be interpreted as an exception, since an apparent cyclical decline in monetary growth was not followed by a recession but only by a very brief slowdown in the rate of business expansion.⁴ The money supply school also finds that cycles in business activity have lagged behind the corresponding cycles in the rate of growth of the money supply, with business peaks and troughs thus following peaks and troughs in the rate of monetary change.

While the evidence supporting these generalizations is derived from about a century of United States data, the nature of the measurements and some of the problems of interpretation can be illustrated from the postwar experience represented in Chart I. The chart shows monthly percentage changes in the money supply, defined here to include currency in the hands of the public plus commercial bank private demand and time deposits, on a seasonally adjusted daily average basis.⁵ The shaded areas represent periods of business recession as determined by the NBER. The first point to note is the highly erratic nature of month-to-month movements in the rate of change of the money supply. Indeed, the reader might be excused if he found it difficult to see any clear-cut cyclical pattern in the chart. The erratic nature of the money series, which partly reflects short-run shifts of deposits between Treasury and private accounts, does make the precise dating of peaks and troughs in the money series somewhat arbitrary. This introduces a corresponding degree of arbitrariness.

⁴ Granting the difficulties of dating specific cycle turning points for series as erratic as the rate of growth of the money supply, a peak (for the definition of money that includes time deposits) seems to have occurred in October 1965, with a trough in October 1966. While there was a slowdown in the rate of growth of business activity in the first half of 1967, there was clearly no business cycle peak corresponding to the peak in the money series. Indeed, the current dollar value of GNP moved ahead in the first two quarters of 1967, although at a reduced rate. The 1965-66 decline in the rate of growth in the money supply was relatively short (twelve months). In amplitude it was clearly among the milder declines, but it was nevertheless still nearly twice as steep as the mildest of past contractions in the rate of monetary growth (November 1951 to September 1953). In any case, the 1965-66 decline does appear to represent a specific cycle contraction for the rate of monetary change under the standard NBER definition. See Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles* (National Bureau of Economic Research, 1946), pages 55-56.

⁵ While, as noted, many analysts would prefer to define the money supply to exclude commercial bank time deposits, such an exclusion would not materially affect the general picture, at least not for the period illustrated by the chart.

Chart I
CHANGES IN MONEY SUPPLY PLUS TIME DEPOSITS
 Month-to-month percentage changes; compound annual rates



Note: Percentage changes are based on seasonally adjusted data. Shaded areas represent recession periods, according to National Bureau of Economic Research chronology.

Source: Board of Governors of the Federal Reserve System.

ness in measuring timing relationships relative to turning points in business activity. Waiving this difficulty, however, peaks and troughs in the money series as dated in one well-known study of the problem are marked on the chart for the 1947-60 period.⁶ As can be seen, each monetary peak occurs during the expansion phase of the business cycle and thus leads the peak in business. Similarly, there is a monetary trough marked during three of the four postwar recessions acknowledged by the NBER. A fourth monetary trough, however, in February 1960 occurs somewhat before the onset of recession three months later.

The leads of the peaks in the money series with respect to the subsequent peaks in business activity are, it should be emphasized, quite variable, ranging from twenty months to twenty-nine months for the period covered in the chart and from six months to twenty-nine months for the entire 1870 to 1961 period. The corresponding range of leads of money troughs relative to subsequent troughs in business cycles varies from three months to twelve months for the charted period and up to twenty-two months for the longer period.

The significance, if any, of these leads in assessing the importance of cycles in money in causing cycles in business is highly problematical. Firstly, chronological leads do not, of course, necessarily imply causation. It is perfectly possible, for example, to construct models of the economy in which money has *no* influence on business but which generate a consistent lead of peaks and troughs in the rate of growth of the money supply relative to peaks and troughs in general business activity.⁷ Secondly, the extreme variability of the length of the leads would seem to suggest, if anything, the existence of factors other than money that can also exert an important influence on the timing of business peaks and troughs. Certainly even if a peak or trough in the rate of growth of the money supply could be identified around the time it occurred, this would be of very little, if any, help in predicting the timing of a subsequent peak or trough in business activity. Thirdly, there is a real question as to whether anything at all can be inferred from the historical record about the influence of money on business if, as is argued in the next section,

⁶ The dates used are essentially those presented in Milton Friedman and Anna J. Schwartz, *op. cit.*, page 37, Table I. Minor modifications of the Friedman-Schwartz dates have been made when these seemed obviously dictated by revisions in the data subsequent to publication of their work.

⁷ See James Tobin, "Money and Income: Post Hoc Propter Hoc?", to be published.

there is an important reverse influence exerted by the business cycle on the monetary cycle itself.

THE INFLUENCE OF BUSINESS ON MONEY

Although the persistent tendency of cycles in monetary growth rates to lead business activity does not, as noted, necessarily imply a predominant causal influence of money on business, this tendency has nevertheless seemed to the money supply economists to be highly suggestive of such an influence. Certainly the consistency with which these leads show up in cycle after cycle is rather striking and does suggest that cycles in money and cycles in business are related by some mechanism, however loose and unreliable. Nevertheless, it is important to recognize that this mechanism need not consist entirely or even mainly of a causal influence of money on business. It might, instead, reflect principally a causal influence of business on money, or it could reflect a complex relationship of mutual interaction. As noted earlier, virtually all economists believe that there is, in fact, at least *some* causal influence of money on business, and it may be that this influence alone is enough to explain the existence of some degree of consistency, albeit a loose one, in the timing relationships of peaks and troughs in business and money. However, the existence of a powerful reverse influence of the business cycle itself on the monetary cycle would have important implications. By helping to explain the timing relationships of the money and business cycles, the existence of such an influence would certainly tend to question severely any presumption that these timing relationships are themselves evidence for money as the predominant cause of business cycles.

There are, in fact, a number of important ways in which changing business conditions can affect, and apparently have affected, the rate of growth of the money supply over the 100 years or so covered by the available data. First, the state of business influences decisions by the monetary authorities to supply reserves and to take other actions likely to affect the money supply—as is discussed in detail in the next section. Business conditions can also have a direct impact on the money supply, however. For example, they may affect the balance of payments and the size of gold imports or exports. These gold movements, in turn, may affect the size of the monetary base—the sum of currency in the hands of the public and reserves in the banking system. Various official policies have tended to reduce or

offset this particular influence of business on money, but at least prior to the creation of the Federal Reserve System it may have been of considerable significance.

Second, business conditions may influence the money stock through an influence on the volume of member bank borrowings at the Federal Reserve. While the size of such borrowings is, of course, importantly conditioned by the terms under which loans to member banks are made, including the level of the discount rate, it may also be significantly affected by the strength of loan demand and by the yields that banks can obtain on earning assets. These matters, in turn, are clearly related in part to the state of business activity.

A third influence of business on money operates through the effects of business on the ratio of the public's holdings of coin and currency to its holdings of bank deposits. A rise in this ratio, for example, tends to drain reserves from banks as the public withdraws coin and currency. Since one dollar of reserves supports several dollars of deposits, the loss of reserves leads to a multiple contraction of deposits which depresses the total money supply by more than it is increased through the rise in the public's holdings of cash. While no one is very sure as to just what determines the cyclical pattern of the currency ratio, a pattern does seem to exist which in some way reflects shifts in the composition of payments over the business cycle as well as, in the historically important case of banking panics, fluctuations in the public's confidence in the banks themselves.⁸

A final avenue of influence of business on money is through the influence of business conditions on the ratio of bank excess reserves to deposits. When the ratio of excess reserves to deposits is relatively high, other things equal, the money supply will be relatively low since banks will not be fully utilizing the deposit-creating potential of the supply of reserves available to them. Business conditions can affect the reserve ratio in various ways. Thus they can influence bank desires to hold excess reserves through variations in the strength of current and prospective loan demand, through variations in the yields on the earning assets of banks, and through variations in banker expectations. When business is rising, loan demand is apt to be strengthening, yields on earning assets are apt to be

⁸ It might be noted that while the Federal Reserve has for many years routinely offset the reserve effects of short-term movements in coin and currency, such as occur around holidays, for example, the ratio of coin and currency in the hands of the public to deposits has apparently continued to show some mild fluctuations of a cyclical nature.

rising, and banker confidence in the future is likely to be increasing. Thus excess reserves are apt to decline, with the reserve ratio rising and thereby exerting an upward influence on the money supply.

The influence of business on money—acting through its influence on the growth of the monetary base, the currency ratio, and the excess reserve ratio—is extremely complex and is not necessarily stable over time. The cyclical behavior of the monetary base and the currency and reserve ratios have in fact varied from cycle to cycle. Moreover the relative importance of these three factors in influencing the cyclical behavior of money has varied over the near 100-year period for which data are available. In part, these variations have reflected the effects of the creation and evolution of the Federal Reserve System. A detailed examination of the behavior of the monetary base, the currency and reserve ratios, and the role of business conditions in fixing their cyclical patterns is beyond the scope of this article. Recently, however, a very thorough analysis of the problem has been done for the NBER by Professor Phillip Cagan of Columbia University. He finds that “although the cyclical behavior of the three determinants [of the money stock] is not easy to interpret, it seems safe to conclude that most of their short-run variations are closely related to cyclical fluctuations in economic activity. . . . Such effects provide a plausible explanation of recurring cycles in the money stock whether or not the reverse effect occurred.”⁹

The fact that the business cycle itself has an important role in determining the course of the monetary cycle seriously undermines the argument that the timing relationships of monetary cycles and business cycles point to a dominant influence of money on business. By the same token, ample room is left for the possibility that many other factors, such as fiscal policy, fluctuations in business investment demand, including those related to changes in technology, fluctuation in exports, and replacement cycles in consumer durable goods, may also exert important independent influences on the course of business activity.

MONETARY POLICY AND THE CYCLICAL BEHAVIOR OF MONEY

One important, though perhaps indirect, influence of business on money requires special mention, namely the

⁹ Phillip Cagan, *Determinants and Effects of Changes in the Stock of Money, 1875-1960* (National Bureau of Economic Research, 1965), page 261.

influence it exerts via monetary policy. The relevance of monetary policy to the behavior of monetary growth during the business cycle was perhaps especially clear during the period beginning around 1952 and extending to the very early 1960's. In this period, policy was more or less able to concentrate on the requirements of stabilizing the business cycle relatively (but not entirely) unimpeded by considerations of war finance, the balance of payments, and possible strains on particular sectors of the capital markets. The ultimate aim of stabilizing the business cycle is, of course, to prevent or moderate recessions and to forestall or limit inflation and structural imbalances during periods of advance. The tools available to the Federal Reserve, however, such as open market operations and discount rate policy, influence employment and the price level only through complex and indirect routes. Hence, in the short run, policy must be formulated in terms of variables which respond more directly to the influence of the System. Some possibilities include, in addition to the rate of growth of the money supply, the growth of bank credit, conditions in the money market and the behavior of short-term interest rates, and the marginal reserve position of banks as measured, for example, by the level of free reserves or of member bank borrowings from the Federal Reserve. It is clear that the money supply need not always be the immediate objective of monetary policy, and indeed it was not by any means always such during the 1950's. Given this fact, the behavior of the rate of growth of the money supply during the period cannot be assumed to be simply and directly the result of monetary policy decisions alone.

Nevertheless, it is clear that the current and prospective behavior of business strongly influenced monetary policy decisions, given the primary aim of moderating the cycle, and that these decisions, in turn, influenced the behavior of the rate of growth of the money supply. Thus, for example, as recoveries proceeded and threatened to generate inflationary pressures, monetary policy tightened to counteract these pressures. Regardless of what particular variable the System sought to control—whether the money supply itself, conditions in the money market, or bank marginal reserve positions—the movement of any of these variables in the direction of tightening would, taken by itself, tend to exert a slowing influence on the rate of monetary expansion. In this way, the firming of monetary policy in the presence of cumulating expansionary forces would no doubt help to explain the tendency of the rate of monetary

growth to peak out well in advance of peaks in the business cycle. Similarly, the easing of policy to counteract a developing recession would help to produce an upturn in the rate of monetary growth in advance of troughs in business activity.

In addition to the feedback from business conditions to policy decisions and thence from policy to the money supply, there are circumstances in which developments in the economy can react on the money supply even with monetary policy unchanged. Consider, for example, a situation in which the focus of policy is on maintaining an unchanged money market "tone"—a phrase that has been interpreted to imply, among other things, some rough stabilization of the average level of certain short-term interest rates such as the rate on Federal funds. Now a speedup in the rate of growth in economic activity would ordinarily accelerate the growth of demand for bank credit and deposits. This, in turn, would normally result in upward pressure on the money market and on money market interest rates. Maintaining the stability in money market tone called for by such a policy would require, however, under the assumed circumstances, supplying more reserves to the banks in order to offset the upward pressures on money market rates. Thus, with unchanged policy, an acceleration in the rate of business expansion could generate an acceleration in the rate of growth of reserves, and thence in the money supply. Similarly, a tapering-off in the rate of business expansion could, in these circumstances, generate a tapering-off in the rate of monetary expansion well before an absolute peak in business activity occurred. It should be emphasized that unchanged monetary policy could be perfectly consistent with countercyclical objectives under these conditions if the slowdown (or speedup) in the rate of business advance either were expected to be temporary or were regarded as a healthy development.

The reaction of monetary policy to changing business conditions and the reaction of the money supply to monetary policy undoubtedly help explain the tendency of peaks and troughs in the rate of growth of the money supply to precede peaks and troughs in the level of economic activity during this period. The resulting monetary leads, however, cannot then be interpreted as demonstrating a dependence of cycles in business on cycles in monetary growth. These leads would very likely have existed even if the influence of money on business were altogether negligible.

SEVERITY OF CYCLICAL MOVEMENTS

Apart from matters of cyclical timing, some proponents of the money supply school have also regarded the relationship between the severity of cyclical movements in money and the severity of associated cyclical movements in business as suggesting a predominant causal role for money. They argue, perhaps with some plausibility, that, if the behavior of money were the predominant determinant of business fluctuations, the relative sizes of cyclical movements in business and roughly contemporaneous cyclical movements in money should be highly correlated. For example, the severity of a cyclical decline in the rate of growth of the money supply should be closely related to the severity of the associated business recession or depression. The evidence for such a correlation, however, is actually rather mixed.

Cyclical contractions in the monetary growth rate can be measured by computing the decline in the rate of monetary growth from its peak value to its trough value.¹⁰ On the basis of these computations, monetary contractions can be ranked in order of severity. Similarly, the severity of business contractions can be ranked by choosing some index of business activity and computing its decline during each business contraction recognized and dated by the NBER. If the resulting rankings of monetary contractions are compared with the rankings of their associated business declines for eighteen nonwar business contractions from 1882 to 1961, the size of monetary and business contractions proves to be moderately highly correlated.¹¹ It turns out, however, that this correlation depends entirely on the experience of especially severe cyclical contractions. Among the eighteen business contractions experienced during the period, six are generally recognized as having been particularly deep. They include three pre-World War I episodes and the contractions of 1920-21, 1929-33, and 1937-38. In the latter three declines, the Federal Reserve Board's industrial production index fell by 32 per cent, 52 per cent, and 32 per cent, respectively, compared with a decline of only 18 per cent for the next largest contraction covered by the production index (1923-24).

¹⁰ Generally, three-month averages centered on the specific cycle turning point months have been used to reduce the weight given to especially sharp changes in the peak and trough months themselves.

¹¹ The Spearman rank correlation, for which satisfactory significance tests apparently do not exist when medium-sized samples ($10 < n < 20$) are involved, is .70. The Kendall rank correlation coefficient, adjusted for ties, is .53 and is significant at the 1 per cent level. Rankings of business contractions are based on the Moore index. See Friedman and Schwartz, *op. cit.*, Table 3, page 39.

These six most severe contractions were in fact associated with the six most severe cyclical declines in the rate of growth of the money supply, though the rankings within the six do not correspond exactly. As was argued earlier, business conditions themselves exert a reverse influence on the money supply, and it seems probable that particularly severe business declines may tend to accentuate the accompanying monetary contractions. Thus, for example, the wholesale default of loans and sharp drops in the value of securities that accompanied the 1929-33 depression helped lay the groundwork for the widespread bank failures of that period. These failures were in part caused by, but also further encouraged, large withdrawals of currency from the banking system by a frightened public. By contracting the reserve base of the banking system, in turn, these withdrawals resulted in multiple contractions of the deposit component of the money supply.

Developments of this type help to explain the association of major monetary contractions with major depressions but do not seem to account fully for it.¹² Thus it may be that catastrophic monetary developments are in fact a pre-condition for catastrophic declines in business activity. In any case, for more moderate cyclical movements, the association between the severity of monetary contractions and the severity of business contractions breaks down completely. There is virtually no correlation whatever between the relative rankings of the twelve nonmajor contractions in the 1882-1961 period and the rankings of the associated declines in the rate of monetary growth.¹³ Certainly this finding does not support the theory that changes in the rate of monetary growth are of predominant importance in determining business activity.

MEASURING LAGS IN THE INFLUENCE OF MONEY ON BUSINESS

Despite their belief in the crucial role of the money supply in determining the cyclical course of business activity, some members of the money supply school nevertheless argue, as suggested at the beginning of this article, that discretionary monetary policy is a clumsy and even dangerous countercyclical weapon. The starting point for this view is again the fact that peaks and troughs in the level

¹² See Phillip Cagan, *op. cit.*, pages 262-68.

¹³ The Kendall coefficient for the twelve nonmajor contractions is a statistically insignificant .03, while the corresponding Spearman coefficient is .01.

of business activity tend to lag behind peaks and troughs in the rate of change of the money supply—in particular the fact that these lags have tended to be quite long on average and highly variable from one cycle to another. Thus long average lags of about sixteen months for peaks and twelve months for troughs have suggested to these economists that the impact of monetary policy is correspondingly delayed, with actions taken to moderate a boom, for example, having their primary impact during the subsequent recession when precisely the opposite influence is needed. Moreover, the great variability from cycle to cycle of the lags as measured by the money supply school has suggested that the timing of the impact of monetary policy is similarly variable and unpredictable. For this reason, they argue, it will be impossible for the monetary authorities to gauge when their policy actions will take effect and therefore whether these actions will turn out to have been appropriate.

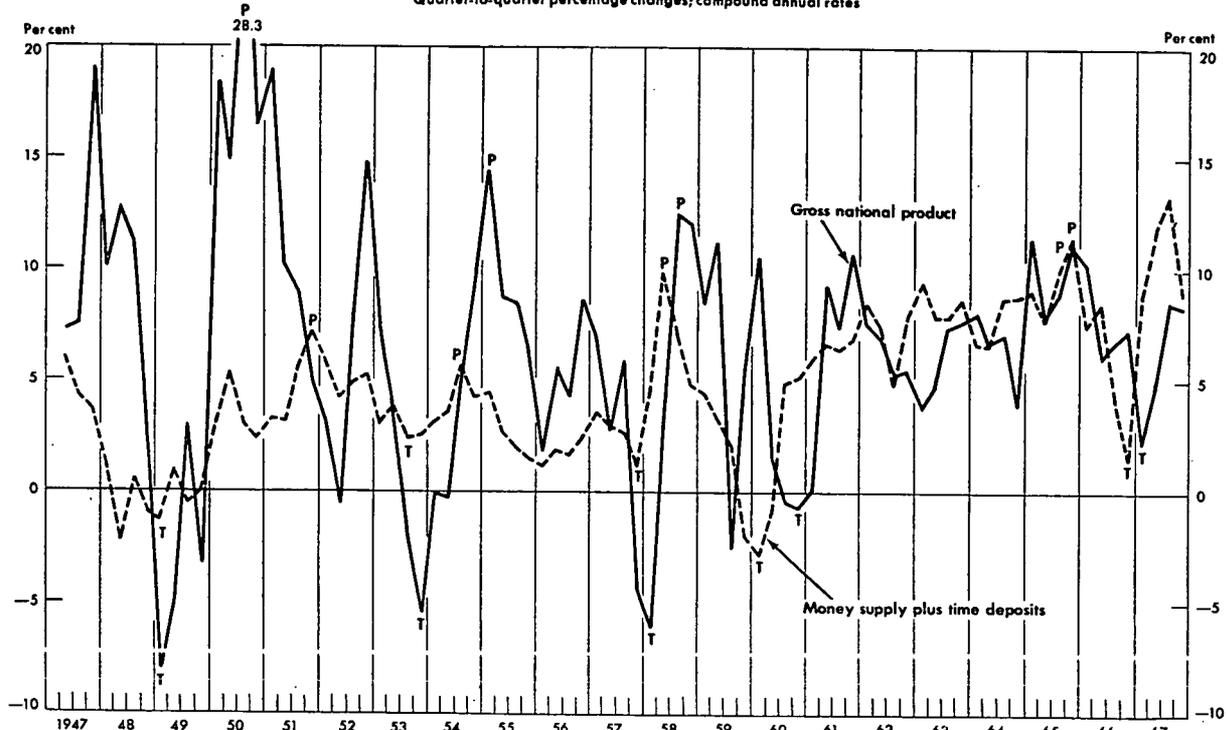
It is true, of course, that monetary policy affects the economy with a lag. The full effects of open market purchases on bank deposits and credit, for example, require time to work themselves out. More important, additional time must elapse before businessmen and consumers adjust their spending plans to the resulting changes in the financial environment. For this reason, the pattern of spending at any given time will to some degree reflect the influence of financial conditions as they existed several months or quarters earlier. Hence it is certainly possible, for example, that some of the effects of a restrictive monetary policy could continue to be felt during a recession even though the current posture of monetary policy were quite expansionary.

The fact that such lags do exist, however, shows only that monetary policy cannot be expected to produce immediate results. Like fiscal policy, its effectiveness depends in part on the ability to anticipate business trends so that policy actions taken today will be appropriate to tomorrow's conditions. Of course the longer the lags in the effects of policy prove to be, the further out in time must such anticipations be carried and the greater is the risk that policy actions will prove to be inappropriate. Moreover, if the lengths of the lags are highly variable and thus perhaps unpredictable, the risks of inappropriate policy decisions are obviously increased and the need for continuous adjustments in policy is apt to arise.

The timing of cycles in money and cycles in business, however, provides absolutely no basis for believing that the lags in the effects of monetary policy are so long or

Chart II
CHANGES IN GROSS NATIONAL PRODUCT AND IN MONEY SUPPLY PLUS TIME DEPOSITS

Quarter-to-quarter percentage changes; compound annual rates



Note: Percentage changes are based on seasonally adjusted data.

Sources: Board of Governors of the Federal Reserve System; United States Department of Commerce.

so variable as to vitiate the effectiveness of a counter-cyclical policy. First, there are many reasons for doubting that the lag in the effects of monetary policy should be measured by comparing the timing relationships between cyclical turns in money and in business. It has been argued, for example, that other variables more directly under the control of policy makers, such as member bank nonborrowed reserves, or variables more clearly related to business decisions, such as interest rates, must also be taken into account. Yet, even if the behavior of the money supply be accepted as the indicator of policy, there are many alternative ways in which "the lag" between monetary and business behavior can be measured, and it makes a great deal of difference which measure is used. If, for example, the rate of change in the money supply is replaced by deviations in the level of the money supply from its long-run trend, the average lag between monetary peaks so measured and peaks in general business apparently shrinks from the sixteen months previously cited to a mere five months.¹⁴ Alternatively, it can be plausibly argued that the appropriate measure is the lag between the rate of change in the money supply, and the *rate of change*, rather than the level, of some measure of business activity such as gross national product (GNP) or industrial production. When peaks and troughs for money and business are compared on this basis, the lead of money over business appears to be quite short.¹⁵ The near simultaneity, in most cases, of peaks and troughs in the rates of change of the money supply and of GNP during the post-World War II period can be seen in Chart II. To be sure, movements in the two series are quite irregular, so that the decision on whether to treat a particular date as a turning point is sometimes rather arbitrary. Nevertheless, the lead of peaks and troughs in the rate of growth of money over peaks and troughs in the rate of growth of GNP appears to average about one quarter or less.¹⁶

¹⁴ This estimate is presented by Milton Friedman in "The Lag Effect in Monetary Policy", *Journal of Political Economy*, October 1961, page 456.

¹⁵ See John Kareken and Robert Solow, "Lags in Monetary Policy", *Stabilization Policies* (Commission on Money and Credit, 1963), pages 21-24.

¹⁶ When quarterly dollar changes in the money supply are correlated with quarterly dollar changes in GNP experimenting with various lags, the highest correlation is achieved with GNP lagged two quarters behind money. (For the 1947-II to 1967-III period the R^2 is .34.) The correlation with a one quarter lag is almost exactly as high, however ($R^2 = .33$). When percentage changes in the two series are used instead, the correlation virtually disappears, no matter what lag is used.

The point of these various comparisons is not to prove that the lag in monetary policy is necessarily either very long or very short, but rather to illustrate how hard it is to settle the matter through the kind of evidence that has been offered by the money supply school. Similar difficulties, as well as others, beset attempts to measure the *variability* of the lag in the influence of money on business by comparisons of cyclical peaks and troughs in the two. However the turning points are measured, the resulting estimates may seriously overstate the true variability of the lag in the influence of money on business. The reason is that observed differences from cycle to cycle in the timing of turning points in money relative to turning points in business are bound to reflect a number of factors over and beyond any variability in the influence of money on business.¹⁷ These "other" sources of variability include purely statistical matters such as errors in the data and the arbitrariness involved in assigning precise dates to turning points in money and in business. More fundamentally, the fact that there exists a reverse influence of business on money, an influence that is probably uneven from one cycle to the next, imparts a potentially serious source of variability to the observed lags. Moreover, if there are important influences on the general level of business activity other than the behavior of money, these factors would also increase the variability of the observed timing relationships between turning points in money and in business. Taking all these possibilities into account it seems fair to say that whatever the true variability in the impact of money on business, its size is overstated when it is measured in terms of the variability of the lags in cyclical turning points.

WAYS IN WHICH MONEY MAY INFLUENCE BUSINESS

If there is a broad conclusion to be drawn from a study of the historical pattern of relationships between cycles in money and cycles in business, it is that there are distinct limits to what can be learned about the influence of money on business from this kind of statistical analysis. Perhaps this should not be surprising. During the business cycle many factors of potential importance to the subsequent behavior of business activity undergo more or less con-

¹⁷ Other sources of variability are discussed in some detail by Thomas Mayer in "The Lag in the Effect of Monetary Policy: Some Criticisms", *Western Economic Journal* (September 1967), pages 335-42.

tinuous change. At the same time the business cycle itself feeds back on the behavior of these factors. Hence it is extremely difficult to isolate the importance of any single factor, such as the behavior of money, and *post hoc, propter hoc* reasoning becomes especially dangerous. In these circumstances there appears to be no substitute for a detailed, and hopefully quantitative, examination of the ways in which changes in the money supply might work through the economy ultimately to affect the various components of aggregate demand. Some brief and tentative sketches aside, the proponents of the monetary school have not attempted such an analysis.

The possible ways in which an increase, for example, in the money supply might stimulate aggregate demand can be separated into what are sometimes called "income effects", "wealth effects", and "substitution effects". Income effects exist when the same developments that produce an increase in the quantity of money also add directly to current income. Examples would be increases in bank reserves and deposits resulting from domestically mined gold or an export surplus. Similarly, a wealth effect occurs when a process increasing the money supply also increases the net worth of the private sector of the economy. A Treasury deficit financed by a rundown of Treasury deposit balances might be regarded as an example of such a process, since the resulting buildup of private deposits would represent an increase in private wealth.

Far more important than the income or wealth effects in the present-day United States economy are substitution effects such as result when the Federal Reserve engages in open market operations and banks expand loans and investments.¹⁸ When the Federal Reserve buys Government securities from the nonbank public, the public of course acquires deposits and gives up the securities. There is no direct change in the public's net worth position,¹⁹ or in its income; rather there is a substitution of money for securities in the public's balance sheet. The same is true when the banks expand the money supply by buying securities from the nonbank public: the public substitutes money for securities, but neither its wealth nor its income

¹⁸ These substitution effects are sometimes also known as "portfolio balance" or "liquidity" effects.

¹⁹ This statement has to be modified to the extent that the Federal Reserve's buying activity bids up the market value of the public's holdings of Government securities. The significance of this wealth effect is probably minimal and is further limited in its consequences by the tendency of many holders to value Governments at original purchase price or at par rather than at current market value.

is directly changed by the transaction. Similarly, when banks expand deposits by making loans, the monetary assets of the borrowers rise, but their liabilities to the banking system rise by an equal amount and their net worth and income are unchanged.

Since these substitution effects associated with open market operations and with the expansion of bank deposits are by far the most important operations by which the money supply is changed, it seems especially relevant to study the ways in which these effects may influence economic activity. The main avenues appear to be through changes in interest rates on the various types of assets and changes in the availability of credit. When the Federal Reserve or the commercial banks buy securities from the nonbank public in exchange for deposits, funds are made available for the public to purchase, in turn, a wide variety of private securities such as mortgages, corporate bonds, or bankers' acceptances.²⁰ The increased demand for these securities tends to push rates on them down. And with borrowing costs down, business firms may be induced to expand outlays on plant and equipment or inventory while consumers may increase spending on new homes. In most cases, the effects of lower interest rates on capital spending probably stem from the fact that external financing has become cheaper. In some cases, however, lower market yields on outstanding government and private securities might induce business holders to sell such assets in order to purchase higher yielding capital goods and thus, in effect, to make direct substitution of physical capital for financial assets in their "portfolios". Finally, lower interest rates on securities may reduce consumer incentives to acquire and hold financial assets while tempting them to make more use of consumer credit, thereby reducing saving out of current income and increasing con-

²⁰ The newly created deposits may of course in principle be used immediately to buy goods rather than financial assets, thus tending directly to stimulate business activity. Even in this case, however, the effects of the money-creating operations work through and depend upon reactions to interest rates. When the Federal Reserve or the commercial banks enter the market to buy securities, their bids add to total market demand, making market prices for securities higher (and yields lower) than they otherwise would have been. Indeed it is these relatively higher prices (lower yields) that induce the nonbank public to give up securities in exchange for deposits. If the deposits are in fact immediately used to purchase goods, then the process can be regarded as one in which lower market interest rates on securities stemming from bids by the Federal Reserve or the commercial banks have induced the public to give up securities in exchange for goods. The extent to which such switching will occur obviously depends upon the sensitivity to interest rates of business and consumer demand for goods.

sumption purchases.²¹

With regard to bank lending, open market purchases of Government securities increase bank reserves and may ease the terms on which banks are willing to make loans. Changes in lending terms other than interest rates, which include repayment procedures, compensating balance requirements, and the maximum amount a bank is willing to lend to a borrower of given credit standing, are often bracketed as changes in "credit availability". Such changes are regarded by many analysts as being more important influences on many types of spending than are changes in interest rates. Moreover, changes in credit availability related in part to changes in the money supply are not confined to lending by commercial banks, as was dramatically illustrated in 1966 with regard to nonbank mortgage lenders. In any case, an increased availability of funds permits and encourages potential borrowers to increase their loan liabilities, thereby providing funds which can be used to build up financial assets (perhaps mainly money market instruments) or to purchase physical assets in the form of business capital goods, inventories, or consumer durables. Stepped-up purchases of financial assets add to downward pressures on interest rates, stimulating spending through the processes already described, while additional demand for physical assets stimulates business activity directly.

Studies of the influence of changes in interest rates and the availability of credit on spending in the various sectors of the economy have appeared with increasing frequency in the post-World War II period, especially within the past few years. Some of these studies have taken the form

²¹ While there is little general agreement that such direct effects on consumption are important, a recent study of the problem has in fact found a significant influence of interest rates on consumer demand for automobiles and other durables. (See Michael J. Hamburger, "Interest Rates and the Demand for Consumer Durable Goods", *American Economic Review*, December 1967.) In general, proponents of the monetary school feel that analyses of the role of interest rates in consumer demand undertaken to date have neglected to take into account certain important factors. In particular, they think that the most relevant interest rates may not be the ones usually studied, namely the rates on financial instruments, but rather the interest rates "implicit" in the prices of the durable goods themselves—i.e., where the value of the services yielded by a consumer durable, such as an auto or a washing machine, is treated as analogous to the coupon or dividend yielded by a bond or stock. The obvious difficulties of defining and measuring the value of such services have probably been responsible for the notable dearth of research into this possibility, however, and the issue must be regarded as completely unsettled.

of interviews of businessmen and consumers with regard to the influence of credit cost and availability conditions on their spending decisions. Other studies have employed modern statistical and computer technology in an attempt to extract such information from data on past behavior.²² With regard to spending on housing, there has been general agreement that the cost and availability of credit are highly important. A number of studies have also found varying degrees of influence on business spending for plant and equipment and for inventories as well as on consumer spending for durable goods such as autos and appliances. All these studies, however, have also found factors other than cost and availability of credit to be highly important. Moreover, a large degree of disagreement exists with regard to the exact quantitative importance of the financial factors.

Given the serious technical problems that surround these studies, major areas of disagreement are virtually certain to exist for some time to come. Nevertheless, studies of the type referred to here appear to offer the hope at least that firmly grounded and widely accepted conclusions on the importance of money in the business cycle may ultimately be reached. Of particular interest are large-scale econometric models which attempt to provide quantitative estimates of the timing and magnitude of the effects of central bank actions on the money supply and other financial magnitudes and the subsequent effects, in turn, of these variables on each of the various major components of aggregate demand. One such model is currently under construction by members of the Federal Reserve Board staff in cooperation with members of the Economics Department of the Massachusetts Institute of Technology.²³ Granting the major technical problems still unresolved, projects of this kind appear promising as a means of eventually tracking down the importance of money in explicit, quantitative terms.

²² For a summary of some of these studies, see Michael J. Hamburger, "The Impact of Monetary Variables: A Selected Survey of the Recent Empirical Literature" (Federal Reserve Bank of New York, July 1967). Copies of this paper are available on request from Publications Services, Division of Administrative Services, Board of Governors of the Federal Reserve System, Washington, D.C. 20551.

²³ Some preliminary results of this work are discussed in "The Federal Reserve-MIT Econometric Model" by Frank deLeeuw and Edward Gramlich, *Federal Reserve Bulletin* (January 1963), pages 9-40.



BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

OFFICE OF THE CHAIRMAN

March 7, 1968.

The Honorable Del Clawson,
House of Representatives,
Washington, D. C. 20515.

Dear Mr. Clawson:

This is in reply to your request for comment on a proposal by Mr. Preston Martin, Savings and Loan Commissioner of the State of California, for possible Federal Reserve "backstopping" of the consolidated obligations of the Federal Home Loan Bank System. As you will recall, he requests the Federal Reserve to commit itself to buy FHL Bank obligations--either directly or in the secondary market--as a means of cushioning the impact of monetary policy on the savings and loan industry and housing during periods of "very severe" credit restraint.

At the outset it should be noted that Federal Reserve purchases of FHL Bank obligations directly from the FHLB System are not authorized under present law. Section 14(b)(2) of the Federal Reserve Act (12 U.S.C. 355), which was added to the law by the Act of September 21, 1966, provides that the Federal Reserve Banks may "buy and sell in the open market, under the direction and regulations of the Federal Open Market Committee, any obligation which is a direct obligation of, or fully guaranteed as to principal and interest by, any agency of the United States." Although the Reserve Banks are also authorized by section 14(b) of the Act to purchase certain obligations of the United States directly from the Treasury, this authority does not extend to all agency issues but only to those which are fully guaranteed as to principal and interest by the United States. Moreover, since existing law already authorizes the Secretary of the Treasury to lend up to \$1 billion directly to the FHLB System, a similar authorization to the Federal Reserve would be simply additive.

While the 1966 act does authorize the Federal Reserve to purchase FHL Bank obligations in the open market, such buying is not really a feasible means of supporting the savings and loan industry. To have a significant influence on flows of funds to the FHLB System at times of severe credit squeeze, such Federal Reserve acquisitions would have to be very large and concentrated within a few months.

Because the market in FHL Bank debt is still relatively small, at least when compared to the market for U. S. Government securities, purchases on such a large scale would quickly force other buyers out of the market leaving the Federal Reserve the dominant market force.

Federal Reserve preemption of the buy side of the secondary market would, of course, tend to reduce interest yields on FHL Bank issues, at least temporarily. But it has generally been our view that financial markets are benefitted most over the long run if basic forces of supply and demand are allowed to work themselves out in the marketplace independent of direct Federal Reserve support. Since the Treasury-Federal Reserve accord in the early 1950's, all of our open market operations have been conducted with this view in mind. Otherwise, uncertainties are engendered in the minds of investors and dealers whether pegged interest rates or general monetary objectives will be given first priority. Such uncertainties in turn create arbitrary price fluctuations which retard the market's development.

The market for FHL Bank debt and agency securities in general has already grown considerably in depth and breadth in recent years, and the Federal Reserve would not wish to inhibit further improvement. Consequently, I believe Federal Reserve transactions in the secondary market for agency securities should be undertaken only to the extent they contribute to the market's long run development. With this objective in mind, the Federal Reserve began in late 1966 to make repurchase agreements with dealers in agency securities. Since then, nearly \$1 billion of such transactions have been made, about half of which have been in the obligations of housing agencies.

More generally, any undertaking to finance the FHL Banks through Federal Reserve buying of FHL Bank debt would have to be accomplished within the constraints of general monetary policy--which in the circumstances assumed would be strongly anti-inflationary. Federal Reserve experience with the pegging of interest rates during and after World War II showed that efforts to hold any given interest rate at artificially low levels cause the Federal Reserve to become "an engine of inflation."

If Federal Reserve purchases were to be made on the scale required without releasing substantially more reserves to the banking system than would be consistent with general monetary policy, the Federal Reserve would have to make partly offsetting sales of U. S. Government securities. And over the longer run any additions of FHL Bank obligations to the Federal Reserve security portfolio would represent substitutions for U. S. Government securities.

Thus, while Federal Reserve purchases would tend, other things being equal, to depress interest rates on FHL Bank obligations, Federal Reserve sales (or foregone purchases) would at the same time put upward pressure on yields of short-term Treasury issues. At best, a Federal Reserve buying program of this type would simply help to keep spreads between yields on short-term Treasury and FHL Bank issues from widening as much as they usually would in the assumed circumstances of generally rising short-term rates and expanding FHL Bank offerings.

In short, Federal Reserve buying of FHL Bank debt--even if undertaken directly, as well as in the open market--would probably not be very effective in insulating the Home Loan Bank System from high interest costs at times of severe credit squeeze. Since large-scale buying of FHL Bank debt would also present problems of market domination, as already noted, and create important technical difficulties for day-to-day management of the Federal Reserve open market portfolio, it is not at all clear that such a policy would on balance produce a net social benefit.

The Board of Governors does, of course, recognize that occasions may arise when FHL Banks should be provided with otherwise unavailable funds for lending to S and L's faced with a severe liquidity crisis. Emergency arrangements were made during the 1966 credit squeeze for Federal Reserve Banks to serve as lenders of last resort in such situations through their discount operation. Similar arrangements would again be made should similar circumstances develop in the future. But in the last analysis continued efforts to produce fundamental institutional reforms are likely to be most effective in ameliorating the severity of pressures on mortgage and housing markets during periods of tight money. Since 1966, both Government and industry groups have been actively studying and promoting a number of such proposals for institutional reform. I believe these efforts should continue to be actively encouraged.

I hope that these comments will be helpful to you in responding to Commissioner Martin.

Sincerely yours,

Wm. McC. Martin, Jr.

Wm. McC. Martin, Jr.

(Whereupon, at 12:15 p.m., the committee adjourned.)