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Open Market Operations and the Monetary and Credit Aggregates—1971

Editor's Note: *The following is adapted from a report submitted to the Federal Open Market Committee by Alan R. Holmes, Senior Vice President of the Federal Reserve Bank of New York and Manager of the System Open Market Account. Paul Meek, Assistant Vice President, Open Market Operations and Treasury Issues function, was primarily responsible for preparation of the report. Mrs. Sheila Tschinkel, Chief, Securities Analysis Division, contributed to its development, and her staff, under Miss Anne Rowane's direction, verified the data used herein.*

System open market operations encountered new difficulties in 1971 in pursuing a monetary policy appropriate to a sluggish economy still troubled by inflation and a deep balance-of-payments deficit. The Federal Open Market Committee's (FOMC) operational instruction to the Trading Desk at the Federal Reserve Bank of New York gave important emphasis, as in 1970, to achieving desired growth in the monetary and credit aggregates, with due attention to interest rate developments. In 1970, it will be recalled, M_1—currency plus adjusted demand deposits held by the public—had expanded at a reasonably steady 6 percent rate over the first three quarters, and the fourth-quarter slowdown to a 3.4 percent annual rate was plausibly attributed to the effects of the automobile strike. But in 1971 growth in M_1 varied considerably, although the Committee was willing to countenance considerable variation in interest rates.

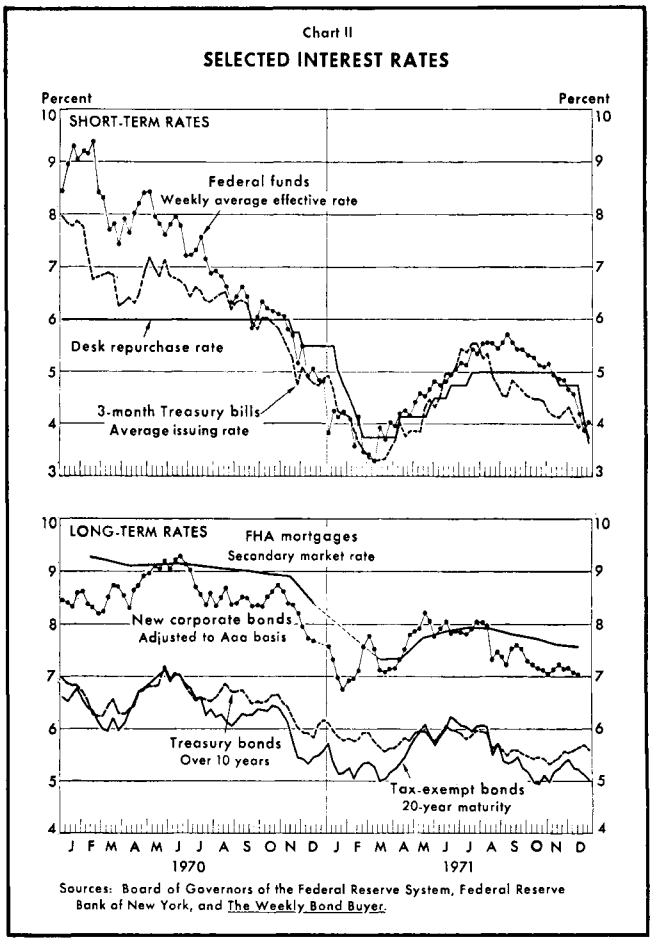
The problem of obtaining a prompt response in M_1 became apparent early in 1971. Through January and most of February the money supply failed to expand as rapidly as was required if the Committee's desire to make up the fourth-quarter shortfall was to be realized. Having already lowered the Federal funds rate from 6½ percent to 4¾ percent over the fourth quarter, the Desk pressed nonborrowed reserves on the banking system until the rate fell to 3½ percent in the second half of February. At this point, the money supply began to grow rapidly. In early April the Committee called for a firming of the money market to help curb this expansion. M_1 growth continued rapid into the summer, even though the Desk's reluctant provision of reserves led to an increase in the Federal funds rate to 5½ percent by August. The President's new economic program, announced on August 15, reduced inflationary expectations, and growth in the money supply slowed markedly over the remainder of the year. Again, the System stepped up its provision of nonborrowed reserves, in the process reducing the Federal funds rate to 3¾ percent by the year-end. Nonetheless, M_1 did not respond quickly to changes in open market operations (see Chart I).

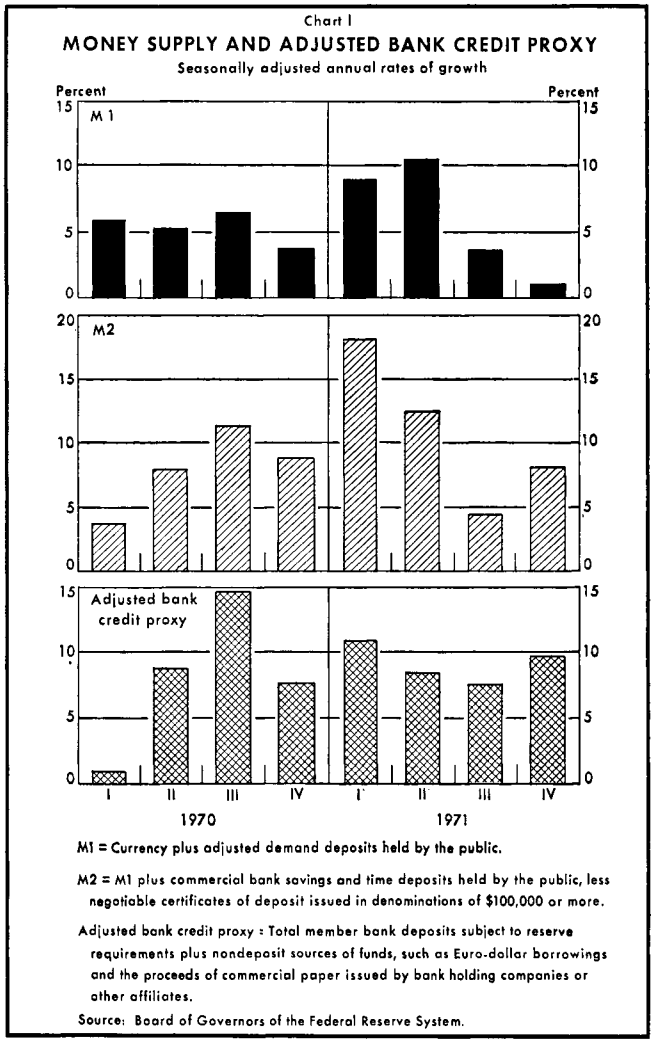
The lagged response of M_1 to open market operations in late 1970 and throughout 1971 underscored once again the complexity of the linkages between the Desk's operations, on the one hand, and bank behavior, interest rates, financial flows, and the asset choices of the public, on the other. An unusual opportunity for the study of these linkages was provided, however, by the changes in thrust of open market operations during the year. This report uses the background of the year's developments to present a view of the process by which open market operations affect reserves, interest rates, and the monetary and credit aggregates.

System open market operations have a direct and immediate effect on the nonborrowed reserves of the banking system. The response of the banks quickly affects the Federal funds rate, as well as the level of member bank borrowings at the Reserve Banks, especially when the funds rate is at or above the Federal Reserve discount

rate. The change in the Federal funds rate produces a closely related change in other short-term interest rates in reasonably quick order.

Two channels carry this impetus forward, exerting a pervasive influence on other interest rates and financial flows and ultimately on economic activity. First, operations affect the interest rate expectations and investment decisions of banks and other investors. The actions of these participants in the credit markets help shape interest rate developments and influence the rate of growth of bank credit. Secondly, short-term interest rates affect the public's portfolio choices between market instruments and deposits at banks and other institutions. (The main changes in interest rates in 1970 and 1971 are shown in Chart II.)





System open market operations thus set in motion a complex portfolio adjustment process. While the direction of influence is clear, the timing and extent of the effects generated depend importantly on market expectations of the future and the feedback of influence from the economy itself. In 1971, both the broader money supply (M_2) and the credit proxy[1] appeared to respond more quickly than M_1 to System-initiated changes in the supply of nonborrowed reserves and the Federal funds rate. Moreover,

[1] M_2 includes M_1 plus commercial bank savings and time deposits other than large negotiable certificates of deposit (CDs). The adjusted bank credit proxy consists of total member bank deposits subject to reserve requirements plus nondeposit sources of funds, such as Euro-dollar borrowings and the proceeds of commercial paper issued by bank holding companies or other affiliates.

there were apparently significant shifts in the public's demand for M_1 in the course of the year, making it most difficult, and probably inappropriate, to achieve a steady quarterly growth rate in M_1.

The Committee from time to time took account of both capital market conditions and the behavior of the aggregates—chiefly M_1—in its directives to the Desk. When M_1 grew rapidly in the second quarter, concern about the capital markets moderated the speed and intensity with which the Desk exerted upward pressure on interest rates in the process of restraining rapid monetary expansion.

THE TRANSMISSION OF MONETARY POLICY

The execution of System open market policy in 1971 involved both a day-to-day target for open market operations and a procedure for modifying that target between meetings in accordance with the Committee's intermediate-term objectives. In 1971 the Committee continued to specify a desired range for the Federal funds rate as the most important component of the money market conditions to be achieved by the Desk. Over the interval between meetings, the FOMC provided guidance as to the appropriate Desk response to the behavior of the monetary and credit aggregates and of interest rates in the capital markets. The Committee's trade-offs between these objectives varied over the year, but on balance the Committee's primary concern was with M_1.

THE FEDERAL FUNDS RATE AS A TARGET. The Committee's use of the Federal funds rate gave the Manager an objective that he could usually hold within reasonable limits during the statement week. The Federal funds rate also is highly visible to member banks and the financial community. The rate directly affects the profit calculus of member banks, as it is the opportunity cost of marginal reserves. To others, changes in the Federal funds rate serve as an early indicator of changes in the Federal Reserve's willingness to supply nonborrowed reserves to the banking system. Thus, the banks and the financial markets quickly become aware of changes in the thrust of central bank operations.

In shaping weekly money market strategy, the Manager used two sets of forecasts—being fully aware of the confidence limits that attach to each. First, there was the forecast of the likely level of excess reserves in the banking system, allowing for carry-over excesses and deficiencies and discernible historical patterns. The Desk's experience with such forecasts since mid-1971 suggests that average excess reserves can usually be projected within $50 million to $100 million for the current statement week, although there are significant aberrations from time to time. With required reserves preestablished under lagged reserve accounting, realized total reserves will thus generally fall within $50 million to $100 million of the projected number. The second set of weekly reserve projections involved the factors affecting nonborrowed reserves—notably, Federal Reserve float, currency in circulation, Treasury and international balances at the Reserve Banks, and the like. The projection errors here are quite large—principally because of unexpected swings in Federal Reserve float. In 1971 the average difference between the projections of all such factors made at the New York Bank on the first day of the statement week and the final outcome was $275 million.

Faced with this degree of uncertainty, the Manager of the Open Market Account must make a daily judgment of the probability that attaches to his forecasts. Then, he must take action that will fit into an orderly program of supplying, or absorbing, nonborrowed reserves. There are often market limitations on the volume of operations that can be conducted on a single day. To the extent possible, the Manager also seeks to avoid frequent reversals of outright market transactions in the interest of maintaining a smoothly functioning Government securities market. Repurchase agreements and matched sale-purchase transactions help to effect large temporary changes in nonborrowed reserves without exerting much influence on securities prices.[2]

A stream of information flows to the Trading Desk each day, including data each morning on the reserve positions and discount window borrowings of all member banks for the previous day and on the Federal funds and dealer lending operations of forty-six major money market banks. This new information enables the statistician to adjust his projections for a deviation in reserves from his projected path. It also gives the Desk insight into the reserve management strategies of major groups of member banks as revealed by their cumulative excess or deficit reserve positions. But the Federal funds market is the chief source of current information to the Desk on the behavior of nonborrowed reserves during the day. The

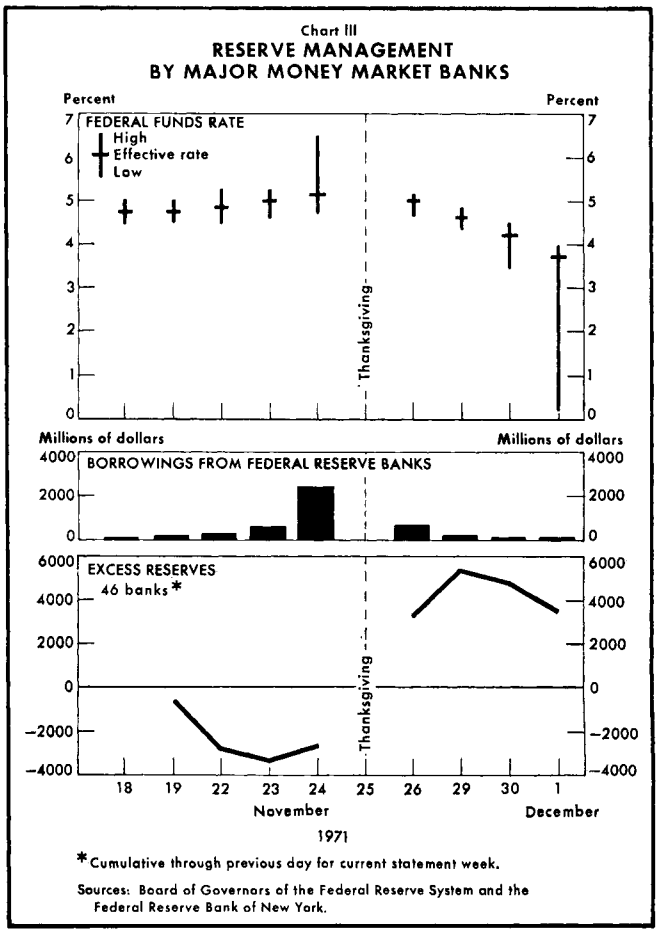
[2] Repurchase agreements involve the System purchase of eligible securities or bankers' acceptances from nonbank dealers under contracts that provide for their resale from one to fifteen days later. Matched sale-purchase transactions involve a System sale of eligible securities that is matched by a contract to repurchase them, usually a few days later. Such transactions are conducted with both bank and nonbank dealers in Government securities.

supply-demand balance in that market shifts as member banks react to incoming information on their reserve positions or as their willingness to hold excess reserves changes. Based on its expectations of likely levels of excess reserves, and on projections of various reserve factors, the Desk can make reasonable judgments about how the money market should behave. Current information from the Federal funds market during the day then suggests whether nonborrowed reserves are, in fact, behaving as expected.

One can gain more appreciation of the Desk's need for a current indicator of nonborrowed reserves by examining the behavior of nonborrowed reserves on Fridays during 1971. Friday is a key day for the Desk since the reserve levels on that day carry over Saturday and Sunday as well, thereby accounting for three sevenths of the weekly average. During 1971 the average absolute change in nonborrowed reserves on Fridays, exclusive of System open market operations, was $434 million, but it required a band of ±$959 million to include 90 percent of the actual changes. The Federal Reserve Bank of New York's projections of nonborrowed reserves anticipated a considerable part of this variation, but unexpected variations remained quite large. A band of ±$585 million was required to include 90 percent of the deviations of actual nonborrowed reserves (exclusive of System operations) from projected levels. The average absolute "miss" was $292 million.

The Desk can anticipate member bank reserve strategy to some degree, but by no means perfectly. In 1971 there continued to be a strong tendency for a tight Federal funds market at the end of a statement week to increase the demand for excess reserves by major banks in the following week, especially over the weekend. Conversely, an easy Federal funds market at the end of the week tended to be followed by a more relaxed attitude on the part of money market banks toward the accumulation of reserve deficiencies over the following weekend. The resultant variations in excess reserves were a major factor in an average week-to-week swing in excess reserves of $187 million.

The Desk was generally able to anticipate a major part of such swings in 1971, but the extent of the change was sometimes surprising. For example, in the November 24 statement week (in which nonborrowed reserves were overstated by $400 million through a clerical error), the forty-six major money market banks were willing to accumulate a reserve deficiency of $3.0 billion over the weekend (see Chart III). The Federal funds rate gave little sign of a $540 million reserve shortfall on Friday or of the large net reserve deficiency building up in the banking system. The Desk's injection of $2 billion of nonborrowed reserves in three days—the maximum attainable in the circumstances—was not sufficient to prevent the Federal funds rate from rising well above the 4¾ percent desired. Member bank borrowings at the discount window also bulged to almost $2.4 billion on the statement date, which preceded Thanksgiving. Predictably, the forty-six money market banks hoarded excess reserves over the following weekend, accumulating $5.4 billion in excess reserves by Monday morning. In consequence, the Federal funds rate broke to as low as ¼ percent by the end of the week. The Desk's willingness to interpose only token resistance to this decline meant that the seesaw management of reserve positions by the banks proved expensive to them. Such experiences tend to moderate the swings in bank behavior.



There is still another dimension of the Desk's weekly strategy that relates directly to the Committee's use of the Federal funds rate as an important short-run target. When

the FOMC's directive calls for a Federal funds rate below the discount rate, the Desk supplies nonborrowed reserves abundantly and is quite tolerant of an easy money market toward the end of the statement week. This was notably the case in the January-March interval and again in November and December. However, when the FOMC's policy stance calls for increasing the pressure on member banks as in the April-August interval, the Desk typically allows the demand for reserves to push up the Federal funds rate before it supplies nonborrowed reserves. In such periods, it is also quick to mop up reserve excesses when the Federal funds rate begins to slip below the desired range. In this way, the daily conduct of open market operations underscores the Committee's policy stance, and is one of the ways that the System communicates its current policy intent to the banking system and financial markets.

THE PURSUIT OF THE COMMITTEE'S INTERMEDIATE OBJECTIVES OVER THE INTERVAL BETWEEN MEETINGS. In 1971 the FOMC continued to be concerned with both the growth rates to be achieved in the monetary and credit aggregates and with the behavior of interest rates. Through the March 9 meeting, the Committee's directives to the Desk called for pursuing desired growth in the aggregates and for accommodating downward movements in long-term interest rates. After a transitional directive in April, the primary emphasis was placed on moderating the growth of the aggregates, but capital market developments remained an important conditioning element in the Desk's instructions as interest rates rose. After the announcement of the President's new economic program on August 15, the principal focus continued to be the aggregates, but the Committee made clear its expectation that lower interest rates would follow. In its August 24 meeting the Committee also authorized outright transactions in Federal agency securities to widen the base of operations and add breadth to the market for such securities. By late in the year, strong emphasis was placed on a resumption of growth in M_1.

The Committee's decision at each meeting regarding acceptable behavior of the aggregates was embodied in a tracking path of weekly values for each of three aggregates over the interval until the next Committee meeting and a path of monthly values over the quarter. The Committee's instructions to the Desk focused chiefly on M_1, currency plus demand deposits in the hands of the public. Some weight was also given to the behavior of M_2 and the adjusted credit proxy. The FOMC typically indicated to the Desk whether it was more concerned with upside or downside deviations. And it provided guidance on occasion about the rapidity with which the Desk should respond.

For the Manager the pursuit of the Committee's intermediate objectives involved two types of decisions. First, there was the decision each week as to whether the targeted range of the Federal funds rate was to be changed in response to developments in the aggregates or in capital markets. Secondly, there was an ongoing choice of the channels to be used in affecting nonborrowed reserves. For example, the Desk often employed purchases of Treasury coupon securities as a means of both supplying reserves and contributing, at least marginally, to the accommodative capital market environment desired by the FOMC. Beginning in September the System began buying Federal agency securities from time to time in the normal course of operations.

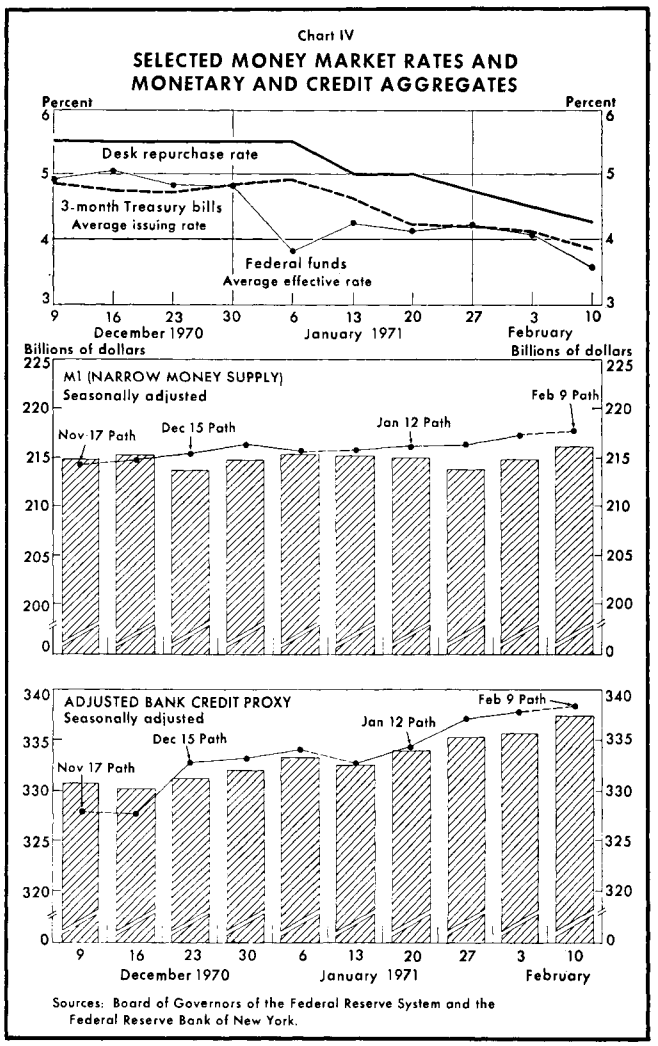
Each week the Manager decided on the approximate setting of the Federal funds rate range for that week. These decisions were largely geared to the recent behavior of M_1 and the other aggregates in relation to the weekly tracking paths. Each Friday morning the Manager had before him a preliminary estimate of M_1, M_2, and the adjusted credit proxy for the preceding statement week and a revised report of each of the three for the week before that. There were also two sets of revised projections of all three for the current month and calendar quarter—one by the Federal Reserve Board staff and one by the New York Bank staff. The Manager and his associates at the Trading Desk gave less weight to the projections of behavior over the remainder of the quarter since a sizable margin of error attached to them.

The Desk's response to a significant deviation in M_1 rested on a number of considerations. Under the FOMC's instructions the Desk was likely to move its weekly Federal funds rate objective more quickly, and to a greater extent, if the latest deviation continued a cumulative departure from path that had been under way for some time and seemed likely to persist. Secondly, the Desk might give some weight to the behavior of M_2 and the credit proxy. Finally, the Manager had to fold in the capital market element of his instructions, weighing the impact of the projected changes in the Federal funds rate on his ability to achieve expressed Committee desires regarding long-term interest rates.

The experience after the FOMC's January 12, 1971 meeting illustrates the factors typically encountered in setting weekly targets. M_1 had grown at about a 3.5 percent annual rate in the fourth quarter of 1970, compared with the 5 percent rate expected at the December 15 meeting of the Committee. The Desk had responded to the shortfall by lowering the Federal funds rate to around 4½ percent from the 5 percent level prevailing before the December

meeting. The Federal Reserve discount rate had been lowered from 5½ percent to 5¼ percent effective January 8. At the January 12 meeting, the Committee agreed to promote accommodative conditions and moderate expansion in the monetary and credit aggregates and called for some easing of money market conditions soon. There was also agreement that conditions would be eased further if it appeared that the aggregates were expanding at rates below those needed to make up the fourth-quarter shortfall in M_1.

Following the meeting, the Desk aimed for a Federal funds rate around 4¼ percent. In the January 13 week, the aggregates appeared to be close to their respective tracking paths (see Chart IV). Then, M_1 fell far short of its path in both the January 20 and January 27 weeks. In contrast, the credit proxy continued relatively strong, growing at an annual rate of 10 percent in January.



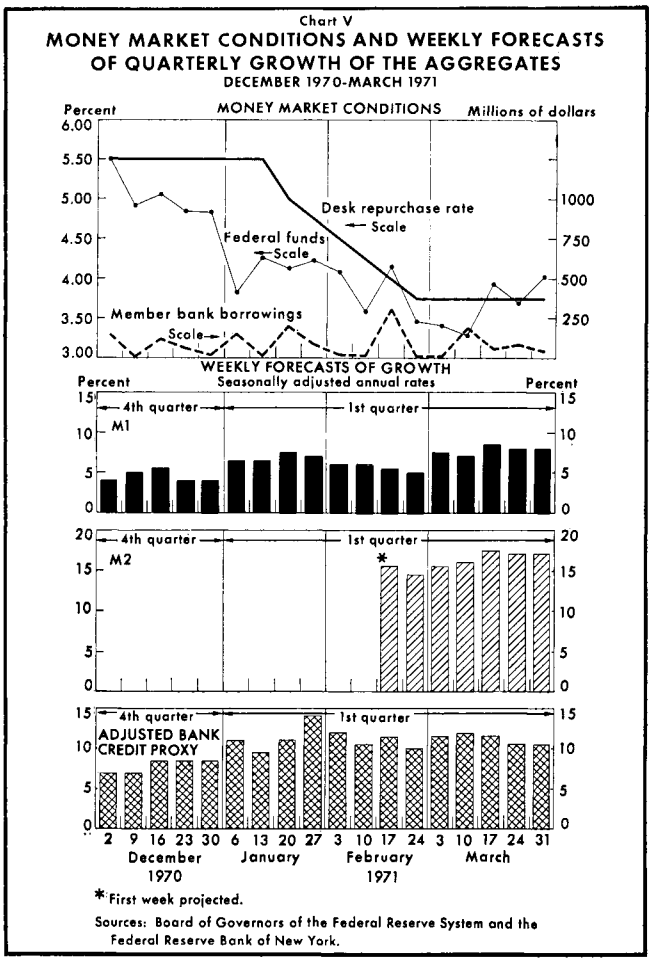
In the credit markets, expectations of a decline in interest rates had been reinforced by a ¼ percentage point cut in the Federal Reserve discount rate to 5 percent beginning on January 19. Working in the same direction was the Trading Desk's negotiation of repurchase agreements with nonbank dealers at a rate below the discount rate for the first time in six years and two ¼ percentage point cuts in the commercial bank prime lending rate. The capital markets were experiencing a dramatic rally. Corporate bond yields fell by about ½ percentage point between mid-December and late January. The Treasury's announcement of a refinancing of nine outstanding issues (of which $19.5 billion was held by the public) was greeted with such enthusiasm that unprecedented first-day premiums of 29/32 (bid) emerged for the two new issues being offered in the exchange.

Against the background of the Committee's strong desire to get M_1 moving, the Desk shifted its Federal funds rate objective down by ½ percentage point by the time the Committee next met on February 9. The rate on three-month Treasury bills fell by about 85 basis points over the interval between meetings to 3.82 percent. One could describe the Desk's response to the M_1 shortfall in terms of nonborrowed reserves equally well. To keep the Federal funds rate well below the discount rate involved supplying nonborrowed reserves plentifully in relation to required reserves. Member bank borrowings at Federal Reserve Banks, aside from special problem borrowing, declined to a negligible $5 million in the statement week that ended February 10. Required reserves reflected the shortfall in the private demand deposit component of M_1 in the January 20 and 27 weeks two weeks later—i.e., in the February 3 and 10 statement weeks. In pursuit of a lower Federal funds rate, the Desk pressed nonborrowed reserves on the banking system. With the willingness of the money market banks to accumulate excess reserves limited to the amount that could be carried forward into the subsequent statement week, the Federal funds rate responded quickly to the Desk's action. The average effective Federal funds rate for the February 10 week fell to 3.59 percent from over 4 percent the week before.

THE IMPACT OF SYSTEM POLICY SHIFTS ON THE SHORT-TERM MARKET IN 1971. The System's management of nonborrowed reserves has its initial impact in the market for bank reserves and the Federal funds market and spreads quickly to the rest of the short-term market. A key linkage in this process is provided by the borrowing of dealers

in Government securities to carry their inventories, which ranged between $2.5 billion and $7.3 billion, of Treasury and Federal agency securities during 1971. The bank dealers are affected quite directly by the Federal funds rate since most bank dealer departments are charged at this rate for the funds employed in their operations. The nonbank dealers seek out repurchase agreements from corporations, state and local governments, and Federal agencies as the least costly means of financing their positions, but usually they must rely on the banks as well.

The sensitivity of dealer loan rates to the Federal funds rate assures that System open market operations have a rapid, and roughly commensurate, impact on the financing costs of the dealers in Government securities. This, in turn, affects the interest rates at which dealers are willing to hold Treasury bills and other short-term market instruments. To be sure, other factors also affect the dealers' willingness to position bills—notably the current and prospective demand for bills, the Treasury's bill financings, and expectations of future interest rates. These keep the linkage between the Federal funds rate and Treasury bill rates from being a simple mechanical one. Still, changes in dealer financing costs exert such a strong and pervasive influence on Treasury bill rates—both directly and through their impact on dealer expectations—that other factors may modify but can seldom offset it over a period of weeks. The response of lenders and borrowers to changes in the Federal funds and Treasury bill rates assures a rapid, if sometimes uneven, response of other short-term rates to the changing management of nonborrowed reserves. (The transmission of effects to the market for longer term securities is treated below.)



As noted earlier, the System's management of reserves during 1971 can be divided into three phases. During the first three months, the System was pressing nonborrowed reserves on the banking system to increase the growth in M_1 while accommodating a decline in long-term interest rates. Then, from April through mid-August, the emphasis shifted to resisting the rapid growth of M_1 then under way within the constraints imposed by continuing concern about the capital markets. Finally, with the President's new economic program enhancing prospects for a higher rate of real economic growth and reduced inflationary pressures, the System stepped up the provision of nonborrowed reserves as M_1 slowed down. It thereby fostered a climate of credit availability and lower interest rates that was largely free of fears that excessive demand and inflationary pressures would soon revive.

January through March. In the first quarter of the year, the Committee sought to make up the shortfall of M_1 in the fourth quarter of 1970 when it was believed to have grown at a 3.4 percent annual rate,[3] compared with about 6 percent in the first three quarters of 1970. The FOMC also called for accommodating the fall in long-term interest rates through open market operations.

The Trading Desk experienced little conflict in pursuing the FOMC's dual objectives during the first quarter, although M_1 continued weaker than desired in January. After the January 12 FOMC meeting, the Desk's initial target range for the Federal funds rate centered on 4¼ percent. As noted earlier, M_1 began in late January to fall short of the Committee's tracking path. This led the Board staff to revise downward its *projection* of the growth likely to be achieved over the quarter (see Chart V). The Desk responded to the shortfall by lowering its Federal

[3] Revised in November 1971 to 3.8 percent.

funds rate objective to around 3¾ percent by the time of the February 9 meeting. The Committee's next directive called for a prompt response to any further shortfall, and the Desk lowered the center of the desired range to 3½ percent on February 12, when incoming data suggested such a result. By the March 9 Committee meeting M_1 was showing a bit more strength, suggesting that the fourth-quarter shortfall might well be made up. Soon afterward, both M_1 and M_2 began to show somewhat more rapid growth than desired. Accordingly, the Desk sought to foster a shade less accommodative money market conditions—a Federal funds rate centering on 3½ to 3¾ percent. In the event, however, the Federal funds market became tighter than desired in spite of Desk action, with the rate rising to 4 percent or above on a number of days in mid-March and again around the end of the month.

As the Federal funds rate was reduced in the first quarter, dealers were able to borrow at rapidly declining rates —especially from nonbank sources. As a result, the Desk found it increasingly difficult to make repurchase agreements with nonbank dealers at the discount rate. Accordingly, the Desk lowered the rate on repurchase agreements to 5 percent on January 20 in order to be able to continue using this valuable means for injecting reserves for short periods. This cut in the repurchase rate brought it below the discount rate for the first time in six years, and gave rise to market expectations of a further cut in the discount rate. Subsequent reductions brought the rate on repurchase agreements to 4¼ percent in early February and to 3¾ percent on February 18. (The discount rate was cut to 4¾ percent, effective February 13.) Market observers soon recognized that the rate was being adjusted lower routinely to keep it competitive with lower market rates, but bullish sentiment tended to be encouraged nonetheless.

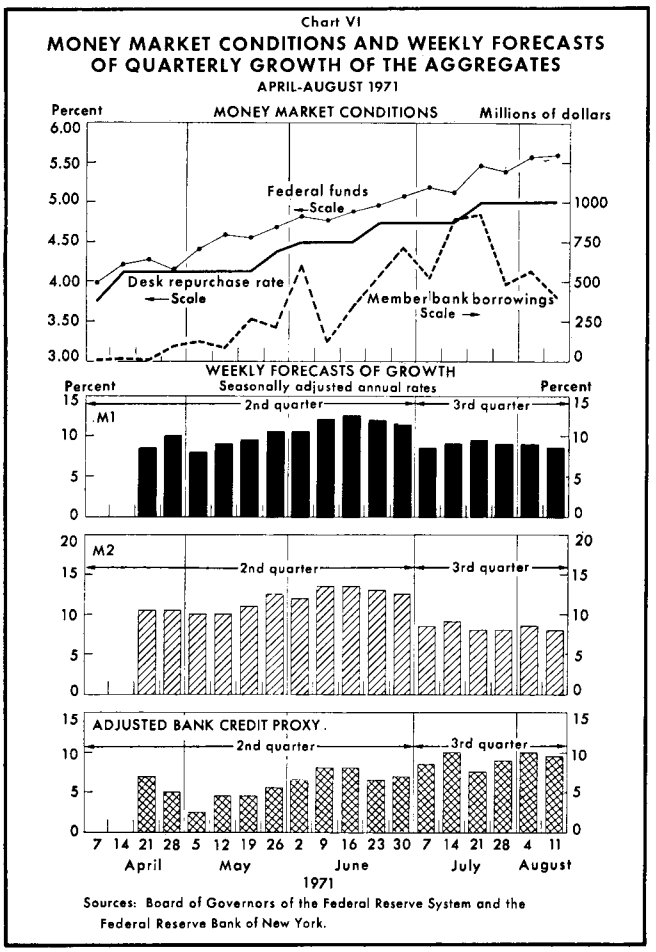
The decline in the Federal funds rate brought dealer lending rates in the New York City banks down from around 5¼ percent in early January to about 3¾ percent in early March. The downward pressure this exerted on Treasury bill rates was augmented by strong demand from foreign central banks and the Federal Home Loan Banks in February and early March. At this point, many market participants also strongly expected interest rates to continue to decline. In this environment the Treasury's offering of a strip of $1.2 billion of weekly maturities was snapped up without any lasting effect on rates. The three-month bill rate fluctuated narrowly around 3⅜ percent through most of March, compared with the 4⅞ percent rate prevailing in December. Over the January-March interval, rates on 60- to 89-day CDs, 30- to 89-day finance company paper, and 90-day Euro-dollars fell generally by about 1¾ percentage points to the vicinity of 3¾ percent, 3½ percent, and 5½ percent, respectively.

The low level of short-term rates led to official concern about short-term money outflows to the rest of the world. On March 16 the Treasury announced that it would add $5 billion in three segments to the supply of bills outstanding. Undesired firmness in the Federal funds market contributed to a rise in rates that carried the three-month rate to 3.70 percent just before the FOMC's April 6 meeting. The rise was cushioned, however, because Government securities dealers increased their bill positions by $2.6 billion in the two weeks ended April 7.

Yields in the long-term capital markets moved briskly lower in the opening weeks of the year. New Aaa-rated corporate bonds declined to around 6¾ percent by late January, down almost a full percentage point for the month. Municipal bond yields declined by about ½ percentage point. The decline in yields brought an influx of new issues to the corporate bond market, however, with the four-week visible supply rising from $1.5 billion to over $3 billion between mid-January and mid-February. Yields on new corporate issues rose appreciably in February (see Chart II), while municipal bond yields retraced only a part of their earlier declines. Long-term Government yields rose in February in sympathy with the competitive corporate market, but intermediate-term yields continued to decline as the System supplied nonborrowed reserves freely and short-term rates fell.

Against this background and under the Committee's instruction to accommodate declining long-term interest rates, the Desk supplied the major part of its long-term provision of reserves during the first quarter through the purchase of Treasury coupon issues. The strong demand pressures evident in the bill market provided still another week-to-week reason for buying coupon issues. The Desk added $1,027 million of such securities to the System's portfolio in the seven weeks that ended March 31, including $195 million of issues maturing in over ten years. The System's repeated entry into this market, at a time that it was also supplying nonborrowed reserves at a pace that pushed short-term rates down, contributed to the ability of the corporate bond market to distribute an unprecedented volume of offerings in March at declining rates. By the end of March, yields in all sectors of the bond markets were again at or close to their lows for the year.

April through mid-August. At the April 6 FOMC meeting, staff analysis suggested that if prevailing money market conditions were maintained M_1 would grow somewhat faster over the second quarter than the 8 percent rate



then estimated for the first quarter. The staff expected a moderation of the rapid growth rates of M_2 and the credit proxy recorded in the first quarter—17.5 percent and 11 percent, respectively. The Committee decided that some minor firming of money market conditions was in order. Some members favored this to help achieve less rapid growth in the monetary aggregates; others placed the emphasis on narrowing the interest rate differential between this country and abroad. The directive called for continuing the purchase of coupon issues in the interest of promoting accommodative conditions in long-term credit markets.

System open market operations initially sought to establish the Federal funds rate in the upper part of a 3¾ to 4¼ percent range. Incoming data soon showed that both M_1 and M_2 were $2 billion in excess of their tracking paths and subsequent data confirmed the strength, especially for M_1. Accordingly, the Desk raised the center of its Federal funds rate range to about 4¼ percent. The pattern of April persisted through May and June. Despite a successive rise in the targeted range of the Federal funds rate, staff projections of the second-quarter growth in M_1 (see Chart VI) continued to exceed the FOMC's objectives. And as M_1 continued to come in higher week by week than its tracking path, the Desk kept raising its sights for the Federal funds rate. By the end of June the rate was back to 5 percent, around the level of late December. But M_1 grew at a 10.6 percent annual rate in the quarter, compared with 9.1 percent in the first quarter. In contrast, both M_2 and the credit proxy grew more moderately—at rates of 12.4 percent and 8.4 percent, respectively, compared with rates of 18.1 percent and 10.9 percent in the first quarter.

The System's response to the overruns in M_1 in the second quarter was conditioned by the Committee's concern for the long-term credit markets. But the Desk could not avoid spillover effects on interest rates. It could only try to foster an orderly adjustment in the credit markets to a number of disturbing influences. The shift in the System's money market targets dashed existing expectations that still lower interest rates lay immediately ahead. The rapid growth of M_1 and the continuation of price increases in a sluggish economy raised fears that inflation would remain a major economic problem with adverse consequences for the bond market. Market participants were deeply disturbed by the lack of Government action to deal with persistent inflation. And finally the massive speculative flow into Germany in early May before the mark was allowed to float suggested to many that higher interest rates would be required in the United States for defense of the dollar.

The reaction in the credit markets was sharp. Yields on new Aaa-rated corporate bonds rose by about 1 percentage point to over 8 percent in the six weeks that ended in mid-May. *The Weekly Bond Buyer's* twenty-bond index of twenty-year municipal bonds rose a like amount to around 6 percent. Both series retreated to the levels of November 1970. In the Treasury market, long-term yields rose by ½ percentage point to around 6¼ percent under the special pressure of the Treasury's May financing and the liquidation of short-term positions by dealers and trading banks. (A fuller discussion of the mechanism through which monetary policy is transmitted to the credit markets is given later.) In contrast, the implicit yield on Government-underwritten mortgages in the Federal National Mortgage Association's (FNMA) biweekly auction of purchase commitments rose by only about ¼ percentage point, remaining about 1¼ percentage points below the November 1970 level.

Against this background the Desk's shift in its Federal

funds rate target was gradual—from about 4⅛ percent after the FOMC's April meeting to 4½ percent by mid-May. The Manager's reports to the Committee at the time indicated that market conditions were limiting his response to the overrun in M_1. This meant that nonborrowed reserves were growing faster than an unconstrained M_1 target would have called for. But the turmoil in the credit markets—notably, in the Government securities market—pointed to a much more fundamental change in the portfolio strategy of banks and other investors than the modest change in money market rates might suggest. The Federal funds rate at such turning points hardly reflects the full effects on the banking system of a shift in central bank direction.

Short-term interest rates reflected the changes in the Federal funds rate. The rate on three-month Treasury bills rose to around 4⅜ percent in the second half of May, after having been held down earlier in May by concentrated foreign central bank buying as a result of the flow of funds to Germany. By comparison with this ¾ percentage point rise in three-month bill rates over eight weeks, rates on 60- to 89-day CDs advanced by just over 1 percentage point and those on 30- to 89-day finance company paper by 1¼ percentage points. Reflecting borrowing for exchange speculation, rates on three-month Euro-dollars rose sharply during early May, subsided, and then rose again at the month end to 7½ percent, more than 2 percentage points above their end-of-March level.

As the Federal funds rate was pushed up to around the 4¾ percent discount rate in the second half of May, it became a less reliable indicator for a time of the degree of adjustment pressure being exerted on the banking system by open market operations. With the Desk holding back on the provision of nonborrowed reserves to nudge the Federal funds rate still higher, member banks responded by turning to the Federal Reserve discount window. Such borrowings (exclusive of problem borrowing) had remained at a very low level, while the Federal funds rate was raised from 3½ percent to 4½ percent. But they rose to an average of $242 million in the last two statement weeks in May and then to $627 million in the last two weeks of June. Nonborrowed reserves actually declined in June, while the Federal funds rate moved only ⅜ percentage point higher. In turning to a privileged source of reserves, banks did not exert as much pressure on the Federal funds rate as in the preceding two months, but the impact on bank attitudes may well have been as great, perhaps greater.

Dealer financing costs rose modestly in June in tandem with the Federal funds rate, but Treasury bill rates rose rather rapidly. The three-month rate rose by ⅞ percentage point to around 5¼ percent, while the one-year rate rose more than a full percentage point to 5.84 percent. Concern over progressive System firming was augmented by fears of heavy Treasury financing. There were also bill sales by the German central bank at the time. While other short-term rates rose considerably less, yields on Treasury coupon issues maturing in three to five years rose by about ½ percentage point as banks and dealers continued apprehensive about the outlook for interest rates. In the longer term markets, corporate bonds moved narrowly after mid-May as the forward calendar began to recede. Municipal bonds worked a bit higher in yield as bank buying declined, and implicit mortgage yields moved up by ½ percentage point in the FNMA auctions between mid-May and mid-June.

When the FOMC met on June 29, the staff projected that M_1 and M_2 would expand at annual rates of 9 percent over the third quarter, even if money market conditions were somewhat firmer. The staff felt, however, that growth in these aggregates would recede to quite modest proportions late in the year. Committee members were concerned about both the rapid growth in the monetary aggregates and the recent upward pressure on interest rates, in view of the dependence of the recovery on such interest-sensitive sectors as housing. While there was agreement that an unduly sharp firming should be avoided because of the risk to market interest rates, the Committee decided that open market operations should be directed at achieving more moderate growth in the monetary aggregates over the months ahead.

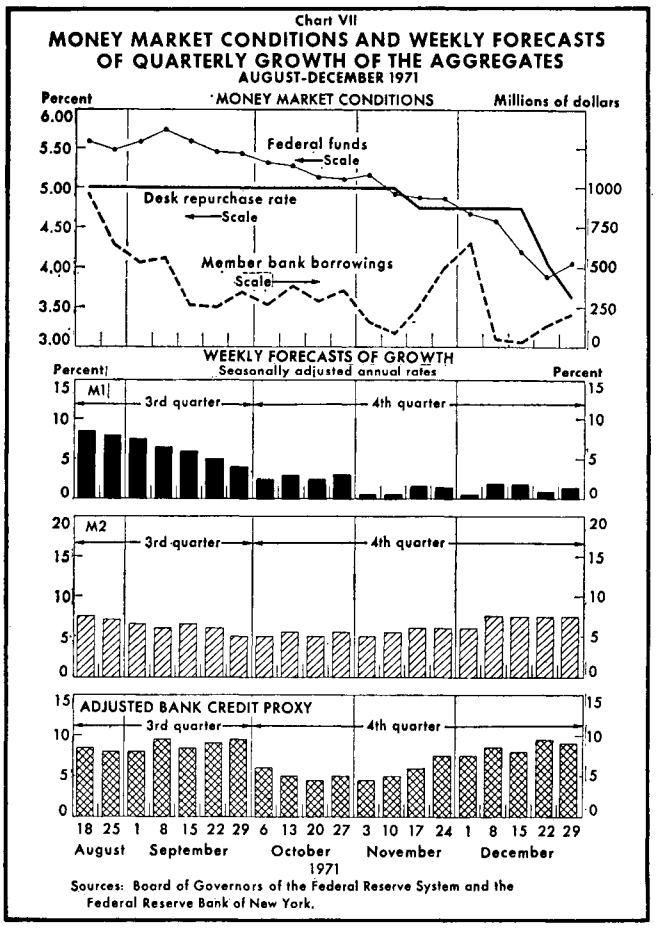
The Desk once again found M_1 moving above its tracking path and responded by pushing the Federal funds rate up to around 5½ percent after mid-July and a shade higher in August. Member bank borrowings from the Reserve Banks rose somewhat further on average, but the Federal funds rate became more responsive to Desk action than in June. (The Federal Reserve discount rate was increased from 4¾ percent to 5 percent, beginning July 16.) After mid-July the Board staff began to revise downward its projections of M_1 growth in the third quarter on the basis of incoming data. Even so, the projection of 8.5 percent growth on August 12 remained appreciably faster than the Committee desired, and it continued to maintain its higher Federal funds rate objective. Most short-term rates rose in July and held steady in August, while long-term yields continued to edge higher. Treasury bill rates began to come under strong downward pressure in August, when foreign central banks sought to invest the rising tide of funds flowing to them as speculation against the dollar mounted to massive proportions in the exchange markets.

August 15 through December. The President's new economic program altered fundamentally most forecasts of the economic outlook and the expectations of investors about the future course of interest rates. At home the institution of a wage-price freeze and the promise of an incomes policy encouraged economists to believe that the tax stimuli of the program would both increase real growth and reduce the rate of advance in prices. The suspension of dollar convertibility and the imposition of the temporary 10 percent import surcharge marked a new initiative that raised hopes of progress on the nation's long-standing balance-of-payments problem. On both domestic and international grounds, market observers quickly concluded that the monetary authorities would have considerably greater freedom to pursue a more stimulative monetary policy over the next year or so. Long-term interest rates declined sharply as market participants scrambled to reestablish the speculative positions liquidated earlier. Short-term interest rates declined to a lesser degree with the exception of Treasury bill rates, which had already been moving lower on heavy foreign central bank demand. When the FOMC met on August 24, the three-month bill rate was 4¾ percent, 40 basis points lower than on August 13 and 71 basis points lower than on the eve of the Committee's previous meeting.

The Committee's staff tentatively concluded that the new economic program would raise real growth and dampen inflation in the rest of 1971. The staff also felt that the maintenance of existing money market conditions would moderate the growth in M_1 to an 8 percent rate in the third quarter and substantially less in the fourth quarter. M_2 was expected to grow more slowly in the last half of the year than in the second quarter, while the credit proxy was expected to grow somewhat faster than the 6.5 percent second-quarter rate. The Committee felt that the ultimate consequences of the new program for monetary policy could not yet be assessed with assurance and that any marked change in policy would be premature. There was particular concern that any easing of money market conditions be in response to clear public evidence that the monetary aggregates were, in fact, slowing down.

The Desk sought to maintain the Federal funds rate in its recent range after the meeting, but unusual reserve pressures around the Labor Day holiday led to persistent trading at 5¾ percent, somewhat firmer than desired. Treasury bill rates rebounded somewhat around mid-September from the artificially low levels to which foreign demand had pushed them, partly because of fears that foreign central banks might become sellers in the future. There was also a temporary rise in bond yields. By mid-September the weakening in M_1 that had begun developing in late August began to become visible to the general public. With the staff's projection for the quarter down to 5 percent, the Trading Desk shifted the center of the Federal funds rate range down to 5¼ to 5½ percent on the eve of the Committee's September 21 meeting. The more generous provision of nonborrowed reserves led to a prompt decline in member bank borrowings at the discount window, even before there was much effect on the funds rate.

Over the last quarter of the year the Committee was increasingly concerned with the persistent sluggishness in M_1. As new data came in week by week, projections of its growth were revised irregularly downward (see Chart VII). The Desk responded to the shortfalls in M_1 below successive paths by reducing the center of its Federal funds rate range repeatedly, to about 3¾ percent by late December from 5½ percent in mid-September. (The



Federal Reserve discount rate was reduced by ¼ percentage point, first on November 11 and then again on December 13, bringing it to 4½ percent.) The fourth-quarter growth in M_1 turned out to be 1.1 percent at an annual rate, bringing growth over the year to a 6.2 percent rate. M_2 and the credit proxy closed with quarterly growth rates of 8.0 percent and 9.7 percent, respectively, and annual growth rates of 11.1 percent and 9.5 percent, respectively.

The decline in the Federal funds rate over the last quarter was accompanied by a further decline in member bank borrowings at the Reserve Banks—aside from some unusual stresses that developed around the Thanksgiving Day holiday and on some other isolated occasions. By early December, member bank borrowings were again close to a frictional minimum as open market operations pushed the Federal funds rate below the discount rate. As usual, dealer lending rates at the New York City banks followed the Federal funds rate down, but most other short-term rates tended to anticipate the System's actions. With business loan demand notably slack, commercial banks cut their prime lending rate from 6 percent in late September to 5¼ percent at the year-end, and a number of banks began experimenting with a floating prime rate related to open market rates on commercial paper. The rate on 90- to 119-day prime paper declined by 1¼ percentage points over the quarter to 4⅜ percent at the year-end, and the rate on 60- to 89-day CDs declined by 1½ percentage points to about 4 percent.

Treasury bill rates continued to be depressed relative to other short-term rates by persistent demand for bills from foreign countries trying to retard the appreciation of their currencies against the dollar. In the intermediate Treasury market, yields dropped from 6 percent in late September to 5⅜ percent in early November, and banks and Government securities dealers built up massive positions during the Treasury's November refunding. In this situation, the Desk resorted to heavy purchases of Treasury coupon issues, and moderate purchases of Federal agency issues, in supplying seasonal reserve needs in late November and early December. These purchases helped cushion the upward pressure on interest rates of the overhang of undistributed Treasury securities and avoided adding to the downward pressure on bill rates from foreign buying. Over the quarter, purchases of Treasury coupon issues amounted to $858 million while $389 million of Federal agency purchases brought that portfolio up to $485 million at the year-end.

Long-term interest rates worked generally lower over the final quarter. The corporate bond market successfully worked through a heavy November calendar with some rise in yields. But by the year-end the yield on Aaa-rated issues was about 7¼ percent, down about 88 basis points from mid-August and 35 basis points on the year. Municipal bonds moved to new low yields for the year in October, but gave up about half of the post-August improvement before yields turned down again in December. At the year-end, the *Bond Buyer's* index of twenty municipal bonds stood at 5.02 percent, down 101 basis points from mid-August and 56 basis points from a year earlier. Implicit mortgage yields in the FNMA auction of four-month purchase commitments declined gradually to 7.63 percent in mid-December, compared with rates of 8.07 percent on three-month commitments auctioned in late July and 8.51 percent in mid-December 1970.

THE TRANSMISSION OF MONETARY POLICY TO BANK BEHAVIOR AND INTEREST RATES. In contrast to the close relationship between the Desk's provision of nonborrowed reserves and the rates on Federal funds and various short-term instruments, the linkages between System open market operations, bank behavior, and long-term interest rates are more complex and the reaction time may either be quite short or extend over several months. One can hypothesize an orderly process in which banks project deposit growth and loan demands, based on a particular economic and financial outlook, with portfolio strategy emerging largely as a residual. While many banks probably employ this general approach, a large number of sophisticated banks recognize that they have considerable leeway to manage their liabilities so that their lending and investment decisions need not be constrained by near-term deposit flows. The aggressive bank can readily increase its liabilities, and assets, within limits by recourse to the Federal funds, CD, and Euro-dollar markets if loan and investment opportunities offer profitable prospects. To some degree, these banks in the aggregate can also fall back on borrowings from the discount window if the Desk provides nonborrowed reserves sparingly.

What the Desk's operations do affect is the opportunity cost of reserves to all banks—through either Federal funds or close alternatives. As these effects feed back over subsequent weeks and months to affect bank decision making and the loan demands and asset preferences of bank customers, aggregate bank credit and the various measures of the money supply begin to be affected. Even then, such external forces as shifts in business demands for loans and for demand deposits can exert powerful influences tending to delay or speed up the response of the banking system to System-engineered changes in the marginal cost of reserves.

In 1971 a major part of the System's impact on bank

credit and interest rates in the capital markets came through the changes it set in motion in the investment strategies of major banks, Government securities dealers, and others. Business demand for bank loans was notably quiescent during the year in contrast to the dynamic strength of some earlier years, which had had such a strong impact on bank behavior and bank balance sheets. An increasing number of banks turned to aggressive portfolio management as well as to increased mortgage and consumer lending in their efforts to maintain or boost earnings in an environment of generally lower interest rates. Expanded short-term trading in Government, Federal agency, and municipal issues had already been spurred by the 1969 revisions in the tax laws, which essentially removed the favorable treatment formerly given long-term capital gains. Since that time, securities trading has been much less inhibited by tax considerations than previously, when the alternation of profit and loss years often dominated bank portfolio activities.

The short-term nature of securities speculation. In moving to a more aggressive portfolio strategy, the trading banks markedly shortened their time horizons for trading. In 1970 and 1971 many banks set up securities trading operations, which were often separate from their normal investment activities. The trading accounts sought to profit from price swings over a few weeks or even days, as well as by taking speculative positions when interest rates were expected to move lower over the next two or three months. In effect, these banks joined the professional underwriters of Treasury, Federal agency, and municipal debt issues in trying to anticipate the course of interest rates in order to make short-term profits.

The investment strategy of trading banks, Government securities dealers, and other short-term holders depends upon the expectations of these groups concerning the behavior of interest rates over the next several months. These professional investors are keenly sensitive to any suggestion from their analyses pointing toward changes in monetary or fiscal policy, or any other factors that might affect the interest rate outlook. Their common objective is to anticipate the movement of rates before the general body of bank and nonbank investors. Most of these professionals probably have a profit horizon no longer than two to four months in taking major positions in intermediate- or longer term debt securities.

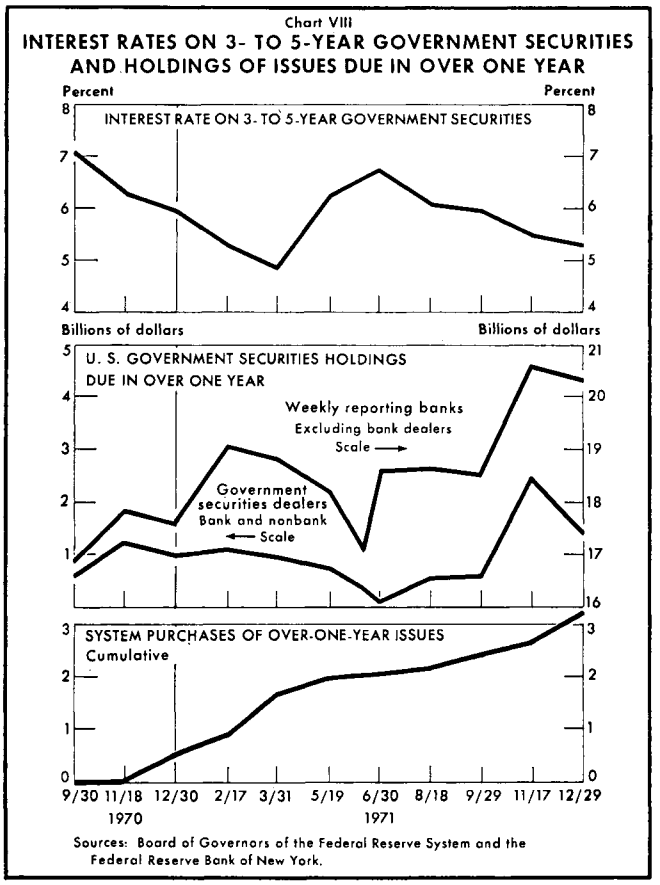
Adding to the extreme sensitivity of participants in the market is the highly leveraged nature of their operations. Nonbank dealers in Government securities often hold securities equal to fifteen or twenty times net worth, so that a 2 percent fall, or rise, in the market value of their assets would lower, or raise, their net worth by one third. Accordingly, these firms are likely to react quickly to protect their capital if interest rates rise contrary to their expectations. Their capital can be seriously impaired if they misjudge the direction or even the timing of changes in rates. Conversely, the successful anticipation of a decline in interest rates offers the prospect of substantial capital gains. Bank dealers in Government securities undertake similar risks—comparable in kind, if not generally in degree, to that taken by the nonbank firms.

The System's influence on securities trading. The System exerts its impact on the interest rate expectations and portfolio commitments of dealers, trading banks, and others through the policy actions, speeches, testimony, and informal contacts of System officials with the financial community and through the conduct of open market operations under the FOMC's directives. Market participants analyze Desk actions to gain an idea of the desired Federal funds rate range or other FOMC objectives. The rate serves as an indicator of the System's desired throttle setting for the provision of nonborrowed reserves to the banks. The Desk's purchases of coupon issues, while accepted as a normal instrument of open market operations, at times tend to be regarded in the market as efforts to relieve supply pressures and hence serve to encourage rate declines or discourage increases. In the past two years, market participants have followed closely the behavior of M_1 as likely to foreshadow changes in the System's weekly targets. The importance attached to this indicator reflects the increased significance given to it by the FOMC.

The System's changing policy thrust in 1971 was clearly reflected in the way in which Government securities dealers and weekly reporting banks managed their holdings of Government securities maturing in over one year. And the shifts in these holdings gave major impetus to changes in interest rates on intermediate-term Government securities during the past fifteen months.

In the fourth quarter of 1970 the nonbank dealers and the weekly reporting banks used the Treasury's November financing (announced on October 27) as the occasion to add heavily to their position in over-one-year securities (see Chart VIII). Yields on three- to five-year Government issues dropped by ½ percentage point by mid-November as these two groups emerged with almost $1.9 billion more over-one-year securities than they held on September 30. (The net positions of other holders declined by a like amount.) In the final six weeks of the year, yields declined another ⅝ percentage point to around 6 percent as the Trading Desk purchased $536 million of over-one-year securities—essentially from the positions of the dealers and weekly reporting banks.

After the turn of the year, market expectations of a



further decline in interest rates were still strong. The Trading Desk was aggressively pushing the Federal funds rate lower and the sluggish behavior of M_1 in the fourth quarter encouraged professional investors to expect continuing ease. As interest rates fell further, dealers built up their positions in over-one-year issues by about $1 billion to a record $2 billion near the end of January and then distributed most of the increase at rising prices to banks and others over the next three weeks. Thus, they accounted for little of the $4.1 billion net rise in such debt outstanding in public hands after the year-end as a result of the financing. Weekly reporting banks increased their holdings of over-one-year issues by over $1.5 billion while other public holders, which had reduced such holdings by $1.3 billion in the fourth quarter, added $2.6 billion of these issues. After mid-February, interest rates tumbled still further. Desk purchases of $687 million of over-one-year securities contributed to a further steep decline in interest rates, which carried the three- to five-year rate down to 4½ percent by mid-March.

The Committee's April 6 decision to move toward firmer money market conditions, and the Desk's response to continuing overruns in M_1 during April, led to a drastic revision in interest rate expectations. System purchases of $196 million of over-one-year issues in the April 14 statement week took a portion of the securities being pressed for sale. But the yield on three- to five-year issues rose in almost a straight line to 6¼ percent by mid-May as the dealers and weekly reporting banks together reduced their positions by about $700 million. The rise of 1½ percentage points in yield was more than double the increase in the Federal funds rate over the interval. Concern over the rapid growth of M_1, the persistence of inflation and discouragement over Government leadership in this area, and the international monetary situation reinforced expectations of higher rates.

At the higher interest rates, other investors were willing to absorb still another $800 million of over-one-year issues from these two groups over the next three weeks. At the end of the second quarter, the Government securities dealers had almost eliminated their inventories of over-one-year issues while the weekly reporting banks held $200 million less than three months earlier despite a build-up of over $1 billion in late June by virtue of a Treasury note financing. In the six weeks that preceded the President's mid-August program, the weekly reporting banks (exclusive of the bank dealers) again turned to cutting their inventories as M_1 continued to grow and the Desk continued to resist by pushing up the Federal funds rate. However, by the time of the Treasury financing in late July, both the dealers and the weekly reporting banks appeared ready to assume some underwriting risk at the higher yields.

The dealers responded to the President's program by bidding up prices actively in the course of rebuilding their speculative positions by $600 million in over-one-year issues in the four weeks ended September 8. System open market purchases of $346 million in late August and September helped first to foster the decline in rates and then to relieve positions when market uncertainties about Phase Two developed in September. Most of the strong impetus to lower interest rates came, however, from strong expectations about what future System policy would be rather than from observed open market operations. There was also renewed hope that the new incomes policy would dampen inflation.

As October progressed, market participants saw the Desk move the Federal funds rate downward successively, in line with their expectations. The sluggish behavior of M_1 and lackluster business news reinforced expectations that a still more expansive System policy would be forth-

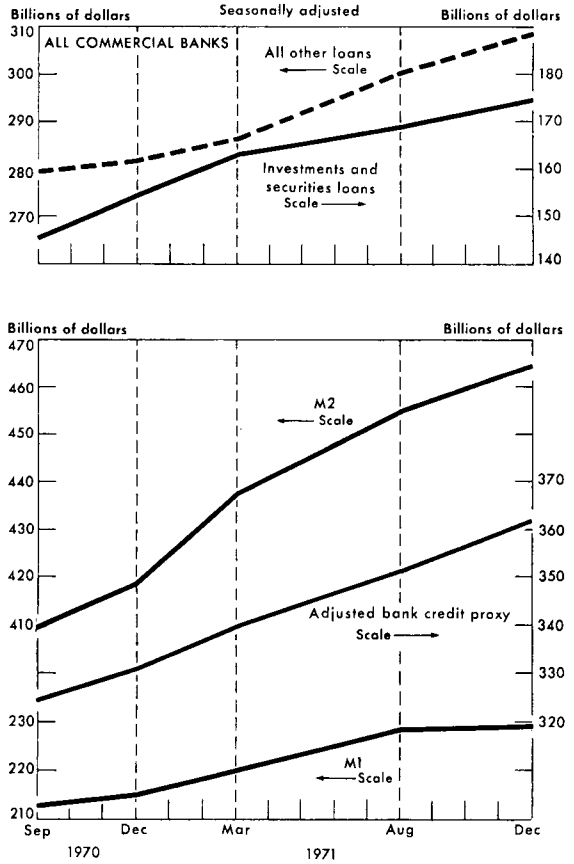
coming. The weekly reporting banks joined the Government securities dealers in adding to positions in October, pushing yields on three- to five-year issues down about ½ percentage point in the process. At the lower yields, tremendous enthusiasm developed among all investors in the Treasury's pre-refunding in late October. Accordingly, the over-one-year positions of dealers were $2.1 billion higher on November 17 than at the end of September, and the weekly reporting banks showed a similar increase. Other public holders, which had been selling earlier, also subscribed heavily so that their positions rose by $5.6 billion. Not surprisingly, this enormous overhang of new securities exerted some upward pressure on yields, despite the continued easing of money market conditions by open market operations and two cuts in the Federal Reserve discount rate. However, System purchases of $824 million of over-one-year Treasury coupon issues during the last seven weeks of the year largely contained the upward pressure. There was also relief at the absence of foreign selling of Treasury bills, and yields were again tending lower at the year-end.

The effect of bank investment strategy on bank credit. The shifts in bank and dealer behavior triggered by monetary policy left an important trace on bank credit as well as on interest rates. First, the loan demands of Government securities dealers and other underwriters provided an exogenous credit demand. Then, there was the aggressive pursuit of short-term gains by banks—in tax-exempt and Federal agency as well as Government issues. In this way, a major part of the outpouring of new securities by these issuers was underwritten by the dealers and trading banks and more solidly placed over time with the banking system. The major banks financed the dealers and their own positions in part through the issuance of CDs and other short-term liabilities. The System's pursuit of aggressive ease early in the year also provided a sharp rise in bank time deposits as individuals switched from the Treasury bill market. When the dealers and trading banks sharply reduced their underwriting positions in the April-August period, there was corresponding pressure on the growth in bank liabilities—through a reduction in their financing needs and reduced switching of savings from the markets to the banks.

The three main phases of System policy stand out clearly in Chart IX. In the fourth quarter of 1970, in which M_1 was growing slowly, bank portfolios and dealer loans were growing rapidly. The pace of portfolio growth accelerated in the first quarter of 1971 to an annual rate of 14 percent, more than compensating for some decline in dealer lending. Loan growth was comparatively sluggish. In the five months that ended in August, there was a marked decline in the growth of bank investments while dealer lending fell still further. Loan growth picked up in this period—chiefly because of the growth in consumer and mortgage loans, although business loans also spurted in August as corporations moved funds abroad. With the swing in expectations brought by the President's program, bank investments in municipal and Federal agency issues spurted over the last four months, and lending to securities dealers also rose substantially. However, the banks' net acquisition of short-dated Treasury issues was less than seasonal as foreign central banks financed most of the Treasury's seasonal need. Mortgage and consumer loans continued to grow at a good pace, but business loans relapsed into quiescence.

The System-induced swings in investment strategy and in bank intermediation were also reflected in the behavior of total liabilities during the year. As the System

Chart IX
BANK CREDIT, MONEY SUPPLY, AND ADJUSTED BANK CREDIT PROXY



Source: Board of Governors of the Federal Reserve System.

pushed short-term rates lower in the fourth quarter of 1970, the adjusted credit proxy rose at a 7.8 percent annual rate in that quarter and M_2 at an 8.8 percent rate, while M_1 grew at a 3.8 percent rate. In the first quarter of 1971, M_2 grew at an 18.1 percent rate while the proxy rose at a 10.9 percent rate, as banks used the System-induced inflow of time deposits to replace Euro-dollar and other high-cost liabilities. M_1 grew at a 9.1 percent rate in the first quarter. In the five months ended in August, the proxy slowed down to about an 8 percent growth rate, reflecting the System's posture of increasing restraint on reserves with its associated change in the banking system's cost-profit calculus. The System-induced rise in short-term interest rates also cut back on the switching of funds from marketable securities to the banks and M_2 growth slowed to a 9.6 percent annual rate. The growth in M_1 continued strong at 9.1 percent. Finally, in the last four months of the year, as the System pressed short-term rates lower, time deposit growth speeded up sharply. The bank credit proxy grew at a 9.3 percent rate over the interval, and M_2 at a 6.7 percent rate. M_1, however, slowed to a 0.3 percent growth rate.

SOME LESSONS OF THE 1970-71 EXPERIENCE

The divergent behavior of the monetary and credit aggregates during the recent past provides additional evidence on the Committee's continuing problem of specifying the intermediate-term objectives of open market operations. The fluctuating behavior of M_1 made it a peculiarly elusive target in the particular economic environment prevailing during this period. M_1 did not respond quickly to the changing impact of open market operations on reserves and interest rates. At the same time, M_1 did respond to variations in the public's demand for it for precautionary and other reasons that are imperfectly understood. In particular, precautionary balances apparently were built up in the second quarter, when concern with inflation and unemployment were high, and reduced later in the year after the President's new economic program raised hopes of progress on both these fronts.

Recent experience suggests that M_1 responds only slowly to the changes in nonborrowed reserves and the Federal funds rate initiated by System open market operations. To be sure, the decline in the Federal funds rate from October 1970 to February 1971 was followed by a more rapid growth of M_1 beginning in February. And the rise in the Federal funds rate from March to August was followed by a retardation of M_1's growth in August. But the lag in the response of M_1 appears rather long, perhaps on the order of four to six months, although independent shifts in the public's demand schedule for M_1 during the period may well have distorted M_1's actual response to System operations.

On the other hand, both M_2 and the credit proxy were reasonably sensitive to the System's influence, exerted through short-term interest rates. The time and savings deposits included in M_2 responded to System-initiated changes in the attractiveness of such deposits relative to short-term marketable securities. The adjusted bank credit proxy—which includes CDs, Euro-dollars, and Treasury deposits—incorporated the member bank response both to these savings inflows and to the changing interest rate outlook as it affected bank portfolios. Both M_2 and the credit proxy responded to shifts in open market operations within one to three months—with the credit proxy the more stable of the two series.

The Committee, of course, did not concentrate solely on monetary aggregates during 1971. In the second quarter, in particular, it was very much concerned that a substantial rise in long-term interest rates might undermine the economic recovery then under way. The System's moves toward restraint were accordingly more gradual than they would have been had M_1 been the sole guide. M_2 and the bank credit proxy did reflect fairly promptly the Committee's shift in direction. Their behavior, in combination with the movement in interest rates, suggests that open market operations were exerting a drag on bank credit creation during the summer even though M_1 was growing rapidly.

The Committee's formulation of its quantitative policy strategy depends upon the kind of relationships it perceives between the aggregates and economic activity, and upon the protection that a given strategy offers against major error. This report has not focused on the larger policy issue of which measures of monetary expansion and credit conditions most accurately indicate the degree of financial stimulation or restraint appropriate to the particular needs of the economy. From the Desk's vantage point, however, the 1970-71 experience suggests that the Committee is better served by an examination of the full range of information provided by the three aggregates and interest rates than by preoccupation with any single measure. In terms of operating instructions, the Committee may find it desirable to use all three aggregates as a protection against unforeseen, and often temporary, demand shifts affecting a particular aggregate.

The Business Situation

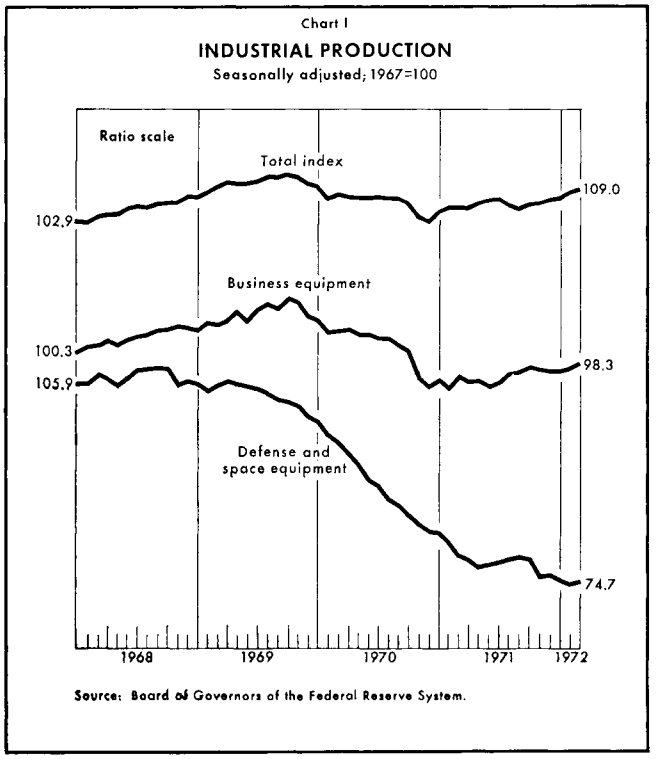
Recent data continue to point to a strengthening of the economic recovery. During February, industrial production exhibited a strong and broadly based advance and private housing units were started at a record rate. Consumers shed some of their lethargy and stepped up their purchases in February and March. Civilian employment rose strongly in March. An even larger increase in the civilian labor force, however, resulted in a slight rise in the unemployment rate. Orders placed for durable manufactured goods in February were well above the December level, even though a sharp decline in the volatile defense category resulted in a retreat of total bookings from the record high reached in January. Notwithstanding these indications of a quickening in the pace of the recovery, businessmen have continued to approach their inventory building with caution.

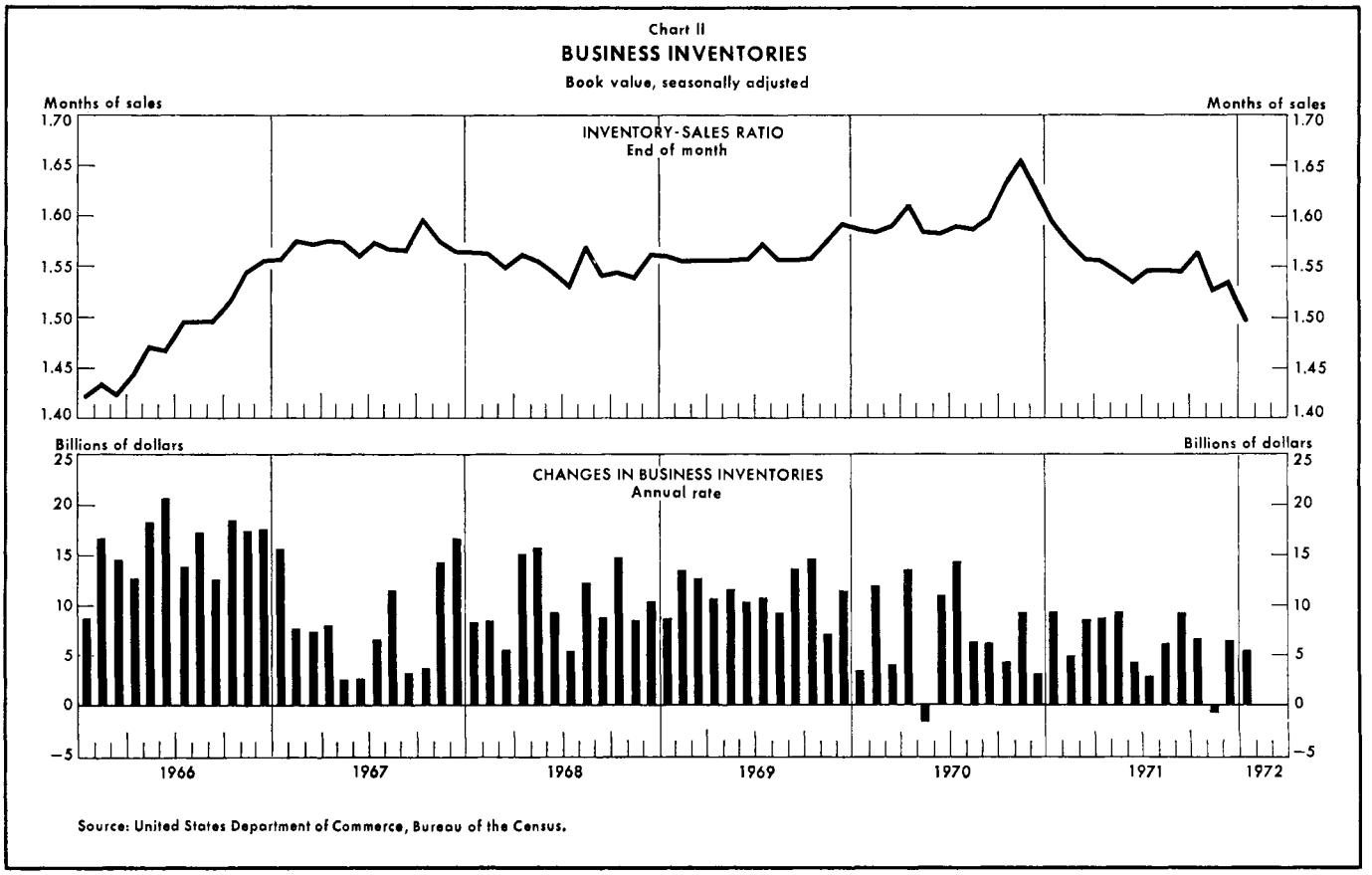
Developments in prices and wages suggest that inflation remains a serious problem. Large increases in food prices gave a sharp boost to both the consumer and wholesale price indexes in February. While wholesale agricultural prices declined slightly in March, prices of industrial commodities continued to rise at a disturbingly rapid rate. From November 1971 through March 1972, average hourly earnings of production and nonsupervisory workers in the private nonfarm economy rose at a rapid 8½ percent annual rate. To be sure, part of this rise reflected a clustering of wage increases in the aftermath of the freeze. Nevertheless, while data for February and March combined show some deceleration of wage increases, it is too early to conclude that a well-defined moderation of wage pressures is under way.

PRODUCTION, ORDERS, AND INVENTORIES

During February, the physical output of the nation's factories, mines, and utilities—as measured by the Federal Reserve Board's index of industrial production—rose at a fast 8.9 percent seasonally adjusted annual rate from January's upward revised level (see Chart I). Apart from several months which were affected by special temporary distortions, the February advance was the largest since the recovery started toward the close of 1970. Perhaps even more important is the fact that the February strengthening of output was broadly based. A sizable February increase, together with an upward revision for January, may indicate that production of business equipment is breaking out of the flat pattern that prevailed over the last half of 1971. This would be broadly consistent with the findings of recent Government and private surveys of capital spending planned for this year. There were, moreover, signs of some further leveling-off in the protracted decline of defense and aerospace output which had fallen more than 30 percent since mid-1968.

Total industrial production rose at an annual rate of 7 percent from August 1971 through February, in contrast to the 1 percent pace that characterized the first eight





months of last year. If those industries where actual and threatened labor disputes have had a major impact on the production index are excluded, the gain since August is reduced to about 5 percent but still reveals a quickening relative to earlier last year. Despite the strengthening of recent months, total production in February was still 2.6 percent below the September 1969 high and had climbed only 3 percent above its year-earlier level.

Orders placed with manufacturers of durable goods during February were a healthy 7.2 percent above their December level, even though a sharp decline in the very volatile defense category caused bookings to recede from their record January inflow. Excluding defense, the new orders inflow reached record proportions during February. After following a comparatively flat pattern over much of 1971, durable goods new orders have advanced rapidly since October of last year, registering a total gain of about 10.6 percent. For nondefense orders, the advance amounted to an even sharper 12.0 percent. Orders placed with iron and steel producers strengthened further in February to 45 percent above the low reached this past August immediately after the steel labor contract settlement. All of the sizable February decline in bookings for producers' capital goods industries appeared to result from the drop in defense orders. Despite the rise in durables shipments during February, the unfilled orders backlog rose for the fourth straight month to a level 3.7 percent above the five-year low reached last October.

Over much of the recovery period, the expiration and renewal of key collective bargaining agreements have been important determinants of movements in business inventories. For example, automotive inventories were in the process of being rebuilt during early 1971, after the conclusion of the General Motors strike. In anticipation of a midsummer steel strike, a sizable stockpile of materials was accumulated and has since been gradually diminished. Longshore labor disputes starting last summer have also had an impact on the inventory picture. Thoughout all this, businessmen have approached their inventory spending with caution, allowing their inventories to rise at a

slower rate than sales. As a consequence, the inventory-sales ratio has fallen appreciably over the last year or so. During January, the increase in the book value of business inventories was a modest $5.4 billion annual rate (see Chart II), which is a bit smaller than the $6.3 billion average rise over the previous twelve months. Coupled with a substantial rise in sales, which was especially notable in manufacturing and wholesale trade, the inventory-sales ratio fell to 1.50 in January, its lowest level since mid-1966. With inventories currently so lean relative to sales, the likelihood is enhanced that the pace of inventory accumulation will accelerate in response to rising business sales.

Preliminary February manufacturing data, however, indicate an inventory decline of $1 billion at a seasonally adjusted annual rate, coming on the heels of the previous month's large $4 billion increase. Over the first two months of 1972 the book value of manufacturers' holdings rose at a $1.5 billion annual rate. Although this is considerably slower than the $4 billion increase planned for the first quarter as a whole according to a recent Government survey of manufacturers' inventory spending intentions, a first-quarter rise in the $1.5 billion range would represent some improvement over the previous year when manufacturers' inventories were virtually unchanged. The February rise in manufacturers' shipments was modest, especially by comparison with the January surge. Excluding the normally volatile transportation sector, shipments declined but were still 2.4 percent above December and 8.8 percent higher than twelve months earlier. Shipments of blast furnace and steel mill products strengthened further in February and were a full 60 percent above their depressed August level. For all manufacturers, the ratio of inventories to sales slipped to 1.63, its lowest mark since the first half of 1966.

RESIDENTIAL CONSTRUCTION

The housing boom has continued to show exceptional vigor. During February, the total number of private housing units started soared to a record 2.7 million unit seasonally adjusted annual rate, according to preliminary data (see Chart III). By comparison, housing starts had fallen to a low of 1.1 million units in January 1970. At the same time, the number of newly issued building permits in February edged past January's high level but were 8 percent below the record set last December. All of the rise in February starts was in multi-unit dwellings, while the number of single-family residences started during the month actually declined. Moreover, the regional pattern during February was quite mixed, with starts off 35 percent in the northeast states while jumping 33 percent from January in the north central area.

The protracted residential construction boom has been dependent on a number of interlocking factors. After virtually evaporating in late 1969 and early 1970, deposit inflows to thrift institutions—which are the primary providers of home mortgage credit—increased substantially later in 1970 and rose to record proportions in 1971 and again in early 1972. These inflows have been generated and sustained in large part by the relative attractiveness of yields on savings accounts, compared with alternative market instruments, and also by the high rate of personal savings. Not only has this deposit growth supported a very heavy volume of mortgage lending, it has also helped induce some easing in the terms of mortgage credit. For example, by February the average effective interest rate on conventional first mortgages for new homes granted by savings and loan associations had moved below its level at the end of 1971 and was about 1 percentage point beneath the peak reached in 1970. There has also taken place a

reduction of downpayment requirements and a lengthening of the average loan maturity. Interest rates and other characteristics of conventional first-mortgage loans made by all types of lenders have moved in roughly similar fashion.

Shipments of mobile homes, which represent an increasingly important component of the total supply of living units, rose to a record seasonally adjusted annual rate of 554,000 units during January, the latest month for which data are available. Mobile home shipments have risen rapidly from 191,000 in 1964 to 487,000 last year. The factors behind this surge are numerous. Regulations governing the availability of credit for purchase of mobile homes have been eased in recent years; in addition, those groups most likely to purchase such homes—families with heads under age thirty-five and over age fifty-five—have become an increasing proportion of the population. Greater size and diversity of mobile homes, together with lower costs relative to conventional single-family housing, have also boosted sales.

CONSUMPTION, INCOME, AND EMPLOYMENT

According to very preliminary data, it appears that seasonally adjusted retail sales picked up considerably in March, reaching a record $36 billion. This represented an increase of $0.9 billion over the upward revised February pace. Sales of both durable and nondurable goods posted large gains in March. Thus, while the March data are subject to revisions, these latest readings on retail activity suggest that sales seem to be breaking out of the sluggish pattern that prevailed at the turn of the year. Yet, even with this substantial increase, March retail sales totaled only $0.4 billion above the previous record set in November 1971.

Personal income rose by $4.9 billion during February, following increases averaging a substantial $8.6 billion during the two previous months. After adjustment for identifiable special factors such as the Federal military and civilian pay raises in December and January, however, the February increase in personal income was only slightly smaller than the gains in those months. Increased wage and salary disbursements accounted for $3.7 billion of the February advance, with government payrolls up $0.6 billion or about one-fourth as large as the previous month's gain which was swollen by the Federal pay raise. The sizable gain of $1.7 billion in manufacturing wage and salary disbursements in February appears largely the result of the rebound in the factory workweek and hours of overtime.

Employment rose sharply in March, continuing the strength exhibited over the previous six months. According to the Bureau of Labor Statistics survey of employers, 276,000 workers were added to nonfarm payrolls in March on a seasonally adjusted basis, an impressive 4.6 percent annual rate of increase. The gains were broadly based, moreover, including a notable pickup in manufacturing employment. Since August 1971, nonfarm payroll employment has increased at a 3.5 percent seasonally adjusted annual rate, compared with only 1 percent during the nine months from November 1970—the month tentatively identified by the National Bureau of Economic Research as marking the trough of the 1969-70 recession—through August 1971. Since then, employment in manufacturing has risen at a 2.9 percent seasonally adjusted annual rate, in contrast to an outright decline during the previous nine months. Even larger percentage gains since August have occurred in employment in the government, transportation and public utilities, finance, services, and trade areas.

In March the substantial gains in civilian employment were accompanied by large increases in the civilian labor force. Consequently, the unemployment rate edged up from 5.7 percent in February to 5.9 percent in March. This was equal to the January rate and only a shade below the average unemployment rate of 6 percent during 1971. The rate of unemployment among married men remained at 2.8 percent in March, however, the same as in February and otherwise the lowest since mid-1970. The increase in joblessness during March was centered in adult women, whose unemployment rate nevertheless remained below that for January 1972 and for 1971 as a whole.

WAGES AND PRICES

Over the four months from November 1971 through March 1972, average hourly earnings of production and nonsupervisory workers in the private nonfarm economy increased at a rapid 8.6 percent seasonally adjusted annual rate. This rise compares with a rate of only 2.3 percent during the three previous months—which approximate the period of the wage freeze—and 6.8 percent over the first eight months of 1971. The rate of increase in earnings has varied considerably during the past four months, spurting to a seasonally adjusted annual rate of 14 percent in December, slowing to 7 percent and 3½ percent in January and February, respectively, and accelerating to 10 percent in March. Part of these month-to-month fluctuations, however, is attributable to changes in overtime hours and shifts in the composition of employment between industries with different wage levels. To remove distortions arising from these factors, the Bureau of Labor Statistics has recently presented an index of average hourly

earnings of production and nonsupervisory workers that is adjusted for overtime in manufacturing and also holds constant the distribution of workers in all private nonfarm industries. By comparison with the traditional earnings series, the new series shows even sharper rises in wage rates in December and January but somewhat more moderation thereafter. Thus, over the two months, February and March, the adjusted series indicates a 4.5 percent seasonally adjusted annual rate of increase in earnings, compared with 6.8 percent according to the series that is not adjusted for changes in overtime and interindustry shifts of employment. These signs of apparent moderation in wage pressures, however, are based on too short a time period to be considered conclusive.

On a quarterly average basis, average hourly earnings of production and nonsupervisory workers in the private nonfarm economy rose 7.3 percent at a seasonally adjusted annual rate in the first three months of 1972 from the level of the previous quarter. In part, this increase was attributable to the surge in December which reflected a bunching of increases in the wake of the freeze. While that rise did not occur in the first quarter, it nevertheless had the effect of raising the average level of wages in the first quarter above the fourth-quarter average. The first quarter's increase in earnings represented the fastest rate of growth since the first quarter of 1971, when earnings also increased at a 7.3 percent annual rate. In that quarter, however, compensation per man-hour—the most comprehensive measure of wages and salaries—rose at an 8.9 percent annual rate. It would seem likely that the rate of increase in compensation per man-hour, which will be available later this month, exceeded that of average hourly earnings in the first quarter of 1972 as well. This is because certain components of employee compensation such as employer contributions for social security, certain other fringe benefits, and retroactive payments made to workers for pay increases held up by the freeze are not included in the earnings data but will contribute to the rise in compensation per man-hour. However, part of the upward thrust to compensation in the first quarter—such as the clustering of wage increases following the freeze, retroactive wage increases, and the higher level of employer contributions necessitated by the January rise in the social security tax base—is nonrecurring. Therefore, the first-quarter readings on compensation per man-hour will be of limited usefulness in evaluating the effectiveness of the Phase Two wage controls.

Overall wholesale prices rose at an annual rate of 1.3 percent in March, down from the rapid 8.8 percent rate of increase in February. The slowdown primarily reflected a decline in the prices of farm products and processed foods and feeds at a seasonally adjusted annual rate of 3 percent in March following a 21.5 percent rate of advance in February. In spite of the slight decline in March, such prices—many of which are exempt from controls—have soared at a seasonally adjusted annual rate of 11.4 percent over the six months that ended in March.

In the industrial sector, wholesale prices rose at a 4 percent seasonally adjusted annual rate in March, which was only slightly less than the 4.6 percent rate of increase in February. After declining at a 1.3 percent annual rate during the months from August through November, which roughly corresponded to the period of the price freeze, industrial wholesale prices have risen at a 4.1 percent annual rate during the succeeding four months. To be sure, while these increases continue to reflect some catch-up activity from the freeze, they do nonetheless represent a modest improvement over the experience of the first eight months of 1971, when such prices rose at a 4.9 percent annual rate. Nevertheless, the continued rapid increase in industrial prices four months after the end of the freeze is discouraging.

Largely as a result of a surge in food prices, particularly meat, the consumer price index jumped at a sharp 6.4 percent seasonally adjusted annual rate during February. Prices of food consumed at home, accounting for about 17 percent of the overall index, rose at a 24 percent seasonally adjusted annual rate in February. Yet there is a likelihood that more ample supplies of meat, and hence considerably lessened pressure on food prices, will be forthcoming later this year. Indeed, prices received by farmers declined in March, and this decline may eventually be transmitted to prices at the consumer level. Moreover, the recent bulge in food prices has tended to obscure some important improvements in the behavior of other major consumer price components. The increase in prices of services, which make up about 37 percent of the total consumer price index, slowed to a 2.7 percent annual rate in February after a substantial 6 percent jump at an annual rate in January. Since the wage-price freeze, price increases for services, which are available only on a nonseasonally adjusted basis, slowed slightly to a 4.3 percent annual rate from the 4.5 percent pace posted for the first eight months of 1971. Furthermore, prices of nonfood commodities, which constitute approximately 40 percent of the total index, actually declined on a seasonally adjusted basis during February, following a moderate rise of 2 percent in January.

The Money and Bond Markets in March

Short-term interest rates rose sharply during the first half of March, as participants grew increasingly apprehensive about the interest rate outlook. Conditions in the money market became firmer, and this was accompanied by marked increases in Treasury bill rates. Continued uncertainty in the foreign exchange markets along with acceleration in the growth of the narrow money supply fostered concern that a shift in monetary policy to a less expansionary posture was imminent, if not already under way. While yields on intermediate-term Government issues were relatively steady at the outset of the month, rising short-term rates and anticipation of sizable Treasury cash needs soon exerted upward pressure on returns in this maturity range. In contrast, yields on longer term Government securities largely resisted the rate advances and, on balance, drifted up only slightly. After some declines in yields early in the month, a hesitant atmosphere emerged in the corporate and municipal sectors and yields worked irregularly higher.

Shortly after midmonth a somewhat more constructive outlook developed throughout the Government securities market, as investors became convinced that a sustainable trading range had been established. The Treasury bill sector benefited from the stability exhibited by the Federal funds rate, albeit at a higher level of trading than had prevailed at the beginning of March, and rates moved somewhat lower. Sentiment was bolstered when it was learned, on March 21, that the Treasury's near-term financing requirements would be considerably smaller than had been anticipated. The Treasury announced that its financing needs before the May refunding would consist of only $1.75 billion in new cash, with the cash to be raised by auctioning a three-year 5⅞ percent note late in March. At the same time, the Treasury disclosed its intention to discontinue the $300 million additions to its weekly bill series which had been initiated on February 17.

This news spurred a brief rally in all sectors of the securities markets, but the underlying uncertainty about the future course of interest rates persisted. Investors were uneasy about both the firmer tone evident in the money market and the continuing advance in consumer prices. As a consequence, short-term rates subsequently moved up another notch and, late in March, many large commercial banks raised their prime lending rates by ¼ percentage point to 5 percent. Yields on intermediate-term issues also rose over the remainder of the month; however, returns on long-term Government securities continued to exhibit considerable stability and increased only modestly.

THE MONEY MARKET

Conditions in the money market firmed considerably as the month unfolded. Federal funds, which had traded predominantly around 3⅜ percent early in March, were trading a bit above 4 percent when the period ended. For the month as a whole, the effective rate on Federal funds averaged 3.83 percent, 53 basis points above the February level. Member bank borrowings from the Federal Reserve Banks rose to an average of $91 million in March (see Table I), compared with an average level of only $24 million for January and February combined.

Short-term interest rates rose significantly during March, paralleling the trend of the Federal funds rate (see Chart I). Dealers in bankers' acceptances raised rates by ½ percentage point, and rates on most maturities of commercial paper were increased by ⅜ to ⅝ percentage point. At the same time, commercial banks boosted their offering rates on newly issued negotiable certificates of deposit by about ¼ to ⅞ percentage point. The three-month Eurodollar rate rose ½ percentage point during the month.

A number of major commercial banks raised their prime commercial loan rate from 4¾ percent to 5 percent late in the month, marking the first widespread increase in the prime rate since early July 1971. Subsequent to the July increase, this key lending rate had been steadily reduced and had fallen as low as 4⅜ percent at one large New York City bank that follows a "floating" prime rate policy. Earlier in March, that bank—which relates its prime rate to rates on three-month dealer-placed commer-

cial paper—had increased its minimum business loan rate by ⅛ percentage point to 4½ percent. Shortly thereafter, the four major banks in New York City that had been posting a 4½ percent prime rate lifted their rates to the 4¾ percent level generally prevailing at that time. The move to 5 percent followed and became general early in April.

The increases in the prime rate were accompanied by scattered indications of strengthening in loan demand. In the statement week ended March 15, which included the quarterly corporate tax payment date, business loans (adjusted for loan sales to affiliates) at weekly reporting banks rose by $797 million. This constituted the largest such mid-March borrowing since 1968. Moreover, weekly reporting bank data for the five statement weeks ended March 29 indicate a pickup in business loans relative to their performance during the corresponding periods of 1971 and 1970. Other loan categories, particularly real estate and consumer loans and loans to nonbank financial institutions and to securities dealers, appear to have remained strong in March.

According to preliminary estimates, all of the monetary aggregates grew rapidly in March. The narrow money supply (M_1)—adjusted demand deposits and currency held by the public—advanced at a seasonally adjusted annual rate of about 11 percent in March, bringing first-quarter growth in this measure to an annual rate of about 9 percent. This stands in sharp contrast to the very small expansion in M_1 in the fourth quarter of 1971. Since the aggregates tend to exhibit considerable short-run volatility, it is oftentimes advisable to place more weight on their longer run performance. M_1 grew at an annual rate of about 5 percent in the six-month interval ended in March and at approximately a 6¼ percent pace over the twelve months ended in March.

The broader money supply (M_2)—which includes M_1 plus consumer-type time and savings deposits at commercial banks—grew at a seasonally adjusted annual rate of about 10½ percent in March, slightly slower than its pace of January and February. Over the twelve months ended in March, M_2 grew by about 9¾ percent. Expansion of the adjusted bank credit proxy jumped sharply in March to a seasonally adjusted annual rate of about 17½ percent. Rapid growth in seasonally adjusted United States Treasury deposits accompanied substantial advances in demand and time deposits, thus accounting for the strong increase in the proxy. First-quarter growth of the proxy is estimated at an 11¼ percent annual rate, whereas over the last twelve months the proxy expanded by about 9½ percent.

On March 28, the Board of Governors of the Federal Reserve System proposed two regulatory changes of potential significance for the banking system. The proposed change in Regulation D would restructure reserve requirements applicable to net demand deposits of member banks,

Table I

FACTORS TENDING TO INCREASE OR DECREASE MEMBER BANK RESERVES, MARCH 1972

In millions of dollars; (+) denotes increase (—) decrease in excess reserves

Factors	Changes in daily averages—week ended					Net changes
	March 1	March 8	March 15	March 22	March 29	
"Market" factors						
Member bank required reserves	+ 161	+ 243	— 426	+ 39	— 267	— 250
Operating transactions (subtotal)	+1,355	— 380	+ 320	— 611	— 107	+ 577
Federal Reserve float	+ 427	— 562	+ 47	+ 342	— 546	— 292
Treasury operations*	+ 686	+ 317	+ 290	— 218	+ 91	+1,166
Gold and foreign account	— 52	+ 80	— 32	— 18	+ 11	— 11
Currency outside banks	+ 346	— 149	— 144	— 674	+ 367	— 254
Other Federal Reserve liabilities and capital	— 51	— 65	+ 159	— 43	— 31	— 31
Total "market" factors	+1,516	— 137	— 106	— 572	— 374	+ 327
Direct Federal Reserve credit transactions						
Open market operations (subtotal)	—1,705	+ 150	+ 371	— 45	+ 665	— 564
Outright holdings:						
Treasury securities	—1,649	+ 152	+ 6	+ 234	+ 520	— 737
Bankers' acceptances	— 1	—	—	+ 3	+ 3	+ 5
Federal agency obligations	— 55	— 2	+ 35	+ 48	—	+ 26
Repurchase agreements:						
Treasury securities	—	—	+ 288	— 288	+ 128	+ 128
Bankers' acceptances	—	—	+ 33	— 33	+ 13	+ 13
Federal agency obligations	—	—	+ 9	— 9	+ 1	+ 1
Member bank borrowings	+ 53	+ 36	— 90	+ 101	+ 40	+ 141
Other Federal Reserve assets†	+ 88	+ 45	+ 42	+ 48	+ 53	+ 276
Total	—1,564	+ 231	+ 323	+ 105	+ 758	— 147
Excess reserves	— 48	+ 94	+ 217	— 467	+ 384	+ 180

	Daily average levels					Monthly averages
Member bank:						
Total reserves, including vault cash	31,614	31,465	32,108	31,602	32,253	31,808‡
Required reserves	31,532	31,289	31,715	31,676	31,943	31,631‡
Excess reserves	82	176	393	— 74	310	177‡
Borrowings	67	103	13	115	155	91‡
Free, or net borrowed (—), reserves	15	73	380	— 189	155	87‡
Nonborrowed reserves	31,547	31,362	32,095	31,487	32,098	31,718‡
Net carry-over, excess or deficit (—) §	110	85	70	210	— 17	92‡

Note: Because of rounding, figures do not necessarily add to totals.

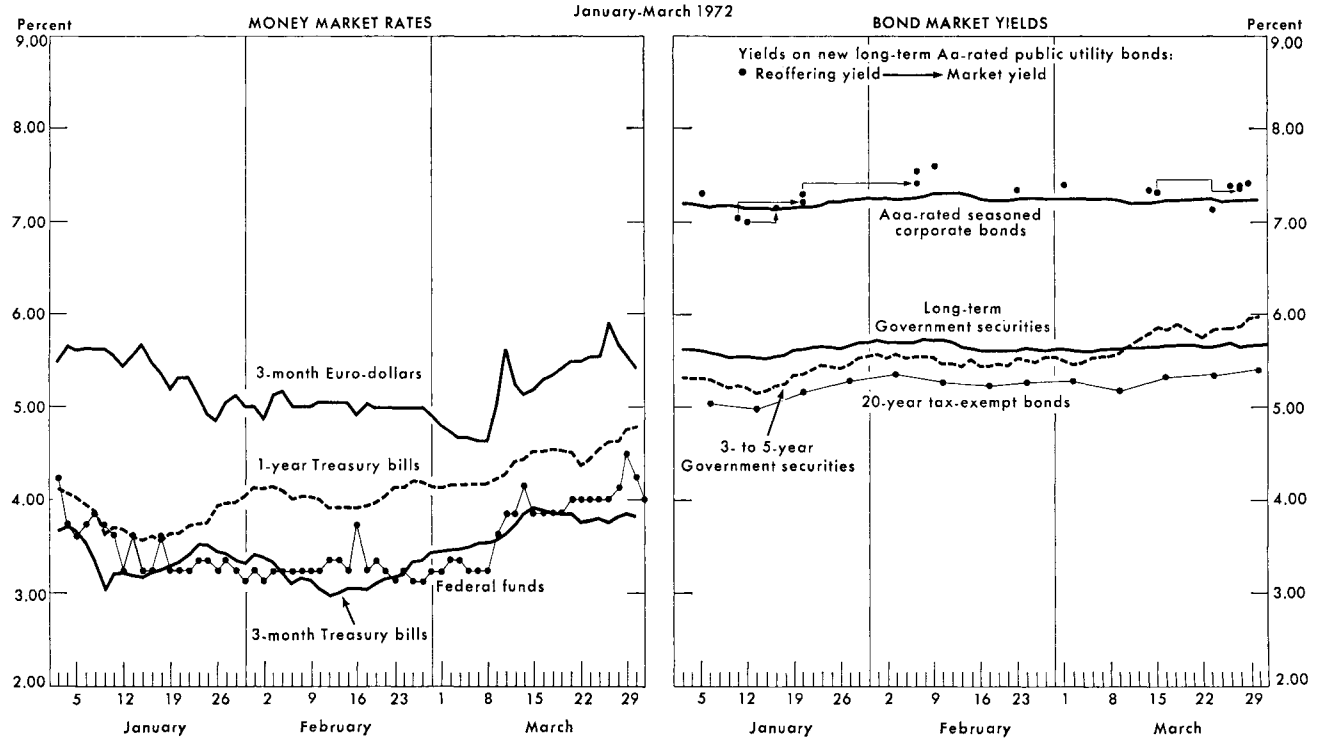
* Includes changes in Treasury currency and cash.

† Includes assets denominated in foreign currencies.

‡ Average for five weeks ended March 29.

§ Not reflected in data above.

Chart I
SELECTED INTEREST RATES
January-March 1972



Note: Data are shown for business days only.

MONEY MARKET RATES QUOTED: Bid rates for three-month Euro-dollars in London; the effective rate on Federal funds (the rate most representative of the transactions executed); closing bid rates (quoted in terms of rate of discount) on newest outstanding three-month and one-year Treasury bills.

BOND MARKET YIELDS QUOTED: Yields on new Aa-rated public utility bonds (arrows point from underwriting syndicate reoffering yield on a given issue to market yield on the same issue immediately after it has been released from syndicate restrictions); daily averages of yields on seasoned Aaa-rated corporate bonds; daily averages of yields on long-term Government securities (bonds due or callable in ten years or more) and on Government securities due in three to five years, computed on the basis of closing bid prices; Thursday averages of yields on twenty seasoned twenty-year tax-exempt bonds (carrying Moody's ratings of Aaa, Aa, A, and Baa).

Sources: Federal Reserve Bank of New York, Board of Governors of the Federal Reserve System, Moody's Investors Service, and The Weekly Bond Buyer.

so that reserve requirements on such deposits would no longer be based on geographical location. Rather, reserve requirements against net demand deposits would be graduated by bank size, as measured by such deposits. No change was proposed in reserve requirements on time and savings deposits, commercial paper issued by bank affiliates, or Euro-dollar borrowings. The revision of Regulation J proposed by the Board of Governors would require all banks served by the Federal Reserve check collection system to pay for checks drawn upon them the same day that they are presented for payment. This proposal would speed check collection procedures and would substantially reduce the daily average level of Federal Reserve float. The two proposals are intended to be neutral with respect to monetary policy and were disclosed by the Board to solicit comments from the banking system by May 15.

THE GOVERNMENT SECURITIES MARKET

A cautious atmosphere prevailed in the market for Government securities during most of March. Investors were concerned about the near-term objectives of monetary policy in light of the acceleration in the growth of the money supply and the continued uncertainty in the foreign exchange markets. Progressively higher Federal funds rates and anticipation of substantial Treasury cash needs

further served to dampen sentiment. Yields on long-term issues were essentially steady, but Treasury bill rates, which had risen over the second half of February, continued to trend upward, and yields in the intermediate area joined in this move.

On March 1 the Treasury auctioned a $3 billion "strip" of bills, consisting of $200 million additions to each of the fifteen outstanding weekly Treasury bill series maturing from March 30 through July 6. Depository banks were permitted to credit Treasury Tax and Loan Accounts for 50 percent of the awards for their own and customer accounts. Bidding for the strip issue proved to be relatively aggressive, resulting in an average issuing rate of 3.408 percent for the package. Besides the strip auction, the market supply of bills was increased by $300 million additions to the weekly bill auctions initiated by the Treasury in mid-February. These supply pressures, together with uncertainty over the future course of interest rates, generated a steady, although mild, upward movement in bill rates early in March.

The rise in bill rates accelerated sharply prior to midmonth as increases in the Federal funds rate, and then in the rate on System repurchase agreements, were interpreted as confirming the expected shift in monetary policy. (The repurchase rate was increased in three ¼ percentage point steps from 3¼ percent to 4 percent during the month.) Moreover, dealer inventories of Treasury bills rose to a large $4.9 billion in the statement week ended March 8. In this atmosphere, interest in the weekly bill auction held on March 13 was quite restrained, and average issuing rates for the new three- and six-month bills were set at 3.845 percent and 4.195 percent, respectively, up 29 and 40 basis points from rates set one week earlier (see Table II). Meantime, yields on intermediate-term Treasury notes and bonds had edged upward, and these increases quickened shortly before midmonth. Apprehension that resulted from rising short-term interest rates and data suggesting an expansion in the pace of economic activity contributed to the price declines ultimately experienced throughout the maturity spectrum. By March 15, the three- and six-month Treasury bill rates had increased 47 and 57 basis points, respectively, from the levels prevailing on March 1. Also by midmonth, yields on most intermediate-term issues were 30 to 60 basis points higher than they had been at the beginning of March. In contrast, yields on long-term bonds generally increased by a more modest 2 to 9 basis points, as this sector was not nearly so sensitive to the rise in short-term rates. Moreover, the firm tone of the corporate bond market early in the month helped to stabilize returns on longer term Government securities.

The atmosphere in all sectors of the Government securities market improved noticeably shortly after mid-March. Yields on Treasury coupon obligations receded somewhat, as investors became convinced that a sustainable trading range had been established, and bill rates similarly moved down from the levels reached earlier in the month. The climate was further enhanced when on March 21 the Treasury disclosed that its revenues were running ahead of expectations, apparently because of some overwithholding of personal income taxes following the change in withholding schedules that went into effect in January 1972 under the Revenue Act of 1971. Consequently, the Treasury announced that its financing requirements would consist of only $1.75 billion in new cash before the May refunding, with the cash to be raised through the auction on March 28 of a three-year 5⅞ percent note maturing May 15, 1975. At the same time, the Treasury revealed its intention to discontinue the $300 million additions to its weekly bill series.

Although this announcement elicited a favorable response, the subsequent rally proved to be short-lived. Investors were wary both of the firmer tone evident in the money market and of some discouraging news in the price statistics. The increase in the prime rate to 5 percent also served to rekindle a cautious, sensitive atmosphere. Yields on long-term Government bonds continued to display a good deal of stability and rose rather modestly near the end of March. For the entire month, returns on

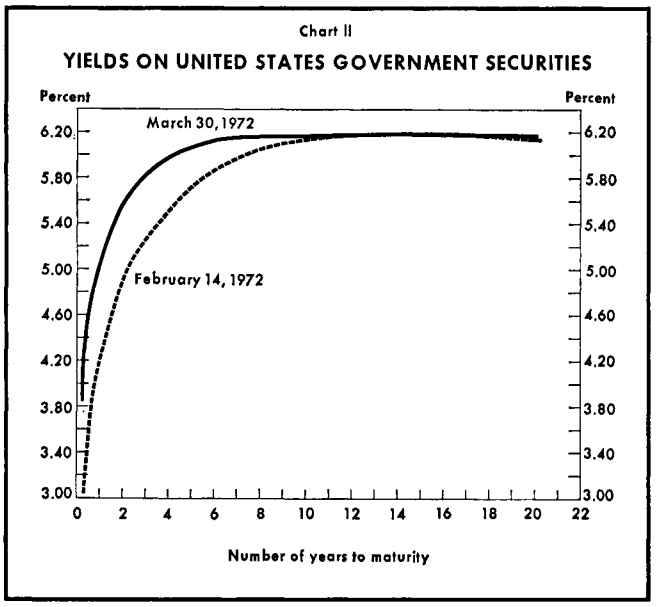
Table II

AVERAGE ISSUING RATES* AT REGULAR TREASURY BILL AUCTIONS

In percent

Maturities	Weekly auction dates—March 1972			
	March 6	March 13	March 20	March 27
Three-month	3.553	3.845	3.920	3.849
Six-month	3.796	4.195	4.322	4.354
	Monthly auction dates—January-March 1972			
	January 25	February 22	March 24	
Nine-month	3.892	3.862	4.511	
One-year	3.936	4.091	4.661	

* Interest rates on bills are quoted in terms of a 360-day year, with the discounts from par as the return on the face amount of the bills payable at maturity. Bond yield equivalents, related to the amount actually invested, would be slightly higher.



long-term issues gained only 2 to 10 basis points. However, by the end of March, yields on intermediate-term issues had generally climbed above the levels prevailing at midmonth, and over the month as a whole yields in this range increased 40 to 85 basis points. Hence, as is evident in Chart II, the yield curve had flattened considerably by the end of March, relative to the slope prevailing in mid-February when short-term interest rates were at their recent lows. The Treasury's new three-year 5⅞ percent note was auctioned on March 28 at an average issuing rate of 5.78 percent. Depository banks, which were permitted to credit Treasury Tax and Loan Accounts for the full amount of their awards, exhibited substantial interest but, overall, bidding for the new note was somewhat restrained.

Treasury bill rates, particularly for longer maturities, backed up again as the end of the month approached. Because of the uncertain interest rate outlook, investors preferred to stay in the short end of the maturity range. At the month end, the three-month bill was bid at 3.83 percent, 84 basis points above its low of mid-February, while the rate on the six-month bill closed at 4.39 percent. Thus, the spread between the three- and six-month bill rates stood at an exceptionally wide 56 basis points. In the monthly bill auction held on March 24, average issuing rates of 4.511 percent and 4.661 percent were set on the new nine- and twelve-month bills—65 and 57 basis points, respectively, above the rates established in the previous month's auction.

OTHER SECURITIES MARKETS

The corporate bond market, benefiting from a relatively light calendar of new offerings, improved considerably early in March. The quick sellout of a $200 million AA-rated finance company issue priced to yield 7.31 percent on the first day of the month halted the price slide then in progress, and a more constructive atmosphere subsequently emerged. In addition, the sizable underwriter inventories overhanging the market were substantially reduced when two large partially unsold issues, which had initially been offered in February, were released from syndicate price restrictions. Against this background, prices of seasoned corporate securities rose, and other major new corporate issues marketed at the beginning of the month were well received. For example, on March 7, $60 million of A-rated finance company debentures priced at par to yield 7.70 percent sold out almost immediately and, the next day, a $60 million A-rated utility offering which was priced aggressively to yield 7.45 percent encountered strong interest.

However, a hesitant atmosphere developed in the corporate market around midmonth in the wake of the moves to higher yields on Government securities. On Tuesday, March 14, a $30 million Aa-rated utility offering sold well when priced to yield 7.38 percent, but investor appetite for two utility issues marketed the following day was lackluster. A $25 million issue of utility bonds with the same rating and maturity as Tuesday's financing was priced to return 7.35 percent and attracted little response from investors. Similarly, a $50 million A-rated utility issue yielding 7.45 percent sold slowly, although it provided about the same return as that on a comparable issue successfully marketed one week earlier.

Prices of seasoned corporate bonds continued to drift lower over much of the rest of the month as the generally cautious atmosphere persisted. Investors appeared concerned about the prospects for long-term interest rates in light of the continuing rise in short-term rates and statistics suggesting an acceleration in economic activity. Trading was dull and, although new issue activity remained light, the poor reception afforded a $100 million Bell System offering of seven-year notes weighed heavily upon the market. A $50 million Aa-rated industrial offering met an enthusiastic welcome toward the month end, but the warm reception accorded this issue in large part reflected the relative scarcity of new high-quality industrial financings, and consequently the improvement was not sustained.

In contrast to the corporate bond market, the volume of new tax-exempt issues sold during March was substan-

tial, and the market initially handled the heavy calendar of financing easily. On March 8, the Housing Assistance Administration offered almost $225 million of Aaa-rated serial bonds on behalf of local housing authorities. The issue, aggressively priced to yield 5 percent on forty-year maturities, attracted good interest, particularly from commercial banks and casualty insurance companies.

The excellent reception afforded the housing offering, coming on the heels of several other highly successful issues, contributed to the price improvement evident in the tax-exempt market until about midmonth. Thereafter, the firm tone gradually dissipated amid continued heavy new issue activity. Investors became more selective in their response to new tax-exempt offerings, resulting in a backlog of unsold securities, and as inventories grew, dealers reduced prices on a number of issues. Several newly issued municipal bonds were released from syndicate price restrictions after mid-March and subsequently traded at yields as much as 30 basis points above their offering rates. Over the rest of the month, investor response to new tax-exempt securities was mixed, and prices of seasoned issues fluctuated narrowly. *The Weekly Bond Buyer's* twenty-bond index of municipal bond yields closed the month at 5.40 percent, 11 basis points above its level at the end of February and 22 basis points higher than it stood on March 9.

Per Jacobsson Foundation Lecture

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The eighth lecture in this series was held at the Great Hall of the International Monetary Fund in Washington, D.C., on September 26, 1971. Sir Eric Roll, a Director of the Bank of England, spoke on "International Capital Movements—Past, Present, Future". The topic was discussed by Henry H. Fowler, former Secretary of the Treasury, and Wilfried Guth, a member of the Board of Managers, Deutsche Bank AG, Frankfurt.

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