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FEDERAL RESERVE BANK OF ST. LOUIS

Review

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FEDERAL RESERVE BANK
OF ST. LOUIS

P. O. Box 442, St. Louis, Mo. 63166

Total Demand, Credit Flows, and Money

MEASURED IN CURRENT DOLLARS, the national economy has continued to expand at a rapid rate. Measured in real terms, advance has been at a reduced rate, largely due to capacity limitations. With total demand increasing more rapidly than real product, prices have risen rapidly, although very recently they have shown some evidence of greater stability.

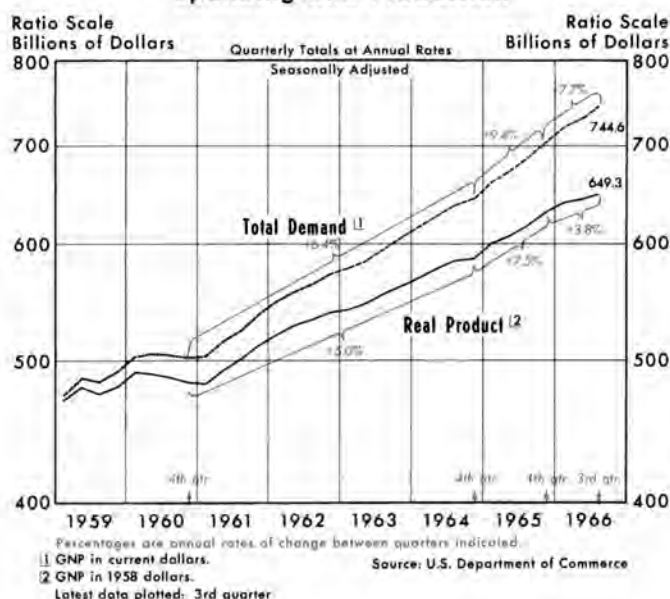
The recent mix of stabilization policies may be described as a combination of fiscal ease and monetary restraint. Government spending has continued to rise, while key monetary variables have contracted. This policy mix led to an acceleration in the rise of interest rates from April to September.

Total Demand and Prices

Total demand rose at a 7 per cent annual rate from the second to the third quarter, about the same as the rate of advance from the fourth quarter of last year. Real product increased at a 4 per cent rate from the fourth quarter of 1965 to the third quarter of 1966. With the economy operating near capacity, about half of the increase in total demand spilled over into price increases.

Increases in total demand have been broadly based as the major components, consumer, business, and government demand, have all advanced rapidly in 1966. Increases to the third quarter from the fourth quarter of last year were at a 14 per cent annual rate for government purchases of goods and services, a 4 per cent rate for private investment (including residential construction), and a 7.5 per cent rate for consumer spending.

Spending and Production



SPENDING BY SECTORS

Annual Rates of Change

	1960 to 1965	4th Quarter 1965 to 3rd Quarter 1966
Total spending (GNP in current dollars)	6.2	7.7
Consumption	5.8	7.5
Investment	7.3	3.7
Government	6.5	13.7

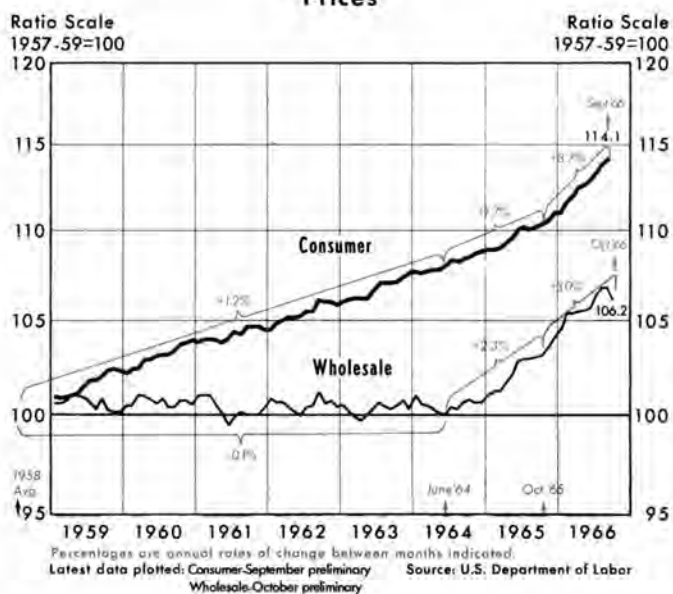
Business investment is of primary concern because of its dynamic role in cyclical developments. Plant and equipment spending advanced sharply during the two-and-one-half year period ending in the second quarter. Third quarter estimates and surveys for the fourth quarter indicate some slowing in the rate of increase. Such a slowdown, if properly moderated, is to be welcomed when total demand is excessive. A moderation in plant and equipment spending would help to free resources for other sectors of the economy and relieve some upward pressures on prices by bringing planned investment in line with planned saving.

Business investment in inventory has continued to rise, but generally in pace with final sales. So long as inventories remain in line with sales, pressures will not develop to cut back orders, and production, employment, and income will be maintained. Key factors underlying decisions to accumulate inventory are sales expectations, interest rates, and price expectations. The temptation to build inventories because of expectations of higher prices may be held in check by the relatively high costs of credit. To the extent that inflationary fears are arrested, inventory investment tends to increase less rapidly. Consequently, a decline

in the rate of inventory accumulation need not necessarily be interpreted as portending a downturn in business activity. Rather, such a development might indicate anticipations of a sustainable advance in production without excessive price increases.

Prices, responding to total demand increases in excess of resource growth, have risen rapidly. As measured by the GNP price index, prices increased 3.7 per cent from the fourth quarter of last year. Wholesale prices in October were up 3 per cent over a year earlier, with some hesitation in the rise in September and October. Consumer prices have continued their upward surge, rising at about a 4 per cent annual rate since early this year. Prices for food and services have gone up about 5 per cent, and prices for commodities other than food have increased about 2 per cent.

Prices



Total Demand and Fiscal Stimulus

Federal fiscal policy is imparting a substantial stimulus to the economy in the last half of this year. Fiscal actions were more stimulative in the year ending in the second quarter (fiscal year 1966) than in any previous year in over a decade. The high-employment budget showed a \$1.1 billion surplus compared with an average surplus of \$7.2 billion from 1955 to mid-1965. During times of high employment and rising prices, the high-employment budget probably understates the extent of fiscal stimulus. The estimate of surplus is overstated at these times because of the progressiveness of the tax structure relative to money incomes and because the share of national income going to profits is probably rising. The high-employment surplus thus tends to rise in response to

High-Employment Budget



inflationary forces rather than because of restrictive fiscal actions.¹

The Viet Nam conflict is probably boosting defense expenditures even more rapidly in the last half than in the first half of this year. Defense expenditures in the third quarter were up \$4.2 billion (annual rate) from the second quarter, and medicare payments were also up sharply. The medicare program will show less quarter-to-quarter change subsequently, but increases in defense spending are expected to continue.

The Federal Government is not instituting any major changes in tax rates during the remainder of 1966. Suspension of the investment tax credit and the less liberal depreciation procedures for tax purposes, as enacted into law, are not expected to produce much additional tax revenue in calendar 1966. These programs, however, may increase Federal revenues somewhat in early 1967. Social security tax rates are scheduled to increase from 8.4 per cent to 8.8 per cent on January 1, 1967, and the last phase of the corporate tax speed-up program will take place in the first half of 1967. Taken all together, however, these measures seem likely to have little effect in restraining the stimulative impact of the Federal budget.

Credit Demand and Monetary Restraint

The rapid expansion in total spending on goods and services has contributed to marked increases in credit demands. Businesses have sought credit to finance inventories and large capital expenditures. Out-

standing business loans made by commercial banks in August were up 18 per cent from a year earlier. From early August to late October such loans at weekly reporting banks grew no further. Recent moderation of borrowing from commercial banks may have resulted primarily from cessation of growth of bank deposits. This in turn follows in considerable measure from Regulation Q ceilings. Corporate securities offerings for new capital were 26 per cent greater in the first three quarters of this year than in the same period of 1965. State and local government issues for new capital through the third quarter of 1966 were 9 per cent above the total for the same period a year earlier.

Federal Government borrowing during the first three quarters of 1966 was up significantly despite programs to bring individual and corporate tax payers closer to a pay-as-you-go basis. Gross proceeds from new issues of U.S. Government securities, including agency issues, in the first three quarters of 1966 exceeded those for the corresponding period of 1965 by about 25 per cent.

The quickened pace of Government borrowing is expected to continue throughout the remainder of 1966, as the cash deficit will be at an annual rate of about \$12 billion. The postponement of the issue of agency participation securities will tend to expand direct Treasury borrowing further, placing upward pressure on the short end of the maturity spectrum, where this borrowing will be concentrated because of the 4.25 per cent interest rate ceiling on long-term Government securities.

Monetary developments in recent months have helped restrain inflationary pressures by limiting the ability of banks to extend credit. The Federal Reserve influences the banking system's ability to expand credit by altering total reserves through purchases or sales of Government securities in the open market. Federal Reserve purchases of securities expand member bank reserves, while sales contract reserves.

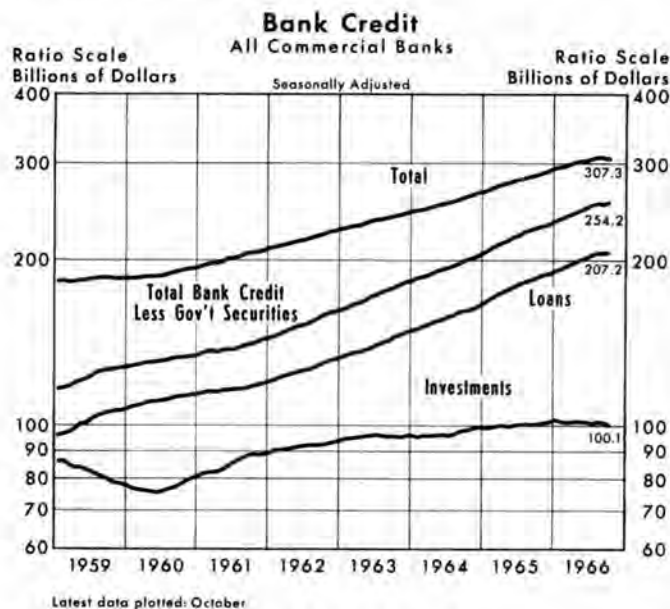
Federal Reserve holdings of U.S. Government securities have expanded at a 4 per cent annual rate since April compared with an increase of 8 per cent from April 1965 to April 1966 and a 10 per cent average annual increase from 1961 through 1965.

Total member bank reserves, reflecting the reduced rate of net Federal open market purchases and other factors, including reserve requirement changes, have declined at a 2.2 per cent rate since April compared with a 4.8 per cent increase in the year ending in April and a 3.9 per cent average rate of increase from 1961 through 1965. Reserves available for private demand deposits have declined at a 4 per cent annual rate

¹This point was brought out in correspondence with Herbert Stein of the Committee for Economic Development.

since April compared with an increase of 5 per cent in the preceding year and an average rate of 1.4 per cent from 1961 to 1965.

In line with these monetary developments tending to limit the ability of banks to expand credit, bank credit outstanding increased only slightly from July to October. Growth in total loans has moderated since July; business loans have risen at a much slower pace than earlier in the year.



Interest Rates and Changing Sources of Credit

The continued strong credit demands coupled with more restrictive monetary actions resulted in an acceleration in the rise of interest rates from April to September. Increases were most rapid for securities with shorter maturities, as is usually the case when rates rise substantially. From April to September the three-month Treasury bill rate and the four- to six-month commercial paper rate rose from 4.61 per cent to 5.36 per cent and from 5.38 per cent to 5.89 per cent, respectively. These rates compare with 3.93 per cent and 4.38 per cent in April 1965. Discounted at higher interest rates, the present value of anticipated future earnings and dividends on common stock decreased during this period. This may be one factor determining the net declines in the stock market. The earnings-price ratio on common stock rose 1.7 percentage points from April to September compared with an increase of 0.6 percentage points in the preceding year.

In recent weeks there has been some tendency for interest rates to decline. During October the rate on three- to five-year Government bonds declined to 5.36

CHANGES IN INTEREST RATES

	Percentage Points		
	April 1965 to April 1966	April 1966 to Sept. 1966	Sept. 1966 to Oct. 1966
4- to 6-month commercial paper	1.00	0.51	0.11
3-month Treasury bills	0.68	0.75	0.03
3- to 5-year Government bonds ..	0.74	0.76	— 0.22
Long-term Government bonds ..	0.40	0.24	— 0.04
Corporate Aaa bonds	0.53	0.53	— 0.06
Municipal Aaa bonds	0.37	0.47	— 0.08
Conventional first mortgages (including fees & charges) ..	0.31	0.51	N.A.
Dividend/price ratio	0.20	0.60	0.01
Earnings/price ratio	0.55	1.73	0.02

N.A. — Not available.

per cent from 5.49 per cent, while the bill rate declined from 5.39 per cent to 5.22 per cent.

A marked change in the sources of funds supplied to credit markets has accompanied the overall rise in interest rates. Financial intermediaries have been supplying a much smaller proportion of the total, while open market channels have been increasing their share. Direct financing accounted for approximately 12 per cent of total funds supplied to credit markets in 1965. Preliminary data indicate that during the first half of 1966 this proportion increased to approximately 36 per cent, and it appears that the share rose further in the third quarter. Total funds supplied increased from \$73.5 billion in 1965 to an annual rate of \$74.9 billion in the first half of 1966.

Most of the shift of funds into direct flow through the open market has been a movement away from the acquisition of liabilities of intermediaries, i. e., time deposits at commercial and mutual savings banks and shares of savings and loan associations. The growth of total time deposits at commercial banks fell from 15 per cent during 1965 to a 10 per cent annual rate in the first eight months of 1966. From mid-August to late October these deposits remained virtually stable. The change in the course of time deposits has been particularly affected by a decline in the amount of large certificates of deposit outstanding. Since about August 1965 growth of these deposits has been impeded at times by the limited rates banks have been permitted to pay compared with open market rates. After growing about one-third each year for several years, CD's grew at only a 14 per cent annual rate from August 1965 to May 1966. After May these deposits were about unchanged to late August. Subsequently, they have fallen about \$2 billion or about 11 per cent as open market rates have been above the rates the banks were permitted to pay.

Effective September 26, the maximum rate payable on time deposits of less than \$100,000 (primarily consumer-type CD's) was lowered from 5½ per cent to 5 per cent, while all other maximum rates remained unchanged. Prior to this action, the Federal Reserve had reduced the maximum rate that member banks may pay on new multiple-maturity deposits of 90 days or more from 5½ to 5 per cent and from 5½ to 4 per cent on those with a maturity of less than 90 days. This action became effective July 20, 1966. These actions, following the rapid rise during the summer in rates on market instruments which compete with large CD's, have made time deposits much less attractive to potential investors. Recent slowing in rates of increase of bank credit may reflect the declining role of banks as intermediaries as well as restrictive monetary actions.

Both savings and loan associations and mutual savings banks have experienced significant reductions in the rate of growth of their deposits. During the first half of this year savings and loan shares increased at an annual rate of 5 per cent compared with 9 per cent during the corresponding period of 1965. Mutual savings banks have had a similar experience with regard to new deposit inflow. Recent actions by the supervisory agencies in limiting rates paid on time deposits have been aimed at reducing competition between financial intermediaries and directing more funds into the mortgage market.

Money Stock and Money Demand

Reflecting the course of bank reserves, the money stock, as measured by checking accounts plus currency, declined slightly from April to October. In contrast, money rose 6 per cent from April 1965 to April 1966 and at a 3 per cent rate from 1961 to 1965. The marked change in money growth centered in demand deposits (checking accounts), which fluctu-

ate closely with the volume of reserves available to support them. From April through October this component of the money supply declined, after increasing about 6 per cent in the year ending in April. Currency, which usually expands or contracts in response to the volume of sales handled by currency, continued to rise at about the same rate as in the previous year.

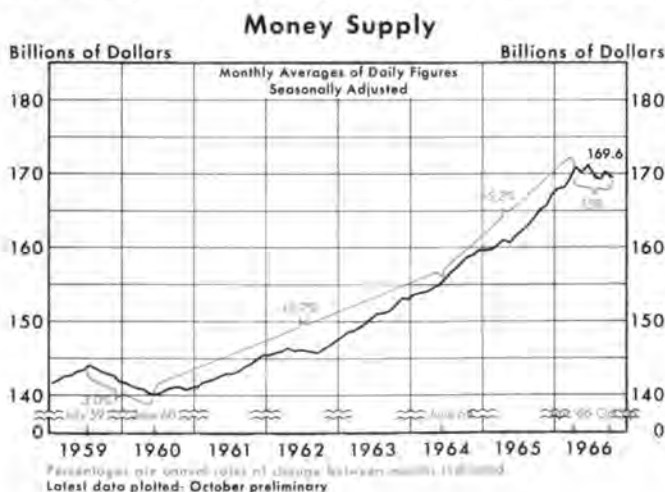
Money supply defined to include time deposits at commercial banks has been about unchanged since mid-August. This measure of the money stock grew at a rate of 3 per cent a year from April to October, about 10 per cent from April 1965 to April 1966, and at a rate of 8 per cent from 1961 to 1965.

Demands for money stem primarily from transactions needs and store-of-value demand. Continued advances in economic activity since early summer indicate that the need for money balances for transactions purposes has probably increased despite declines in the supply of money. Increases in desired money balances for transactions purposes may have been offset by the sharply rising interest rates, making the alternative cost of holding idle money much greater. To the extent that the money stock has declined relative to the desire to hold it, the growth of total demand may be restrained in coming months as individuals and businesses attempt to build cash balances by spending less than their current incomes.

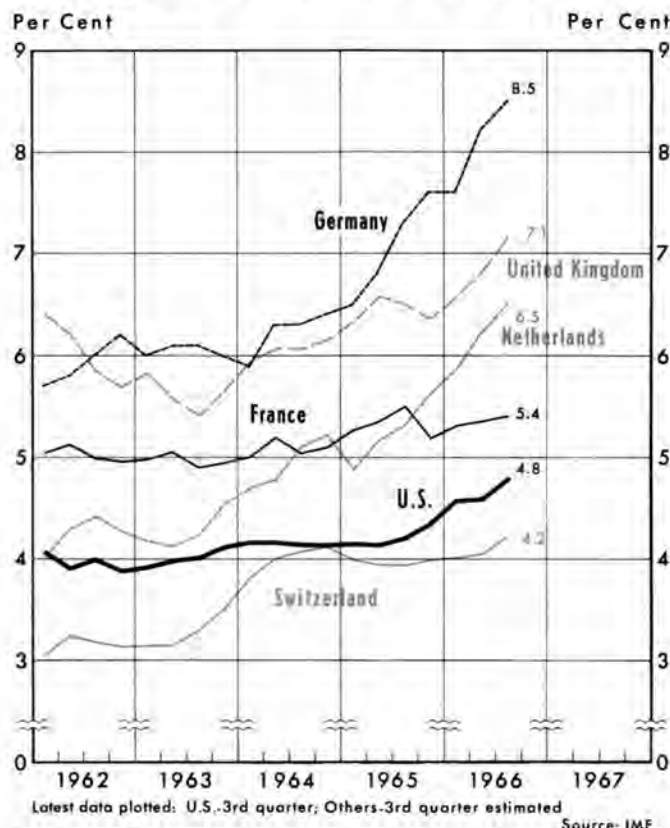
Recent European Economic Developments

In most European countries interest rates have risen substantially since mid-1963. Rates on long-term government bonds began rising in the second half of 1963 or early 1964 in France, Germany, the Netherlands, Switzerland, and the United Kingdom. The rise has been strongest in Germany, the Netherlands, and the United Kingdom.

An increase in interest rates could be due either to an increase in demand for credit (because of an expansion in total demand for goods and services possibly brought about by expansionary fiscal policy) or to a decrease in the supply of credit (because of a decline in planned saving or restrictive monetary policy). Rising interest rates in most European countries have, in considerable measure, been caused by increasing demand for loan funds promoted by growth in total demand for goods and services. In the period from 1963 to 1965 total demand increased at average annual rates of 8 per cent in Belgium and Germany, 12 per cent in the Netherlands, 9 per cent in Switzer-



Long-Term Government Bond Yields



land, and 7 per cent in the United Kingdom. The recent increases in interest rates in the United Kingdom have also been due to monetary restraint as part of the comprehensive program to protect the balance of payments. The money supply in the United Kingdom changed little in the second quarter of 1966 compared with an annual rate of increase of 10 per cent over the previous five quarters. Germany, the Netherlands, and Switzerland increased their central bank discount rates in the early summer of 1966, but latest data show no significant changes in the rate of increase in the supply of money.

Monetary expansion has in general continued at rapid though somewhat reduced rates. Currently available data show money supply increasing over recent periods at annual rates of 7 per cent in Belgium, 10 per cent in France, 6 per cent in Germany, and 11 per cent in the Netherlands. In addition, most Western European governments have been spending more than they have been taking in from taxes. Thus, stimulative fiscal and monetary policies have contributed to the high total demand for goods and services, to

the large demand for loan funds, and to high interest rates.

As demand has increased, limited availability of labor and other resources has led to rapidly increasing wages and prices. Since 1963 employment has been increasing at annual rates that average 1 per cent to 2 per cent in Belgium and Germany and less than 1 per cent in France, the Netherlands, and the United Kingdom. Over recent periods consumer prices have increased at annual rates of about 3 per cent in France and Germany, 4 per cent in the United Kingdom, 5 per cent in Switzerland, and 6 per cent in Belgium and the Netherlands.

With demand for output increasing rapidly and with wages in many cases rising faster than productivity, European firms have been provided with incentive to increase capital investment at a time when the squeeze on profits and thus on retained earnings has rendered them less capable of financing such investment internally. The decline in retained earnings and the increase in investment incentives have contributed to increased demands for investment funds.

The concurrence of restricted growth in real output, reflecting labor shortages, and continued growth in total demand has put unusual pressure on European capital markets. Most European rates have been pushed to such high levels that the spread between rates in the United States and Europe has actually widened in spite of the rise in U. S. rates. But because of the speculative movement out of sterling in July and the unusually sharp increases in short-term rates in the United States in the middle and late summer, there was substantial short-term capital movement from Europe to the United States. This resulted in a rapid increase in U. S. liabilities to private foreigners in the third quarter, which probably accounts for the apparent surplus in the U. S. balance of payments on the official settlements basis. Because an increase in U.S. liabilities to private foreigners is not considered a capital inflow on the liquidity basis, this measure of the balance of payments is estimated to have continued in deficit in the third quarter.²

² On the official settlements basis, only an increase in dollar assets held by foreign monetary authorities is treated as a means of financing, and thus as a measure of, the deficit. On the liquidity basis an increase in liquid dollar assets held by both public and private foreigners is treated as a means of financing the deficit.

Monitoring Monetary Policy

by GEORGE W. MITCHELL¹

Member, Board of Governors of the Federal Reserve System

MONETARY POLICY deals most directly with banks, financial markets, money, credit flows and interest rates. To monitor its course, its ebbs and flows, one should, therefore, observe the state of banking and the tone of the money and capital markets, noting the flows and yields on funds that the economy is using. What can these markets tell us?

J. P. Morgan once voiced the best forecast ever made for a financial market. "It will fluctuate!" was his prediction. No doubt many of you, drawing on recent experience-hardened judgment, would be willing to add some impressive dimensions to that cautious platitude. For recent experience has driven home anew to all financial officials two expensive lessons: not only can prices and yields in our money and financial markets fluctuate—they have fluctuated, and very widely on occasion, with immobilizing impact on investors who would like to alter their debt or asset positions. Further, these fluctuations, whether within the day, the month, or the year, are extraordinarily difficult to predict and, thereby, to anticipate when portfolio decisions are made.

Security prices necessarily mirror the changing flows in the demand for, or supply of, credit funds. But as a practical matter, these changing demand and supply influences are only inadequately and tardily apprehended by present-day public economic intelligence systems. As a consequence, every shred of additional public and private evidence about money flows is sought by professional market participants and reporters of the financial press at the earliest possible moment. Their purpose is to evaluate such evidence in the least possible time and to inform their principals, clients or the financial community at large, and thus to aid portfolio managers in establishing market positions from which profits are most likely to be maximized or losses to be minimized.

These analysts must also have a feel for the general course or trend of the "real" economy—whether it is expanding, stagnant or receding, whether it has underutilized manpower and capital resources or is fully

employed, whether it suffers from inadequate demand and hence is subject to deflationary tendencies, or whether from excessive demand and so is experiencing inflationary pressures. In attaining their ends, financial managers rely on a wide range of financial instruments and maturities and the arbitrating mechanism of money and capital markets. They try to anticipate as closely as possible both short-run fluctuations and long-run trends in security prices and yields.

One of the elements in understanding the operation of this very complicated financial system is the role of the Federal Reserve. That role is to serve as a marginal source of supply of market funds—to a small extent directly in the Government securities market—but to a much larger extent indirectly, as commercial banks pyramid their loans and investments and deposits on the basis of the reserve credit which the System has furnished. Accordingly, what is the Federal Reserve doing by way of supplying funds or what will it do, under some assumption of market conditions, is a common query among professional traders and speculators. Even a few small, innocent-appearing clues can give the knowledgeable market participant a "leg up" on his less well-posted counterpart.

Over the years the System has developed a method of communicating with the market which is as straightforward, accurate and objective as quantitative relationships can make it. It is a "you see it as we do it" policy. A weekly financial statement is released to the public every Thursday afternoon, showing a detailed breakdown of System assets and liabilities as of the close of business the preceding Wednesday. These statements are supplemented by weekly and monthly releases, reporting changes in aggregate commercial bank assets and liabilities. From these data one can ascertain if the System is replacing gold with bills or bonds; if it is expanding or contracting Reserve Bank credit and commercial bank reserves; to what degree the discount window is being used; how the banking system is responding to available investing opportunities, and so forth.

The System makes some banking and credit data available in both a "raw" and refined state, i.e., with

¹ Remarks made before the New Hampshire Bankers Association, Whitefield, New Hampshire, October 14, 1966.

or without seasonal adjustment or other "smoothing" technique. Some series are highly aggregated, others selectively disaggregated; they may appear in charts or tables and in the form of stocks or flows or change in flows. Whatever form the data takes there are few adjectives, judgments and explanations of present actions or inaction in these financial statements and reports; and there are no tips, predictions, threats or promises of future action. Nor, given our present state of knowledge, does it seem desirable or appropriate that there should be.

The time may come when analytic capacity built into a commodious computer will enable market analysts to identify, quantify and date the demands for and supplies of goods and services and flows of funds, and to work out the effect of arbitrating time and market alternatives. Such a program might also assimilate the feedback from alterations in future business and financial expectations and indicate an appropriate course for monetary policy. When, and perhaps if, operations research practically achieves this control over the data and accompanying business and financial decisions, I have no doubt it can also reveal the current shade of tightness, ease, or neutrality in monetary posture to market participants and further suggest what the Federal Reserve ought to be doing next. This is probably as close to functional obsolescence as either monetary or portfolio managers would ever care to get.

Regardless of what the future may make possible by way of communication between the Federal Reserve and market participants it seems clear to me that the present flow of quantitative data on current banking operations, and the economy generally, provides enough information, supplemented by occasional interpretive comments, for professionals to function effectively within tolerable limits of financial risk. And most of these quantitative facts can be made available without prejudicing to a significant degree future monetary policy decisions.

The Rationale of Monetary Policy

Two additional types of information are frequently sought from the participants in money management: one has to do with the rationale of current policy—what are the economic factors and assumptions with respect to financial behavior that underlie current policy? The other has to do with the likely course of future policy. Not only the Federal Reserve System but central bankers everywhere have continuing difficulty with these informational requests.

Historically, the solution to both types of questions has been "no comment" and the prevalence of this

policy gave rise to the tradition of "tight-lippedness" which has long been associated with central bankers. However, the Federal Reserve, in its annual reports to Congress, in hearings before Congressional Committees, and in the official records maintained on meetings of the Board and Federal Open Market Committee has endeavored to provide as complete a record of policy decisions and considerations leading up to them as is practicable.

The policy record in the Annual Report, for example, carefully summarizes the economic and financial background of each action taken. No written document, however, can accurately record why each of seven Governors on the Board or each of twelve members of the Open Market Committee voted for a given course of action. The reasons enumerated are relevant but unweighted. The assumptions with respect to linkage among monetary variables are often vaguely stated because the state of our economic, financial and monetary knowledge does not, at times, permit greater precision. Semantic compromise unavoidably runs all through the record, not only because the same words have different meanings to different people in the inexact business of monetary management but also because decisions have to be made and semantic compromises are of less consequence than substantive concessions.

Reasons are important and it is reassuring to be able, in retrospect, to know that the monetary managers were often right for the right reason. But our facts are sometimes limited or our theoretical framework for certain situations deficient and, under these circumstances, rather than be wrong it is better to be right for the wrong reason and admit that intuition, "market sense" or luck saved the day.

The informant who alleges he has an inside look at a central bank's prospective monetary posture is convicted by his own ignorance. However he comes by his information it can hardly include all the caveats, the qualifications, and amendments needed to raise gossip to the level of speculation. As monetary policy is made today, no one knows how soon or how much economic events, financial conditions, or expectations will modify the current thrust of policy. Monetary management works through markets and decisions that are exceptionally sensitive to changing environment. As a consequence, monetary management itself is exceptionally flexible and responsive to market conditions and psychology; it could hardly be otherwise.

My remarks have been directed at communications with the business and financial community. The related problem of communication with the general

public, not covered here, is certainly no less important. However, that problem does not seem to me to involve the same measure of technical difficulty. The public's concern is mainly for a timely and certain understanding of the broad and evident thrust of System policy. This is readily met by the System's official announcements and press releases and from the wide coverage of monetary developments in the nation's news media.

Money Supply, Near-Money Aggregates and Bank Credit as Monitors

Some monetary analysts say that the best view of the changing monetary scene does not come from observing the tone and feel of the money and capital markets, or from following the trend and churning of interest rates. Nor, they say, can it be found by sifting through the masses of daily, weekly or monthly banking data, however carefully and selectively. Among these observers are a few who contend that it does little good to listen to what the Federal Reserve says it is doing because its methods of communication are too often too obscure. And coming to the end of the line, there are those who believe that the System itself is unaware of its monetary moves and, hence, can hardly describe them adequately to others.

To what monetary monitoring measures do these analysts (and others) look for an indication of the direction and force of monetary policy? Among the measures used none is more widely observed, if not deified, than changes in the active money supply—currency and demand deposits—and which for convenience I will call M-1.

As a measure of monetary action, M-1 has a long tradition in theory and academic respectability. It is simple to understand, to compute, to graph. It is verifiable and has the ring of authority. And even for those who do not accept the quantity theory of money, it can be a good first or second approximation to variables they regard as more significant. Moreover, it has variants devised by disciples who probably have actually improved the original gospel, or at least better adapted it to our present financial structure and system.

One of these variants, which I will call M-2, adds time deposits at commercial banks to the currency and demand deposits included in M-1. Impressed with the fact that there is little to distinguish time deposits at commercial banks from shares at savings and loan associations, deposits at mutual savings banks or short-term money market instruments, other students have suggested that the relevant definition of money should cover a whole family of near-money aggregates. Thus,

they would extend the definition to include some or all of deposits in savings and loan associations, mutual savings banks, credit unions, policy loans at insurance companies, short-term marketable securities of the U. S. Government and its agencies, short-term municipal securities, short-term corporate securities, Eurodollars, and so on. We can refer to the broadest of such definitions as M-x.

These expanding definitions of money share, to decreasing extent, a characteristic that only money, narrowly defined, has to the nth degree, that quality so essential for transactions use—namely, instant liquidity. And near monies which more and more have taken over the store of value function of money can usually be converted into M-1 without delay or significant loss. It is the ability of our intermediaries and security markets to effect such conversions that imparts monetary significance to M-x.

Without any doubt, recent years in the United States have seen an enormous shift from the use of money narrowly defined (M-1) toward the use of money broadly defined (M-x). This conceptual shift is evident in the financial management of individuals, corporations, and governments. At least in the United States, money in the narrow sense of the word is being reduced more and more to the simple role of a transactor or medium of exchange. And this trend is about to be greatly accelerated by the computerization of the entire money settlement process.

The over-all statistics of money stock and money use have long revealed an economizing trend. Today, turnover of private demand deposits in New York City metropolitan area is twice weekly, more than double the rate prevailing in a period of high economic activity a decade ago. In six other large financial centers, current turnover rates are once a week, up 80 per cent over the past decade. In 200-odd other reporting metropolitan areas, turnover is roughly 34 times per year, up 50 per cent over the mid-fifties. The very high rates of turnover in New York and other major centers are a reflection of a large volume of financial transactions. But the increases in rates of turnover in all centers are a manifestation of closer money management by banks' customers, including increasing readiness to invest idle balances in interest-earning instruments.

On the other hand, liquidity, the non-transaction characteristic of money, is becoming an increasingly important feature of the stock-in-trade of financial intermediaries and of a broadly-based resilient money market as well. Inevitably these markets and institutions will increasingly become the evident target of monetary action.

The 1966 experience with money supply as an indicator of monetary action illustrates some of the practical difficulties of using M-1 or M-2 as a chief monitor of monetary trends. Changes in M-1 most directly mirror the combined effects of changes in the economy's demand for money—especially in recent years for transaction purposes—and the Federal Reserve's policy with respect to supplying the reserves for bank credit and monetary expansion. But the mixture of significant and insignificant influences at work on M-1 do not trace out any simple pattern. Distracting movements in M-1 of the order that produce large annual rates of change derived from weekly or monthly data often arise from unexpected seasonal fluctuations, erratic changes in velocity, and shifts between the private money supply and the Federal Government's demand deposits in commercial banks. In the background of economic and financial developments in 1966 affecting changes in M-1 are changes in the timing of personal and corporate tax payments, wide fluctuations in the Government's balance for reasons having a non-symmetrical effect, and, in addition, a sustained tightening in monetary policy. All of these recent shifts, I might add, make it increasingly difficult to identify noise and seasonal movements.

It is of some help in explaining the behavior of M-1 in 1966 to ignore the changes in currency and coin in circulation, which have been rising about \$2 billion annually for the past four years and whose seasonal fluctuations are stable enough to be reliably adjusted. The remainder—the seasonally adjusted demand deposit component of M-1—was stable in the first 10 weeks of 1966 at about \$131.5 billion. Around the March 15 tax date it rose about \$1 billion and around the April date another \$1.5 billion, hitting a peak of \$134.0 billion in a week when the U. S. Government deposits were at their lowest point of the year (thus far). Early in May, demand deposits settled back to \$133 billion, rose briefly but sharply after the June 15 tax date and have been in the range of \$132-\$133 billion ever since (October).

This record, as it developed during the year, was, by some observers, first assailed as highly inflationary when the temporary bulges around March, April and June tax dates appeared. It was later assailed as dangerously deflationary when August levels were compared to the last-half June peak. Since August, demand deposits have risen somewhat in addition to the September tax period bulge.

In retrospect, and considering the transitory factors at work (i. e., the frictional effects of changes in the Government balance and tax payment schedule

changes), it appears M-1 has increased very modestly during the year (1.9 per cent through October but little change since May). Such variations as were thought to indicate sharp changes in policy direction were simply manifestations of temporary aberrations that took some time for the market to adjust out. It should be obvious that the very slow growth in M-1 has been one of the signals of a steadily tightening monetary policy throughout the year.

If one shifts the spotlight to M-2—the money supply plus time deposits—the combined effects of varying economic demands and monetary restraint are still clear, but the timing and magnitude of the changes are quite different from those shown by M-1. This is not in the least surprising, since M-2 incorporates the results of the banking system's competitive efforts to attract time funds from other intermediaries and from the money and securities markets, as well as the modest incidental effect of such competition in pulling down the aggregate of its own demand deposits.

During the 1960s and until recently, the banking system has been spectacularly successful in the game of intermediation. The growth in its time aggregates averaged about 15 per cent per year. The time deposit component of M-2, therefore, has been a robust element indexing the competitive success of the banking industry—but hardly a dependable indicator of change in the monetary climate.

In recent months time deposits have been rising much more slowly, as the differential between deposit rates and market rates has turned against depository institutions. Up to September, the rate of time deposit growth has been at only two-thirds of the growth rate in 1965, and, in recent weeks, time deposit growth has ceased altogether in the face of attrition in CD and passbook totals, as rate ceiling barriers serve to shunt funds into market instruments and other intermediaries' offerings.

Thus, it is impossible to interpret recent M-2 movements in the light of monetary factors alone and it is hard to see the rationale for isolating this one component of near monies for inclusion with demand deposits and currency in a measure of monetary action. As we are indeed increasingly using demand deposits and currency for transaction uses only, M-1 has to be interpreted accordingly. M-2 is a hybrid of very limited use in today's environment.

As intermediaries and market instruments are taking on more and more of the task of providing liquidity for the economy, we need to sharpen up the definitional and the data requirements necessary to

develop the more comprehensive money concept, M-x, into a significant monitor of monetary change.

One final monetary monitor merits our attention—not because of outstanding quality but because of its widespread use and ease of misuse. I refer to total bank credit at all commercial banks.

This indicator has some technical disadvantages; it is available but once a month and then only on the basis of bank balance sheets as of a single day. Thus it tends to be erratic and even misleading in its signals as well as late in its availability. However, another set of numbers with greater stability and availability can be used as a proxy for total bank credit—namely, total net member bank time and demand deposits. These data are available weekly on a daily average basis which proofs them against single day irregularities, such as window dressing.

In performance, total bank credit, or its proxy, closely resembles M-2 but avoids, net, some of the erratic movements in that series due to the exclusion of Government deposits. Its major shortcoming is the same one which disqualifies M-2 as a measure of monetary action—its sensitivity to intermediation trends in the banking system.

If public preferences are turning away from cash and demand deposits and toward near monies generally, this is an important fact for the central bank to recognize and, if possible, accommodate. It is the kind of change that some variant or component of M-x would usefully portray. But any indicator such as M-2 or aggregate bank credit which merely registers the shifting competitive positions among intermediaries is more likely to be misread than correctly interpreted.

Consider the accelerated intermediation in the banking system beginning in 1962 and the disintermediation of recent weeks; these appear to have symmetrical effects so far as monetary policy implications are concerned. When banks in 1962-64 were gaining time deposits at the expense of other intermediaries and of market instruments, bank credit and bank deposits rose at an accelerated rate, giving an exagger-

ated impression of the degree of stimulation from monetary policy.

Under present conditions, holders of negotiable CDs and other time contracts with banks which they do not wish to renew are probably purchasing short-term agency issues, municipals, commercial and finance company paper, and bankers' acceptances. To the extent banks hold these types of paper, we can simply imagine that banks redeem maturing time instruments by handing over such short-term assets, thus reducing both their assets and liabilities.

Although bank credit and bank deposits would thus appear to contract, total credit available to the economy would not necessarily be affected nor need there be any further impact on interest rates. All that is happening is a reshuffling of assets between the banks and the public with attendant effects on the *distribution* of total credit availability and the *shape* of the yield curve. In short, there is a trend away from intermediation by the banks.

Now to return to our indicator—total bank credit. In the current environment it is signaling great tightness just as it signaled excessive ease from 1962 until the summer of 1966. But if the monetary managers had choked off the economy's credit resources earlier we would not have had the expansion and prosperity of the 60s. Similarly, we should not exaggerate the degree of monetary tightness being signalled by the slower growth of bank credit today.

This speech has dealt with a problem of communication—communication between the Federal Reserve and the financial and business public. It covers much the same issues I am often called upon to discuss with student and study groups who will ask: how does monetary action affect the economy, what are the evidences that it is having its intended effect, how can I tell what is taking place? Often, after I have finished my work I realize the still attentive audience before me is still unenlightened. And so, with reverence, if not confidence that my mission has been accomplished I conclude then, as I do now. One must always bear in mind, that monetary policy works in mysterious ways its wonders to perform.



Rising Interest Rates and Agriculture

ALL MAJOR CATEGORIES of interest rates have risen in recent years, reflecting increasing demand for credit. Rates on most securities turned up in 1963, rose moderately in 1964, increased more sharply in late 1965, and accelerated further this year (Chart 1). Rates on corporate Aaa bonds rose from 4.46 per cent in mid-1965 to 5.41 per cent in October of this year. Yields on long-term Government bonds and three-month Treasury bills rose 56 and 153 basis points, respectively, and rates on state and local Aaa bonds increased 67 basis points during the period (Chart 1). These increases in yields on securities are associated with a decline in value of outstanding securities and other equities.

Chart 1
Yields on Selected Securities



This article is an analysis of the effects of these broad interest rate movements on agriculture. Considered are changes in rates charged farmers compared with rates charged other segments of the economy, interest payments by farmers, and the impact of higher rates on the volume of farm production, expenditures for farm production items, and the value of farm land.

Rates Charged Farmers

Interest rates paid by farmers, while influenced by these broad market movements, increased less rapidly during the two decades, 1945 to 1965, than

most other rates (Table I). Yields on three-month Treasury bills rose from 0.38 per cent in 1945 to 3.95 per cent in 1965, a tenfold increase. Yields on three- to five-year Government bonds and highest grade corporate bonds rose 258 per cent and 71 per cent, respectively, during the period. Rates on bank loans to business rose 127 per cent, and the prime commercial rate charged business advanced 200 per cent. In comparison, rates on nonreal estate loans to farmers by the Production Credit Associations rose only 22 per cent, while rates charged on such loans by commercial banks rose 13 per cent, and Federal Land Bank mortgage rates advanced 40 per cent.

Table I

INTEREST RATES ON SELECTED LOANS AND SECURITIES

	Rates		Increase 1945-65
	1945	1965	
Farm loans			
Nonreal estate			
PCA	5.40%	6.60%	22%
Commercial banks.....	6.30	7.10	13
Real estate - Federal Land Banks	4.00	5.60	40
Other loans			
Bank business loans			
Prime commercial.....	1.50	4.50	200
All short-term	2.20	5.00	127
FHA new home mortgages.....	4.50	5.47	22
Securities			
3-month Treasury bills.....	0.375	3.954	954
3- to 5-year U.S. Government bonds..	1.18	4.22	258
Corporate Aaa bonds	2.62	4.49	71
High-grade municipal bonds.....	1.67	3.27	96
Federal Land Bank bonds.....	1.36 ¹	4.32	218
Intermediate Credit Bank debentures.	0.88	4.47	408

¹ 1946.

Sources: Rates on farm credit from USDA; FHA new home mortgage yields from 1964 Supplement to Economic Indicators and Federal Reserve Bulletin; all other data from Economic Report of the President, January 1966.

Contributing to the smaller rise in rates charged farmers during the 1945-65 period was a decline in the borrowing and lending margins of the Farm Credit Banks (Federal Land Banks, Federal Intermediate Credit Banks, and the Banks for Cooperatives). For example, Federal Land Bank bonds sold at a yield of 1.36 per cent in 1946, while the Land Bank rate on farm mortgages was 4.00 per cent, a 264 basis-point margin. In 1965 such bonds sold at a yield of 4.32 per cent, while the loan rate was 5.60 per cent, a 128 point margin. Currently, the margin has been virtually elim-

inated. In 1945 Production Credit Association (PCA) rates averaged 5.40 per cent, while Federal Intermediate Credit Bank (FICB) debentures, the PCA's source of funds, sold at an 0.88 per cent yield, a 452 point spread. In comparison, PCA rates in 1965 averaged 6.60 per cent, and FICB debentures sold at a 4.47 per cent yield, a 213 point spread. Currently, the spread is only about 100 basis points.

Despite their relatively small increases, farm credit rates have moved up in the past two years in response to market forces. Average PCA loan rates rose about 4.8 per cent from 1964 to 1965 and 4.5 per cent from 1965 to 1966 (Table II). Rates on commercial bank and life insurance company loans to farmers have also increased. Rates on nonreal estate farm loans by commercial banks apparently held steady from 1964 to 1965 but moved up 2.8 per cent in 1966. Life insurance company rates on new farm real estate loans remained unchanged from 1964 to 1965 (mid-year data) but rose 8.8 per cent from 1965 to 1966.

Table II
CHANGES IN RATES CHARGED ON FARM LOANS

	1964-65	1965-66
PCA loans	4.8%	4.5%
Nonreal estate loans-commercial banks...	0	2.8
Farm mortgage loans ¹		
Federal Land Banks	2.0	0
Life insurance companies	0	8.8

¹New commitments.

Source: USDA, 1966 data preliminary estimates.

Interest Payments by Farmers

Total interest payments are becoming a more important factor in the farm income picture.¹ In an effort to maximize expected returns, farmers have used sizable quantities of credit (Table III). Total farm debt rose from \$8.3 billion in 1945 to \$37.5 billion in 1965, an average annual increase of 7.8 per cent.

From 1945 to 1950 nonreal estate debt rose faster than debt secured by farm land. Beginning in the early 1950's, the increasing availability of farm machinery, and the accompanying ability to operate larger farms, provided great incentive for farm enlargement. As demand for land stepped up, mortgage debt began to increase at a more rapid rate than other farm debt and has maintained this high pace (Table III).

Reflecting both an increase in debt and somewhat higher rates, interest payments on farm debt have

¹Total interest costs as presented in this article include interest imputed to owned capital plus interest payments on debt.

Table III
TOTAL FARM DEBT

	Real Estate	Other	Total
	(Billions of dollars)		
1945	4.9	3.4	8.3
1950	5.6	6.8	12.4
1955	8.2	9.4	17.6
1960	12.1	12.8	24.9
1965 p	18.9	18.6	37.5
	(Average annual rates of change)		
1945-50	2.7	14.9	8.4
1950-55	7.9	6.7	7.3
1955-60	8.1	6.4	7.2
1960-65	9.3	7.8	8.5

p - Preliminary

Source: USDA, *Balance Sheet of Agriculture*, 1965.

increased rapidly in recent years (Tables IV and V). Such payments rose at an average rate of about 10 per cent during the last decade (Table V). Interest payments rose from 3 per cent of all farm production expenses in 1945 to 7 per cent in 1965.

Table IV
INTEREST PAYMENTS BY FARMERS

	Total Interest Payments	Per Cent of Realized Gross Farm Income	Per Cent of Production Expenses
	(Millions of dollars)		
1945	390	1.51	2.99
1950	598	1.85	3.08
1955	844	2.55	3.86
1960	1,352	3.57	5.15
1965	2,157	4.80	7.02

Source: USDA, *Farm Income Situation*, July 1966.

Table V
INTEREST PAYMENTS BY FARMERS
Average Annual Rates of Change

	Total Interest Payments	Interest on Farm Mortgage Debt	Interest on Other Debt
1945-50	8.9	3.6	14.6
1950-55	7.1	8.8	5.8
1955-60	9.9	9.3	10.4
1960-65	9.8	11.2	8.5

Changes in mortgage rates generally cause higher payments only on newly created debt, as most mortgage rates are contracted for long-term periods. Other rate changes, however, have a more immediate impact on total interest payments. A sizable portion of all nonreal estate debt is contracted for periods of one year or less, and higher rates on this part of the debt cause a similar increase in interest payments. Interest payments on the larger farm production debt of recent years have become more sensitive to rate changes.

Impact on Current Production

Increases in interest rates tend to raise costs and reduce the capitalization of a flow of income. Consequently, the present value of capital assets is reduced. The impact of higher rates on current farm output, however, is likely to be quite small. Costs of current operating inputs (fertilizer, seed, machinery supplies, feed, etc.) are a relatively small share of total costs of farm production, which include fixed investments in farm plant and equipment. With the general increase in interest rates, alternative opportunities for investing new funds in other assets may provide higher returns than the returns on farm capital. However, since the returns to the much greater fixed farm investments are nil, or even negative, if production is not maintained, and since fixed investments cannot be readily liquidated, operating inputs are likely to continue as long as returns cover out-of-pocket costs. The major impact of higher rates is thus likely to be a decline in demand for fixed farm investments rather than a reduction in operating inputs.

One procedure for analyzing the approximate magnitude of the impact of higher interest rates on farm production is to determine the impact of higher rates on costs of operating inputs such as fertilizer. The impact of additional costs on output may then be determined. Heady and Tweeten, in a study of cost-input relationships, found that a 1 per cent increase in fertilizer costs was associated with a reduction in fertilizer use of 1.6 per cent.² Also, a 1 per cent increase in the price of all operating inputs was associated with a 0.6 per cent decline in real purchases in the short run. It is apparent from these data that the impact on current farm output of the additional cost of credit is relatively insignificant, as an increase in interest rates from 5.0 to 5.5 per cent, a 10 per cent increase, will increase total cost of operating inputs only 0.5 per cent.³ Dollars spent on such inputs would thus be expected to decline only about 0.3 per cent below what they would otherwise be, and input changes will have little impact on farm production.

²Earl O. Heady and Luther G. Tweeten, *Resource Demand and Structure of the Agricultural Industry* (Ames: Iowa State University Press, 1963), p. 166.

³*Ibid.*, p. 366.

Increased costs are calculated on the basis of interest foregone on alternative investments for all input purchases. Interest elasticity of demand estimated in this manner may differ somewhat from true elasticity, since the costs of competing goods also contain an interest component which may change their cost and substitutability for current farm inputs. (See Oswald Brownlee and Alfred Conrad, "Effects upon the Distribution of Income of a Tight Money Policy," in *Stabilization Policies*, prepared for the Commission on Money and Credit, Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1963, p. 505.)

On the other hand, if some farmers are unable to obtain credit for such output-increasing factors as fertilizer and seed because of higher qualification requirements by lenders, the impact on total farm output could be greater.

Impact on Farm Equipment Purchases

The impact of higher interest rates on farm machinery purchases is likely to be relatively greater than on current operating inputs. The value of such purchases is recovered only after a number of years, and interest costs for funds invested are greater, measured on the basis of returns foregone from alternative investments. Studies by Heady and Tweeten indicate that changes in the price of farm machinery tend to be offset by changes in the quantity purchased, so that dollars spent remains the same. Assuming that changes in costs due to changes in interest have a similar impact on machinery purchases, total costs will rise about 1.7 per cent with an increase in interest rates from 5.0 to 5.5 per cent, a 10 per cent rise.⁴ On this basis, the volume of machinery purchases will decline about 1.7 per cent, assuming other demand factors are unchanged.

In another study a 1.0 per cent increase in interest rates was associated with a 0.67 per cent decline in farm equipment purchases at constant prices.⁵ On the basis of this ratio, an interest rate increase from 5.0 to 5.5 per cent, a 10 per cent change, will result in a decline of 6.7 per cent in farm equipment purchases.

Although attempts to quantify the impact of higher interest rates on farm equipment purchases give widely varying results, the direction of impact is consistent. Furthermore, most studies indicate that factors other than variations in interest rates are likely to be more important than the interest rate variable in determining farm machinery purchases. For example, changes in machinery and farm product prices and the marginal product of machinery caused by innovations are likely to be more important than interest rate changes for most years.

⁴*Ibid.*, p. 299.

Assuming machinery has a useful life of five years and recovery of cost is 20 per cent per year, total opportunity costs (foregone opportunities) are:

$$C = \frac{1}{5} P (1+r)^5 + \frac{1}{5} P (1+r)^4 + \frac{1}{5} P (1+r)^3 + \frac{1}{5} P (1+r)^2 + \frac{1}{5} P (1+r)$$

The derivative of C with respect to r is 3.43 P, assuming r = 5 per cent. C = total cost, P = purchase price, and r = interest rate.

⁵Leonall C. Andersen, "The Incidence of Monetary and Fiscal Measures on Structure of Output," *The Review of Economics and Statistics*, August 1964, pp. 260-268.

Impact on Farm Land Values

Differences between farm mortgage rates and expected rates of return on farm land may have a sizable impact on land values. When farm mortgage credit can be obtained at a lower rate than the anticipated rate of return on land, the leverage provides incentive for further borrowing and bidding up of land prices. For example, with mortgage rates at 4 per cent and returns to land at 6 per cent, land purchasers net 2 per cent on all borrowed funds. Conversely, when mortgage rates are higher than anticipated returns to land, losses inhibit borrowing for land purchases.

Rising interest rates are likely to have a greater impact on farm land prices than on either current farm output or machinery inputs. In this case, the purchase price constitutes an investment for the anticipated returns in perpetuity. Little or no recovery from depreciation is expected; thus, expected returns to the capital invested weighed against alternative investment opportunities is a major factor in determining price. For example, current land value per acre (V), like the value of a stream of income in perpetuity, may be estimated by dividing the flow of residual income per acre (Y) by the rate of return (r) on alternative investments: $V = \frac{Y}{r}$. Based on this formula, any increase in the rate of interest results in a corresponding decline in current land value. On this basis, the rate of change in land value caused by changes in the rate of return (r) on alternative investments is quite large. For example, an increase from 5.0 to 5.5 per cent in rate, a 10 per cent increase, results in a 10 per cent decline in land values. With average farm land values at \$157 per acre in March 1966, the above increase would cause a decline of \$15.70 per acre in land values, assuming no change in the anticipated flow of residual income to land.⁶

A pertinent statistical study indicates that interest rates are an important factor in determining the annual volume of farm mortgage credit extended.⁷ This study suggests that a

⁶Under this formula, residual returns to land include all windfall gains as urbanization, mineral discoveries, etc.

⁷Leon Hesser, "Farm Mortgage Credit," *Monthly Review*, Federal Reserve Bank of Kansas City, July - August 1963, pp. 10-16.

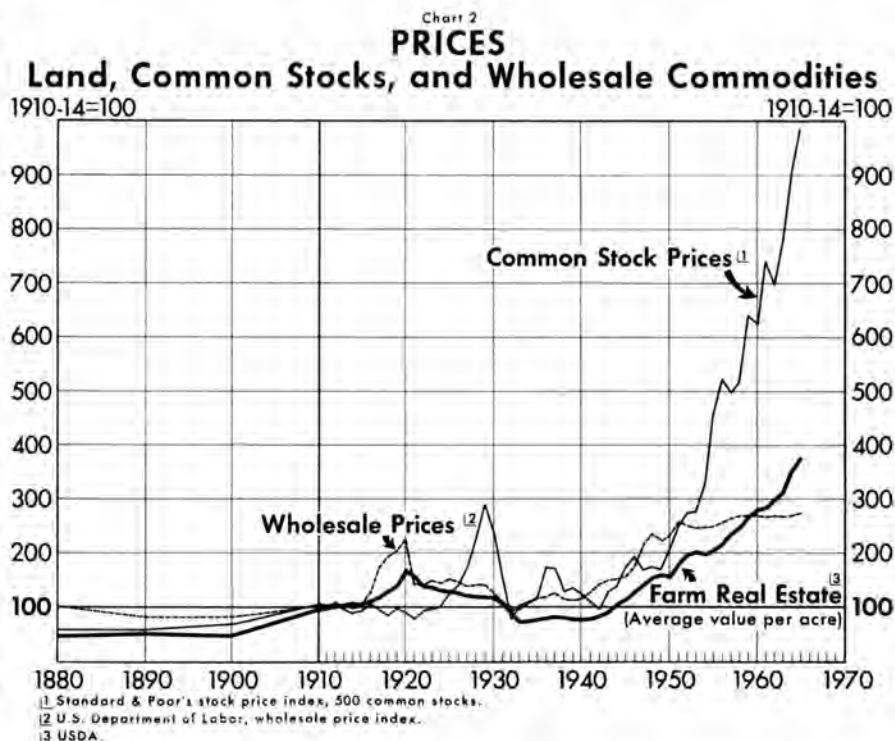
1.0 per cent increase in farm mortgage rates is associated with a decline of 2.3 per cent in the quantity of farm mortgage credit demanded, other variables remaining constant. On this basis, an increase in mortgage rates from 5.0 to 5.5 per cent, a 10 per cent increase, results in a decline of 22.9 per cent in the flow of new farm mortgage credit if other factors are unchanged.

Changes in demand for farm mortgage credit of the above magnitude resulting from changes in interest rates suggest that rates have a sizable impact on farm land values. Nearly three-fourths of all farm land sales in recent years have involved credit. Debt incurred relative to the purchase price has also trended upward, reaching 72 per cent in March 1965.⁸ With credit having such a major role in farm land sales, the interest rate factor which influences the volume of credit also has an important impact on the demand for land and land prices.

Other analyses indicate a smaller impact on land values of interest rate changes. Heady and Tweeten⁹ found that a 1.0 per cent increase in the rate of return on 200 common stocks was associated with a land price decline of 0.34 per cent in the long run. This ratio would indicate a decline in land values of about

⁸USDA, *Farm Real Estate Market Developments*, July 1966.

⁹Heady and Tweeten, p. 411. Elasticity measured at the 1914-60 means.



3.4 per cent when the long-run rate of return on common stock rises from 5.0 to 5.5 per cent.

The wide disparity in these measurements of incidence of interest rates on land values indicates the complexity of the problem of predicting land value changes on the basis of interest rate changes.¹⁰ Furthermore, despite the sizable increase in most rates during the past year, it is doubtful that their impact will stabilize the rapidly increasing farm land values of recent years, especially in view of the increased inflationary pressures (Chart 2).

Farm real estate prices rose 7.5 per cent in the year ending March 1, 1966, continuing the long uptrend which began prior to World War II. Since 1947 the value of farm land increased during each year except two. The rate of increase has quickened somewhat in the past two years, rising to an average of 7.1 per cent per year compared with an average of 5.0 per cent per year from 1947 to 1964.

The demand forces resulting from the impact of expected annual returns which have contributed to these land value increases apparently continue to put substantial upward pressure on land prices. Demand for land results from land use for both agricultural and nonagricultural purposes. Nonagricultural uses for land include urbanization uses, roads, parks, recreation areas, public conservation projects, etc. Although only a relatively small portion of the land area in most states is used for these purposes, these uses may have a sizable impact on land prices near urban centers. Furthermore, the demand for land for such uses apparently continues to increase.

Demand for land for farming has been affected diversely by farm technology. Increased yields per acre, brought about through improved fertilization, seed, and disease control, has been an important factor tending to increase production and reduce farm commodity prices. Although these factors reduce unit cost of production, such reductions are more than offset by declining farm commodity prices, thereby

reducing returns to land. On the other hand, improvements in mechanization and weed control have permitted a major increase in the number of acres that can be farmed by one man, thus tending to increase farm consolidations and demand for land for farm enlargement purposes. The reduction in labor costs increases the returns to other factors of production, including land. Judged by the recent land price increases, these labor-saving technological gains apparently outweigh the depressing effects on land values of the attendant gains in production.

Government land rental and crop allotment programs have also tended to increase the demand for real estate. Land rental payments have directly increased the returns accruing to land. The acreage allotment program may also increase farm consolidations and demand for farm land. If Government programs decrease farm output, as in the case of the rental program, returns to all factors including land are increased in view of an inelastic demand for farm commodities. Farming units of optimum size maximize returns to the operator. Most farms are already below optimum size, and the allotment program reduces them further. Thus, demand for additional acreage for farm consolidation or enlargement is enhanced by the program where allotments are tied to the land.

The Government allotment program may be relaxed somewhat in 1967 as stocks of many commodities are depleted. If so, the change in the program may tend to reduce the upward pressure on land prices. Despite this reduced pressure and the impact of higher interest rates, land prices may not decline because of continuing strong demand. The limited supply of land is always a fact facing land purchasers. But, more important, is the demand for adjoining or nearby acreage by farmers to spread their overhead costs of operating equipment. Thus the rising interest rates and relaxation of other pressures on demand may slow down the rate of increase in farm land values from what it would otherwise be. A further tightening of credit restrictions could, however, have a greater impact on land values.

CLIFTON B. LUTTRELL

¹⁰A forecast of land prices would involve the use of a complete supply-demand model with expected values included for all pertinent variables.

Deposit Interest Rate Regulation and Competition for Personal Funds

IN SEPTEMBER the President signed into law a bill which provided new authority for a period of one year for regulating maximum rates of interest payable on savings. The three Federal regulatory agencies, the Board of Governors of the Federal Reserve System, the Federal Home Loan Bank Board (FHLBB), and the Federal Deposit Insurance Corporation (FDIC), acted within hours after the bill had been signed, issuing new ceilings on interest rates payable by commercial banks, savings and loan associations, and mutual savings banks. This article reviews briefly these new regulations and examines some past experience regarding interest rate regulation.

New Regulations

Commercial Banks. Since the enactment of the Banking Act of 1933, the Board of Governors of the Federal Reserve System has had power to regulate interest rates payable on time deposits by member banks. This authority is implemented through the Board's Regulation Q. The Banking Act of 1935 extended like authority to the FDIC in regard to non-member insured banks, and since 1936 this regulation has corresponded to Regulation Q. In effect, then, all insured commercial banks are limited by Regulation Q.

Under Regulation Q, as revised this September, the maximum rate commercial banks are allowed to pay on passbook savings deposits remains at 4 per cent. The maximum rate on time deposits of less than \$100,000 was lowered from 5½ per cent to 5 per cent. The maximum rate on time deposits of more than \$100,000, a category which includes large negotiable certificates of deposit designed to be held by corporations or state and local governments, remains at 5½ per cent.

Savings and Loan Associations. Before September the Federal Home Loan Bank Board could influence the rates paid on savings accounts by savings and loan associations only indirectly. Through moral suasion and through withholding borrowing privi-

leges from member associations, the FHLBB attempted to hold down rates paid by the savings and loans in 1965 and 1966. In September, however, the FHLBB was granted specific authority to set rate ceilings.

The new regulations involve a complicated set of ceilings. Generally, the maximum rate on passbook savings accounts is 5 per cent; the ceiling on six-month certificate accounts (savings certificates) is 5¼ per cent.¹

Mutual Savings Banks. The FDIC has had authority to control rate ceilings on insured mutual savings banks since 1935 but before September had never exercised this authority. The new rate ceiling imposed on mutual savings banks allows a maximum of 5 per cent on all deposits.

Purpose. The new law and regulations were designed to dampen rate competition for funds among the depository-type financial intermediaries. Over the previous nine months Federal fiscal policy, large demands for loan funds, and the resulting increase of interest rates had produced disparate impacts on various types of institutions and on the particular economic sectors they typically finance. In particular, as the general level of interest rates rose this year, those institutions specializing in financing housing — the mutual savings banks and savings and loan associations — found their sources of funds reduced. In turn, they reduced new commitments and increased the cost on mortgage finance. The amount of new housing services demanded and, consequently, the amount of new housing loans demanded probably fell during the past year. With interest rates in general rising rapidly, there were pronounced increases in the prices of goods and services in which the provision of capital plays an especially large role.

¹ Savings and loan associations cannot pay more than 5 per cent on passbook savings. Those savings and loan associations not paying more than 4¼ per cent on passbook savings may pay as much as 5¼ per cent on savings certificates. Those savings and loan associations paying more than 4¼ per cent on passbook savings may pay not more than 5 per cent on savings certificates. In Alaska, California, and Nevada, all maximum rates are higher.

Savers found rates on commercial bank deposits and on open market investments attractive. These rates were made possible by the willingness and ability of the ultimate users of funds — businesses and governments — to meet market rates. In turn, prior to September commercial banks had sufficient leeway under Regulation Q to raise the rates they paid to savers.

Effects of Past Regulation

Commercial banks, as noted earlier, have been subject to regulatory control of the interest rates they pay for more than 30 years. The new regulations extend to the savings and loan associations and mutual savings banks regulation comparable to that which banks have experienced.

The effects of the new interest rate limitation on various classes of intermediaries may be comparable to those of past periods in which limitations were applicable to commercial banks only. Important questions now are: How will funds be allocated among competing intermediaries, and how will intermediaries as a group fare vis-a-vis the open market?

Regulation Q and the Pattern of Personal Acquisition of Financial Assets. From 1936 through 1956 Regulation Q remained unchanged. Throughout most of this 20-year period market rates were well below the ceiling established by Regulation Q; banks were not restrained from raising their rates paid on time deposits. Indeed, even during the last 10 years there have been only a few occasions when the Regulation Q maximum rate may have restricted banks from competing effectively for funds. These occasions were brief and usually ended with upward revision of the maximum rate permitted by Regulation Q. An examination of the financial claims on savings institutions acquired by households during these periods provides some insight into the relative position of the various depository intermediaries.

In 1956 market rates, as represented on the chart by the three-month Treasury bill rate, moved above the maximum Q rate. On January 1, 1957, Regulation Q was revised upward, and commercial banks raised the average rate paid on time deposits. Table I shows the effects of impeding and of restoring competition.

In the quarter before the change in Regulation Q, individuals placed only \$3 billion in savings accounts at commercial banks. In the quarter after, however,

Table I
NET ACQUISITION OF FINANCIAL ASSETS
BY INDIVIDUALS

	4th Quarter 1956		1st Quarter 1957	
	Billions of Dollars ¹	Proportion-ate Share	Billions of Dollars ²	Proportion-ate Share
Commercial bank savings accounts	3	11 %	7	27 %
Savings and loan shares ...	5	20	5	18
Mutual savings bank deposits.	2	8	1	5
Total (3 intermediaries) ..	10	39	13	50
All other ²	16	61	13	50
Net acquisition of all financial assets	26	100	26	100

¹Seasonally adjusted annual rates.

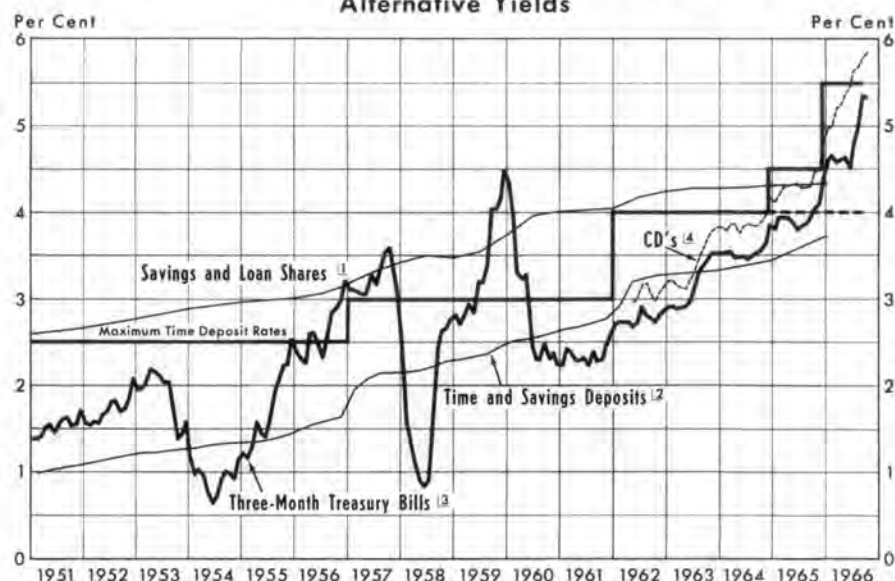
²Demand deposits, currency, life insurance reserves, pension fund reserves, and credit and equity market instruments.

Source: Flow-of-funds accounts, Board of Governors of the Federal Reserve System.

they placed \$7 billion in commercial bank savings accounts. By comparison, individuals acquired in both quarters nearly the same amount of savings and loan shares and mutual savings bank deposits.

The net acquisition of all financial assets (including demand deposits, cash securities, and pension fund and life insurance reserves) by individuals remained constant during these two quarters. The commercial banks' share, which amounted to 11 per cent of this total in the quarter before Regulation Q was re-

Alternative Yields



¹ Data from 1950 thru 1955 are end of year. Beginning June 30, 1956, data are plotted semi-annually.

² Quarterly averages, all commercial banks, 1951-1962. Annual averages, all member banks, 1963-1965.

³ Monthly averages of daily figures.

⁴ Monthly averages of weekly figures, secondary market rates for negotiable time certificates of deposit with a maturity of three months.

Sources: Board of Governors of the Federal Reserve System, Federal Home Loan Bank Board, and Salomon Brothers & Hutzler

vised, rose to 27 per cent of the total in the quarter following the revision. The savings and loans' portion fell slightly, from 20 per cent to 18 per cent, and the mutual savings banks' share fell from 8 per cent to 5 per cent.

Regulation Q was next raised on January 1, 1962. Table II shows the flow of personal funds to each of the three types of depository intermediaries before and after restoration of competition. The amount of commercial bank savings accounts acquired by individuals more than doubled, rising from \$7 billion in the quarter before the change in Q to \$15 billion in the quarter after the change. In the same two quarters, individuals acquired nearly the same amount of financial claims of the other two intermediaries.

Table II
NET ACQUISITION OF FINANCIAL ASSETS
BY INDIVIDUALS

	4th Quarter 1961		1st Quarter 1962	
	Billions of Dollars ¹	Proportion- ate Share	Billions of Dollars ¹	Proportion- ate Share
Commercial bank savings accounts	7	18 %	15	45 %
Savings and loan shares....	10	27	9	27
Mutual savings bank deposits..	2	6	3	8
Total (3 intermediaries)...	19	51	27	80
All other	17	49	6	20
Net acquisition of all financial assets	36	100	33	100

¹Seasonally adjusted annual rates.

Source: Flow-of-funds accounts, Board of Governors of the Federal Reserve System.

Although the net personal acquisition of all financial assets fell by \$3 billion during this period, commercial banks increased their share from 18 per cent to 45 per cent. Of the other two intermediaries, the savings and loans maintained their share at 27 per cent, while the mutual savings banks' share increased slightly, from 6 per cent to 8 per cent.

Although the maximum limits under Regulation Q have been raised twice since 1962, the changes were applicable to time deposits only; the passbook savings ceiling has remained at 4 per cent since 1962 (dotted line on the chart).

Until recently, the greater part of household savings accounts at commercial banks had been regular passbook savings deposits. In

1965, however, when commercial banks became restrained from competing for personal funds because of the Regulation Q ceiling on rates paid for passbook savings, the banks introduced or undertook to popularize a consumer-type time deposit or savings certificate. A certificate has a specified maturity; the funds cannot generally be withdrawn on demand, as may usually be done with passbook savings deposits. This aspect gives the banks an advantage in arranging their portfolios and may justify a higher rate than is paid on their passbook savings. Further, because of the provisions of Regulation Q, banks may pay more on certificates than on passbook savings.

Surveys taken in December 1965 and in May 1966 indicate a sharp rise in the volume of savings certificates issued by commercial banks. These certificates have facilitated bank competition for personal funds in the last year and a half (Table III).

During the last few years individuals acquired an increasing amount of commercial bank savings accounts; the amount rose from \$8 billion in 1963-64 to \$12 billion in the first half of 1966. Acquisition of savings and loan shares, however, fell during this period from \$11 billion in 1963-64 to \$4 billion in the first half of 1966. Acquisitions of mutual savings bank deposits also fell, from \$4 billion in 1963-64 to \$2 billion in the first half of 1966.

The commercial banks' proportionate share of the net acquisition of all financial assets grew from 18 per cent in 1963-64 to 24 per cent in the first half of 1966. In contrast, the savings and loans' share fell from 24 per cent in 1963-64 to 8 per cent in the first half of 1966. The mutual savings banks' share fell from 9 per cent in 1963-64 to 4 per cent in the first half of 1966.

Table III
NET ACQUISITION OF FINANCIAL ASSETS BY INDIVIDUALS

	Average 1963-64		1965		1st Half 1966	
	Billions of Dollars ¹	Proportion- ate Share	Billions of Dollars ¹	Proportion- ate Share	Billions of Dollars ¹	Proportion- ate Share
Commercial bank savings accounts...	8	18 %	12	22 %	12	24 %
Savings and loan shares.....	11	24	8	16	4	8
Mutual savings bank deposits	4	9	4	7	2	4
Total (3 intermediaries).....	23	51	24	45	18	36
All other	21	49	28	55	30	64
Net acquisition of all financial assets	44	100	52	100	48	100

¹Seasonally adjusted annual rates.

Source: Flow-of-funds accounts, Board of Governors of the Federal Reserve System.

The Relation Between Total Intermediation and Direct Market Investment. The ability of the depository intermediaries as a group to compete for personal funds depends upon the relative attractiveness of intermediary rates and rates available on market investments. When individuals find market rates sufficiently above the thrift institutions' rates, there is a tendency for funds to be directed from intermediaries. Such a shift — or disintermediation — occurred on two occasions, in 1959 and in 1966.

Market rates rose above rates paid by all intermediaries in 1959 (see chart). The accompanying shift in household purchases of financial assets is shown in Table IV.

Table IV

PROPORTIONATE SHARE OF INDIVIDUAL ACQUISITIONS
OF ALL FINANCIAL ASSETS

	1958	1959	1960
Commercial banks	19 %	10 %	12 %
Savings and loan associations	21	23	34
Mutual savings banks	8	4	6
Total (3 intermediaries) ..	48	37	52
Credit and equity market instruments	5	25	5
Other	47	38	43
Net acquisition of all financial assets	100	100	100

Source: Flow-of-funds accounts, Board of Governors of the Federal Reserve System.

The ability of savings and loan associations to continue to attract funds during this period while the commercial banks did not may be accounted for by the fact that Regulation Q maximum rates were not raised. However, intermediaries as a group found their share of household flows falling relative to open market investments.

A similar pattern of intermediary flows appeared in the first half of 1966. The experience of the commercial banks vis-a-vis the savings and loan associations and the mutual savings banks has been examined previously. Despite the gains made by the commercial banks, the proportionate share of household funds flowing to the intermediaries decreased during this period (Table V).²

²Further influence on the course of the flow of funds into investment has been provided by Regulation Q limits on rates paid on large negotiable certificates of deposit. When the secondary market rates on large CD's rose above the maximum rates permitted to be paid around the end of 1965, the growth of these deposits declined markedly. While permitted rates were raised in December 1965, the secondary market rates again rose above the maximum permissible rates in the summer of 1966 (see chart). Consequently, large CD's issued by commercial banks rose at only a 15 per cent annual rate from September 1965 to August 1966 after growing 32 per cent in

Table V

PROPORTIONATE SHARE OF INDIVIDUAL ACQUISITIONS
OF ALL FINANCIAL ASSETS

	Average 1963-64	1965	1st Half 1966
Total (3 intermediaries)	51 %	45 %	36 %
Credit and equity market instruments	6	7	27
Other	43	48	37
Net acquisition of all financial assets	100	100	100

Source: Flow-of-funds accounts, Board of Governors of the Federal Reserve System.

Summary

With the exception of 1959 and until this year, whenever market interest rates rose and banks were at a competitive disadvantage, Regulation Q ceilings were raised to permit banks to compete for funds. This occurred at the end of 1956, 1961, 1964, and 1965. After each increase in the Regulation Q ceiling, the flow of funds into the banks increased, and a normal market situation was restored.

In 1966 developments have been markedly different from those previously. As market interest rates surged upward in response to fiscal policy and the large total demand for loan funds, Regulation Q ceilings, instead of being raised, have been lowered. The limit for interest on savings certificates has been lowered from 5½ per cent to 5 per cent. The interest rate which banks may pay on passbook accounts is limited to 4 per cent compared with 4¾ per cent or 5 per cent for savings and loan associations and mutual savings banks.

In response to the great demand for loan funds and the freedom of interest rates outside the financial intermediaries to rise, a declining proportion of savings is flowing to the depository intermediaries. If market rates continue high, we may expect that the trends of the first half of 1966 will be intensified. The result will apparently be that the flow of funds will favor lenders and borrowers who can use the open market. Other borrowers tend to be deprived of access to funds. Other suppliers of funds tend to be discriminated against by receiving interest returns below the market rate.

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the previous year. Since August, as market rates have remained above the 5½ per cent rate permitted to be paid on large CD's, these deposits have declined from \$18 billion to \$15.7 billion. Total time deposits of commercial banks were unchanged from late August to mid-October after growing 12 per cent in the year ending in August.