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CONTENTS

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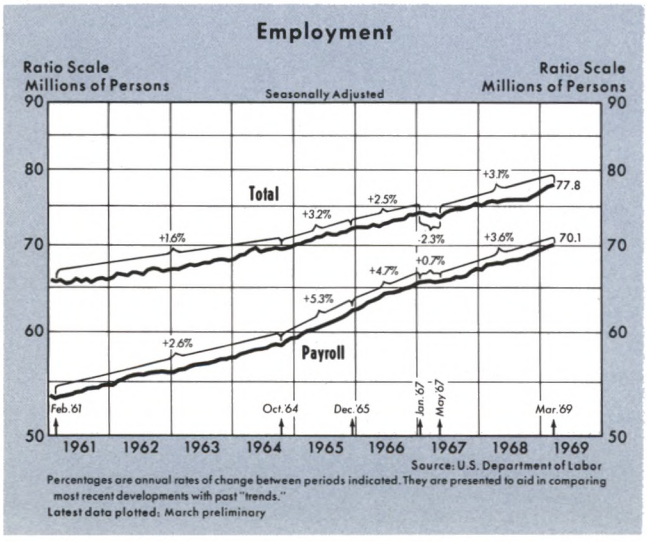
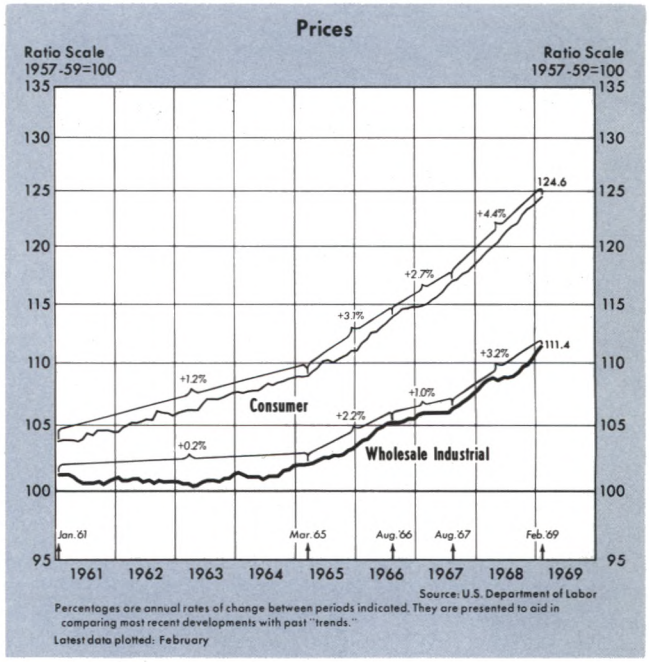
Monetary Actions, Credit Flows and Inflation

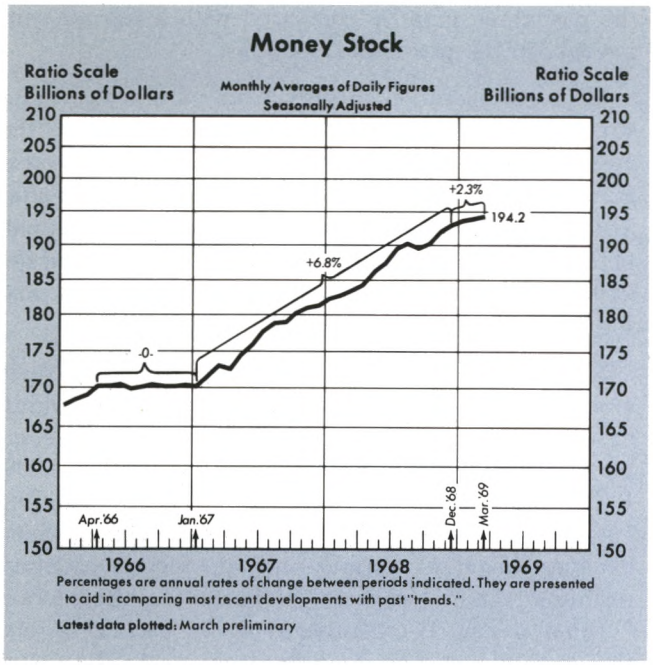
THE INFLATION of prices and interest rates over the past four years has resulted from excessive total demand. Spending growth has averaged 7.7 per cent per year since 1965, while the capacity of the economy to produce has been growing at an estimated 4 per cent rate. The Federal budget changes in June 1968 were designed to slow total spending. Late in the year a policy of monetary restraint was adopted. Since about mid-January, the growth rates of several strategic monetary variables have moderated, but there is no firm evidence that the rate of growth of total spending has decelerated. If the inflationary trend of spending is to be checked, the recently observed slowing of growth in Federal Reserve credit, member bank reserves, monetary base and the money supply must be sustained.





Spending, Employment and Prices

Total spending in the fourth quarter grew at an estimated 8 percent annual rate, about the same as the average rate for the past four inflationary years. Spending growth in the last half of 1968 was at an 8.3 per cent annual rate, compared with a 10.6 per cent rate in the first half. Though slight moderation



from early 1968 may be evident, total spending continued to advance well in excess of the growth rate of the economy's productive potential.

Developments since late 1968 show no indication of a significant decline in the rate of increase of total spending. Industrial production has risen at a 6.5 per cent annual rate since September compared with a 5 per cent rise in the previous year. Payroll employment has increased at a 6 per cent rate since fall compared with 2 per cent in the previous year. Wholesale prices of industrial commodities have risen at about a 4.5 per cent annual rate since August, compared with a 2.5 per cent rate in the previous year.

Federal Budget Prospects

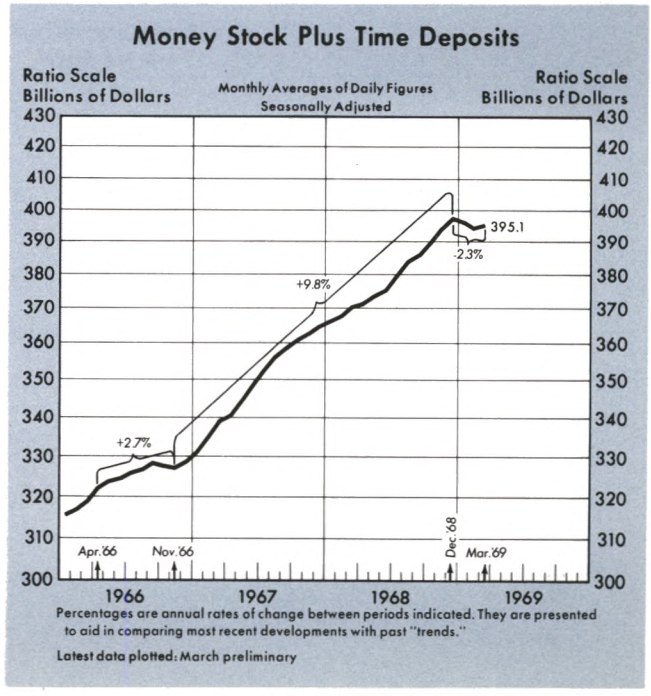
The influence of the June 1968 fiscal action on total spending and inflation appears to have been slight. The restraining effects of the tax surcharge and the slowdown in Federal spending growth in the last half of 1968 were offset by stimulative monetary actions and private anticipations of continued inflation, both of which provided impetus to private spending.

Recently announced revisions of budget expenditure plans indicate a more restrictive course for fiscal actions than was first planned in January. The high-employment budget is expected to rise from a $4 billion annual rate of surplus in the first quarter to $8 billion in the second quarter, then revert to about a $6 billion rate of surplus by late 1969. Adjusted for make-up tax payments in the second quarter, the Federal budget is now planned to show more rapid growth of receipts than of expenditures during 1969. Revised fiscal plans may be viewed as providing slightly more restraint on total spending as 1969 progresses.

Monetary Actions in the Last Half of 1968

Judgment differs greatly as to the influence of monetary factors on the course of total spending in the last half of 1968 and in early 1969, depending on which monetary measures are considered and how they are interpreted. As enactment of the fiscal program became assured in late May of 1968, the financial and business public was persuaded that the Government's demand for funds would be reduced. Private demand for loan funds declined and, consequently, interest rates declined. Lower market interest rates relative to Regulation Q ceilings (maximum rates which commercial banks are permitted to pay on time deposits) resulted in a large flow of funds to banks. The reduction of discount rates in August was a minor adjustment to lower market interest rates. By September and October, the demand for loan funds was again pushing market interest rates upward.

The rapid growth of bank credit and money plus time deposits (M_2) in the last half of 1968 was caused by the reduced level of market interest rates relative to Regulation Q ceilings. To the extent that there was a decline in the rate of growth of demand



deposits and money stock (M_1) after midyear, it appears to have been fostered by absorption of reserves by the increased time deposits rather than by any tightening of policy.

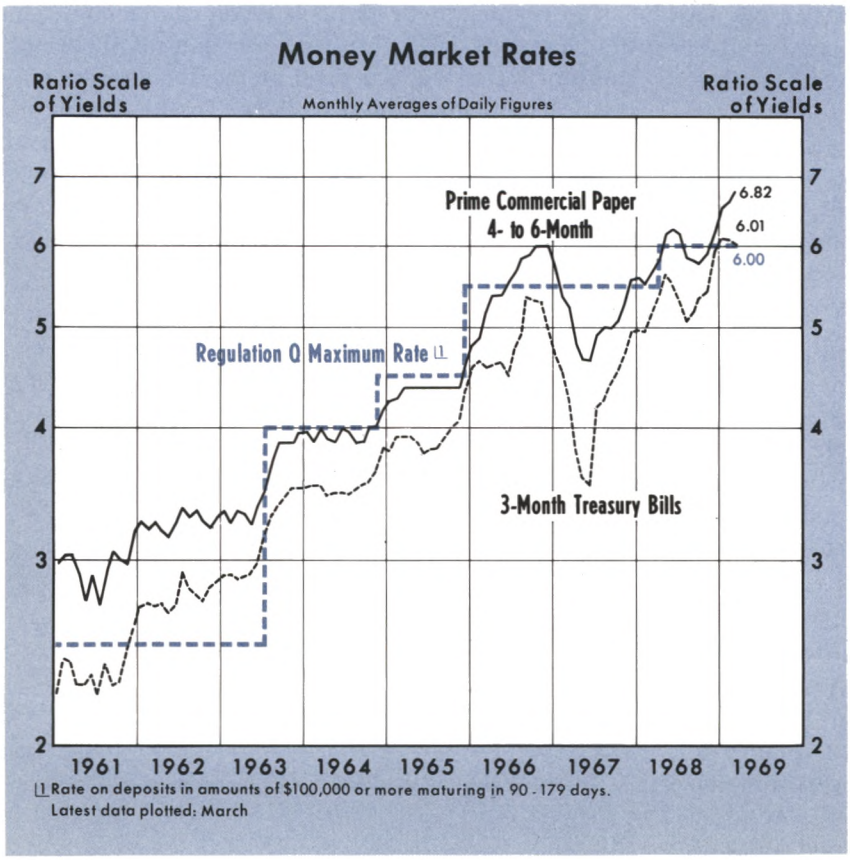
Monetary aggregates more closely related to central bank actions, when viewed collectively, did not advance much differently in the last half of the year than in the first half. Federal Reserve credit grew less rapidly in the second half, and member bank reserves more rapidly. The monetary base grew at a rather steady 6.5 per cent annual rate throughout the year. Growth of the money stock was at a 6.8 per cent annual rate in the first half of the year and at a 6.2 per cent rate in the last half.

Monetary Actions in Early 1969

There are clear indications that monetary influence has become restrictive since late 1968. The monetary base has increased at a 3.4 per cent annual rate in the past three months, well below the 6.5 per cent rate of the past two years. Money stock growth has slowed to a 2.3 per cent rate in the last three months, after increasing 6.5 per cent in the previous year. The money stock defined to include U.S. Government deposits has declined at a 1.2 per cent annual rate in the past three months, compared with a 6.2 per cent increase in the previous 12 months.

If the deceleration in growth of money and other strategic monetary aggregates is sustained, given the apparent continued strength in loan demand, interest rates may well continue to rise, but such increases are likely to be temporary. When the rate of growth of total spending and inflationary expectations decline, the demand for loan funds will be slowed, and interest rates may be expected to decline.

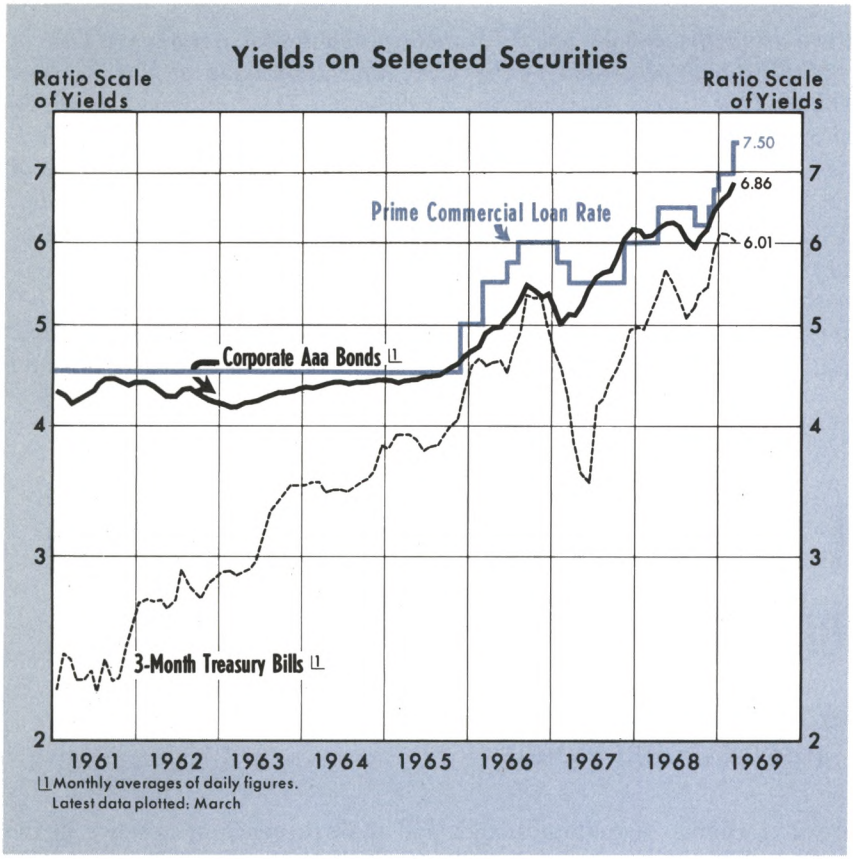
Market interest rates have risen well above the rates which banks are allowed to pay on deposits, resulting in a channeling of funds outside banks since December, reversing the process of the last half of 1968. Reflecting these developments, the outstanding amounts of bank credit and M_2 have declined. Such declines do not necessarily indicate severe monetary restraint. When banks are restricted by Regulation Q from paying competitive rates on earning assets, the demand for time deposits declines. As the quantity of M_2 has been limited by Regulation Q, the demand has declined as well. When the flow of funds through banks is restrained by Regulation Q, the flow through other channels is increased correspondingly.



A Special Restraint on Commercial Banks

Credit markets in general have been placed under special pressure due to the great demand for loan funds, and since mid-January, by a slowing in the growth of Federal Reserve credit, monetary base, bank reserves, and money (M_1). Commercial banks have been in particular difficulty because they are subject to the exceptional restriction of Regulation Q on the flow of funds, and more recently to a higher reserve requirement on demand deposits.

The effect of Regulation Q ceilings is to reroute the flow of funds away from commercial banks when market interest rates rise above such ceilings, without clearly limiting the marginal creation of money and credit. If Regulation Q ceilings had been raised in November, and banks had been able to retain and gain deposits, there probably would have been no less over-all monetary restraint, but unnecessary



wrenchings of the financial system as funds were rerouted would have been avoided.

The Discount Rate

As market interest rates have risen since last September in response to increasing demand for loans, they have also risen relative to the Federal Reserve discount rate. In September the commercial paper rate was 57 basis points above the discount rate, and in March the spread increased to 98 points. Bank borrowings from Reserve Banks increased from $515 million last September to $750 million in March, and to over $1 billion just prior to the raising of the discount rate from 5½ per cent to 6 per cent on April 4.

These borrowings were stimulated by the increasingly advantageous spread between discount rates and market rates, by the demand for loan funds, by the deprivation of funds to the banks by limits on interest rates they can pay, and after mid-January, by slower growth in strategic monetary aggregates. The increased borrowing from the Federal Reserve, in and of itself, has been conducive to the increase of bank reserves and thereby to expansion of bank credit, demand deposits and the money supply.

Bank Loan Rates

Rates charged by commercial banks have been under strong upward pressure because of buoyant total spending in the economy. This pressure has been especially intense because the limitation on interest rates which banks can pay on deposits has severely limited the supply of funds to banks. Banks have been under pressure to increase their rates even faster than interest rates have been rising generally. One way to relieve upward pressure on bank loan rates would be to reduce limitations on the supply of funds to banks by raising Regulation Q ceilings. However, such an action would have little effect on the basic supply and demand forces operating on interest rates.

Interest rates, in general, can be reduced only by slowing the growth in total spending and thereby the total demand for loan funds. Containment of total spending and inflation is contingent on continuation of reduced rates of growth of Federal Reserve credit, the monetary base, bank reserves, and the money supply.

Summary

Commercial banks have been placed under special pressure by the workings of Regulation Q, though this does not indicate pressure from the monetary authority on credit markets in general. Monetary restraint comes only from reduced monetary expansion. There are substantial indications that such a slowing has occurred, but the impact of these slower growth rates will be effective only if they are sustained over a longer period of time.

Experience of the past 20 years indicates that the effects of monetary action on total spending are not felt for several months, and that price effects of total spending are not observed until several quarters after that. If the recently reduced rate of monetary expansion is continued, growth of total spending is likely to moderate significantly by midyear. However, even when firm indications of deceleration of total spending become evident, significant deceleration of price increases may not become apparent for several quarters.

EDITOR'S NOTE:

The following two articles have evolved from the article, titled "Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization," presented in the November 1968 issue of this REVIEW. *Frank de Leeuw is now a Senior Staff Member at the Urban Institute in Washington, D.C. and was formerly Chief of the Special Studies Section, Division of Research and Statistics at the Board of Governors of the Federal Reserve System. John Kalchbrenner is an economist in the Special Studies Section, Division of Research and Statistics at the Board of Governors. Their "Comment" presents several important considerations for the reader, and tends to emphasize the volume of work remaining for economists and analysts interested in the current discussion of the role of money and monetary policy.*

The "Reply," by Leonall C. Andersen and Jerry L. Jordan, attempts to clarify the areas of disagreement between them and the authors of the "Comment." In many instances, clarification consists of answering the specific questions about their model and reinforcing their original position, rather than adjusting any of the theory and procedures behind the model.

Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization – Comment

by FRANK DE LEEUW and
JOHN KALCHBRENNER[1]

A RECENT ARTICLE by Andersen and Jordan answers many of the criticisms of earlier single-equation studies of the relation between money and income.[2] It makes use of distributed lags instead of fixed-point lags. It uses high-employment Federal receipts and expenditures instead of actual receipts and expenditures. It represents monetary policy by the monetary base as well as the money supply. These technical improvements should make their conclusion that fiscal policies have no perceptible effect on GNP movements all the more disturbing to those of us who have been inclined to believe that fiscal policies have powerful effects on income.

The purpose of this "Comment" is to examine whether these conclusions hold up under a careful examination of the statistical requirements of single-equation models and their presence or absence in the Andersen-Jordan equations. We are led, in the course of the examination, to try some alternative equations with important differences in results. The alternative equations seem to us to cast considerable doubt on the Andersen-Jordan skepticism about fiscal policy.

The Statistical Requirements of Single-Equation Models

Two different ways of describing the St. Louis equations bring into focus the central problem that has concerned us. One way to describe the equations is to say that they are attempts at using multiple regression to measure the influence on GNP of certain exogenous government policy variables. By exogenous we here mean variables that can be heavily and directly influenced by policymakers. Variables which are not easily influenced by policymakers are not particularly useful ones to have in a regression, except as they reduce uncertainty about the coefficients of the policy variables.

A second way to describe the St. Louis equations is that they are reduced forms of some underlying more complex model of the economy. In any model of this kind the current endogenous variables – the ones the model attempts to explain – depend on past

[1]We wish to thank the staff of the Federal Reserve Bank of St. Louis, especially Messrs. Andersen and Jordan, for supplying us with data and for making the pages of the *Review* available to us. This "Comment" was first presented at a seminar at the Federal Reserve Board on January 16, 1969, and was followed by a lively and helpful discussion by Messrs. Andersen, Jordan and other colleagues in the Federal Reserve System. Responsibility for the statements in this "Comment" rests, of course, solely with the authors.

[2]This article, "Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization," by Leonall C. Andersen and Jerry L. Jordan, appeared in the November 1968 issue of this *Review*, pp. 11-24.

values of the endogenous variables and on the exogenous variables. By exogenous we now mean variables which do not respond to current movements in the endogenous variables.[3] By solving for the past endogenous variables, we can in principle reduce the system to a relation between each current endogenous variable and current and lagged exogenous variables. A linear relation between GNP and exogenous variables is a simple approximation to such a reduced-form relationship. Relations between the general price level and exogenous variables or some interest rate and exogenous variables would be other reduced-form relationships. From a statistical viewpoint, the assumption that the exogenous variables do not respond to movements of the endogenous variables is crucial. For if we call exogenous in a GNP equation some "X" which itself strongly responds to current economic developments, we don't know whether we are measuring the influence of "X" on the economy, the economy on "X," or some third force on both "X" and the economy.

These two descriptions of the St. Louis equations use the word exogenous in two different senses. In the first description exogenous means a variable subject to control by policymakers, while in the second, exogenous means a variable which does not respond to current endogenous forces. Clearly these two definitions do not correspond. The best known example of a conflict is the case of tax receipts. Tax receipts are exogenous in the policy sense of being subject to manipulation by policymakers, but they are clearly not exogenous in the statistical sense of not responding to current movements in the endogenous variable income.

The art of learning something from single-equation regressions of the St. Louis type consists in devising variables which can be manipulated by policymakers but which have been adjusted in such a way they are not terribly sensitive to current movements in the endogenous variables. If an explanatory variable does not meet the first requirement, it is not an effective policy instrument. If it does not meet the second requirement, then it is impossible to know what is influencing what, or how serious the problem of bias is in the equation. Failure to meet this second requirement has been a major criticism of regressions of GNP on the money supply.[4] Only if we can devise fiscal and monetary policy representations which get around this second problem will the single-equation approach be able to tell us something about the effects of macroeconomic policies.

Andersen and Jordan are clearly aware of this problem of devising variables that are exogenous under both definitions. That is presumably the reason for using high-employment Federal receipts and expenditures which are clearly much less affected by current endogenous movements in income than are actual receipts and expenditures. It also is the most powerful reason, it seems to us, for using the monetary base rather than the money supply. They have clearly moved in the right direction in both these respects. Our central doubt about the article, however, is whether they have gone far enough in purging their policy variables of the influence of current movements in economic activity. We feel that both the tax variable and the monetary base variable may still reflect the influence of current economic developments, and this leads us to try to represent monetary and fiscal policies by time series which are not quite the same as those of Andersen and Jordan.

The Reduced-Form Approach

Before examining the tax and monetary base variables, however, we would like to make two general remarks about the reduced-form or single-equation approach. One is that while there is much we can do in the way of adjusting policy measures for obvious and measurable endogenous influences, it is extremely difficult to devise variables which *fully* meet both definitions of exogenous. The problem is not simply that the variables policymakers influence are also influenced by current economic developments; part of the problem is that policymakers themselves are naturally influenced in their decisions by current developments. We may conjecture, however, that the endogenous responses of policymakers are much less mechanical or predictable than, say, the influence of income fluctuations on tax receipts, and are less likely to be serious sources of bias.

The second remark is that there are a host of other problems with the single-equation approach. Many exogenous variables (in the statistical sense) have to be left out while others are aggregated to crowd everything into one equation, in spite of likely dis-

[3]The statistical requirement is that exogenous variables be independent of the disturbance terms of the system. Failure to meet this requirement implies that an exogenous variable is not independent of the endogenous variables, and is what we mean by an exogenous variable "responding" to movements in endogenous variables.

[4]For example, see the criticism of the Friedman-Meiselman results by Ando and Modigliani in the *American Economic Review*, September 1965, pp. 711-13.

similarities in effects. There is no obvious reason why these problems should bias the coefficients in one direction and not in another for the included variables. If we were trying to devise the most useful single equation, however, there are other modifications we would try. We do not do so here in order to stay within the spirit of the Andersen-Jordan article.

Fiscal Variables

The tax variable is represented in the St. Louis article by high-employment receipts in current dollars. Adjusting actual receipts to a high-employment level is probably as good a job as we can do of eliminating the influence of fluctuations in real output, but this fails to eliminate the influence of inflation. That is, even full-employment tax receipts, when they are expressed in current dollars, go up faster during a period of rapidly rising prices than they do during a period of price stability. The tax variable, then, is still not exogenous in the statistical sense since it responds to current movements in the price level.

Fortunately, there is a simple way to eliminate, or largely eliminate, this source of bias. Instead of using full-employment receipts this period we can adjust last period's receipts to current prices by multiplying full-employment receipts by a ratio of this period's general price level to last period's general price level. When we subtract this inflated last-period figure from the current figure, we get the difference in full-employment receipts expressed in this period's prices. It seems to us that this is a clear improvement over the Andersen-Jordan variable.

The Monetary Base

Our next, and principal, concern is with the monetary base. The base may be expressed as the sum of three components: unborrowed reserves (including the adjustments for reserve requirement changes), borrowed reserves, and currency. For the base to be exogenous in a statistical sense, it must be assumed that the sum of these three components is largely independent of current disturbances in the endogenous variables. It appears to us that this assumption is open to debate. We would like to consider whether a variable with the properties we need could be more closely approximated by omitting borrowed reserves, or currency, or both.

Borrowed Reserves – Few would disagree with the proposition that, at least as the discount window has been administered for the last fifteen years, member bank borrowings have responded strongly to current movements in business loan demand and interest rates. The question of interest, however, is not whether borrowings are endogenous, since presumably that would be a matter of common agreement. Rather the question is whether there is a strong tendency for movements in borrowing to be offset by movements in some other component of the base. If there is a tendency for endogenous responses in borrowing to be offset by movements in other components of the base, then the total base contains offsetting endogenous influences and we should prefer the total base for the St. Louis regressions. If there is not such a tendency, then adjusting the base to remove borrowings produces a better monetary policy variable than the total base. Inclusion of borrowings in this latter case might lead to a statistical confusion between the effects of a high monetary base on the economy with the effects of a booming economy on borrowing and, hence, on the base.

The question is, then, whether unborrowed reserves or currency tend to fall when something happens in the general economy to make borrowings rise.[5] There are circumstances in which the answer probably is yes. For example, if the central bank is watching the rate of growth of bank credit or of the stock of money as an indicator of its effect on the economy, then an increase in borrowing which supports a rate of growth greater than the target rate might provoke a reduction in unborrowed reserves to put the rate of growth of credit or money back on target. It is easy, however, to think of circumstances in which a rise in borrowing might produce a reinforcing movement in unborrowed reserves if the level of borrowing itself is one of the statistics the central bank uses as an index of its effects, as it was during much of the 1950's. For then an increase in borrowing might well lead the central bank to expand unborrowed reserves in order to get borrowing back on target. Since it is not hard to think of unborrowed reserves responding in either direction to a change in borrowing during the sample period of the regressions, it seems to us better to represent monetary policy by a variable which excludes member bank borrowing.

Currency – There is a widespread agreement that the demand for currency responds to movements in income or some measure of transactions. We can again, as a matter of algebra, express the reduced-form equation for GNP in terms of either reserves

[5]Note that this is different from the question of what happens to the components of the base when the Federal Reserve exogenously changes its policy. Our interest here is in the response of the base to *endogenous* forces.

plus currency or in terms of reserves alone. The question once more is whether there is some strong tendency on the part of other components of the monetary base to offset the response of currency to current transactions or other endogenous influences. In the case of currency, there is an automatic mechanism making for an offset, since the usual procedure by which the public obtains more currency involves an initial decrease in vault cash or in bank reserves. The existence of this mechanism is one argument in favor of using the sum of reserves plus currency rather than reserves alone as a monetary policy variable.

There is more to the problem, however, than this automatic response. The reason is that over the sample period of the regressions, the central bank has tended to focus on banking and money market data in judging its current effect. It has not paid particular attention to movements in currency. If there is an increase in the rate of growth of currency — as there was 7 or 8 years ago — it is not permitted to cause a lower rate of growth of unborrowed reserves unless the central bank happens to want a lower rate of growth of reserves for other reasons. The net result is that an endogenous change in currency may well affect the monetary base, and that the base excluding currency may be a more suitable variable for the present study.

Because of these characteristics of member bank borrowing and currency, it seems to us well worth while to rerun the St. Louis equations with various alternative definitions of the monetary policy variable. We are not certain which of the definitions is preferable; therefore, we are not prepared to defend one set of regression results as superior to the others. We are, however, inclined to doubt the validity of conclusions about policy effects which are supported under one definition but contradicted under another.

Alternative Single-Equation Results

Table I contains the results of carrying out the above-mentioned modifications to the St. Louis equations. They are based upon the same sample period as that used in the St. Louis regressions, I/1952-II/1968, and data furnished by Andersen and Jordan were used to obtain the modified regressions in our equations. We used the same Almon technique for estimating the distributed lags, and we adhered to the Andersen-Jordan use of fourth degree polynomials in the estimation procedure. In short, we have remained quite close to the approach used by Andersen and Jordan, making only those changes which appear to us relevant to the question of statistical independence of the independent variables in the regressions.

The first equation presented in Table I is our replication of the St. Louis results, using the total monetary base and unadjusted high-employment expendi-

Table I

REGRESSIONS OF QUARTERLY CHANGES IN GNP (Current Dollars) ON CURRENT AND LAGGED CHANGES IN MONETARY AND FISCAL POLICY VARIABLES

(Sample period — I/1952 to II/1968)

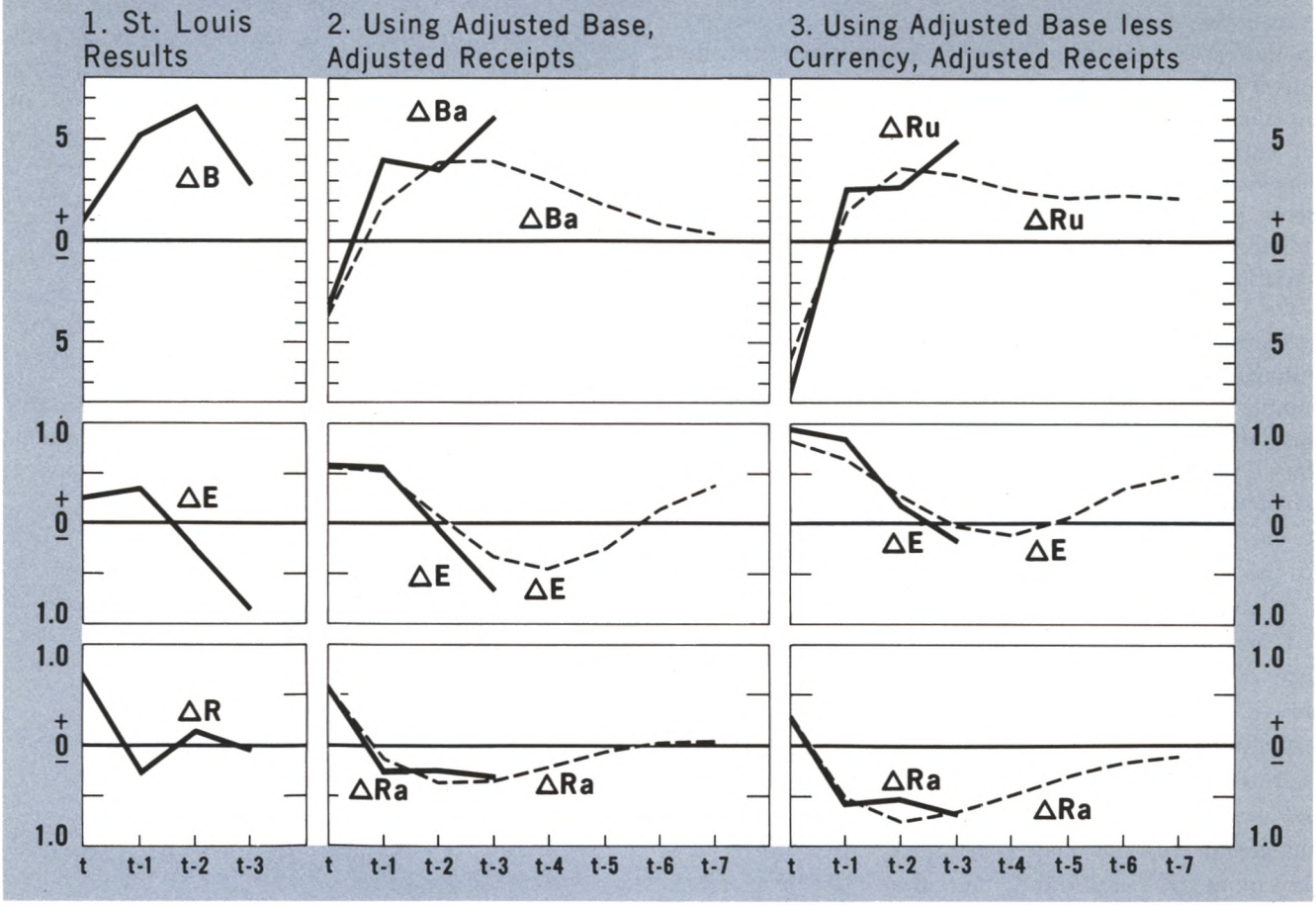
	REGRESSION EQUATIONS				
	1	2		3	
	St. Louis Results	Using adjusted base, adjusted high-employment receipts		Using adjusted base less currency, adjusted high-employment receipts	
Length of Lags (quarters)	4	4	8	4	8
Monetary Policy variable	ΔB	ΔBa	ΔBa	ΔRu	ΔRu
sum of coefficients	15.8	10.4	12.3	2.4	11.6
	(5.5)	(3.4)	(2.8)	(0.6)	(1.6)
Federal Expenditures variable	ΔE	ΔE	ΔE	ΔE	ΔE
sum of coefficients	—0.5	0.4	0.6	1.7	2.5
	(—0.8)	(0.7)	(0.6)	(3.7)	(4.1)
Federal Receipts variable	ΔR	ΔRa	ΔRa	ΔRa	ΔRa
sum of coefficients	0.5	—0.3	—0.5	—1.6	—2.8
	(0.6)	(—0.3)	(—0.4)	(—1.8)	(—2.6)
Constant	1.6	3.6	3.0	6.4	5.0
	(1.2)	(2.8)	(1.9)	(5.3)	(3.6)
R^2/SE	.51/4.4	.46/4.5	.53/4.2	.42/4.7	.56/4.1

Note: Figures given are regression coefficients; the "t" statistics appear below each coefficient, enclosed by parentheses.
ΔB = change in monetary base (currency plus total member bank reserves adjusted for reserve requirement changes)
ΔBa = change in adjusted base (B less changes in member bank borrowings)
ΔRu = change in unborrowed reserves (Ba less changes in currency, or unborrowed reserves adjusted for reserve requirement changes)
ΔE = change in high-employment expenditures, current dollars
ΔR = change in high-employment receipts, current dollars
ΔRa = change in high-employment receipts in current period prices (last period's receipts multiplied by ratio of current prices to last period's prices).

Figure I

LAG DISTRIBUTIONS:

REGRESSIONS OF CHANGES IN GNP ON CHANGES IN POLICY VARIABLES



tures and receipts. The very slight differences of these results from those of Andersen and Jordan are presumably due to program and computer differences. In Table I, we have presented the sums of the weighted coefficients of the distributed lags of the independent variables, and the t-ratios of the sums. The patterns of the weighted coefficients for each regression are presented graphically in the accompanying chart. Solid lines portray four-quarter distributions; dashed lines portray eight-quarter distributions.

The second equation indicates the results of making two of the changes indicated above. First, member bank borrowings were deducted from the total monetary base to obtain the adjusted base, Ba. Second, the high-employment receipts variable was adjusted for price changes using the implicit price deflator for GNP. Two sets of results for this variant are presented, one with four-quarter distributed lags on the independent variables, and one with eight-quarter lags. In both cases the results differ from the first equation in the following manner: (i) although the monetary policy variable remains the predominant influence in terms of t-ratios, the monetary multiplier decreases in size; and (ii) although the two fiscal policy variables remain insignificant statistically, the coefficients of the expenditures and receipts variables have the expected sign. These changes are due mostly to the adjustment of the monetary base rather than to the adjustment of high-employment receipts.

The third equation makes use of the monetary base adjusted to exclude currency holdings as well as borrowed reserves, leaving unborrowed reserves, Ru.[6] The expenditure and receipts variables are the same as in equation (2). Results are again shown for four- and eight-quarter lags.

[6]This variable is actually unborrowed reserves adjusted for reserves requirement changes during the period. For a discussion of the original monetary base and the reserve requirement adjustment see Leonall Andersen and Jerry Jordan, "The Monetary Base—Explanation and Analytical Use," in the August 1968 issue of this *Review*.

For the four-quarter lag distributions, the following changes are observed: (i) the monetary policy variable becomes insignificant statistically, and the size of the monetary multiplier decreases markedly compared with either equation (1) or (2); (ii) the expenditure multiplier rises to 1.7 with a t-ratio well above 2; and, (iii) the receipts variable has a multiplier of -1.6 with a t-ratio slightly below 2.

The shape of the lag distributions for the four-quarter distributions in equation (3) were such that it appeared desirable to extend the length of the lags. With eight-quarter lag distributions, the results are: (i) the monetary multiplier estimate is once again of the same order of magnitude as in equations (1) and (2), and the t-ratio rises to 1.6; (ii) the expenditure variable multiplier rises to 2.5 and retains a high t-ratio; and, (iii) the receipts multiplier rises to -2.8 with a t-ratio above 2.

By way of comparison, the multipliers for similar variables in the Federal Reserve/M.I.T. model are as follows:[7]

(i) For unborrowed reserves, the multiplier over eight quarters varies between 10 and 15, depending upon initial conditions.

(ii) Although not directly comparable with high-employment expenditures, the Federal purchases multiplier in the model is approximately 2.5. For average Federal expenditures (purchases and transfers) the multiplier is between 2 and 2.5. These values, again, are for eight quarters.

(iii) For Federal personal taxes, the multiplier is about -1.9. A multiplier including other taxes has not been calculated. It would probably also be less than 2.0 in absolute size for eight quarters for most other taxes, but might be higher for the investment tax credit.

[7]See Frank de Leeuw and Edward Gramlich, "The Channels of Monetary Policy," forthcoming in the Federal Reserve *Bulletin*.

The lag patterns portrayed in Figure I suggest longer lags for monetary and tax policies than for expenditures. In fact, in most of the equations contemporaneous changes in the monetary base and tax policies have "wrong" signs. These contemporaneous coefficients are puzzling, and we have no economic explanation of them.

The weights associated with the high-employment expenditure variable fall off rapidly for all of the four-quarter lag distributions. With eight-quarter distributions they fall and rise again. Andersen and Jordan indicate that the negative values at the tail of the four-quarter distributions are consistent with the hypothesis that rising Federal outlays "crowd out" private spending through their influence on interest rates. We note that the pattern of the weights when the lag distribution is extended to eight quarters resembles the early stages of a multiplier-accelerator cycle. It is, of course, impossible to demonstrate the superiority of either conclusion from results such as these.

Conclusion

We feel these results cast serious doubt on the Andersen-Jordan conclusions about fiscal policy. With alternative and highly plausible measures of Federal receipts and the monetary base, fiscal policy appears to exert a significant influence on GNP in the expected direction. Monetary policy also appears to exert a powerful influence.

More headway on these problems seems to us to depend on the development of measures of policy which we can be confident meet the statistical requirements of exogeneity. Possibly a detailed examination of Open Market Committee records would be helpful in constructing a better measure of monetary policy. Perhaps different measures for different policy-making epochs are necessary. Until we succeed in settling the statistical questions, extreme caution is advisable with respect to any economic interpretations.

The Reply to this Comment begins on next page.

Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization – Reply

THE "COMMENT" by Frank de Leeuw and John Kalchbrenner is in reference to an earlier article of ours in which we presented evidence bearing on familiar statements regarding the relative importance of monetary and fiscal actions in economic stabilization. In this "Reply" we present additional analysis and evidence relating directly to the issues they have raised.

Summary of Issues Raised

In our November 1968 article we estimated the response of total spending in the economy (an endogenous or dependent variable) to changes in alternative summary measures of monetary and fiscal actions (exogenous or independent variables). De Leeuw and Kalchbrenner suggest two criteria for choosing exogenous policy variables: (1) the variables must be under the control of policymakers; and (2) the variables must not be "terribly sensitive to current movements in the endogenous variables." They say that "failure to meet this second requirement has been a major criticism of regressions of GNP on the money supply." The use of the money supply as a measure of the influence of monetary actions will be discussed briefly at the end of this Reply.

Regarding the measures of fiscal actions, de Leeuw and Kalchbrenner recommend adjusting the full-employment tax receipts variable for changes in the price level in order to eliminate the induced upward bias in tax receipts caused by inflation.[1] We accept this recommendation by de Leeuw and Kalchbrenner and observe, as they do and as their equation 2 shows, that this modification does not affect the conclusion reached in our original article regarding the relative strength and reliability of monetary actions versus fiscal actions.

De Leeuw and Kalchbrenner state their principal concern is with whether or not the monetary base is exogenous in the statistical sense. They define the base as the sum of three "components": unborrowed reserves, borrowed reserves, and currency. Their definition of the base consists of a very special decomposition of the *uses* of the monetary base, in contrast to the usually accepted definition of uses of the base. They make no mention in their "Comment" of the *sources* of the monetary base which shows the base as being derived from a consolidated Treasury and Federal Reserve balance sheet. This failure to distinguish sources of the base from uses is a fundamental point of difference between these critics and ourselves. Before we discuss their conception of the base further, we will complete this summary of their procedures and results.

They suggest that reserves borrowed from the Federal Reserve by member banks might be subtracted from the monetary base, and they present regression results in which they have done so. They advance that the criterion for including or excluding borrowings as a part of the base depends on whether or not "there is a strong tendency for movements in borrowing to be offset by movements in some other component of the base." They say that if there is such an offset tendency, then borrowing should *not* be excluded from the base. They then exclude borrowing

[1]The desire to eliminate this factor assumes that the government has not intentionally undertaken inflationary policies in order to finance government spending, as an alternative to raising tax *rates* or borrowing. This assumption would obviously not have been valid for post-World War I Germany.

from the base without presenting any evidence indicating whether or not there is such an offset. Furthermore, the results obtained when they substitute the base minus borrowing (their equation 2) for the monetary base (their equation 1 and our equation 1.4 in Table I of our original article) do not alter any of the conclusions we reached regarding the relative strength and reliability of monetary and fiscal actions.

The more important criticism by de Leeuw and Kalchbrenner stems from the results they obtained by subtracting both member bank borrowings and currency held by the public from the monetary base in order to obtain an alternative measure of monetary influence, which they call unborrowed reserves (Ru). They recommend subtracting currency held by the public from the monetary base for reasons similar to those for excluding borrowed reserves. They admit that their own criterion for exclusion of currency may not be confirmed statisically because of an "automatic" offset when the public obtains currency from banks. However, they argue that the central bank does not pay attention to currency movements, but rather they imply the Federal Reserve has intentionally determined the growth of "unborrowed reserves" over time and "offsets" any increased growth in currency by supplying more unborrowed reserves. We find this contention a highly questionable description of the Federal Reserve's behavior and intentions. But this issue is irrelevant because of their failure to distinguish between sources and uses of the monetary base.

The results obtained by de Leeuw and Kalchbrenner by substituting Ru for the base are reported as equation 3 in their Table I. As that equation shows, Ru is either inferior to the monetary base as a measure of monetary actions (the coefficients are statistically nonsignificant), or if Ru is the appropriate measure of monetary actions, there is little response of GNP to such actions. Also, both measures of fiscal actions (high-employment expenditures and receipts) indicate a stronger influence on GNP when the measure of monetary actions (Ru) is nonsignificant.

Reply to Issues Raised

The authors of the Comment raise some valid and important considerations regarding the statistical procedures employed in our original study. However, they overlook some equally valid and important considerations from the point-of-view of economic theory. Variables used to test economic hypotheses must be relevant to the hypotheses. Their process of "peeling" the monetary base (first subtracting borrowings from Reserve Banks and then currency held by others than banks) in arriving at the concept "unborrowed reserves" may make sense statistically under special conditions, but this process has no economic relevance within the context of the customary body of economic theory which has evolved around the monetary base. We now will examine our contention regarding their use of unborrowed reserves as a summary measure of monetary actions, as well as some of the statistical considerations they advance for such use.

Monetary Base — As noted above, de Leeuw and Kalchbrenner define the monetary base as the sum of "unborrowed" reserves, reserves borrowed from the Federal Reserve, and currency held by the public. They overlook the fact that the base is derived from a consolidated balance sheet of Treasury and Federal Reserve monetary accounts and consequently make no reference to the sources of the base.[2] Both the sources and the customary definition of uses of the base, along with de Leeuw and Kalchbrenner's special treatment of the uses, are presented in Table I.

The largest component of the sources of the monetary base is Federal Reserve holdings of U.S. Government securities, and variation in this component over time has dominated the variation in the base.[3] It is true that other source components of the base are not directly controlled by the Federal Reserve, yet changes in these other components are always readily known, and the System can, by open market purchases or sales, completely "offset" any of the relatively small movements in any of these other source components of the base (including discounts and advances which includes member banks' borrowings from the Federal Reserve). If the System observes changes in other source components and chooses not to offset them, the Federal Reserve has caused a change in the base the same as when the System buys or sells securities and other components are unchanged. Consequently, the Federal Reserve, through its open market operations, determines the source side of the monetary base.

[2]See Leonall C. Andersen and Jerry L. Jordan, "The Monetary Base – Explanation and Analytical Use" in the August 1968 issue of this *Review*.

[3]For further discussion of and evidence concerning Federal Reserve control over various monetary aggregates, including the monetary base, see an article by Michael W. Keran and Christopher T. Babb, forthcoming in this *Review*.

Table I

MONETARY BASE

(December 1968 — millions of dollars)

Sources		Uses	
Federal Reserve Credit: Holdings of Securities*	52,594	Member Bank Deposits at Federal Reserve	22,484
Discounts & Advances	765	Currency held by Banks	6,291
Float	3,251	Currency held by the Public	44,318
Gold Stock	10,367		
Treasury Currency Outstanding	6,810		
Treasury Cash Holdings	—756		
Treasury Deposits at Federal Reserve	—360		
Foreign Deposits	—225		
Other Deposits & Other (Net) Federal Reserve Accounts	+647		
Source Base	73,093	Uses of Base	73,093
Reserve Adjustment	4,414	Reserve Adjustment	4,414
Monetary Base	77,507	Monetary Base	77,507

NOTE: Member bank deposits at Federal Reserve plus currency held by member banks equals total reserves (required reserves plus excess reserves).

*Includes acceptances not shown separately.

DE LEEUW-KALCHBRENNER DEFINITION OF BASE

(December 1968 — millions of dollars)

Unborrowed Reserves[1]	28,023
Borrowed Reserves	752
Currency held by Public and not part of Reserves	44,318
Base	73,093
Reserve Adjustment	4,414
Monetary Base	77,507

[1]Vault cash of nonmember banks included as reserves by de Leeuw and Kalchbrenner.

Since the base is derived from a balance sheet as in Table I and since the uses (liabilities) side of the balance sheet must equal the sources (assets) side, the Federal Reserve determines the *total* size of the base through its open market purchases and sales of securities. Banks and the public determine the allocation between reserves and currency; these are uses of the base.

The authors of the Comment divide the reserve uses of the monetary base into borrowed and unborrowed reserves. They then treat currency and these two reserve classifications as sources[4] — that is, a change in any one of the three magnitudes changes the base by exactly the same amount — and question the exogenous character of these so-called sources. This treatment of uses as sources in discussing the statistical requirements of regressions using the monetary base leads our critics to accept an irrelevant exogenous measure of monetary actions. The proper procedure, if one were interested in finding a relevant exogenous variable, would be to examine the sources of the base presented in Table I.

[4]This confusion is prevalent among economists. In many studies reserves and currency are summed, providing a quick and ready way of developing a time series of the base. Nevertheless, the sum of the sources listed in Table I actually determines the magnitude of the base.

For these reasons we do not accept their procedure of "peeling" the monetary base in order to arrive at a statistically pure exogenous measure of monetary actions. However, we will examine further some of the arguments they advance.

Exclusion of Borrowings — A reason often given for excluding borrowed reserves (which have averaged less than one-half billion dollars in recent years) from total reserves (presently about $27 billion) or from the monetary base (presently about $77 billion) is the contention that the effect of borrowed reserves on bank credit or deposit expansion is different than the effect of "unborrowed" reserves. This contention implies that banks hold more excess reserves when their borrowings are greater than when smaller.

The "multiple expansion" of deposits by the banking system does not depend on the source of the additional reserves acquired by the banking system. Data for the banking system clearly shows that when total reserves have increased, deposits have increased by a multiple. Whether the additional reserves were borrowed by the banks or otherwise acquired does not make any discernible difference. Reserves borrowed by one bank when diffused throughout the banking system cannot be distinguished by any other bank from unborrowed reserves.

As noted earlier, de Leeuw and Kalchbrenner advance a statistical criterion for excluding borrowed reserves from the base. They do not provide an economic argument for doing so, nor do they present any empirical evidence. They merely contend that if there is an "offset" between "unborrowed" reserves and borrowed reserves, the borrowing should *not* be excluded from the base (or from total reserves). In order to test whether or not there is a negative correlation or "offset" between borrowed (Rb) and unborrowed reserves (Ru) we estimated a regression equation for the period I/53-II/68 using seasonally adjusted quarterly data. The results were:

$$\Delta Ru = .179 - \underset{(6.2)^5}{1.065}\ \Delta Rb.$$

The simple correlation coefficient between ΔRb and ΔRu is –.63 and the R^2 is .40.

These results indicate very clearly that there was a strong negative "offset" between borrowed and unborrowed reserves in the 15-year test period. Consequently, there is no justification, either theoretical or statistical, for excluding member bank borrowing from the monetary base (or from total reserves) as a measure of the influence of monetary actions on economic activity. In fact, these results indicate that it is inappropriate to use "unborrowed reserves" as an exogenous measure of monetary actions since a large share of the changes in this variable is associated with offsetting movements in borrowed reserves.

Exclusion of Currency

We argued above that the monetary authorities control the *total* monetary base through their control over the *sources* components of the base. Consequently, on theoretical grounds it is inappropriate to exclude either member bank borrowings or currency held by the public from the *uses* of the base. De Leeuw and Kalchbrenner did not report statistical results indicating whether borrowings should be excluded or not (as we have done above), nor did they report results indicating the effects of excluding currency held by the public from the monetary base, but *not* excluding borrowings. Subtracting currency held by the public from the base creates a measure of "total reserves" which is adjusted for changes in reserve requirements and includes vault cash of nonmember commercial banks (a relatively small and invariant magnitude). Total reserves also are relevant in many theories in monetary economics and, therefore, are a potential summary measure of monetary actions.

The results obtained using this measure of total reserves (TR) as a measure of monetary influence instead of the base are reported in Table II along with the results obtained using the monetary base. The results for the two equations are very similar, and the use of total reserves as a summary measure of monetary influence does not yield any different conclusions from those presented in our November article.

Table II

REGRESSIONS OF QUARTERLY CHANGES IN GNP (Current Dollars) ON CURRENT AND LAGGED CHANGES IN MONETARY AND FISCAL VARIABLES

Sample Period — I/1952 to II/1968

	REGRESSION EQUATIONS			
	1		2	
Length of Lags (quarters)	4	8	4	8
Monetary Policy variable	ΔB	ΔB	ΔTR	ΔTR
sum of coefficients	14.94	10.53	30.28	43.79
	(4.95)	(2.63)	(5.17)	(4.08)
Federal Expenditures variable	ΔE	ΔE	ΔE	ΔE
sum of coefficients	—.03	.74	.77	.62
	(—.04)	(.68)	(1.53)	(.69)
Federal Receipts variable	ΔRa	ΔRa	ΔRa	ΔRa
sum of coefficients	—.43	—1.46	—.61	—.60
	(—.52)	(—1.06)	(—.81)	(—.49)
Constant	2.55	4.75	2.10	.62
	(1.85)	(2.53)	(1.53)	(.28)
R^2/SE	.52/4.44	.57/4.05	.56/4.23	.62/3.83

Note: Regression coefficients are the top figures; their "t" statistics appear below each coefficient, enclosed by parentheses.
ΔB = change in monetary base
ΔTR = change in total reserves
ΔE = change in high-employment budget expenditures, current dollars
ΔRa = change in high-employment budget receipts in current period prices (last period's receipts multiplied by ratio of current prices to last period's prices)

[5] t-statistic, obtained by dividing the regression coefficient by the standard error.

If de Leeuw and Kalchbrenner had excluded currency held by the public from the base, but had *not* excluded borrowings, their results would have been sufficiently similar to those obtained using total base or the money supply that none of the major conclusions of our original article would be changed.

Other Issues

De Leeuw and Kalchbrenner do not discuss the use of the money supply as an indicator of monetary influence because, they imply, the series is sensitive to current movements in income. Their statement can be restated as a hypothesis that quarter-to-quarter changes in the money stock are strongly influenced by current or previous changes in income. This issue has been debated at considerable length on other occasions and can best be discussed within the context of a money supply model.[6]

Another point raised by de Leeuw and Kalchbrenner is that it is difficult to find variables which meet both definitions of exogenous since "policymakers themselves are naturally influenced in their decisions by current developments." An example will illustrate their point. Assume the monetary base is under the absolute control of the policymakers and that there is a very close one-way causal relation from changes in the base to changes in income. Given this assumption, if policymakers' decisions regarding changes in the base are made with the intent of achieving some desired growth of income as opposed to an observed growth, then it can be concluded that, in a sense, the base is "endogenous" or influenced by current economic developments. We would accept this contention, but would point out that the base is still *statistically* exogenous. Moreover, we submit that such a distinction is totally irrelevant, since the policymakers can know in advance what the effect of their actions will be, and can confidently influence economic activity without being concerned about any misleading "feedback" effects on their indicator variable.

[6]For example see A. E. Burger, "A Summary of the Brunner-Meltzer Non-Linear Money Supply Hypothesis," *Working Paper* No. 7, Federal Reserve Bank of St. Louis, revised, May 1969. The reader should also consult another article in the May 1969 issue of this *Review*, "Controlling Money," by Professor Allan H. Meltzer, and an article in the July 1968 issue of this *Review*, "The Role of Money and Monetary Policy," by Professor Karl Brunner (especially pp. 15-18). The theory and evidence presented in these papers allow the authors to conclude that changes in the money stock are strongly dominated by changes in the monetary base and that the monetary authorities can exercise very close control over money through their control over the base.

Conclusions

In our original article last November we put forth the following propositions: "the response of economic activity to monetary actions compared with that of fiscal actions is (I) larger, (II) more predictable, and (III) faster." We offered a brief theoretical framework for analyzing the ways stabilization actions influence economic activity, and evidence bearing on the above propositions was presented. Regarding fiscal actions, we concluded that "either the commonly used measures of fiscal influence do not correctly indicate the degree and direction of such influence, or there was no measurable net fiscal influence on total spending in the test period." Regarding monetary actions, we concluded that in view of the finding of a strong empirical relationship between economic activity and the measures of monetary actions, greater reliance should be placed on this form of stabilization action.

De Leeuw and Kalchbrenner propose, on statistical criteria only, using "unborrowed reserves," rather than the money supply or the monetary base, as a measure of monetary influence. However, they do not offer any theoretical rationale showing the link between this variable and economic activity, or theoretical superiority of this variable over total reserves, the monetary base or the money supply. We have argued that on theoretical grounds unborrowed reserves is not a relevant measure of monetary influence. De Leeuw and Kalchbrenner offer statistical criteria for use of unborrowed reserves as their exogenous monetary measure, but they do not present any evidence indicating whether this variable meets their criteria. We have presented tests which show that unborrowed reserves do not meet their criteria for acceptability on statistical grounds.

Our critics have shown similarities between the results they obtained by using "unborrowed reserves" (Ru) as a measure of monetary influence and the results from the Federal Reserve Board – M.I.T. econometric model which uses similar variables. In view of the serious reservations we have presented regarding the use of unborrowed reserves as a measure of monetary influence based on both theoretical and statistical criteria, we have considerable doubt as to the desirability of using this monetary variable in econometric models of the U.S. economy.

LEONALL C. ANDERSEN
JERRY L. JORDAN

The Comment and Reply are available as Reprint No. 37.

EDITOR'S NOTE:

The following is a guest article prepared by Professor David C. Rowan, who served as a visiting scholar with this bank from September to December 1968. Since 1960 he has been Professor of Economics at the University of Southampton, and also has served as Editor of the Bankers' Magazine. *Previously, he was Professor and Dean of the Commerce Faculty at the University of New South Wales, Sydney, Australia, and also taught at the Universities of Melbourne and Bristol. He is the author of numerous articles dealing primarily with subjects in monetary and international economics.*

Professor Rowan's views do not necessarily represent those of the Federal Reserve Bank of St. Louis or of the Federal Reserve System.

Towards A Rational Exchange Policy: Some Reflections on the British Experience

THIS PAPER is deliberately subtitled "Some Reflections ..." to emphasize that it does not aim at providing either a detailed account of the events which led up to devaluation or a full review of Britain's external problem. What it presents is an attempt to derive some lessons of lasting benefit from the failure of British external policy, and in particular, British exchange policy during the Sixties, and from the concurrent, less recognized, failure of the world's international monetary authorities.

These reflections are organized under three principal headings:

(1) the consistency of British exchange policy;
(2) the inadequacy of British exchange policy;
(3) the general applicability of British experience.

Together these topics amount to a single theme – the tendency for most national economic policymakers to neglect economic theory and, a consequence which is at least professionally gratifying, the distressing results of this neglect.

The Consistency of British Exchange Policy

It is a commonplace that the objectives of British economic policy are to achieve, at a level of capacity utilization which corresponds to "full employment," an "acceptable" rate of growth in real Gross Domestic Product (GDP), usually put at between 3 and 4 per cent per year. Moreover, though the definitions of "full employment" and "acceptable growth" differ, as do the relative importance attached to these objectives and price stability, these aims are shared by most developed countries.

It is equally a commonplace that in Britain, as in other countries, these aims must be pursued subject to a balance-of-payments constraint, and that in Britain this constraint has repeatedly imposed checks to growth because of the emergence of severe balance-of-payments deficits.

Scarcely less familiar is the proposition that an observed deficit in the balance on current and long-term capital accounts reflects three conceptually distinct elements: the first of these is the long-run or secular position of current and long-term capital accounts which we shall call the "fundamental balance"; the second is the cyclical position; the third is a "catch-all" which takes account of such random factors as strikes, climatic disturbances and political uncertainties. The second and third elements we shall call short run. In addition, of course, the observed balance may reflect short-term capital movements arising either from interest rate differentials, the incidence of random factors, or from speculative flows based upon private assessments of the fundamental balance on current account.

In this paper we shall define the fundamental balance as the balance of payments on current and long-term capital accounts which would exist if the country was growing (in terms of real GDP) at its acceptable rate, and if it was maintaining continuously a level of capacity utilization corresponding to full employment.

Clearly, provided both conditions are met, the fundamental balance will be functionally related to the exchange rate. The exchange rate which would give a fundamental balance of zero can be defined as the "equilibrium rate of exchange." Rates of exchange which do not satisfy this condition are, by definition, rates which involve "fundamental disequilibria."

Given this framework, we shall now argue that the consistency of British exchange policy in the Sixties with that of the Twenties lies in the fact that, in both periods, the authorities sought to maintain a disequilibrium parity even though to do so involved the sacrifice of both growth and employment.

It is worth noting that this argument entails two propositions. The first is that the pound rate of $2.80 was incompatible with fundamental equilibrium during the period 1960-67 and thus involved a fundamental disequilibrium. The second is that the existence of this fundamental disequilibrium was demonstrable. We shall return to these issues later.

Consider the period 1925-31. In 1925 Britain returned to the gold standard at the pound rate of $4.86. At the time the free market rate, at £ = $4.40, was about 10 per cent lower. Insofar as the chosen rate was not compatible with a fundamental balance of zero, that is, with fundamental equilibrium, domestic prices and costs had to be forced down to adjust to the new parity. The costs of the attempt to do this, in the face of considerable price-wage rigidity, were industrial strife, unemployment, lost output and the souring of industrial relations to a degree which is, even now, probably a significant factor in Britain's economic situation. In practice, despite severe deflation, adjustment was slow and still incomplete when the gold standard was abandoned in 1931.

The significance of this period is that it was an instance, and with the benefit of hindsight, a peculiarly glaring one, of an attempt by the British authorities to force domestic economic conditions to adjust to an exchange rate; or, what amounts to the same thing, it was a refusal by the authorities to admit the inappropriateness of the selected parity. Because political constraints now limit the extent of deflation, the costs of essentially the same refusal in the Sixties have been less severe. The British authorities again struggled to maintain the existing disequilibrium rate of $2.80 and deliberately *chose* to accept avoidably long periods of relative stagnation and relatively high unemployment.

In both 1931 and 1967 the disequilibrium parities which the British authorities sought to maintain were abandoned. It is doubtful, however, whether these devaluations, when they came, reflected a belated and possibly reluctant recognition that the ruling rate was *not* an equilibrium rate and thus required modification. Even in 1967, when additional international support for sterling was available, it seems more reasonable to believe that the British authorities recognized that the 1967 crisis, if overcome, would simply be followed by others; in short, that the probability of recurrent speculative attacks and short-term outflows made devaluation inevitable. Thus, the devaluations were not autonomous acts of policy. They were seen by the authorities largely as defeats and, indeed, not infrequently described as such. Our interpretation of the evidence of 1925-31 and 1959-67 therefore suggests that a planned adjustment of the sterling rate – in order to eliminate a fundamental disequilibrium – is virtually unthinkable.

The reluctance to regard the rate of exchange as a discretionary policy variable, and the consequential readiness to try to adjust domestic conditions to the given rate, probably have two origins. The first and presumably less important origin is some memory of the advantages of following the gold standard game. The second is a misreading of the experience of the Thirties.

In the period 1925-31, British policy was based upon a coherent version of the classical gold standard theory. By 1931, this theory was widely recognized as unhelpful. Unfortunately no systematic theory immediately took its place and the British monetary authorities, like the monetary authorities elsewhere, had to face the stresses of the Thirties with no coherent macroeconomic theory to guide them. One result was that the decade prior to World War II was one of competitive devaluations.[1] These were either "beggar-my-neighbor" attempts to export unemployment, or retaliation to such attempts. The experience of this decade, including the competitive devaluations, their accompanying uncertainties and "hot" money flows, and the extension of exchange control, reinforced the British (and other) monetary authorities' instinctive preference for fixed rates of exchange. Indeed it is arguable that they were interpreted to mean that discretionary exchange adjustments, or the adoption of floating rates, were invitations to monetary chaos, and hence that fixed exchange rates were the path of wisdom.

As we shall see, this interpretation was erroneous. Nevertheless it had a profound effect upon the post-

[1] R. Nurkse, *International Currency Experience* (League of Nations, 1944), pp. 210 and 211.

World War II monetary arrangements agreed to at Bretton Woods, and a no less profound, but considerably more harmful, effect upon the way in which the Bretton Woods scheme has been operated.

The Inadequacy of British Exchange Policy

In a multilateral trading world in which each country is seeking (though admittedly with varying degrees of success and with greater or lesser stringency of definition) to maintain both acceptable growth and full employment, it is clear that the emergence of any fundamental disequilibrium on external account must either be met by an adjustment of the rate of exchange or by the specification of some alternative method of eliminating the fundamental disequilibrium. This obvious proposition, which has been sadly neglected, is clearly implied in the following quotation from a speech by Lord Keynes to the House of Lords.

In May 1943, speaking on the subject of international currency plans, Keynes said:

> The exchange value of sterling cannot remain constant in terms of other currencies, unless our efficiency-wages, and those other costs of production which depend on our social policy, are keeping strictly in step with the corresponding costs in other countries. And, obviously, to that we cannot pledge ourselves. I hope Your Lordships will believe me when I say that there are few people less likely than I not to be on the lookout against this danger. The British proposals (for the IMF) nowhere envisage exchange rigidity. They provide that changes of more than a certain amount must not be made unless the actual state of trade demonstrates that they are required, and they provide further that changes, when made, must be made by agreement. Exchange rates necessarily affect two parities equally. Changes, therefore, should not be made by unilateral action . . . .[2]

A year later, speaking in defense of the International Monetary Fund, Keynes argued:

> We are determined that, in future, the external value of sterling shall conform to its internal value as set by our own domestic policies, and not the other way round. Secondly, we intend to retain control of our domestic rate of interest, so that we can keep it as low as suits our own purposes, without interference from the ebb and flow of international capital movements or flights of hot money. Thirdly, whilst we intend to prevent inflation at home, we will not accept deflation at the dictate of influences from outside. In other words, we abjure the instruments of bank rate and credit contraction operating through the increase of unemployment as a means of forcing our domestic economy into line with external factors.[3]

In both passages Keynes' argument is that, in the event of a conflict between the maintenance of a given parity and domestic policy objectives, it is the exchange rate and not domestic conditions which must be adjusted. Moreover, from the emphasis which Keynes gave to the issue, it is clear that he did not regard a conflict between domestic and external objectives as unlikely. He thus, by implication at least, denied the existence of any quasi-automatic mechanism tending to eliminate fundamental disequilibrium in the balance of payments. In addition, it could be argued with little exaggeration that he largely foresaw the British post-war external problem. Finally, Keynes saw that the experience of the Thirties provided a case against unilateral exchange changes but *not* against exchange changes.

By contrast, as we have seen, the British authorities have been markedly reluctant to adjust the exchange rate. Thus, even if they did not reject the theory underlying Keynes' policy recommendations,[4] their policies during the last decade, like their policies from 1925-31, implied such a rejection. Logically this can only suggest that they were either unconvinced of the existence of a fundamental disequilibrium or able to specify an alternative adjustment mechanism not requiring changes in rates.

It is difficult to trace in British official publications any clear admission of the existence of a fundamental disequilibrium or statement of the mechanism upon which the British authorities were relying for balance-of-payments adjustments in the presence of a fixed rate of exchange and a relatively stringent full-employment constraint. However, it is possible to discern, notably in the publications of the N.E.D.C.,[5] a suggestion that the existence of a fundamental disequilibrium was implicitly accepted as well as the elements of two theories of adjustment.

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[2]J. M. Keynes, House of Lords, May 18, 1943.

[3]J. M. Keynes, House of Lords, May 23, 1944.

[4]It is worth noting that, in his last article, Keynes took a stronger position, arguing that the "classical medicine" could not be relied upon and that "we need quicker and less painful aids of which exchange variation and over-all import control are the most important." See J. M. Keynes, "The Balance of Payments of the United States," *Economic Journal,* June 1946.

[5]N.E.D.C. denotes the National Economic Development Council, an official research agency of the British government.

On the first issue, it is surely significant that the N.E.D.C., after calculating that the 4 per cent "target" rate of growth in GDP required a 5 per cent rate of growth in exports, argued that this required ". . . a small relative fall in the prices of British manufactures."[6] In later publications by the same body the same diagnosis recurs with greater emphasis.[7] Thus the publication *Export Trends* gives considerable emphasis to the role of relative costs and prices in influencing export performance, sets out a short and generally favorable interpretation of the French devaluation of 1957, and concludes that the required growth in exports might "... not be forthcoming unless the prices of manufactures on the home market fall relatively to foreign export prices."[8]

It thus seems reasonable to interpret these documents as guardedly admitting the existence of a fundamental disequilibrium. They are, however, considerably less easy to interpret on the issue of the mechanism of adjustment.

Two interpretations are permissible of these N.E.D.C. documents. The first is that the N.E.D.C., in its emphasis on relative price adjustments, was coming as close to the open advocacy of devaluation as its official position permitted. The second is that, though probably favoring an exchange adjustment, the N.E.D.C. was, as a second-best alternative, prepared to support the official line which seems to have been founded on a particular version of what might be called the "neo-classical first difference theory."

At its crudest, the classical theory envisages the downward adjustment of the *level* of prices in deficit countries through deflation and, though less firmly, the upward adjustment of prices in surplus countries. In some versions this was seen as the quasi-automatic outcome of specie flows. The fundamental hypotheses of this theory were the absence of both wage-price rigidity and official neutralization policies. After the experience of the Twenties and Thirties, neither hypothesis was any longer acceptable.

The classical theory thus visualized the adjustment process as modifying price and cost *levels*. The new version accepts that price and cost *levels* are inflexible downwards. However, since costs and prices are generally rising throughout the world, it replaced price and cost levels by their rates of change. On this basis the adjustment process required the discretionary reduction of the rate of increase in British costs *below* the rates of increase ruling in her principal competitors. Provided policy could achieve this, then, after a sufficient period of time, the necessary adjustment would be brought about.

Employment-Wage Trade-Off

One of the principal conclusions of empirical research into the interrelationship between price and cost changes in the United Kingdom is that a functional relationship exists between the percentage of the work force unemployed and the rate of change of money wages. The relationship is usually called the "Phillips curve" and is to be interpreted as a labor market adjustment curve. Though the interpretation of this curve in the United Kingdom is still to some extent a matter of dispute, its existence seems to command general acceptance.[9] The neo-classical first difference mechanism, which specifies discretionary operation on the rate of change of money wages, thus requires interpretation in terms of this relationship. In practice there seem to be three policy variants:

(1) the "excess-capacity" view usually associated with the name of Professor F. W. Paish;
(2) the "incomes-policy" view; and
(3) the view of which seeks to combine (1) and (2).

The basic assumption of the excess-capacity view is that the Phillips curve is a stable relationship which can be relied upon as a means of formulating policy quantitatively. Given this, the objective is to operate the economy at an average percentage of unemployment (usually estimated at 2-2½ per cent) which will generate (assuming the rate of productivity increase to be invariant) the desired rate of change in wage costs per unit of output.

The basic assumption of the incomes-policy view is that the Phillips curve is *not* stable, has shifted, and can be shifted again by an appropriate incomes policy, so that, for a given percentage of unemployment, a lower rate of increase in wage costs will result.[10]

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[6]N.E.D.C., *Growth of the United Kingdom Economy to 1966* (Her Majesty's Stationery Office [H.M.S.O.], 1963), paragraph 280.

[7]N.E.D.C., *Conditions Favourable to Faster Growth* (H.M.S.O., 1963), Section D and F and paragraphs 201 and 211.

[8]N.E.D.C., *Export Trends* (H.M.S.O., 1963), paragraphs 27-58.

[9]The literature on this relationship is extensive. Excellent general surveys and bibliographies are to be found in: J. C. R. Dow, *The Management of the British Economy: 1945-1960* (Cambridge: Cambridge University Press, 1964), chapter XIII; R. E. Canes et al., *Britain's Economic Prospects* (Washington: The Brookings Institution, 1968), chapter 3; and also see George McKenzie, "International Monetary Reform and the 'Crawling Peg'" in the February 1969 issue of this *Review*.

[10]Dow, pp. 402 and 403.

The combination of the two views accepts that the Phillips curve is shiftable but appears to believe that the essentially political exercise of an incomes policy would have a better prospect of success if the unemployment percentage was kept, on average, between 2-2½ per cent rather than (say) between 1½-2 per cent.

Of these three views, only the first, even on its own assumptions, is readily quantifiable, for the other two necessarily involve *shifts* in the Phillips curve and thus the specification of the severity of incomes policy. Moreover, though the incomes-policy view does not, the other two involve costs in terms of additional unemployment.

There is little systematic evidence of the quantitative impact of incomes policy in the United Kingdom. What evidence there is suggests that in practice it has been, in the short run, an unreliable device.[11] Hence the two relevant policy variants are probably the excess-capacity view and the combination view, and a choice of these and an exchange adjustment can be made rationally only on quantitative grounds. Any attempt to assess the combination view in quantitative terms must be highly tentative, for the meaning of an incomes policy is far from clear, and considerable uncertainty attaches to its performance.

By contrast the mechanism of adjustment through exchange variation has been extensively studied by economists. The theory of adjustment is relatively well understood and there is a considerable body of quantitative information. Admittedly much of this is imperfect, and estimates of the relevant elasticities vary. Nevertheless, there is more reliable and relevant quantitative information about exchange-rate adjustment than about the policy mix actually selected by the British authorities, which was a combination of "some" additional unemployment (excess capacity) and "some" incomes policy, or what we have called the combination view.

Policy Response

In retrospect, therefore, it seems that from 1960 to 1967 the British authorities preferred to base policy upon a loosely specified policy mixture about which little was known quantitatively, rather than upon the extensively studied mechanism of exchange adjustment.

As a result, policy has been basically irrational in the sense that it has been based not upon an estimate of the *extent* of the fundamental disequilibrium and the calculated capacity of the selected policy mix to eliminate it, but on the hope that whatever degree of adjustment, the chosen mixture brought about would prove to be quantitatively adequate. An immediate consequence of this has been that, in practice, British economic policy has been based not upon rational calculations about the state of the fundamental balance, which economics suggest to be the relevant concept, but upon the state of the observed balance in the external accounts. This is not the relevant concept for exchange policy for, in the short run, markets may not be cleared; excess demand may exist at home or abroad; cyclical fluctuations at home and abroad may not be in phase; the flow of goods may be interrupted by industrial disputes, political uncertainty or even climatic disturbance, so that the flow of payments is influenced by these factors as well as by speculation about the existing exchange rate. As a determinant of long-run exchange policy, the observed balance is therefore likely to be a poor and misleading guide. Concentration upon it, and this concentration amounts in the United Kingdom almost to an obsession, inevitably tends to confuse short-run and long-run positions and thus short-run and long-run policies.

The confusion was particularly marked in the United Kingdom during the Sixties when the state of the observed balance dominated short-run policy regarding the control of demand. Purely temporary and cyclical improvements have been confused with improvements in the fundamental balance. As a result, temporary observed surpluses have encouraged temporary expansions which have led to the emergence of large deficits. And these large deficits have, in their turn, made it necessary to impose further periods of slow growth.

Thus it seems clear that the British authorities' attachment to exchange rigidity, which arose in large measure because of a misinterpretation of the experience of the Thirties, led not only to the rejection of the received "classical" theory of international adjustment, but also to the neglect to specify an alternative adjustment process. As a consequence, attention has been focused upon the observed balance rather than the theoretically relevant fundamental balance and policy has been based upon pseudo-solutions.

These criticisms, if valid, require that the theoretically relevant concept of the fundamental balance should be quantifiable. To this issue we must now turn our attention.

[11] Caves, chapter 3, and also see the *National Board for Prices and Incomes, Third General Report* (H.M.S.O., July 1968), particularly Appendix A.

Quantification and the Fundamental Balance

To calculate the fundamental balance, on the assumption of a given level of capacity utilization and a given target rate of growth, theoretically requires a complete and quantitatively estimated model of the British economy and at least its principal trading partners. The parameters of such a model need to be independent of the problem under examination. No such model exists. Until such a model is complete we can make only a rather crude first approximation to the information we need to formulate a rational exchange policy under a regime of fixed exchange rates.

Where no structural model exists, it remains possible to derive information from forecasting models. Such models are inevitably crude. Their relation to economic theory is not always clear and their parameters are not always readily related to the parameters of a structural model. Nor are they necessarily independent of the problem under investigation. Nevertheless, information to be obtained from a forecasting model provides a useful check on policy and, in particular, on the assumptions underlying British exchange policy. Accordingly, in what follows we present some calculations, derived from an elementary forecasting model, of the fundamental balance on visible trade and current account for the United Kingdom.

The structure of this model is very simple and the load of assumptions it carries is correspondingly heavy. There is no suggestion that it is the best forecasting model which could be constructed. Refinement might or might not be worthwhile. We have not attempted it because the purpose of these estimates here is to suggest orders of magnitude rather than precise numerical values.

We begin by dividing real imports into two components: those which are primarily inputs to the domestic production process and those which are primarily finished goods. This gives us the identity:

$$I = I_i + I_f$$

We seek to explain imports of inputs by three variables, real gross domestic product, the rate of inventory accumulation, and the relative prices of British and overseas goods entering the input classification. Assuming a linear relation this gives:

$$I_i = \alpha_o + \alpha_1 Y + \alpha_2 \Delta S + \alpha_3 \left[\frac{P_h}{P_f} \right]$$

where Y = real gross domestic product;
ΔS = real investment in inventories;
P_h, P_f = home and foreign materials prices.

For imports of finished goods we postulate a similar function, though in this case we include a dummy variable (Z_3) designed to take account of the liberalization of trade in 1957-58 and the apparently decreasing nonprice competitiveness of British manufacturers. This gives:

$$I_f = \alpha_4 + \alpha_5 Y + \alpha_6 \Delta S + \alpha_7 \left[\frac{P_{hf}}{P_{ff}} \right] + \alpha_8 Z_3$$

where P_{hf}, P_{ff} = home and foreign prices of finished goods;
Z_3 = proxy for the influences of liberalization and nonprice competitiveness.

Applied to annual data for the years 1953-66, these equations perform surprisingly well, at least in the sense of providing high correlation coefficients and little evidence of serial correlation in the residuals. Moreover, the parameter values are generally significant and the signs are as expected. The results of the regressions, together with the implied marginal propensities and price elasticities, are in Table I.

If these results are accepted as a reasonable basis for forecasting, we can now estimate the "full-employment", "acceptable-growth" import bill by assuming:

1) that full employment is defined by an unemployment percentage of 1.6%;
2) that GDP grows at an acceptable rate of either 3 per cent or 4 per cent; and
3) that the home and foreign prices of materials and finished goods are the actual prices ruling in each year.

To do this we must find some way of estimating the rate of planned investment in inventories. To do this we write:

$$S^*(t) = \lambda\, Y(t)$$

where S^* = the planned level of stocks, so that

$$\Delta S^*(t) = \lambda[Y(t) - Y(t\text{-}1)] .$$

On this basis, given the regression equations and the observed values of P_f and P_{ff} for all t years, we can calculate the "fundamental" import bill at current prices.

On the export side we take both the real demand for exports and their prices to be independent of the domestic level of activity and rate of growth. These rather heroic hypotheses allow us to treat export receipts as exogenous with unchanged exchange rates.

Table 1

REGRESSIONS OF IMPORTS ON INCOME, PRICES AND INVENTORIES

Dependent Variable →	Equation Number 1 Imports of Finished Goods	Equation Number 2 Imports of Inputs	Sum Total Imports (1+2)	Marginal Propensities of Total Imports	Elasticities of Total Imports[1]
Independent Variables:					
Real GDP	0.059 (4.0690)	0.100 (6.3694)	0.159	0.159	0.79
Inventory Investment	0.394 (7.3783)	0.221 (1.4444)	0.615	0.615	
Price Ratio	−5.549 (−4.2391)	−5.901 (−1.4175	−11.450		−0.27
Dummy Variable (Import Liberalization)	89.527 (8.8317)	—	89.527		
Constant	104.316	1502.84	1607.656		
R^2	0.998	0.951	—		
D-W	2.183	1.788	—		

Note: Regression coefficients are the top figures; their "t" values appear below each coefficient, enclosed by parentheses. R^2 is the percent of variations in the dependent variable which is explained by variations in the independent variable. D-W is the Durbin-Watson statistic.

[1]Evaluated at the sample mean.

We are thus able to calculate the full-employment, acceptable-growth balance of trade for each year.

We now adjust these figures in two ways. First, we add an estimate of the invisible balance; second, we add an amount, taken to be £60 million a year, to allow for a systematic underestimate of current receipts thought to occur in the British accounts. This gives us a figure for the estimated "fundamental current balance."

Finally, we take account of the fact that an appropriate definition of fundamental equilibrium in the British case must make allowance for a "normal" net outflow of long-term capital and the need to provide for some measure of reserve accumulation and/or debt repayment. A figure of £300 million a year, now probably an underestimate, has, in the past, achieved some degree of official acceptance.[12] Hence we define the condition of fundamental equilibrium as follows:

Exports (f.o.b.) − Imports (f.o.b.) + Net Invisible Balance + £60 million − £300 million = 0

In Table II we give an estimate of the "fundamental deficits" and the "fundamental current account deficits" for each year from 1953 to 1966 for both assumed "acceptable" growth rates.

[12]Essentially this figure makes little or no allowance for the need to repay the debt arising out of the cumulative deficits of 1964 to 1968.

Obviously the calculations underlying Table II are crude and carry a very heavy load of assumptions.[13] Three points in particular should be noted.

1) The application of the target surplus of £300 million to the year before 1959 may somewhat overstate the fundamental deficit for those years.

2) The prices used in the calculation for the early years reflect the unusually unfavorable terms of trade which followed the outbreak of the Korean War.

3) The 4 per cent acceptable growth rate has been applied cumulatively from 1953. It would probably be more reasonable to assume an acceptable rate of slightly above 3 per cent from 1953 to 1963 and a 4 per cent rate thereafter. The "compromise" figures of columns (3) and (6) provide an estimate of this.

In addition, the 4 per cent growth rate implies a rate of increase in productivity greater than Britain actually experienced. On the usual assumptions about the cost/price process in the United Kingdom, this would imply a somewhat slower rise in domestic prices/cost than actually occurred. Hence,

[13]Full details of the data, assumptions and calculations on which this section is based are available on request from Professor David C. Rowan, University of Southampton, Southampton, England.

real exports (which we have taken as exogenous) might be expected to be larger and real imports smaller than Table II suggests.

It seems, therefore, reasonable to argue that the calculated fundamental deficits for the years 1953-57 are probably overestimates, and that the calculations for the 4 per cent growth rates are also overestimates.

Despite these limitations, it seems a reasonable inference from Table II that the United Kingdom was probably in fundamental deficit by 1959, if not by 1958. Moreover, the estimates suggest that from 1959 onwards the fundamental deficit grew very considerably. Finally, it is reasonable to assume that by 1967 the fundamental deficit was between £1160 million (which is certainly an overestimate) and £410 million (which is very probably an underestimate) with a reasonable guess putting it around £750 million.

As we have seen, no great claims can be made for this simple forecasting calculation. Other more refined and possibly more reliable forecasting techniques could doubtless be devised. Nevertheless, unless the calculations can display a very significant bias, they do suggest that the United Kingdom, during the period 1960-67, was suffering from a fundamental disequilibrium sufficiently large to be identified, with some confidence, by rather crude techniques.

Finally, in Table III we give the observed current account deficit taken from the official figures, and the fundamental current account deficits calculated for each "acceptable growth rate."

Extensive comment on Table III is unnecessary. It does, however, serve to show how poor a guide to long-run exchange policy the observed current balance may be. For example, the very substantial observed surplus in 1958, amounting to £344 million, was, on even a 3 per cent growth basis, due very largely to the low level of economic activity. Nevertheless, there can be little doubt that this largely illusory observed surplus was an important factor in the British expansion of 1959-60 and the Conservative electoral victory of 1959.

Again the much smaller observed surpluses of 1962 and 1963 were due primarily to slow growth and increased unemployment. Nevertheless they were undoubtedly factors which encouraged the British expansion of 1963-64 and the very substantial deficit of 1964.

Finally, it should also be clear that the observed deficits frequently overstate the fundamental deficits. They mislead, in fact, in much the same way as do the observed surpluses.

Though the arguments in this section can be no better than the simple regression model underlying

Table II

ESTIMATED CURRENT AND FUNDAMENTAL ACCOUNT BALANCES FOR U.K.
With Alternative Growth Rates in Real GDP
(Millions of Pounds)

	Estimated Current Account Balance with			Estimated Fundamental Balance with		
	4% Growth Rate	3% Growth Rate	Composite[1] Growth Rate	4% Growth Rate	3% Growth Rate	Composite[1] Growth Rate
1953	138	172	172	-102	-68	-68
1954	-85	-23	-23	-325	-263	-263
1955	-88	8	8	-328	-232	-232
1956	57	187	187	-183	-53	-53
1957	-61	109	109	-301	-131	-131
1958	-115	81	81	-355	-159	-159
1959	-262	-28	-28	-502	-268	-268
1960	-347	-72	-72	-587	-312	-312
1961	-355	-42	-42	-595	-282	-282
1962	-375	-22	-26	-615	-262	-266
1963	-465	-53	-139	-705	-293	-379
1964	-783	-323	-430	-1023	-563	-670
1965	-677	-137	-310	-917	-377	-550
1966	-714	-106	-324	-954	-346	-564
1967	-917	-250	-514	-1157	-490	-754

1This is defined as growth in real GDP of 3% for 1953-61 and 4% for 1961-67.

Table III

ACTUAL AND ESTIMATED CURRENT ACCOUNT BALANCE FOR U.K. WITH DIFFERENT GROWTH RATES

(Millions of pounds)

	Estimated Current Account Balance with			
	4% Growth Rate	3% Growth Rate	Composite[1] Growth Rate	Acutal Current Account Balance
1953	138	172	172	145
1954	-85	-23	-23	117
1955	-88	8	8	-155
1956	57	187	187	208
1957	-61	109	109	233
1958	-115	81	81	344
1959	-262	-28	-28	143
1960	-347	-72	-72	-265
1961	-355	-42	-42	-4
1962	-375	-22	-26	112
1963	-465	-53	-139	111
1964	-783	-323	-430	-399
1965	-677	-137	-310	-91
1966	-714	-106	-324	15
1967	-917	-250	-514	-404

1This is defined as growth in real GDP of 3% for 1953-61 and 4% for 1961-67.

our calculations, it does not seem an overly strong position to adopt that:

1) there is evidence that considerably before 1967, and possibly as early as 1958, the United Kingdom was suffering from an identifiable fundamental disequilibrium;
2) in the absence of any other well-specified method of adjustment, devaluation came between nine and seven years later than was required; and
3) the observed current balance is an unreliable indicator of the fundamental current position.

The General Applicability of British Experience

This paper has argued that British exchange policy during the Sixties was misguided in that it sought to retain an external value of the pound incompatible with fundamental equilibrium. Moreover, we have suggested that the existence of a significant fundamental disequilibrium was identifiable many years before the pound was reluctantly devalued in November 1967.

We have also argued that the decision to retain a disequilibrium parity at the cost of slower growth and periods of reduced economic activity came, in the main, from a misreading of the events of the Thirties, and involved an implicit denial of the theory of internal adjustment. In place of this theory, no new analysis was developed. Instead, a variety of poorly specified solutions were canvassed. These culminated in the argument commonly used to defend the 1963-64 expansion; that is, if the United Kingdom expanded demand and output faster, then, after an initial period of external deficit to be financed by borrowing, the balance of payments would, in some way not clearly specified, attain equilibrium. After the exposure of this panacea in 1964, Britain was virtually without a long-run external policy until 1967.

It is also the case that, though the British experience has been the most dramatic, the reluctance of the British authorities to alter a disequilibrium exchange rate has its counterparts elsewhere. At the moment of writing, the German authorities are refusing to revalue a probably undervalued mark, and the French authorities are refusing to devalue a probably overvalued franc. It has also been suggested in some quarters that the dollar itself is overvalued. Thus the attitude of the British authorities, though not the experience of the British economy, is far from atypical. National governments and monetary authorities, or so at least it seems, are reluctant to undertake planned exchange adjustments. Since exchange adjustments ultimately cannot be avoided, the outcome has been that crucial adjustments, because they have been unnecessarily delayed, have been unnecessarily large. Moreover, most adjustments have been undertaken only when national monetary authorities have been compelled, usually by speculators, to recognize the inevitable. As a result, the international monetary system created at Bretton Woods has, on a number of occasions, been brought close to collapse.

The system established at Bretton Woods reflected, though admittedly imperfectly, the Keynesian concept of managed flexibility of exchange rates. Under the Bretton Woods arrangements, limited changes in parities (defined as less than 10 per cent of the parities existing in 1944) could be made unilaterally. It was also envisaged that countries in fundamental deficit would adjust their exchange rates by international agreement, thus avoiding competitive devaluations like those of the Thirties. Finally, a country in chronic "fundamental surplus" which was unwilling to appreciate could have its currency declared "scarce" – a declaration which permitted its trading partners to discriminate against it.

Unfortunately, the system has never been allowed to operate as the theory on which it was based required. The principal reason for this has been the

attachment of central bankers and financial communities to rigid parities.

It is, however, doubtful whether central bankers, even if disposed to favor exchange adjustments, could always persuade their governments to take such actions. Politicians and even financiers seem to attach national prestige to particular parities, and many persons who are not central bankers seem to regard an external surplus as a sign of economic virtue and a deficit as a sign of economic vice.

Furthermore, it should not be forgotten that central bankers usually attach considerable (and not necessarily excessive) importance to price stability. A regime of fixed exchange rates tends to insure that a domestic inflation is accompanied by an external deficit. To this extent it increases the ability of central bankers to urge deflation. Unfortunately, the concurrence of domestic inflations and external deficits has, in some cases, encouraged central bankers to diagnose fundamental deficits which are structural in origin as due to macroeconomic mismanagement, and thus to urge deflation rather than exchange adjustment.[14] It is, indeed, hard to escape the impression that many of the international gatherings of central bankers at Basle and elsewhere are necessitated by the need to find temporary solutions to problems created by their own attachment to exchange rigidity rather than by the alleged refusal of deficit countries to deflate sufficiently.

The result has been that, instead of the managed flexibility with relatively small but frequent adjustments which Bretton Woods required, we have had the worst of all possible worlds – large, infrequent and usually long-delayed exchange changes as well as periods of considerable uncertainty and speculation. The present problems of the mark and the franc (and possibly the dollar and the pound) reflect the inability of the central bankers and international monetary authorities to accept the need for smaller and more frequent exchange adjustments.

Towards A Rational Exchange Policy

The British experience is valuable not only because it emphasizes the incompatibility of rigid exchange rates and domestic economic objectives, but also because it suggests the length of time which may have to elapse before a national monetary authority can be persuaded to face this incompatibility. Inevitably this strengthens the case for some form of exchange flexibility. Theoretically there is a powerful case for permitting the rates of the principal developed countries to float, and experience with floating rates, in Britain after 1931 and in Canada from 1950 to 1962, does not destroy this case. In practice, however, primarily because of the attitudes of central bankers and financial communities, it may be wiser to aim at a system which permits countries to change their rates by a small percentage each year (the "crawling peg").[15]

From the present system it should be possible to move to the "crawling peg" system and finally to floating rates. This evolutionary approach should have the merits of encouraging the appropriate development of a forward market in foreign exchange and, by giving experience with continuous but small adjustment, removing some of the exaggerated fears of exchange flexibility.

In advocating development along these flexible lines, three points need to be made clear.

1) Limited flexibility is less likely to work well if it is introduced into a system in which some key countries are in marked fundamental disequilibrium as they probably are at present. It may be necessary, therefore, to begin with an agreed realignment of key rates based upon the best estimates which can be made of the equilibmium rates.

2) Limited flexibility should be viewed as a stage in the movement towards fully floating rates – not as a means of establishing parities which can subsequently be pegged.

3) It must be realized that limited flexibility, whether based upon discretionary or automatic adjustment, is not a panacea. It will not eliminate temporary crises, movements of "hot" money arising out of the capacity of financial communities to frighten themselves, or the need for reserves.

Limited flexibility, therefore, should be seen as a "second-best" choice preferable to the present system because it offers a means of bringing about relatively smoother movements in the exchange rate, and thus is a way of eliminating the lengthy tragedy of errors which appears to have been the British experience from 1960.

[14]For an example of this position together with an optimistic assessment of the ability of the monetary authority to distinguish between external imbalances due to macroeconomic mismanagement and structural maladjustment, see Otmar Emminger, "Practical Aspects of the Problem of Balance of Payments Adjustments," *Journal of Political Economy*, August 1967.

[15]McKenzie, pp. 15-23, presents a fuller review of the "crawling peg."

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Member Bank Income – 1968

NET PROFITS at member banks in the Eighth Federal Reserve District rose moderately in 1968. Net income after taxes (net profits) was up about 5 per cent for the year, compared with increases of 8 and 14 per cent in 1967 and 1966 respectively and an average annual rate of 7 per cent in the eleven-year 1957-68 period.[1]

Operating revenue rose 16 per cent in 1968, reflecting both a larger volume of earning assets and a higher average rate of return on assets. Expenses were up 18 per cent, rising more rapidly than revenue, although by a smaller dollar amount. Net current earnings (operating revenue less operating expenses) climbed 11 per cent compared with 4 per cent a year earlier. However, the net effect of additions due to recoveries, transfers from reserves, and profits, and deductions due to losses, charge-offs and transfers to reserves, was a deduction from net current earnings of $25.6 million, or 16 per cent, compared with a deduction of $19.6 million, or 13 per cent in 1967.

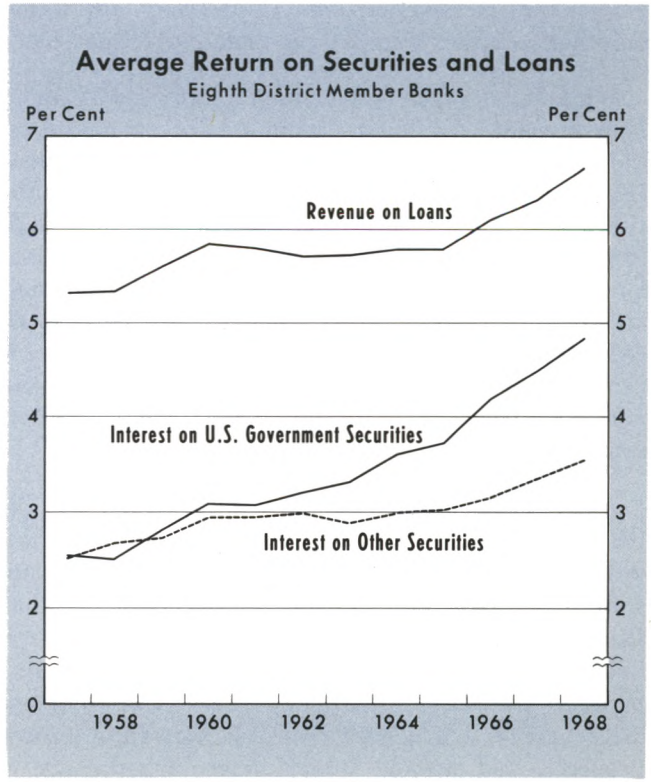
Net profits at all member banks in the nation were 7.5 per cent higher in 1968 than in 1967, somewhat more than for district member banks. Operating revenue rose slightly faster in the nation than in the district, and expenses increased more slowly. The net effect of security transactions and other profit and loss adjustments on loans and other assets at member banks in the nation was a reduction from net current earnings of $1.2 billion, or 24 per cent in 1968, compared with a reduction of $0.7 billion, or 17 per cent in 1967.

Revenues

Operating revenue at district member banks totaled $655 million in 1968, or 16 per cent above the previous year. The $428 million revenue on loans represented an increase of 14 per cent. Interest on Government securities of $97 million was up 18 per cent and that on other securities rose 22 per cent to $65 million in 1968. Revenue from all other sources totaled $66 million, an increase of 18 per cent from the previous year.

Loans rose from an average of $5.9 billion in 1967 to $6.4 billion in 1968, an increase of 8 per cent. This increase is similar to the trend growth in loans from 1957 to 1968 of 8 per cent per year. Holdings of U.S. Government securities rose 9 per cent in 1968, compared with a trend growth of only 1 per cent annually since 1957, and other securities rose 15 per cent, somewhat above their 13 per cent trend rate.

The rate of return on all types of earning assets increased. Returns on loans in 1968 averaged 6.7 per cent, compared with 6.3 per cent in 1967. Returns on U.S. Government securities averaged 4.8 per cent and



[1]Throughout this article 1957 is used as the base year in calculating trend rates, since that year was more typical of bank operations than 1958.

REVENUES AND EXPENSES OF EIGHTH DISTRICT MEMBER BANKS

	Millions of Dollars				Per Cent Change		
	1968	1967	1966	1957	1967-68	1966-67	Annual Rate 1957-68
Revenue on Loans	428.2	374.2	334.3	140.8	14.4	11.9	10.6
Interest on Securities							
U.S. Government	97.2	82.7	75.7	47.6	17.5	9.2	6.7
Other	65.3	53.4	43.5	12.7	22.3	22.8	16.1
Service Charges on Deposit Accounts	22.7	20.5	18.6	9.3	10.7	10.2	8.5
Trust Department	18.2	16.7	15.1	6.6	9.0	10.6	9.7
All Other Revenues	24.6	18.2	15.1	10.2	35.2	20.5	8.3
Total Operating Revenues	**655.2**	**565.7**	**502.3**	**227.2**	**15.8**	**12.6**	**10.1**
Salaries, Wages, and Benefits	149.5	132.4	118.8	63.7	12.9	11.4	8.1
Interest on Time Deposits	202.4	171.7	138.4	22.6	17.9	24.1	22.1
Other Expenses	139.8	113.8	102.8	50.7	22.8	10.7	9.7
Total Operating Expenses	**491.6**	**418.0**	**360.1**	**137.0**	**17.6**	**16.1**	**12.3**
Net Current Earnings	**163.6**	**147.7**	**142.3**	**90.2**	**10.8**	**3.8**	**5.6**
Recoveries, Transfers from Reserves, and Profits	14.0	15.9	20.2	5.2	—12.0	—21.3	9.4
Losses, Charge-Offs, and Transfers to Reserves	39.6	35.5	45.1	16.7	11.5	—21.3	8.2
Net Income (Before Income Taxes)	**138.0**	**128.1**	**117.3**	**78.7**	**7.7**	**9.2**	**5.2**
Taxes on Net Income	41.1	36.1	32.1	33.1	13.9	12.5	2.0
Net Income (After Income Taxes)	**96.9**	**92.0**	**85.2**	**45.6**	**5.3**	**8.0**	**7.1**
Cash Dividends on Common Stock	38.5	35.0	32.8	18.2	10.0	6.7	7.0
Interest on Capital Notes and Debentures[1]	2.2	2.0	1.9	*			
Number of Banks	474	478	480	491			

[1]Includes small amount of cash dividends on preferred stock
*Less than 0.05

4.5 per cent in 1968 and 1967, respectively, and those on other securities were 3.6 per cent and 3.4 per cent.

While total revenue increased more rapidly than loan revenue, the latter accounted for six-tenths of the increase in total revenue from a year earlier. Interest income from both U.S. Government securities and other securities (mostly issues of state and local jurisdictions) rose somewhat more rapidly than loan revenue during 1968. Revenue from securities accounted for about three-tenths of the rise in total revenues. Revenue from service charges on deposit accounts, up 11 per cent, and trust department revenue, up 9 per cent, rose more moderately than other sources of revenue.

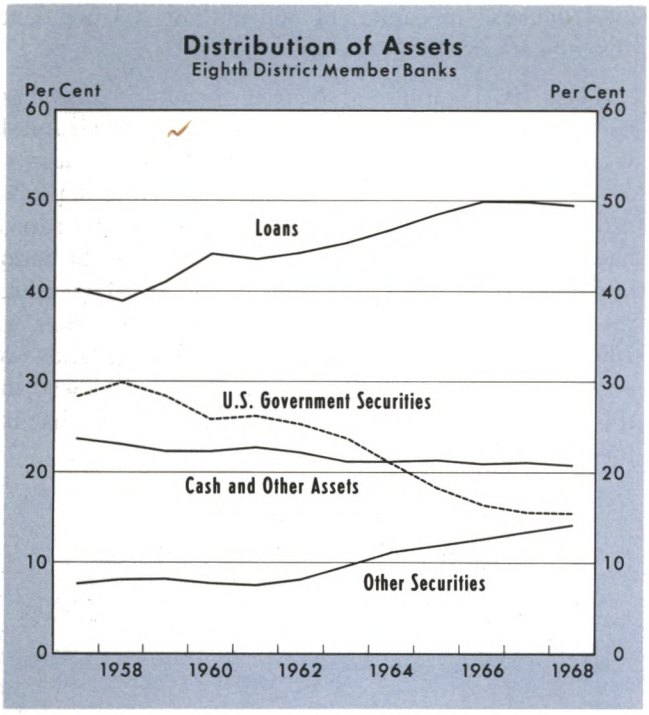
Although accounting for only a minor portion of the total, miscellaneous revenues were the most rapidly rising source, increasing from $18.2 million in 1967 to $24.6 million in 1968, or 35 per cent. This gain reflects the proliferation of nonlending services being offered by commercial banks in recent years. Some of the income items included in this category are rental of safe deposit boxes, income from leased property, and income from foreign departments.

Operating revenue at district banks has risen at an average 10 per cent annual rate during the past eleven years, from $227 million in 1957 to $655 million in 1968.[2] In addition to an increase in total assets, the growth in revenue reflects a marked rise in the general level of interest rates and a shift in the composition of assets to more of the relatively higher-earning types.

Total resources of district member banks grew from $6.6 billion in 1957 to $12.9 billion in 1968, an average annual increase of 6.3 per cent. Since the proportion of assets in the form of cash declined slightly, earning assets grew somewhat more rapidly, rising from $5 billion in 1957 to $10.3 billion in 1968, a 6.7 per cent rate.

The composition of banks' portfolios has changed sharply since 1957 to include proportionately more higher-earning assets. Holdings of U.S. Government securities dropped from 28 per cent of assets in 1957 to 16 per cent in 1968. Meanwhile, loans rose from

[2]These data are not adjusted for changes in total number of banks, resulting from new member banks or withdrawals from memberships. The effect of such changes on the total shown would be small.



40 per cent to nearly 50 per cent of assets, and securities, other than U.S. Governments, rose from 8 to 14 per cent.

The average rate of return on bank assets has trended upward. The average return on bank loans increased from 5.3 per cent in 1957 to 6.7 per cent in 1968, while the average return on Government securities rose from 2.6 per cent to 4.8 per cent during the same period.

Expenses

Operating expenses at district member banks totaled $492 billion in 1968, 18 per cent more than the previous year. As in most other recent years, expenses grew at a more rapid rate than revenue. Interest payments on time and savings deposits accounted for the largest dollar amount of increase in total expenses, but miscellaneous expense was the most rapidly rising item. Interest payments rose from $172 million in 1967 to $202 million in 1968, an increase of 18 per cent. Wages, salaries, and employee benefits rose from $132 million in 1967 to $150 million in 1968, or 13 per cent, as the number of officers and employees rose 6.4 per cent and average compensation per person increased 6 per cent. All other expenses rose 23 per cent from $114 million to $140 million.

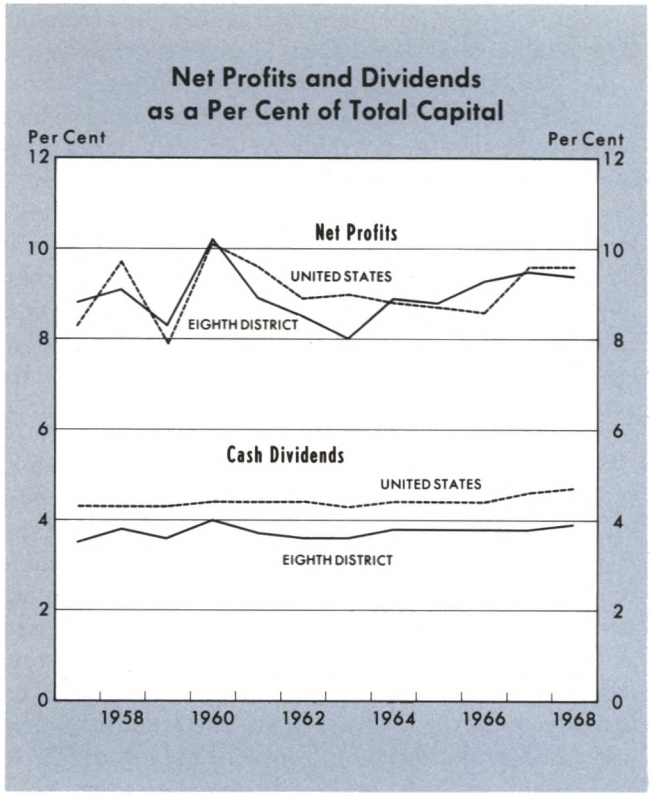
The rapid rise in miscellaneous expenses was largely due to larger payments for borrowed money and for furniture and equipment. At the interest rate relationships prevailing in much of 1968, banks found it profitable to increase their borrowings despite the rising rates paid on borrowed funds. During portions of 1968 market rates were above the rates which banks were permitted to pay on deposits under Regulation Q, and as a result banks relied more heavily on borrowings to meet their loan demand. The rapid increase in furniture and equipment expenses reflects increased mechanization and automation in commercial banking. Banks have been able to increase efficiency through increased use of data-processing equipment in performing the numerous clerical tasks associated with banking operations.

Since 1957 operating expenses of member banks in the district have risen from $137 million to $492 million, an average annual increase of 12 per cent. Reflecting a generally rising demand for loanable funds and competition among financial agencies to obtain such funds, interest paid by banks has increased sharply during the past decade. Interest expense rose from $23 million in 1957 to $202 million in 1968, an increase of 22 per cent per year. The volume of time and savings accounts rose from $1.3 billion in 1957 to $4.7 billion in 1968, or 12 per cent per year, while the average rate paid on these accounts rose from 1.7 per cent to 4.3 per cent. Other expense items have risen, but less rapidly than interest expense. Salaries, wages, and fringe benefits rose at an average annual rate of 8 per cent, and all other expenses rose at a 10 per cent rate.

Net Earnings and Income

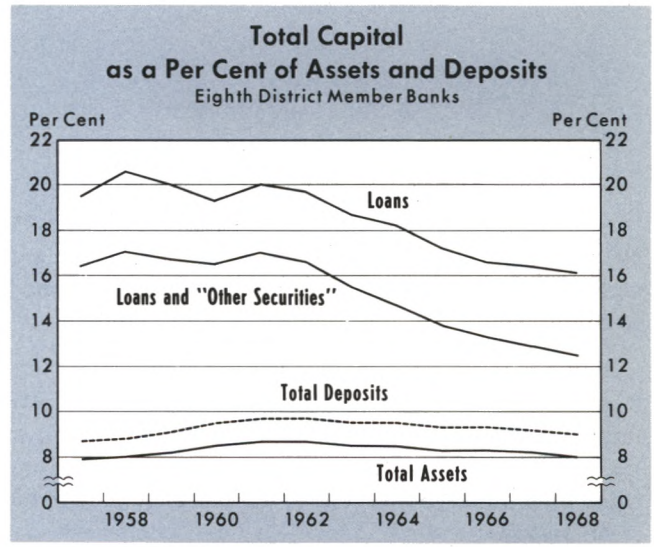
Net current earnings of member banks in the Eighth District totaled $164 million in 1968, an increase of 11 per cent from a year earlier. This was about double the average annual increase of 5.6 per cent during the 1957-68 period. The net effect of adjustments for losses, charge-offs and transfers to valuation reserves in 1968, however, resulted in net income being $25.6 million less than net current earnings, compared with a $19.6 million difference in 1967. Much of this increase in the earnings/income differential resulted from losses on securities sold.

Net income after taxes at district member banks totaled $97 million in 1968, an increase of 5.3 per cent from a year earlier. This was somewhat below the trend rate of 7.1 per cent per year since 1957. In comparison, net income after taxes for all member banks in the nation rose 7.5 per cent last year and has risen at an 8.3 per cent rate since 1957.



Member banks distributed $38.5 million in dividends on common stock in 1968, an increase of 10 per cent from the previous year. Net retained earnings at these banks totaled $56 million. These undivided profits, of course, are the primary source of increased capital in banks. In addition, member banks in the district raised a net $6.7 million of other capital, for a total increase in capital of $63 million, 6.3 per cent above year-end 1967.

Since 1957, capital at district member banks has risen at a 6.5 per cent rate. In the late 1950's capital was rising more rapidly than either deposits or assets. As a result the capital-to-assets and capital-to-deposits ratios both rose. Since 1962, however, these ratios have had a downward trend. In comparison, the ratio of capital to loans has declined from about 20 per cent, prevailing in the 1957-62 period, to 16 per cent in 1968. Some analysts view these declining ratios as an increase in banks' exposure to risks, and viewed in this manner, risk exposure has increased somewhat in recent years.



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