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DETERMINANTS OF THE FEDERAL FUNDS RATE: 1979 - 1982

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In the late 1970s the money stock was growing at a faster rate than desired, the rate of inflation was accelerating, and the dollar was steadily depreciating in the foreign exchange markets. In an attempt to reverse these developments the Federal Reserve on October 6, 1979 announced several actions, including a change in its operating procedures to place more emphasis on managing the growth of bank reserves in order to improve monetary control.[1] The new procedures are generally thought to have remained in place until October 9, 1982, when Federal Reserve Chairman Paul Volcker announced that the Fed was going to temporarily place less emphasis on the money stock (M1) in its policy decisions. The period between October 1979 and October 1982 was characterized by unusually high and volatile short-term interest rates, volatile money growth rates, and -- towards the end of the period -- a sharp drop in the rate of inflation. Many accounts of this period have attributed these developments to the new procedures.

The issue addressed in this paper is how the Fed's operating procedures actually changed in October 1979 and, more specifically, how movements in the federal funds rate were determined.[2] Before October 1979, the Federal Open Market Committee (FOMC) at each meeting set an initial target for the funds rate

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[1]For an account of the developments leading up to the change in operating procedures, see "Fed Takes Strong Steps to Restrain Inflation, Shifts Monetary Tactic," Wall Street Journal, October 8, 1979, p. 1.

[2]The federal funds rate is the rate on overnight loans of reserves between depository institutions. Changes in the funds rate are important because they generally lead to changes in other short-term interest rates.

and gave a set of instructions to the Account Manager at the Federal Reserve Bank of New York (the "Desk") on how to adjust the funds rate over the period until the next FOMC meeting. These instructions related desired movements in the funds rate to the projected growth rates of M1 and M2 (relative to the short-run tolerance ranges specified by the FOMC) and to other factors such as inflation, economic activity and the behavior of the dollar in the foreign exchange markets. Each week the Desk reset the target for the funds rate based on the behavior of these variables and the latest instructions it had received from the FOMC.

The Fed stopped setting explicit targets for the funds rate after October 6, 1979, and a widely held view is that funds rate movements over the following three years were determined by market forces rather than by the Fed.[3] According to this view, the critical aspect of the new procedures was that the Fed fixed the supply of nonborrowed reserves available to depository institutions so that increases in the money stock and hence in the demand for required reserves would <u>automatically</u> cause increases in the funds rate and other short-term rates. (The mechanism by which this occurred is described below.)

Despite the widespread emphasis on the automatic adjustment in descriptions of the post-October 1979 operating procedures, it was well-recognized at the time that movements in the funds rate under the procedures could also result from purely judgmental actions of the Federal Reserve. These actions included

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[3]For example, see Stigum [1983, p. 369]: "At that time, the Fed decreed that the rate at which funds traded would be wherever market forces took it, which turned out to be all over the lot;" and Morris [1983, p.5]: "The new policy regime initiated in October 1979 was unique, not in that we established money growth targets, but that we sought to achieve them by managing the rate of growth of bank reserves, allowing short-term rates to be largely market determined."

Table I

BEHAVIOR OF BORROWED RESERVES, THE DISCOUNT RATE, AND THE FUNDS RATE IN THE INTERMEETING PERIOD ENDING MAY 20, 1981

	Monetary Aggregates (annualized growth rates)		Adjustment Borrowing (excludes extended credit) ($ millions)						Federal Funds Rate (percent)		Discount Rate (surcharge) (percent)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Week	M1B/M2 Target from March to June 1[a]	M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Judgmental Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
April 8	5.5/10.5 (March to June) 5.5/10.5 (April) 5.5/10.5 (May)	5.5/10.2 (April) 12.2/8.9 (May—N.Y.)	1150	0	0	1150	1150	887	n.a.	15.43	13 (3)
April 15		5.5/14.3 (April) 10.7/8.9 (May—N.Y.)	1150	33	0	1183	1282	1142	Given banks' recent reluctance to borrow, some further . . . firming above the recent 15½ percent level was viewed as possible	15.33	13 (3)
April 22		8.1/12.7 (April) 10.4/10.2 (May—N.Y.)	1150	97[b]	0	1247	1480	863	. . . some further firming in the Federal funds rate, perhaps to the 16 percent level or a little higher	15.55	13 (3)
April 29		18.0/13.7 (April) 1.4/6.9 (May—N.Y.)	1150	-10[c]	0	1140	1667	2278	. . . expected to be consistent with a Federal funds rate of well above 16 percent as the week progressed	16.28	13 (3)
Second Subperiod											
May 6		15.6/11.3 (April) (May—n.a.)	1150	552	250[d]	1953	1953	2471[e]	n.a.	18.91	13.29 (3.29)
May 13		13.9/10.4 (April) (May—n.a.)	1150	374	484[f]	2008	1777	1733	18 to 20	18.21	14 (4)
May 20		n.a.	1150	389	484	2023	1863	1975	18 to 20	18.89	14 (4)

[a] M1B is adjusted for the estimated impact of NOW account shifts.

[b] A review of technical factors . . . suggested the potential for modest downward adjustment to the reserve paths. However, given the volatility of the data and the modest size of the suggested changes, no revisions were made.

[c] A review of technical factors . . . showed sizable potential downward adjustments to the [total and hence nonborrowed] path. The effect of making these adjustments would have raised the projected borrowing level . . . to as high as $2.8 billion. In order to smooth the transition between reserve periods . . . it was decided to leave the reserve paths for the first subperiod unchanged.

[d] Given the size of this [total reserves] gap, a decision was made, in consultation with the Chairman, to lower the average nonborrowed reserve path relative to the total reserve path by $250 million.

[e] It appeared by midweek that borrowings at the discount window would substantially exceed the level anticipated in the path construction. To have met the nonborrowed reserve objective . . . would have tended to dilute the effects of Monday's discount rate action.

[f] 1) It was decided, in consultation with the Chairman, to lower the average nonborrowed reserve path by another $120 million . . . in response to the overrun in total reserves.
2) Finally, also in consultation with the Chairman, it was decided to adjust the average nonborrowed reserve path downward because of the $343 million undershoot in nonborrowed reserves in the first week of the subperiod . . . Consequently, the average nonborrowed reserve path for the three-week period was lowered by an additional $114 million ($343 ÷ 3).

(1) judgmental adjustments to the supply of nonborrowed reserves in the period between FOMC meetings, (2) judgmental adjustments initiated at an FOMC meeting, (3) changes in the discount rate, and (4) changes in the surcharge that at times during the period was added to the basic discount rate and applied to large banks.[4]

This paper evaluates whether funds rate movements from October 1979 to October 1982 were determined by market forces interacting with a nonborrowed reserve rule or largely on a judgmental basis by the Federal Reserve as in other periods. To make this evaluation, the paper presents a detailed breakdown and analysis of the policy actions affecting the funds rate in this period. I conclude that while some of the movement in the funds rate over this period resulted from the automatic adjustment, most of the movement -- roughly two-thirds -- was due to judgmental actions of the Federal Reserve.

I. ANALYTICAL FRAMEWORK

Increases in the federal funds rate in the period from October 1979 through October 1982 came about in two general ways. The first was through an increase in the amount of reserves that banks had to borrow at the discount window (i.e. the amount not supplied by the Fed in the form of nonborrowed reserves), hereafter called the "borrowed reserves target."[5] The demand by banks for

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[4]It should be emphasized that most Federal Reserve descriptions of the operating procedures in this period did not claim that funds rate movements were being determined solely by the automatic adjustment. Levin and Meek [1981], Volcker [1980], and the New York Federal Reserve Bank's reviews of monetary policy and open market operations [1980, 1981, 1982, 1983] all describe the effects on the funds rate of judgmental adjustments to the supply of nonborrowed reserves and changes in the discount rate and surcharge.

[5]The term generally used in this period to denote the initial borrowing level specified by the FOMC for an intermeeting period was the "borrowed reserve assumption." This term was used because -- as will be explained later in the

(Footnote Continued)

borrowed reserves depends positively on the spread between the federal funds rate and the discount rate. Therefore, in general, the larger the amount of reserves banks had to borrow at the discount window, the greater the spread between the funds rate and the discount rate necessary to induce them to borrow these reserves. Consequently, at a given discount rate an increase in the amount of reserves banks had to borrow resulted in a higher funds rate. Increases in the funds rate in this period also resulted from increases in the basic discount rate or the surcharge. The funds rate had to rise following an increase in the discount rate in order to maintain the spread between the two rates necessary to achieve the borrowed reserve target in the current week.

The approach taken in this paper is to track changes in the borrowed reserve target, the discount rate, and the surcharge from October 1979 to October 1982 and to estimate how much of the resulting movement in the funds rate was attributable to the automatic adjustment and how much to judgmental actions by the Fed. The basic analytical procedure is to construct a series of tables which document the timing and cause of changes in the borrowed reserve target as well as the timing of changes in the discount rate and the surcharge. Table I illustrates the procedure with data for the period beginning after the March 31, 1981 FOMC meeting and ending May 20, 1981, the day following the next

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(Footnote Continued)
article -- under the procedures the amount of reserves that banks had to borrow in the period between FOMC meetings depended on the growth rate of money, which was unknown at the beginning of the period. Hence, the initial borrowing level changed as the period developed. The borrowing level specified for a particular week within the intermeeting period was in effect a target because under the prevailing system of lagged reserve requirements a target for nonborrowed reserves implied a specific level of borrowed reserves. To simplify the discussion and the presentation of the data, I use "target" for both purposes. As will be clear in the text, the use of that term is not meant to suggest that the borrowing level initially specified by the FOMC was fixed throughout the intermeeting period.

FOMC meeting. Over this period the funds rate rose 3.96 percentage points. Similar tables for each of the intermeeting periods from October 1979 to October 1982 are in Appendix A. (A compact version of these tables is provided in Appendix B.) All information in Table I is from the weekly Report of Open Market Operations prepared by the Federal Reserve Bank of New York. The explanatory notes at the bottom of the table are direct quotes from the Report.

This section of the paper works through Table I to identify how much of the change in the borrowed reserve target in the intermeeting period ending May 20, 1981 resulted from the automatic adjustment and how much resulted from judgmental actions taken by the Federal Reserve. This information is used together with the changes in the discount rate and surcharge documented in Table I to estimate the amount of the change in the funds rate in this intermeeting period resulting from the automatic adjustment and the amount resulting from judgmental actions by the Fed. The following section of the paper provides similar estimates for the full period from October 1979 to October 1982.

The Initial Borrowed Reserve Target In the post-October 1979 period the Federal Open Market Committee (FOMC) at each meeting chose an initial target for borrowed reserves for the period until the subsequent meeting. This target, which was generally called the "borrowed reserve assumption," is shown in column 3 of Table I. As noted above, the demand by banks to borrow reserves at the discount window largely depends on the spread between the federal funds rate and the discount rate. Hence, in choosing an initial target for borrowed reserves the FOMC was indirectly setting an initial level for the funds rate in the intermeeting period. (Of course, this funds rate level also depended on the prevailing discount rate.) At its March 31, 1981 meeting, the FOMC set an initial target for borrowed reserves for the intermeeting period ending May 20, 1981 of $1150 million. This figure was only slightly below the $1162 million borrowing target in the last week of the previous intermeeting period.

The Automatic Adjustment in the Borrowed Reserve Target[6] At each meeting the FOMC also set short-run targets for M1 and M2 over a period of two to four months. These targets are shown in column 1 of Table I, and the most recent projections of money growth are shown in column 2.[7] The staff constructed a "path" for total reserves consistent with the money supply targets. In constructing the total reserve path, the staff allowed for the projected mix of currency and deposits and the projected demand by banks for excess reserves, and it took into account the reserve requirements for various categories of deposits. In practice, many of the non-M1 components of M2 were nonreservable and reserves on other components were being phased out under the Monetary Control Act. As a result, the total reserve path was determined primarily by the M1 target.

The staff also constructed a path for nonborrowed reserves by subtracting the FOMC's initial target for borrowed reserves from the total reserve path. The paths for total and nonborrowed reserves were then translated into reserve

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[6]This brief description of the automatic adjustment is taken primarily from Volcker [1980]. For additional detail see Levin and Meek [1981] and the annual reports on monetary policy and open market operations by the Federal Reserve Bank of New York [1980, 1981, 1982, 1983]. Hetzel [1986] provides a chronological review of the implementation of the post-October 1979 procedures, and Goodfriend et. al. [1986] provide a weekly rational expectations model of the procedures. Other discussions of the procedures are in Hetzel [1982], Poole [1982] and Spindt and Tarhan [1987].

[7]The projections of the monthly growth rates of the monetary aggregates shown in Table I are those made by the staff of the Board of Governors. If projections for a particular month were supplied by the New York staff but not the Board staff, then the New York staff's forecasts are shown in the table. All forecasts of monthly growth rates available from the Report of Open Market Operations are reported in the table.

levels covering the shorter periods between FOMC meetings. The System Account Manager (the "Desk") was instructed to conduct open market operations in the intermeeting period in a manner consistent with achieving the nonborrowed reserve path.

The central feature of the procedures was that as the intermeeting period progressed, the path for nonborrowed reserves was to be held fixed. If, for example, the projected growth rate of money in the intermeeting period rose above the target set by the FOMC, then the projected level of total reserves would rise above the path level of total reserves. With the nonborrowed reserve path held fixed, the emerging gap between the projected and path levels of total reserves due to the stronger-than-targeted money growth would cause an increase in the amount of reserves that had to be borrowed at the discount window. The funds rate would rise in the current week until the spread between it and the discount rate was large enough to induce banks in the aggregate to borrow these additional reserves. The result was that stronger-than-targeted money growth would automatically cause a rise in the funds rate, which was supposed to bring money growth back to target over time.

In practice, the Desk made two modifications to the automatic adjustment as described above. First, although the Desk held the average nonborrowed reserve path fixed when there was an increase in the projected demand for total reserves in the intermeeting period, it typically made offsetting adjustments to the weekly nonborrowed reserve path in order to maintain steady borrowing over the remaining weeks of the period (Levin and Meek [1981, pp. 7-8]). Suppose, for example, that in the middle of a six-week intermeeting period new information increased the projected demand for total reserves by an average of $300 million over the remaining three weeks of the period, consisting of $100 million in week 4, $300 million in week 5, and $500 million in week 6. In this situation the

Desk would reduce the nonborrowed reserve path by $200 million in week 4, leave it unchanged in week 5, and raise it by $200 million in week 6. The result would be to raise the borrowed reserve target for each of the remaining three weeks in the period by an equal amount of $300 million.

The second modification to the automatic adjustment described above was that the Desk made "technical" adjustments to the paths for total and nonborrowed reserves to allow for changes in the estimates of excess reserves and required reserves against deposits not included in M1 and M2. Suppose, for instance, that in the intermeeting period the demand for total reserves unexpectedly rose by $50 million due to an increase in the demand for excess reserves and by $50 million due to an increase in required reserves against bank liabilities not included in M1 or M2. If the Desk made no allowance for these factors, the necessary discount-window borrowing by banks would rise by $100 million. The higher borrowing level would force a rise in the funds rate even though there had been no increase in the projected growth of M1 or M2. To forestall this outcome, the Desk could raise the total and nonborrowed reserve paths by $100 million.

In the Report of Open Market Operations, the Desk reported a gap between the projected and path level of total reserves as an average over all the weeks in the intermeeting period. In the above example, where the projected demand for total reserves rose by $100 million, $300 million, and $500 million in the last three weeks of a six-week intermeeting period, the Desk would have raised the gap by $150 million [(100 + 300 + 500)/6]. The Desk divided fifteen of the twenty-six intermeeting periods into two subperiods, including the period shown in Table I. In these cases the reserve averages were calculated separately for each subperiod.

Column 4 in Table I shows the gap between the average projected and path levels of total reserves for the intermeeting period ending May 20, 1981.[8] As the period developed, the stronger-than-targeted money growth raised the projected level of total reserves. The positive gap between the projected and path levels of total reserves that normally would have resulted from the stronger-than-targeted money growth did not appear at the end of the first subperiod (April 29) because, in order to smooth the transition between the two subperiods, the Desk decided not to make any of the sizable potential downward technical adjustments to the total and nonborrowed reserve paths (note c in Table I).[9] These adjustments were made in the second subperiod, however, and in

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[8] In practice, the initial gap between the projected and path levels of total reserves at the time of the FOMC meeting was set equal to zero, although the gap could change in the first week of the intermeeting period if on the Friday following the FOMC meeting (usually on Tuesday) the staff's forecasts for the monetary aggregates differed from those made at the meeting. Setting the initial reserve gap equal to zero did not constrain the FOMC, since if the FOMC wished to engineer a change in the funds rate at the time of the meeting, it could do so by changing the borrowed reserve target from recent borrowing levels.

[9] The sense in which the transition between the two subperiods was "smoothed" by this decision is as follows. In the first three weeks of the first subperiod, the actual borrowing level (column 8) ran below the borrowing target for the remaining weeks in the subperiod (column 7) -- henceforth called the "weekly" target (discussed later in this section). Because of these past misses, the weekly target had to rise steadily as the subperiod progressed in order to achieve the average borrowed reserve target. The Desk did not make any of the downward technical adjustments to the reserve paths at the end of the first subperiod -- which would have caused a rise in the revised average and hence weekly borrowed reserve targets -- because the weekly target had already risen sharply. If the Desk had made the technical adjustments, the weekly target would have climbed more than it did at the end of the first subperiod and then fallen at the beginning of the second subperiod, rather than rising from the first to the second subperiod as shown in column 7 of Table I. This example illustrates the operational difficulties in setting targets for average reserve levels.

that subperiod the gap between the projected and path levels of total reserves rose sharply. The final gap of $389 million for the intermeeting period caused an automatic increase in the average borrowed reserve target of that magnitude.

Judgmental Adjustments in the Average Borrowed Reserve Target The Desk could also make judgmental adjustments in the average nonborrowed reserve path during the intermeeting period, which would cause offsetting adjustments of the same magnitude in the average borrowed reserve target. The judgmental adjustments in the intermeeting period ending May 20, 1981 are shown in column 5 of Table I, and the Desk's explanations for them are given in the notes at the bottom of the table. In the fifth week of the period (May 6) "given the size of the reserve gap, a decision was made, in consultation with the Chairman," to lower the average nonborrowed reserve path by $250 million and thereby raise the average borrowed reserve target by an equal amount (note d). In the sixth week (May 13) it was decided for the same reason to make another judgmental increase in the average borrowed reserve target of $120 million (note f1). At the same time, the Desk increased the average borrowed reserve target by an additional $114 million "because of the undershoot in nonborrowed reserves" in the previous week (note f2).[10] The total of $484 million of judgmental adjustments over the

[10] The reasoning behind this adjustment was as follows. The demand for borrowed reserves was stronger than anticipated in the first week of the second subperiod, and the Desk decided to allow borrowing to come in over target (and nonborrowed reserves under target) in order not to dilute the effect on the funds rate of the increase in the discount rate that week (note e in Table I). In order to accommodate this miss in the borrowed reserve target, the next week the Desk raised the average borrowed reserve target for the subperiod by $114 million. If the Desk had not made this adjustment, the weekly borrowing target and the expected funds rate would have been lower in the last two weeks of the subperiod. The Desk occasionally made this type of adjustment to prevent misses in the weekly borrowed reserve target early in an intermeeting period or subperiod from unduly affecting the weekly target later in the period. This type of adjustment is discussed in more detail later in the article (pp. 22-23).

period more than doubled the increase in the average borrowed reserve target that would have resulted from the automatic adjustment alone. As a result, over the period the average target, shown in column 6 of Table I, rose by a total of \$873 million from \$1150 million to \$2023 million.

Determination of the Weekly Borrowed Reserve Target Column 7 in Table I shows the borrowed reserve target for the current and remaining weeks in the period (henceforth called the "weekly target"). This target, together with the discount rate, determined the expected funds rate in the current week. Changes in the weekly borrowed reserve target resulted from changes in the projected demand for total reserves over the period and from deviations of actual borrowing from target in the previous weeks of the period. To understand the calculation of the weekly target, it is useful to work through a week in Table I in detail. Consider the third week of the first subperiod (April 22), when the borrowed reserve target for the remaining two weeks in the subperiod rose by \$198 million from \$1282 million to \$1480 million. Column 4 shows that in this week the average gap over the subperiod between the projected demand for total reserves and the path level rose from \$33 million to \$97 million. As explained above, this meant that there was an increase in the cumulative projected demand for total reserves over the four-week subperiod of \$256 million [(97 - 33) x 4]. With a fixed nonborrowed reserve path, the borrowed reserve target over the remaining two weeks in the subperiod had to go up by \$128 million (256/2) to supply these additional reserves. The borrowed reserve target for the remaining weeks in the subperiod also had to offset the deviation of \$140 million between the borrowed reserve target and the actual level of borrowing in the second week of the subperiod (1282 - 1142). With a fixed nonborrowed reserve path, the borrowed reserve target in the remaining two weeks had to rise by \$70 million (140/2) to offset this miss. Together, the increase in the projected demand for total reserves and the miss in the target the second week caused a rise in the target for the third and fourth weeks of $198 million (128 + 70) to $1480 million.

The borrowed reserve target for the current and remaining weeks in a period can also be calculated in Table I directly from the average borrowed reserve target and the actual level of borrowing in the previous weeks in the period. The average target in the third week of the first subperiod was $1247 million (1150 + 97). Given borrowing of $887 million and $1142 million in the first and second weeks of the subperiod (shown in column 8), the implied borrowing target for the two remaining weeks was $1480 million [(1247 x 4 - 887 - 1142)/2], which -- as derived above -- was up $198 million from the previous week's target of $1282 million. Over the whole intermeeting period ending May 20, 1981, the rise in the average borrowed reserve target of $873 million (2023 - 1150) led to a total rise in the weekly target of $713 million (1863 - 1150).

<u>The Discount Rate and Surcharge</u> Increases in the discount rate were an important determinant of the funds rate in the October 1979 to October 1982 period. As indicated earlier, the funds rate had to rise following an increase in the discount rate in order to maintain whatever spread was necessary to achieve the borrowed reserve target in the current week.[11] On two occasions during the period from October 1979 to October 1982 a surcharge was added to the basic discount rate and applied to banks with deposits over $500 million that borrowed for two consecutive weeks or for more than four weeks in a calendar quarter. (After October 1, 1981 the calendar quarter was changed to a moving

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[11]For discussions of the relationship between the funds rate and the discount rate under the October 1979 operating procedures, see Broaddus and Cook [1983] and Sellon and Seibert [1982].

13-week period.) Increases in the surcharge also put upward pressure on the funds rate, although the effect was smaller than for increases in the basic discount rate because only large banks were subject to the surcharge (Sellon and Seibert [1982, pp. 9-12]).

As shown in column 11 of Table I, in the intermeeting period ending May 20, 1981 there was a one percentage point increase in both the discount rate and the surcharge. The discount rate and the surcharge together with the weekly borrowed reserve target were used by the Desk to derive an expected federal funds rate for the week, shown in column 9. The actual level of borrowed reserves and the actual funds rate for the week are shown in columns 8 and 10.

Determination of the Funds Rate In summary, in the intermeeting period ending May 20, 1981 the funds rate was pushed up by the automatic adjustment in the borrowed reserve target resulting from the positive gap between the projected and path levels of total reserves, by judgmental adjustments to the borrowed reserve target, and by increases in the discount rate and the surcharge. The effect of each of these factors on the funds rate depends on the characteristics of the demand function for borrowed reserves. Empirical work indicates that a $100 million increase in borrowed reserves in this period was associated with an increase in the spread between the funds rate and the discount rate of roughly 25 basis points.[12] (The Fed has long used this

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[12] Sellon [1985] shows that the estimated relationship between the spread and the level of borrowing in the post-October 1979 period is sensitive to the choice of the dependent variable in the estimated regression equation and the treatment of the surcharge in the equation. In equations with a surcharge variable, the estimated effect on the spread of a $100 million increase in the level of borrowing is 31 basis points when borrowing is the dependent variable and 17 basis points when the spread is the dependent variable, although the latter estimate drops sharply if a correction for autocorrelation is made. In equations with borrowing as the dependent variable and a surcharge dummy

(Footnote Continued)

estimate in relating borrowing levels to the spread.) Using this relationship one can estimate that the $713 million increase in the weekly borrowed reserve target over this period raised the funds rate by 178 basis points. Forty-five percent of the increase in the weekly borrowed reserve target was due to the automatic adjustment in the average borrowed reserve target (389/873), and 55 percent was due to judgmental adjustments in the average borrowed reserve target (484/873). Hence, one can estimate that the automatic adjustment raised the funds rate by 79 basis points, while the judgmental adjustments raised it by 99 basis points. The small $13 million reduction in the borrowed reserve target made at the beginning of the period by the FOMC lowered the funds rate by 3 basis points.

As discussed above, under the October 1979 procedures a one percentage point increase in the discount rate would be expected to raise the funds rate by roughly an equal amount, and this expectation is confirmed by the estimates of Sellon and Seibert [1982]. Hence, I attribute a one percentage point increase in the funds rate to the discount rate increase. Sellon and Seibert estimate that a one percent surcharge raised the funds rate by approximately 65 basis points, and I use that estimate in this paper.[13]

(Footnote Continued)
variable entered multiplicatively with the spread, the effect of a $100 million increase in borrowing when the surcharge is zero is 20 basis points in one subperiod and 31 basis points in the second subperiod.

[13]As Sellon [1985, pp. 12-18] emphasizes, it is difficult to obtain meaningful estimates of the impact of the surcharge on the funds rate. The surcharge was imposed only two times, and the first time occurred in the midst of the 1980 credit controls. The effect of the elimination of the surcharge on the funds rate is particularly difficult to evaluate because in both cases the elimination occurred just as the funds rate was slipping below the discount rate and the Desk was effectively going off the nonborrowed reserve procedures. In any case, attributing the funds rate declines in these periods to a breakdown in the procedures rather than to the elimination of the surcharge would not affect
(Footnote Continued)

To sum up, estimates of the contribution of the various factors to movements in the funds rate over the intermeeting period ending May 20, 1981 are:

FOMC lowering of borrowed reserve target at beginning of period:	-.03
automatic upward adjustment of borrowed reserve target:	.99
judgmental upward adjustments in borrowed reserve target:	.79
discount rate increase:	1.00
surcharge:	.65

The estimate of the total rise in the funds rate over this intermeeting period is 3.40 percentage points, which is somewhat below the actual increase of 3.96 percentage points. A little under 30 percent of the estimated increase in the funds rate can be attributed to the automatic adjustment. The rest resulted from judgmental decisions of the Fed.

Breakdown in the Automatic Adjustment The automatic adjustment illustrated in Table I did not function whenever the demand for total reserves fell below the nonborrowed reserve path.[14] In this situation the federal funds rate dropped below the discount rate and fell to whatever level the FOMC set as a constraint (Levin and Meek [1981, p. 26]). In such periods borrowing at the discount window was no longer sensitive to the spread between the funds rate and the discount rate. Consequently, cuts in the discount rate had no effect on the

(Footnote Continued)
the overall allocation of funds rate movements between those due to the automatic adjustment and those due to judgmental Fed decisions, since movements in the funds rate resulting from either cause fall into the latter category.

[14] Strictly speaking, the procedure also broke down when the FOMC had flexible short-run targets for the monetary aggregates within the intermeeting period. For instance, in the intermeeting period ending July 8, 1981 the FOMC's short-run target for M1B was 3% or less. In this period the Desk accommodated the weak growth in M1B by making weekly downward adjustments in the reserve paths. (See Table 16 in Appendix A.)

funds rate. There were three such episodes in the October 1979 to October 1982 period: (1) from the middle of the intermeeting period ending May 21, 1980 to the first week of the intermeeting period ending September 17, 1980; (2) most of the intermeeting period ending August 25, 1982; and (3) a brief period at the beginning of the intermeeting period ending December 23, 1981.

Table II shows the intermeeting period ending July 9, 1980, when the funds rate was well below the discount rate. In this situation the Desk simply fixed the average borrowed reserve target at a minimal level of $100 million and adjusted nonborrowed reserves to reflect changes in required reserves.[15] The funds rate was effectively set on a week-to-week basis at a level acceptable to the FOMC. Also, the two cuts in the discount rate in this period had no apparent effect on the actual funds rate or on the funds rate expected by the Desk.

II. ALLOCATION OF MOVEMENTS IN THE FUNDS RATE OVER THE POST-OCTOBER 1979 PERIOD

Table III provides estimates of the movements in the funds rate over the period from October 1979 through June 1982, excluding the intermeeting periods ending July 9, 1980, August 13, 1980, and August 25, 1982, when the funds rate was below the discount rate and the automatic adjustment was not functioning.[16]

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[15]The breakdown of the procedures in this period is discussed in the New York Fed's 1980 review of monetary policy and open market operations [1981, p. 72]: "As implied borrowing moved down to frictional levels, the Desk began to encounter operational difficulties that recurred from time to time through July."

[16]I exclude the intermeeting period ending October 6, 1982 from the discussion altogether because the nonborrowed reserve procedures had effectively been abandoned by this time even though Chairman Volcker's announcement of the deemphasis of M1 did not come until the end of the period. In line with the FOMC's instructions, the Desk in this period adjusted the reserve paths to

(Footnote Continued)

Table II

BEHAVIOR OF BORROWED RESERVES, THE DISCOUNT RATE, AND THE FUNDS RATE IN THE INTERMEETING PERIOD ENDING JULY 9, 1980

	Monetary Aggregates (annualized growth rates)		Adjustment Borrowing (excludes extended credit) ($ millions)						Federal Funds Rate (percent)		Discount Rate (percent)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Week	M1A/M1B/M2 Target from March to June	M1A/M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Judgmental Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
May 28	The [reserve] paths were constructed in accordance with the Committee's decision to accept some increase in monetary growth during May and June relative to the estimates presented at the [FOMC] meeting . . .	7.1/5.3/6.7 (May) 10.0/12.0/9.1 (June)	100	0	0	100	100	307	Achieving the frictional level of borrowing implied that Federal funds probably would not trade above the discount rate, and might well decline from the approximate 10¾ percent average of the previous week. The Committee had set a lower bound on its Federal funds rate range of 8½ percent (with a top of 14 percent) but indicated a preference that funds not trade persistently at rates below about 9½ percent without the opportunity for further Committee consultation.	9.46	13
June 4		4.5/2.5/8.8 (May) 10.0/12.4/12.5 (June)	100	0[a]	0	100	31	105	. . . achieving such low adjustment borrowing levels implied that the Federal funds rate might well test the 9½ percent level late in the statement week.	10.74	12
June 11		2.9/0.9/8.5 (May) 8.7/11.1/11.1 (June)	100	−6	0	*94	0	32	Since it appeared likely that Federal funds would trade below 9½ percent if the Desk sought these levels of adjustment borrowing and excess reserves, the Account Management consulted with the Committee.[b]	9.68	12
June 18		3.2/1.5/9.2 (May) 9.4/11.4/13.5 (June)	100	0[c]	0	*100	0	120	n.a.	8.99	11.14
Second Subperiod											
June 25		1.6/−0.3/8.6 (May) 13.0/15.5/16.1 (June)	100	0[d]	0	100	100	44	n.a.	9.08	11
July 2		0.7/−1.2/9.1 (May) 14.4/17.4/17.2 (June)	100	0	0	*100	128	74	n.a.	9.41	11
July 9		13.7/16.8/17.3 (June)	100	0	*−27[e]	*73	100	17	n.a.	9.26	11

[a] As in the previous week the average nonborrowed reserve path . . . was set equal to the total reserve path less $100 million on average for adjustment borrowing.

[b] The Committee, in a telephone conference on Thursday, June 5, agreed to allow full use of the entire Federal funds rate range down to 8½ percent, provided that the dollar did not come under undue pressure in the foreign exchange market.

[c] The average total reserves path for the four-week period ending June 18 was raised slightly to align it with the four-week average of actual and projected total reserves. This was done in accordance with the decision to set the path equal to the projection so long as the projection exceeded the original path deemed consistent with the minimally acceptable growth rates of the aggregates for May-June.

[d] The path was not lowered by the full amount of the accepted [technical] revisions because that would have resulted in a path level that implied adjustment borrowings in excess of the $100 million level initially sought by the Committee.

[e] In view of the imminence of the Committee meeting it was decided not to push borrowing to higher levels to make up for shortfalls in the previous two weeks.

* Number not explicitly given in the Report of Open Market Operations (See Appendix for explanation).

TABLE 3: ESTIMATES OF MOVEMENTS IN THE FUNDS RATE

	CONTRIBUTING FACTORS					TOTAL	
Intermeeting Period Ending	Target Change by FOMC	Automatic Adjustments	Discretionary Adjustments	Discount Rate Increase	Surcharge	Estimated Funds Rate Change	Actual Funds Rate Change
21-Nov-79	0.00	0.49	0.06	0.71	0.00	1.26	1.10
09-Jan-80	-0.05	-0.52	-0.48	0	0.00	-1.05	0.84
06-Feb-80	-0.75	0.00	0.00	0	0.00	-0.75	-1.14
19-Mar-80	1.38	1.16	1.18	1	0.84	5.56	3.44
23-Apr-80	1.41	-2.30	-0.32	0	1.11	-0.11	1.32
21-May-80	-0.81	-4.18	0.74	0	-1.95	-6.20	-6.85
09-Jul-80	0.25	0.00	0.00	0	0.00	na	-1.45
13-Aug-80	-0.06	0.05	0.00	0	0.00	na	-0.41
17-Sep-80	-0.05	1.22	0.48	0	0.00	1.65	1.79
22-Oct-80	-0.01	0.99	0.45	1	0.00	2.43	1.91
19-Nov-80	-0.07	0.52	0.26	0.43	0.56	1.71	2.67
17-Dec-80	-0.29	0.18	0.14	1.57	1.39	3.00	4.61
04-Feb-81	-0.32	-3.09	2.09	0	0.00	-1.32	-2.64
01-Apr-81	0.50	-0.35	0.00	0	0.00	0.15	-2.26
20-May-81	-0.03	0.79	0.99	1	0.65	3.40	3.96
08-Jul-81	0.59	-1.01	-0.81	0	0.00	-1.23	1.04
19-Aug-81	0.32	-0.15	-0.07	0	0.00	0.09	-1.74
07-Oct-81	-0.02	-1.29	0.00	0	-0.65	-1.97	-2.73
18-Nov-81	-0.08	-1.01	-0.12	0	-1.02	-2.23	-2.29
23-Dec-81	0.00	0.13	-0.25	0	-0.93	-1.05	-0.74
03-Feb-82	-0.13	2.01	0.99	0	0.00	2.88	2.34
31-Mar-82	0.00	-0.16	-0.08	0	0.00	-0.24	0.22
19-May-82	-0.64	-0.14	-0.12	0	0.00	-0.90	-0.32
30-Jun-82	-0.61	0.33	0.20	0	0.00	-0.07	0.14
25-Aug-82	-0.54	-0.73	-0.51	0	0.00	na	-5.77
Absolute Total*	8.06	22.02	9.83	5.71	9.10		

*Excludes 9-July-80, 13-Aug-80 and 25-Aug-82

As in the example above, Table III allocates movements in the funds rate over this period to five sources: the automatic adjustment in the borrowed reserve target in the intermeeting period, judgmental adjustments in the borrowed reserves target in the intermeeting period, adjustments in the borrowed reserve target made at FOMC meetings, discount rate changes, and changes in the discount rate surcharge. The assumptions used to allocate movements in the funds rate to each of these factors are: (1) an increase or decrease in the weekly borrowed reserve target of $100 million causes a rise or fall in the funds rate of 25 basis points, (2) a rise in the discount rate causes an equal rise in the funds rate, (3) a one percent surcharge raises the funds rate by 65 basis points, and (4) a decrease in the discount rate has no effect on the funds rate.

The first three assumptions were discussed above. The fourth reflects the circumstance that most discount rate cuts in this period occurred when the funds rate was below the discount rate, and in this situation cuts in the discount rate would not be expected to affect the funds rate. This expectation is confirmed by Sellon and Seibert [1982], who find that reductions in the discount rate in this period had a negligible effect on the funds rate. The Fed seemed to be aware of the funds rate's insensitivity to discount rate cuts at the time, as it generally accompanied reductions in the discount rate with announcements indicating the reductions were solely to realign the discount rate with market rates. In contrast, the Fed always accompanied increases in the discount rate

(Footnote Continued)
prevent the funds rate from rising in reaction to the rapid money growth in August and September, and the expected funds rate remained around 10 percent throughout the period. (See Table 26 in Appendix A.)

with more aggressive announcements indicating the increases were being made partially, if not totally, for policy reasons.[17]

The totals at the bottom of Table III show that based on the assumptions above, the automatic adjustment in the borrowed reserve target contributed 22.02 percentage points to movements (in absolute value) in the funds rate over the post-October 1979 period. The contribution of the discount rate plus the surcharge was 14.81 percentage points. Judgmental adjustments in the borrowed reserve target caused movements of 9.83 percentage points.[18] In all but three cases the judgmental adjustments were in the same direction as the automatic adjustment.[19] Target changes at FOMC meetings contributed funds rate movements

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[17]Cook and Hahn [1986] provide a record of the discount rate announcements in this period. Seven of the ten cuts in the discount rate were accompanied by announcements indicating the cuts were being taken solely to realign the rate with market rates, whereas none of the six increases in the discount rate were accompanied by this type of announcement.

[18]In the intermeeting period ending February 6, 1980, the weekly borrowed reserve target fell even though the average borrowed reserve target rose. As shown in Appendix A, this oddity resulted from large misses in the weekly target. In this case, I set the contribution of changes in the average borrowed reserve target to movements in the funds rate at zero.

[19]As shown in Appendix A, in the intermeeting period ending February 4, 1981, there was a small decrease in the average borrowed reserve target and a much larger decrease in the weekly target, while the automatic adjustment in the average borrowed reserve target was negative and the judgmental adjustment in the average borrowed reserve target was positive. In this situation, the estimated impact on the funds rate of both the automatic and judgmental adjustments to the borrowing target were magnified given the nature of the estimation procedure as described in the text. These estimates are offsetting, however, and they have virtually no effect on the overall estimate of movements in the funds rate due to automatic versus judgmental adjustments in the average borrowed reserve target.

of 8.06 percentage points, the major part of which was in the first six intermeeting periods.[20] After that, the FOMC generally set the initial borrowing target close to the last weekly borrowing target in the previous period.

The estimates in Table III can also be used to evaluate the relative importance of different factors over periods of unusually sharp movements in the funds rate. Consider the rise in the funds rate of 10.98 percentage points over the four periods ending December 17, 1980. In this period the estimated increase in the funds rate was 8.79 percentage points, only 2.91 percentage points of which was due to the automatic adjustment. Rises in the discount rate and surcharge were responsible for 4.95 percentage points of the increase, and judgmental adjustments in the borrowed reserve target were responsible for another 1.33 percentage points.[21]

The accompanying chart compares the funds rate predicted by the estimates in Table III to the actual funds rate. Although there are occasionally large errors within individual periods, these tend to be offsetting, so the predicted funds rate does a fairly good job of tracking the actual funds rate. The large prediction errors in some of the periods reflect the instability of the relationship between the demand for borrowed reserves and the spread between the

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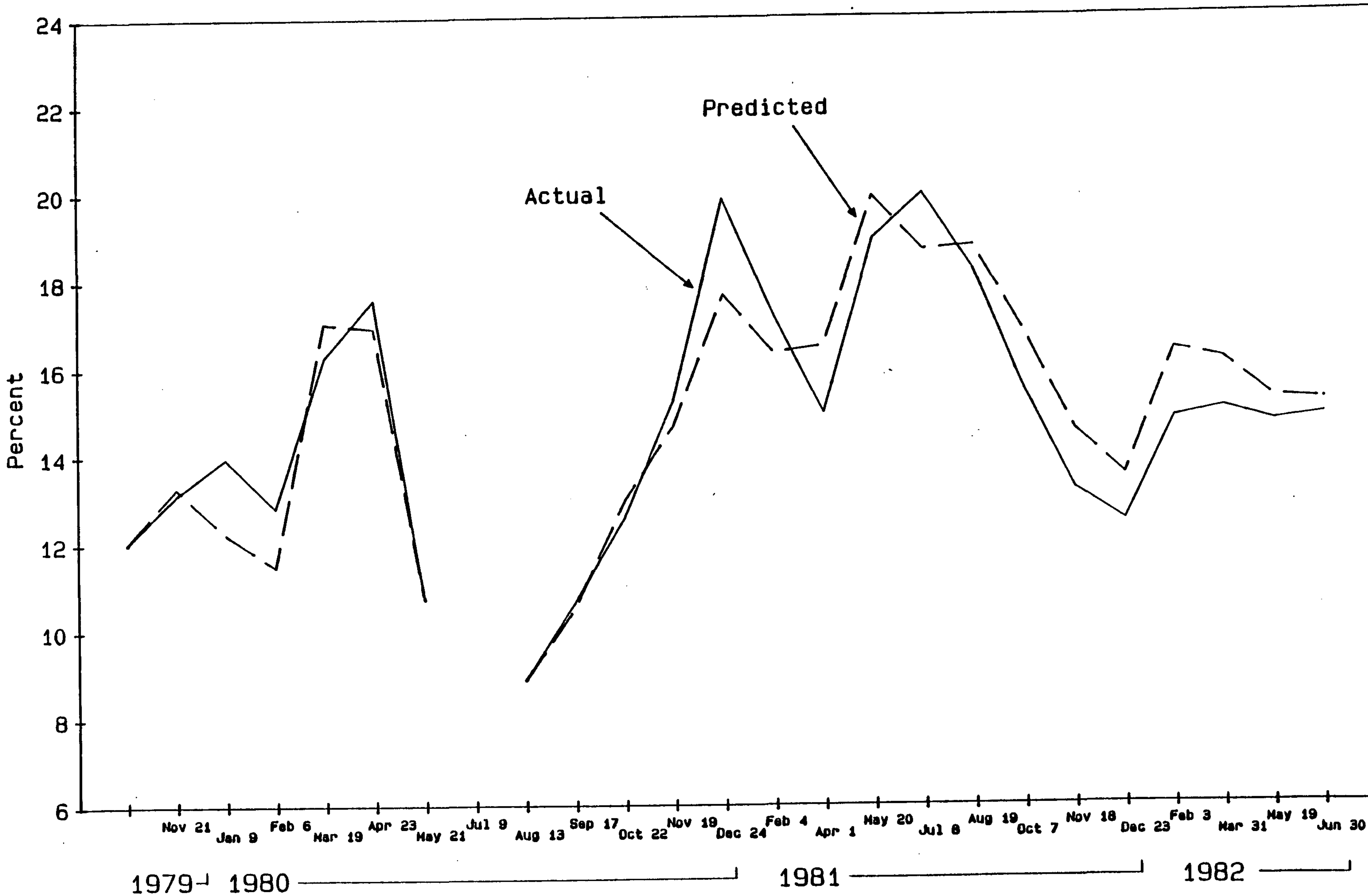
[20] The sum of the estimated contributions to movements in the funds rate for all the factors is bigger than the total estimated movement because factors sometimes pulled the funds rate in opposite directions within a period.

[21] This estimate is similar to that made in the New York Federal Reserve Bank's 1980 review of monetary policy and open market operations [1981, p. 64]: "In combination [the discount rate and surcharge] appeared to account for about half of the 10 1/2 percentage point increase in the funds rate over the August/December period. The remaining increase reflected the automatic response of rates to monetary overshoots under the reserve approach and the downward [judgmental] adjustments made to the nonborrowed reserve path."

ACTUAL AND PREDICTED MOVEMENTS IN FEDERAL FUNDS RATE



funds rate and the discount rate. Factors influencing this relationship are the expected direction of monetary policy and the effect of discount window administration on bank borrowing patterns.[22]

The discussion above excludes the intermeeting periods ending July 9, 1980, August 13, 1980, and August 25, 1982, when the funds rate was below the discount rate and the automatic adjustment was not in operation.[23] (It includes, however, the intermeeting period ending December 23, 1981, when the funds rate was below the discount rate for a brief period, and the intermeeting period ending May 21, 1980, when the funds rate was below the discount rate the second half of the period.) The funds rate declined 1.86 percentage points over the two intermeeting periods in the summer of 1980 and 5.77 percentage points in the period ending in August 1982.

The central conclusion from Table III is that movements in the funds rate in the post-October 1979 period were not determined primarily by the automatic adjustment of the borrowing target under the nonborrowed reserve operating procedures. In this period the automatic adjustment was responsible for only

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[22] Levin and Meek [1981, pp. 29-34] discuss some specific periods of difficulty in predicting short-run movements in the funds rate when policy expectations and discount window administration were altering the relationship between borrowing and the spread between the funds rate and the discount rate. Goodfriend [1983] provides a theoretical discussion of the effect of policy expectations and discount window administration on discount window borrowing behavior, and Mengle [1986] describes the ground rules faced by financial institutions when borrowing at the discount window.

[23] In the period ending August 25, 1982, borrowing was well above the negligible level usually associated with a negative spread between the funds rate and the discount rate. Apparently, this resulted from the inclusion of some emergency borrowing in the adjustment borrowing category in the aftermath of the Penn Square Bank failure. For instance, in explaining the low funds rate the week of July 28, 1982, when reported adjustment borrowing was $524 million, the Report of Open Market Operations indicated that "the amount of adjustment borrowing contained in the total borrowing imposed on the system was fairly low, resulting in less pressure on the money market."

about one-third of the movement in the funds rate. The other two-thirds resulted from changes in the discount rate and the surcharge, judgmental adjustments in the borrowed reserve target in the intermeeting period or at FOMC meetings, and movements in the funds rate when it was below the discount rate and the automatic adjustment was not in operation. It follows from this conclusion that the greater volatility in interest rates and monetary growth rates observed in this period can not be attributed primarily to the automatic adjustment.[24]

III. POSSIBLE METHODOLOGICAL PROBLEMS

This section discusses four questions that might arise regarding the procedure used in allocating movements in the funds rate to the various factors listed above. The main concern is whether the procedure might be biased in favor of the conclusion that movements in the funds rate over this period were largely due to judgmental decisions by the Federal Reserve.

One judgmental decision potentially affecting the funds rate not taken into account in the analysis of the preceding section is how much of the "technical" adjustments the Desk incorporated into the paths for nonborrowed and total

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[24] It is of course possible that in this period the Fed's actions affecting the funds rate gave greater weight than earlier to deviations of the money stock from target or to deviations from target of other goals such as inflation. McNees [1986] estimates a Federal Reserve reaction function over the period from the third quarter of 1970 through the second quarter of 1986 with the federal funds rate as the dependent variable (i.e. the Fed's policy instrument). He finds increased emphasis on monetary growth over the period from October 1979 to October 1982, but otherwise concludes that the policy behavior that prevailed in the 1970s persisted in the 1980s. Similarly, Karamouzis and Lombra [1988] estimate a Fed reaction function over the 1973-1982 period with the funds rate as the dependent variable. They find that the coefficient on the difference between actual and targeted money growth jumped sharply shortly after October 1979 and then fell sharply toward the end of 1982.

reserves. As noted earlier, in setting the total reserve path at the beginning of an intermeeting period the Desk had to allow for the absorption of reserves by excess reserves and by required reserves against deposits such as large CDs not included in M1 and M2. Estimates of these technical factors would change as the intermeeting period progressed. In practice, the Desk used some judgement in deciding how to adjust the total (and nonborrowed) reserve path to reflect changes in the technical factors. This decision influenced the gap between the projected and path levels of total reserves, and consequently affected the borrowed reserve target and the expected federal funds rate in the current week. The Desk on occasion considered the effects on the weekly borrowing target and funds rate in deciding how much of the technical adjustments to include in the paths.[25]

A second question regarding the procedure used to allocate funds rate movements concerns the treatment of the judgmental adjustments to the average borrowed reserve target. Conceptually, one can divide these adjustments into two types: The first to engineer movements in the funds rate that would not have resulted from the automatic adjustment and the second to prevent funds rate movements resulting from "shifts" in the demand function for borrowed reserves. To illustrate the latter type, suppose that in the first week of a four-week period a temporary (i.e. one-week) shift in the demand for borrowed reserves increased desired discount-window borrowing above the amount that normally would have resulted from the prevailing spread between the funds rate and the discount rate. Suppose also that rather than let this shift affect the funds rate, the

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[25]For example, see Table 10, note 4, and Table 22, note 7, in Appendix A. See Levin and Meek [1981, Appendix 1] for a discussion of the technical adjustments in setting the reserve paths.

Desk allowed borrowed reserves to be, say, $400 million more than had been targeted (and nonborrowed reserves $400 million less). The following week the Desk could raise the average borrowing target for the four-week period by $100 million (400/4), thereby leaving the weekly target for the last three weeks in the period unaffected by the temporary shift in the borrowed reserve function the first week.[26]

One might argue that adjustments in the average borrowed reserve target to accommodate past misses in the weekly borrowed reserve target resulting from shifts in the borrowed reserve function should not be counted as judgmental -- as they were in the preceding section -- because such adjustments were intended to prevent movements in the funds rate not resulting from the automatic adjustment. In many cases, however, it is difficult to identify from the Report of Open Market Operations those adjustments in the average borrowed reserve target made to offset past misses in the weekly borrowing target clearly resulting from shifts in the borrowed reserve function. At most, 30 percent of the judgmental adjustments at the end of the intermeeting periods were of this nature.[27] If these adjustments were removed from the judgmental category, then additions to this category should be made for those occasions when there was a shift in the borrowed reserve function that the Desk did not accommodate, but such occasions can not be identified from the Report of Open Market Operations. On balance, it is possible that the inclusion in the judgmental category of those adjustments made to accommodate shifts in the borrowed reserve function

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[26]For examples of this type of adjustment in the average borrowed reserve target see Table 6, note 2, and Table 16, note 10, in Appendix A.

[27]Note that it is only the end-of-period adjustments that are relevant to this discussion and the previous discussion on technical adjustments, since the estimates in Table III are based on end-of-period figures.

may have biased upward the estimate in the previous section of funds rate movements due to judgmental actions, but the bias in any case was small.

The third question regarding the procedure used here is its focus on the extent to which movements in the funds rate were automatically caused by deviations of M1 from its short-run targets. Because the short-run targets were taken as given, a potential source of judgmental influence on the funds rate not captured by the analysis was the relationship between the short-run targets for M1 and the annual targets. I did not examine that relationship in this paper, but it clearly was not uniform over the three-year period. An important example is the second quarter of 1981 when the FOMC formally accepted short-run growth rates of M1 that were below the rate consistent with its annual target (adjusted for the estimated impact of NOW account shifts). The funds rate rose from 14.93 percent at the end of the April 1, 1981 intermeeting period to 19.93 percent at the end of the July 8, 1981 intermeeting period even though M1 was at the lower bound or below its annual target range throughout this interval.[28] As a result, M1 finished 1981 well below its annual target range. (M2, however, finished the year around the top of its range.)

A final issue, and probably the most important, is that the analysis implicitly assumes that movements in the funds rate resulting from judgmental actions were not systematically related to movements resulting from the automatic adjustment. If they were, then one might justifiably argue that movements in the funds rate over this period were, in fact, automatically determined. To consider this possibility, I regressed the period by period changes in the funds rate resulting from all judgmental actions (JUDG) -- the

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[28]See Table 16 in Appendix A and the discussion of this period in Hetzel [1986, pp. 26-28] and Broaddus and Goodfriend [1984, pp. 7-8].

sum of columns 1, 3, 4 and 5 in Table 3 -- on the changes resulting from the automatic adjustment (AUTO) -- column 2 in Table 3. The regression results were (t-statistics in parentheses):

$$\underset{(1.74)}{\mathrm{JUDG} = 0.54} + \underset{(2.30)}{0.55}\ (\mathrm{AUTO}) \qquad R^2 = .22$$

The coefficient of AUTO is positive and significant at the 5% level, indicating there was some tendency for judgmental actions to reinforce the effect of the automatic adjustment on movements in the funds rate. The low R^2, however, indicates that the proportion of the judgmental movement in the funds rate that was systematically linked to the automatic adjustment was small. Moreover, this regression excludes data from the intermeeting periods when the automatic adjustment in the borrowed reserve target was not functioning and movements in the funds rate were determined solely on a judgmental basis (July 9, 1980, August 13, 1980, and August 25, 1982).[29] On balance, the evidence indicates only a weak link between movements in the funds rate resulting from judgmental actions and movements resulting from the automatic adjustment.

To summarize, it can be argued that some of the adjustments in the average borrowed reserve target that I have counted as judgmental were consistent with the automatic adjustment because they were intended to accommodate past misses in the weekly borrowing target associated with shifts in the borrowed reserve function. (Although that argument is not compelling in my view, because there was no clear rule governing when such adjustments would be made.) Also, the evidence indicates that a small part of the movement in the funds rate due to

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[29]The regression also excludes the period ending February 4, 1981, when there are large estimates -- opposite in sign -- of the contribution to funds rate movements of the automatic and judgmental adjustments in the average borrowed reserve target. (See footnote 19). The regression results deteriorate sharply when this period is included.

judgmental actions was systematically related to the movement resulting from the automatic adjustment. These factors may exert some downward bias on the estimate of the proportion of the movement in the funds rate in the post-October 1979 period resulting from the automatic adjustment. Working in the opposite direction, however, is the judgmental effect on the funds rate resulting from the lack of rules (1) specifying how much of the technical adjustments to incorporate into the reserve paths and (2) linking the short-run M1 targets to the annual target. On balance, the questions raised in this section do not appear to significantly weaken the earlier conclusion that movements in the funds rate from October 1979 to October 1982 were largely determined on a judgmental basis.

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APPENDIX A

The tables in this Appendix provide a record of the timing of weekly changes in the borrowed reserve target and the discount rate for each of the twenty-six periods between FOMC meetings from October 1979 through October 1982. All information in the tables comes from the Report of Open Market Operations.

The first two columns in the Appendix tables show the paths set by the Federal Open Market Committee (FOMC) for the short-run growth rates of the monetary aggregates and the latest projected monthly growth rates for the aggregates. All figures in these columns are seasonally adjusted annualized growth rates. The paths for the short-run money growth rates were set for periods of two to four months. Initially, targets were set for M1 and M2. From the intermeeting period ending 19-Mar-80 through the intermeeting period ending 17-Dec-80 targets were set for for M1A, M1B, and M2. Beginning in the intermeeting period ending 4-Feb-81 the targets were "shift-adjusted" to abstract from the effects of deposit shifts connected with the introduction of NOW accounts on a nationwide basis. M1A was dropped from the list of targeted aggregates in the intermeeting period ending 20-May-81. Beginning in the intermeeting period ending 3-Feb-82 the targets were set without any adjustment for NOW account shifts, and thereafter M1B was referred to as M1.

The projections of the monthly growth rates of the monetary aggregates shown in the Appendix tables are those made by the staff of the Board of Governors. If projections for a particular month were supplied by the New York staff but not the Board staff, then the New York staff's forecasts are shown in the tables. All forecasts of monthly growth rates available from the Report of Open Market Operations are reported in the tables.

The third through eighth columns in the tables show targeted and actual borrowing levels at the discount window. All figures in these columns are in millions. The third column shows the initial target for average borrowed reserves in the intermeeting period set by the FOMC. In Federal Reserve descriptions of the October 1979 procedure this was called the "borrowed reserve assumption." The fourth column shows the gap between the projected level of average total reserves and the path level of average total reserves. The initial average borrowed reserve target was revised by the amount of this gap. The fifth column shows any additional -- i.e. judgmental -- adjustments to the average borrowed reserve target. The sixth column adds to the initial target for average borrowed reserves the total reserve gap plus any judgmental adjustments to get a revised target for average borrowed reserves. The seventh column shows the borrowed reserve target for the current and remaining weeks in the intermeeting period (or subperiod). This column is derived from the revised average target for borrowed reserves and the actual level of borrowing in the weeks of the period that have already gone by. Column eight shows the actual borrowing level for the week.

In the first few intermeeting periods the Report of Open Market Operations gives some of the reserve numbers in approximate terms (for example, rounded to the nearest $100 million). In these periods there are a few small inconsistences between the revised average borrowed reserve target and the borrowed reserve target for the current and remaining weeks.

In some cases -- especially in the first few intermeeting periods -- numbers for some of the items are not explicitly mentioned in the Report of Open Market Operations. The borrowed reserve target for the current and remaining weeks in the intermeeting period and the gap between the projected and path levels of total reserves are always given, however, and these can be used to derive the other numbers. Knowledge of the borrowing target for the current and remaining weeks in the intermeeting period along with past levels of borrowing can be used to derive the revised target for average borrowed reserves. The target for average borrowed reserves in combination with the total reserve gap and the initial borrowed reserve target specified by the FOMC can be used to derive a figure for judgmental adjustments in the average borrowed reserve target. Numbers that are not explicitly given in the Report of Open Market Operations, but were derived by me, are denoted in brackets [ ].

The ninth and tenth columns show the average effective federal funds rate range expected by the Desk near the beginning of the statement week (usually on Friday) and the actual average effective funds rate. The last column shows the discount rate and the surcharge.

Unless in brackets [ ], the explanatory notes at the bottom of the tables are verbatim quotes from the Report of Open Market Operations. I included as notes all explanations given in the Report for judgmental adjustments in the borrowed reserve target and all explanations for decisions to miss the current week's borrowed reserve target. Occasionally, I also included notes reporting the amount of the "technical" adjustments that were made to the total and nonborrowed reserve paths.

Appendix Table 1: Four-Week Period Ending October 31, 1979 and Three-Week Period Ending November 21, 1979

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
Week	M1/M2 Path from Sep. to Dec.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Oct. 10	4.5/7.5	4.8/7.6 (Oct.)	1500	0	0	1500	1500	938	would initially range around 13% or somewhat higher, though varying considerably from day to day	12.00	11.29
Oct. 17		11.4/10.7 (Oct.)	1500	200	0	[1700]	1800 1/	1530	might push the funds rate into the upper portion of the Committee's range	13.22	12.00
Oct. 24		14.3/13.6 (Oct.) 2.2/6.8 (Nov.--N.Y.)	1500	[467]	0	[1967]	2500 to 2900 [2700]	2960	at least to the upper part of the Committee's 11 1/2 to 15 1/2% range and possibly above it 2/	15.14	12.00
Oct. 31		10.8/12.2 (Oct.) 2.8/6.9 (Nov.--N.Y.)	1500	360	[122] 3/	[1982]	2500	3056	toward the upper end of the Committee's broad band of 11 1/2 to 15 1/2%	15.61	12.00
Nov. 7		3.5/9.0 (Oct.) -2.5/5.0 (Nov.)	1500	0	0	1500	1500	1928	13 to 14	13.77	12.00
Nov. 14		2.5/8.6 (Oct.) 1.3/6.3 (Nov.)	1500	240 4/	0	[1740]	1650	1857	13 to 14	13.30	12.00
Nov. 21		0.0/6.6 (Nov.)	1500	300 5/	[35] 6/	[1835]	1720	1865	13 to 14	13.10	12.00

1/ [The number consistent with the average target for the four weeks would be 1954.]

2/ Accordingly, the Desk sought additional guidance from the Committee. In their discussion on Monday, October 22, Committee members indicated a willingness to see funds trade in the upper part of the range, and occasionally above the range, if necessary to achieve the nonborrowed reserve objective.

3/ But, to provide greater assurance that total reserves would move closer to path in future weeks, the Account Management preferred to aim for nonborrowed reserves slightly below their average path.

4/ While the monetary aggregates projections changed little, estimates and projections of total reserve demand for the three weeks ending November 21 were revised upwards, reflecting in part the high excess reserves of the week of November 7. A higher level of CDs outstanding than estimated earlier was also a factor.

5/ The average of actual levels and projected demand for total reserves for the three weeks ending November 21 was about $300 million above the average path level, with about one-third of that overshoot attributed to higher than expected levels of excess reserves.

6/ However a sizable borrowing on the first day resulted from some computer problems, rather than reserve availability pressures, and this particular borrowing was regarded as having provided reserves that were more in the nature of nonborrowed than borrowed reserves. [Hence, the increase in the borrowed reserves target.]

Appendix Table 2: Four-Week Period Ending December 19, 1979 and Three-Week Period Ending January 9, 1980

Week	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
	M1/M2 Path from Oct. to Dec.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Nov. 28	5.0/8.5 1/	1.9/7.3 (Nov.)	1700	0	0	1700	1700	2021 2/ (1846)	12 1/2 to 14	12.46	12.00
Dec. 5		2.5/7.2 (Nov.) 5.7/8.0 (Dec.--N.Y.)	1700	100	0	[1800]	1800 3/	1819	12 1/2 to 14	13.77	12.00
Dec. 12		2.2/6.6 (Nov.) 7.3/8.4 (Dec.)	1700	0	0	[1700]	1500	1291	12 1/2 to 14	13.79	12.00
Dec. 19		1.0/6.4 (Nov.) 5.7/6.4 (Dec.)	1700	0	-100 4/	[1600]	1500	1684	12 to 14 1/2	13.90	12.00
Dec. 26		3.8/5.3 (Dec.)	1700	-400	-200 5/	1100	1100	1224	12 to 14	13.49	12.00
Jan. 2		5.4/6.1 (Dec.)	1700	-280	-150 6/	[1270]	1300	1431	12 to 14	14.04	12.00
Jan. 9		5.7/5.9 (Dec.)	1700	-200	[-182]	[1318]	1300	732 7/	na	13.94	12.00

1/ These [reserve] paths accommodated the expected weekly patterns and allowed for the relatively slow growth in M1 in November and a speedup in December.

2/ Nonborrowed reserves were...almost $500 million below the objective...The bulk of the discrepancy showed up in borrowings...About $175 million of this was "as of" borrowing. [This $175 million was reclassified as nonborrowed reserves the week of December 19.]

3/ [The number consistent with the average target for the four weeks would be 1855.]

4/ In order to achieve the original nonborrowed reserve path objective...implied borrowing of $1.9 billion. [Revised borrowing figure used for November 28 week.] However, the Account Management allowed for the unusually high level of excess reserves in the previous week and for the preliminary estimate of a shortfall in total reserves over the next three weeks stemming from the prospective slower growth than desired of the monetary aggregates. In light of these factors, the Desk aimed for nonborrowed reserves...consistent with borrowing of about $1.5 billion for the week.

5/ However, the Account Management chose to raise the objective somewhat for nonborrowed reserves, seeking an average $200 million above the adjusted path, in order to encourage greater growth in total reserves, closer to path levels.

6/ In a continuing effort to encourage total reserves to return to path levels, the Account Management retained the $150 [sic] million increment to the nonborrowed reserves path introduced the week before.

7/ With total reserves below path, it seemed appropriate to accommodate some of the apparent shortfall in borrowing demand.

Appendix Table 3:

Four-Week Period Ending February 6, 1980

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
Week	M1/M2 Path from Dec. to Mar.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Jan. 16	4 to 5/7	5.3/6.2 (Jan.)	1000	0	0	1000	1000	1223	down somewhat from the 14% level of recent weeks	13.91	12.00
Jan. 23		5.3/6.2 (Jan.)	1000	0	0	1000	940	1197	13 1/4 to 14	13.77	12.00
Jan. 30		3.8/6.4 (Jan.)	1000	-50	0	[950]	694 1/	1821	14% or somewhat lower	13.54	12.00
Feb. 6		1.6/5.2 (Jan.)	1000	-85	[320] 2/	[1235]	700	759	na	12.80	12.00

1/ There was some question, however, whether it was likely--or indeed even appropriate--for borrowing to decline this sharply. Given recent evidence of a greater propensity to borrow, the Desk recognized that borrowing might remain relatively high over the week.

2/ However with borrowing persistently averaging above the $1.0 billion level initially assumed in the construction of the path and with nonborrowed reserves having run below path, achievement of the original four-week average path for nonborrowed reserves would mean a level of excess reserves close to $900 million in the final week, even if borrowing fell to zero--and even greater excess reserves if there were some modest level of borrowing. As such a drastic easing of reserve availability seemed quite inappropriate, the interim objective for nonborrowed reserves was adjusted to allow for borrowing of around $700 million in the week ending February 6--about the same level of borrowing that had been deemed consistent with the nonborrowed objective sought a week earlier.

Appendix Table 4: Three-Week Period Ending February 27, 1980 and Three-Week Period Ending March 19, 1980

Week	Monetary Aggregates: M1A/M1B/M2 Path from Dec. to Mar.	Monetary Aggregates: M1A/M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
Feb. 13	4.5/5/6.5	3.2/4.3/7.5 (Jan.) 6.4/6.5/7.7 (Feb.)	1250	-38	0	1212	1212	1236	na	13.64	12.00
Feb. 20		11.0/10.8/8.8 (Feb.)	1250	313	67 1/	[1630]	1828	2194	Federal funds fluctuating in the upper part of the 11 1/2 to 15 1/2% range, perhaps mainly around 14 1/2 to 15%	14.87	12.71
Feb. 27		14.8/14.5/11.6 (Feb.)	1250	541	67	[1858]	2144	2057	near the upper end of the 11 1/2 to 15 1/2% range adopted by the Committee 2/	14.62	13.00
Mar. 5		13.2/13.0/9.5 (Feb.)	1250	626	400 3/	2276	2276	2508	15 1/2 to 16 1/2	16.17	13.00
Mar. 12		11.6/11.1/9.7 (Feb.) 0.0/0.9/8.1 (Mar.)	1250	644	400	[2294]	2187	3439	16 to 17 1/4 4/	16.45	13.00
Mar. 19 6/		0.6/2.1/6.8 (Mar.)	1250	724	[737] 5/	[2711]	2187 5/	3001	na	16.24	13.00 (1.29)

1/ With demand running this strong for total reserves, an additional downward revision of $100 million was made to the nonborrowed reserves path for future weeks (for an average $67 million in the first subperiod where one week had passed) in order to induce a speedier return to the desired reserves path.

2/ The Committee on February 22 approved a temporary increase in the upper end of that range to 16 1/2%.

3/ With growth in the monetary aggregates running quite strong and well above the objective, it was deemed appropriate to adjust downward the nonborrowed reserve path by an additional $300 million [i.e. in addition to the $100 million adjustment made the week of Feb. 20].

4/ This range would still be below the Committee's upper limit which was temporarily raised through a wire vote on Friday morning to 17 1/2%. The Committee voted at a telephone discussion later in the day to increase the upper limit to 18%.

5/ However, in view of the nearness of the Committee meeting and the importance of sustaining monetary restraint, the Desk on Friday decided to seek a nonborrowed reserves objective...consistent with borrowing of about $2.2 billion--the same level of borrowing envisaged for the previous week.

Appendix Table 5:

Five-Week Period Ending April 23, 1980

Week	Monetary Aggregates: M1A/M1B/M2 Path from Feb. to Apr.	Monetary Aggregates: M1A/M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
Mar. 26	3.0/3.7/7.0	2.9/3.7/6.4 (Mar.) 6.4/6.7/7.9 (Apr.)	2750	26	0	2776	2776 1/	2660 2/	16 to 18	17.78	13.00 (3)
Apr. 2		-1.3/-0.3/6.0 (Mar.) 8.9/8.9/7.9 (Apr.)	2750	62	-150 3/	[2662]	2663 (2513 to 2813) 4/	2262 2/	could test the upper limit of the Committee's range of 13 to 20%	19.39	13.00 (3)
Apr. 9		-3.5/-2.1/3.6 (Mar.) 7.0/7.3/7.3 (Apr.)	2750	-313	-150	[2286]	2170 (2020 to 2320)	2386 2/	na	19.04	13.00 (3)
Apr. 16		-3.2/-1.8/3.3 (Mar.) 1.9/2.4/4.2 (Apr.)	2750	-295	-150	[2305]	2108 (1958 to 2258)	2276 2/	na	18.35	13.00 (3)
Apr. 23		-3.5/-2.1/3.4 (Mar.) -4.2/-2.8/3.5 (Apr.)	2750	-432	[-61] 5/	[2257]	1700	2555 2/	the Federal funds rate might work down during the week...to an area one percentage point or so below 18%	17.56	13.00 (3)

1/ The Desk noted that the 3 percentage point surcharge on discount window borrowing by large banks could put strong upward pressure on the funds rate, as the demand for borrowing could be less than was assumed in building the nonborrowed reserve path.

2/ However, this included $150 million of borrowing by one Philadelphia bank that was...conceptually more in the nature of a provision of nonborrowed reserves. [In subsequent weeks such borrowing was $341 million, $437 million, $472 million and $600 million. In this intermeeting period the targets were not adjusted for this borrowing. In the next intermeeting period they were adjusted.]

3/ However, the overall demand for borrowing appeared to have declined from what had been expected when the nonborrowed reserve path was constructed--perhaps because of the discount rate surcharge, coupled with official discussions with banks about the use of the window that have accompanied the credit restraint program. Accordingly, it was decided to adjust upward the average nonborrowed reserve path...by about $150 million.

4/ In view of uncertainty over the demand for borrowing, it was decided to aim for nonborrowed reserves...consistent with borrowing of about $2.5 to $2.8 billion.

5/ In order to temper the abrupt adjustment in the level of borrowings so close to the Committee meeting, the Desk sought an interim nonborrowed reserves objective for the week...consistent with borrowing of about $1.7 billion.

Appendix Table 6:

Four-Week Period Ending May 21, 1980

Week	Monetary Aggregates: M1A/M1B/M2 Path from Mar. to June	Monetary Aggregates: M1A/M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Adjustment Plus Seasonal Borrowing: Gap Between Projected and Path Level of Total Reserves	Adjustment Plus Seasonal Borrowing: Additional Adjustments to Average Target	Adjustment Plus Seasonal Borrowing: Revised Average Target	Adjustment Plus Seasonal Borrowing: Target for Remaining Weeks in Period	Adjustment Plus Seasonal Borrowing: Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
Apr. 30	4.9/5.2/6.3	-12.1/-9.2/0.2 (Apr.) 4.5/4.3/5.8 (May)	1375	-588	0	787	787 1/	1916	below 15%, perhaps to trade in a 14 to 15% area	15.12	13.00 (3)
May 7		-16.3/-11.9/-1.5 (Apr.) 1.3/2.2/4.3 (May)	1375	-802	151 2/	724	327 3/	562	Initially it was anticipated that the Federal funds rate would move lower during the week to the area of 13 to 14% 4/	12.96	13.00 (2.57)
May 14		-18.5/-14.7/-2.6 (Apr.) 4.9/4.3/4.3 (May)	1375	-821	151	(705)	170	207	Given the mix of borrowed and nonborrowed reserves, it was difficult to anticipate the likely money market conditions for the week, but it seemed that the Federal funds rate could possibly work up from trading in the area of 10 3/4 percent early in the week closer to the 13 percent discount rate later on.	10.85	13.00
May 21		-18.5/-14.4/3.8 (Apr.) 3.9/2.5/6.5 (May)	1375	-854	151	(672)	0	99	Close to the Committee's then indicated 10 1/2% lower bound, perhaps in a range of 10 1/2 to 11 1/2% 5/	10.71	13.00

1/ Achievement of the nonborrowed reserves path implied a borrowing level of about $910 million over the first two weeks and about $660 million over the latter half of the interval.

2/ It seemed appropriate to revise upward the nonborrowed reserves path by $100 million, given the shortfall in total reserves and money. At the same time, however, a $251 million reduction in the nonborrowed path was made to allow for the higher than anticipated borrowing by member banks in the previous week.

3/ $493 million for the May 7 week and $243 million for the following two weeks.

4/ The Committee held a telephone meeting on Tuesday, May 6, and a majority voted to reduce the lower end of the Federal funds range to 10 1/2%. [The range had been 13 to 19%.]

5/ At its meeting on Tuesday [the Committee called for] consultation with the Committee before permitting funds to trade consistently below 9 1/2%.

Appendix Table 7:

Four-Week Period Ending June 18, 1980 and Three-Week Period Ending July 9, 1980

Week	Monetary Aggregates: M1A/M1B/M2 Path from Mar. to June	Monetary Aggregates: M1A/M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
May 28	The [reserve] paths were constructed in accordance with the Committee's decision to accept some increase in monetary growth during May and June relative to the estimates presented at the [FOMC] meeting.	7.1/5.3/6.7 (May) 10.0/12.0/9.1 (June)	100	0	0	100	100	307	Achieving the frictional level of borrowing implied that Federal funds probably would not trade above the discount rate, and might well decline from the approximate 10 3/4 percent average of the previous week. The Committee had set a lower bound on its Federal funds rate range of 8 1/2 percent (with a top of 14 percent) but indicated a preference that funds not trade persistently at rates below about 9 1/2 percent without the opportunity for further Committee consultation.	9.46	13.00
June 4		4.5/2.5/8.8 (May) 10.0/12.4/12.5 (June)	100	0 1/	0	100	31	105	Such low adjustment borrowing levels implied that the Federal funds rate might well test the 9 1/2% level late in the statement week.	10.74	12.00
June 11		2.9/0.9/8.5 (May) 8.7/11.1/11.1 (June)	100	-6	0	[94]	0	32	Since it appeared likely that Federal funds would trade below 9 1/2% if the Desk sought these levels of adjustment borrowing and excess reserves, the Account Management consulted with the Committee. 2/	9.68	12.00
June 18		3.2/1.5/9.2 (May) 9.4/11.4/13.5 (June)	100	0 3/	0	[100]	0	120	na	8.99	11.14
June 25		1.6/-0.3/8.6 (May) 13.0/15.5/16.1 (June)	100	0 4/	0	100	100	44	na	9.08	11.00
July 2		0.7/-1.2/9.1 (May) 14.4/17.4/17.2 (June)	100	0	0	[100]	128	74	na	9.41	11.00
July 9		13.7/16.8/17.1 (June)	100	0	[-27] 5/	[73]	100	17	na	9.26	11.00

1/ As in the previous week the average nonborrowed reserve path...was set equal to the total reserve path less $100 million on average for adjustment borrowing.

2/ The Committee, in a telephone conference on Thursday, June 5, agreed to allow full use of the entire Federal funds rate range down to 8 1/2%, provided that the dollar did not come under undue pressure in the foreign exchange market.

3/ The average total reserves path for the four-week period ending June 18 was raised slightly to align it with the four-week average of actual and projected total reserves. This was done in accordance with the decision to set the path equal to the projection so long as the projection exceeded the original path deemed consistent with the minimally acceptable growth rates of the aggregates for May-June.

4/ The path was not lowered by the full amount of the accepted [technical] revisions because that would have resulted in a path level that implied adjustment borrowings in excess of the $100 million level initially sought by the Committee.

5/ In view of the imminence of the Committee meeting it was decided not to push borrowing to higher levels to make up for shortfalls in the previous two weeks.

Appendix Table 8:

Five-Week Period Ending August 13, 1980

Week	Monetary Aggregates: M1A/M1B/M2 Path for July and August	Monetary Aggregates: M1A/M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Adjustment Plus Seasonal Borrowing: Gap Between Projected and Path Level of Total Reserves	Adjustment Plus Seasonal Borrowing: Additional Adjustments to Average Target	Adjustment Plus Seasonal Borrowing: Revised Average Target	Adjustment Plus Seasonal Borrowing: Target for Remaining Weeks in Period	Adjustment Plus Seasonal Borrowing: Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
July 16	6.5/8.25/9 1/ (July) 7.5/8.5/7 (Aug.)	6.5/8.3/10.1 (July)	75	0	0	75	75	121	na	8.98	11.00
July 23		8.4/11.1/13.0 (July)	75	0 2/	0	75	64	45	na	8.68	11.00
July 30		9.0/12.3/15.1 (July)	75	33 3/	0	108	125	343	na	8.98	10.57
Aug. 6		7.8/11.1/16.3 (July)	75	57	0	132	75	570	na	9.60	10.00
Aug. 13		7.4/10.7/17.0 (July)	75	159	0	234	93	117	Federal funds continuing to fluctuate in its recent range from moderately below to slightly above the 10% discount rate.	8.85	10.00

1/ [Minimum acceptable June to September rates for M1A, M1B and M2 were 7.0, 8.0 and 8.0.]

2/ The actual and projected demand for total reserves over the five-week period was also lowered, but not the same extent as the path, leaving the projection of total reserves somewhat above the adjusted path. In accordance with the Committee's decision to accommodate some strengthening in the aggregates, the total reserve path was raised slightly to make it equivalent to the projected level of reserves.

3/ However, unlike recent past weeks, the additional strength in the aggregates was not accommodated by raising the path up to the projection of reserves...

Appendix Table 9: Five-Week Period Ending September 17, 1980

Week	Monetary Aggregates: M1A/M1B/M2 Path from June to Sept.	Monetary Aggregates: M1A/M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
Aug. 20	6.5/9.0/12.0 (June to Sep.) 8.0/10.9/11.8 (Aug.) 3.8/5.1/7.2 (Sep.)	11.2/14.3/12.5 1/ (Aug.)	75	128 2/	0	203	203	83	na	9.35	10.00
Aug. 27		15.1/17.3/13.4 (Aug.)	75	282	0	357	425	500	firmer money market conditions than in recent weeks, with Federal funds trading somewhat above the 10% area	10.03	10.00
Sep. 3		18.6/20.7/13.6 (Aug.) 2.2/3.6/5.4 (Sep.)	75	362	0	437	534	1150	above 10%, possibly moving up to the area of 11%	10.47	10.00
Sep. 10		17.1/19.8/13.4 (Aug.) 1.3/2.7/4.4 (Sep.)	75	285	150 3/	510	409	537	somewhat above 10%	10.22	10.00
Sep. 17		19.6/21.9/14.2 (Aug.) 1.6/4.5/5.3 (Sep.)	75	380	150	605	755	1213 4/	somewhere in the area of 11%	10.64	10.00

1/ The monetary aggregate projections..indicated substantially stronger growth for August than those available at the Committee meeting [on Tuesday, August 12].

2/ In view of the uncertainty over how much of the surge [in the monetary aggregates] was due to technical factors and was, therefore, likely to be reversed, it was decided, after consultation with the Chairman, to construct the reserve paths in a way that accommodated some, but not all, of the expected aggregate strength in August while constraining September's growth to be consistent with the Committee's objectives for the quarter as a whole.

3/ Since the demand for total reserves was well above path, it was deemed appropriate to lower the nonborrowed reserves path by $150 million relative to the total reserves path--an adjustment that would maintain a moderate amount of borrowing pressure on the banking system.

4/ While the ensuing projections indicated that nonborrowed reserves were well below the interim objective, the Desk felt that providing the full targeted amount of nonborrowed reserves would produce a substantial overabundance of total reserves and an abrupt easing of monetary conditions. In turn, that seemed inconsistent with the System's current stance and the Desk therefore tolerated some shortfall in nonborrowed reserves from the objective.

Appendix Table 10: Five-Week Period Ending October 22, 1980

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1A/M1B/M2 Path from Aug. to Dec.	M1A/M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Sep. 24	4/6.5/8.5 (Aug. to Dec.) 1.6/4.5/5.3 (Sep.) 6.3/8.0/8.7 (Oct.)	9.2/12.0/7.4 1/ (Sep.)	750	382 2/	0	1132	1132	1630 (1384) 3/	in the neighborhood of 11% or a little higher	10.85	10.00
Oct. 1		13.0/15.2/8.3 (Sep.) 2.2/4.1/7.5 (Oct.)	750	495 4/	0	1245	1210	1873	roughly in the area of 11 3/4 to 12%	12.38	10.86
Oct. 8		12.6/15.2/8.0 (Sep.) 2.2/3.8/6.7 (Oct.)	750	323	200 5/	1273	1036	1248	around 12	12.59	11
Oct. 15		12.6/15.5/8.0 (Sep.) 3.1/5.3/5.1 (Oct.)	750	442 6/	200	1392	1228	1107	around 12% or somewhat higher	12.64	11
Oct. 22		12.3/15.2/8.2 (Sep.) 4.4/7.1/7.5 (Oct.)	750	438	200	1388	1328	1203	in the area of 12 1/2 to 13%	12.55	11

1/ The estimates of the monetary aggregates reviewed before the weekend suggested substantially stronger growth in September compared to those available at the Committee meeting on September 16.

2/ A review of technical factors indicated that the path could be adjusted upward by as much as $164 million but, because of the volatility of some of the factors involved and the early date, it was decided not to alter the path.

3/ Borrowing of $246 million by a large money center bank related to computer problems was [subsequently] treated as being in the nature of nonborrowed reserves.

4/ While a review of the technical factors indicated that the paths could be raised by as much as $174 million, the increasing difference between the demand for reserves and the paths suggested it might be appropriate to lower the nonborrowed reserve path.

5/ Given that the large gap between the demand for total reserves and the path had persisted well into the intermeeting period, it was decided to lower the nonborrowed reserve path by $200 million.

6/ Part of this increase [in total reserve demand] reflected technical factors relating to reserve multipliers and it seemed appropriate to raise the total and nonborrowed reserve paths by $100 million (out of a potential total of about $250 million in technical adjustments).

Appendix Table 11:

Four-Week Period Ending November 19, 1980

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1A/M1B/M2 Path from Sep. to Dec.	M1A/M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Oct. 29	2.5/5/7.25 (Sep. to Dec.) 4.4/7.1/7.5 (Oct.) 1.2/3.5/7.3 (Nov.)	9.4/11.5/8.9 1/ (Oct.)	1300	209	0	1509	1509	1440	around 13% or somewhat higher	13.17	11
Nov. 5		8.1/10.0/8.9 (Oct.) 0.9/3.2/8.5 (Nov.)	1300	201	0	1501	1521	1878	13 1/2 to 13 3/4%	13.99	11
Nov. 12		9.1/11.2/9.3 (Oct.) 2.5/5.3/8.9 (Nov.)	1300	219	100 2/	1619	1579	2067	around the Committee's upper bound of 15%	14.65	11
Nov. 19		3.7/6.4/10.5 (Nov.)	1300	300	150 3/	1750	1615	1979	14 to 15% [prior to Friday night's discount rate announcement]	15.22	11.43 (.86)

1/ The estimates of the monetary aggregates...indicated much stronger growth in October...compared to those available at the Committee meeting on October 21.

2/ In light of this continued gap, the nonborrowed reserves path was lowered by $100 million.

3/ In light of this increased gap between [total reserve] demand and path, the nonborrowed reserves path was lowered by $50 million relative to the total reserves path.

Appendix Table 12: Five-Week Period Ending December 24, 1980

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1A/ M1B/M2 Path from Sep. to Dec.	M1A/M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Nov. 26	2.5/5/7.75 (Sep. to Dec.) 3.7/6.4/8.5 (Nov.) -5.3/-2.9/5.8 (Dec.)	8.7/11.7/11.6 1/ (Nov.) 2.5/5.5/9.4 (Dec.--N.Y.)	1500	297 [403] 2/	0	1797 [1903] 2/	1797 [1903] 2/	2215	this mix of borrowed and nonborrowed reserves might cause Federal funds to trade above the 17% upper limit established by the Committee at the November 18 meeting 3/	17.43	12 (2)
Dec. 3		8.7/11.4/11.9 (Nov.) 4.3/6.7/8.3 (Dec.--N.Y.)	1500	341	170 4/	2011	1960	2142	17 to 18	17.72	12 (2)
Dec. 10		6.8/9.6/12.2 (Nov.) 3.7/4.9/6.1 (Dec.)	1500	261	170	1931	1766	1786	19 to 20%...although Thursday's announcement of a discount rate increase rendered this estimate very uncertain 5/	18.82	12.86 (2.86)
Dec. 17		7.1/9.3/11.0 (Nov.) 2.5/4.9/5.0 (Dec.)	1500	210	170	1880	1629	1505	Funds might continue to trade mostly in a range of 19 to 20%	19.83	13 (3)
Dec. 24 6/		6.8/9.3/11.0 (Nov.) 1.2/3.2/5.6 (Dec.)	1500								

1/ The estimates...indicated much stronger growth in November, compared to those available at the November 18 Committee meeting.

2/ On Tuesday, November 25, the Desk reviewed the reserves paths in light of revisions to required reserves and new information on the technical factors affecting the reserve-money relationship.

3/ In a telephone meeting on Wednesday, November 26, the Committee raised the upper limit to 18%.

4/ With this large gap persisting well into the intermeeting period, it was deemed appropriate to lower the nonborrowed reserves path relative to the total reserves path by $170 million.

5/ During a telephone conference Friday afternoon, the Committee decided to temporarily suspend the 18% upper limit on the average Federal funds rate in light of the market effect of this [discount rate] announcement.

6/ [There was an FOMC meeting Friday, December 19, and at this time the December 24 week was moved into a new four-week period ending January 14.]

Appendix Table 13: Four-Week Period Ending January 14, 1981 and Three-Week Period Ending February 4, 1981

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1A/M1B/M2 Path from Dec. to Mar. 1/	M1A/M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Dec. 24	4.25/4.75/7 (Dec. to Mar.) 1.2/3.2/5.6 (Dec.) 4.3/4.6/9.9 (Jan.)	1.2/3.2/5.6 (Dec.)	1500	0	0	1500	1500	1650	na	19.44	13 (3)
Dec. 31		-3.4/-1.4/3.2 (Dec.)	1500	-57 2/	0	1443	1374	1627	17 to 18	18.45	13 (3)
Jan. 7		-10.5/-8.4/1.6 (Dec.) 6.1/6.1/5.8 (Jan.)	1500	-177 3/	0	1323	1008	1117	16 to 18% range, although it was recognized that temporary factors related to year-end pressures might tend to hold funds rate at higher levels for a while longer	20.06	13 (3)
Jan. 14		5.6/6.7/5.2 (Jan.)	1500	-170 4/	0	1330	927	1333	In light of the recent experience it was expected that Federal funds might soften only modestly (below the previous week's 20% average)	19.64	13 (3)
Jan. 21		13.4/14.0/14.2 (Jan.)	1500	-301 5/	0	1199	1199	1419 (1205) 6/	lead, in time, to a Federal funds rate trading range below the recent 19 to 20% range	19.35	13 (3)
Jan. 28		7.5/8.2/11.6 (Jan.)	1500	-332 7/	0	1168	1150	1793	eventually lead to a decline in the Federal funds rate trading range from the recent levels of over 19%	18.12	13 (3)
Feb. 4		6.5/6.7/8.4 (Jan.)	1500	-414	280 8/	1366	1100	1201	17 to 18	17.19	13 (3)

1/ These objectives (abstracted) from the effects of deposit shifts connected with the introduction of NOW accounts on a nationwide basis.

2/ A review of the technical factors suggested a sizable potential upward adjustment to the reserve paths, and about half this adjustment, or $100 million, was applied.

3/ The nonborrowed and total reserves paths were revised upward by $100 million, reflecting about half of the potential adjustment indicated by changes in the technical factors.

4/ A review of the technical factors...indicated a potential further upward adjustment to the reserves paths of $396 million, but in line with the normal practice of making only partial adjustment for these potentially volatile factors the paths were increased by only $190 million.

5/ A review of the technical factors suggested a potential downward adjustment in the neighborhood of $300 million in the reserve paths...However, at this early date in the three-week subperiod, the reserve paths were not adjusted further.

6/ Treats $214 million of borrowing by one bank related to the Iranian funds settlement as nonborrowed reserves.

7/ A review of the technical factors on Friday suggested a potential downward revision to the reserve paths of about $300 million. In partial accommodation of this change in the reserve-money relationship, the paths were reduced by $200 million.

8/ In order to avoid the abrupt changes in the financial markets likely to be generated by such a reduced borrowing level, and given the proximity of the FOMC meeting and a major Treasury financing, the nonborrowed reserves path was lowered by $280 million relative to the total reserves path.

Appendix Table 14: Four-Week Period Ending March 4, 1981 and Four-Week Period Ending April 1, 1981

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1A/M1B/M2 Path from Dec. to Mar. 1/	M1A/M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Feb. 11	5.5/5.5/8.0 (Dec. to Mar.) 6.5/6.7/8.4 (Jan.) 5.0/4.9/8.3 (Feb.) 5.0/4.9/7.3 (Mar.)	1.9/2.3/6.7 2/ (Jan.) 2.5/2.9/10.0 (Feb.)	1300	-169 3/	0	1131	1131	1113	16 to 18	16.51	13 (3)
Feb. 18		2.5/2.9/6.8 (Jan.) -6.5/-5.5/8.7 (Feb.)	1300	-327	0	973	926	1145	might test the Committee's lower bound of 15% for Federal funds in upcoming weeks	15.81	13 (3)
Feb. 25		-1.2/-0.6/9.5 (Feb.)	1300	-351	0	949	769	1642	likely to elicit further declines in the Federal funds range, quite possibly testing the Committee's lower bound of 15%	14.96	13 (3)
Feb. 25 (after special FOMC meeting) 4/			1300	-351	166 4/	1115	1100	1642			
Mar. 4		0.0/0.6/9.0 (Feb.)	1300	-484	(414) 5/	1230	1020	1299	na	15.73	13 (3)
Mar. 11		-3.4/-2.6/7.6 (Feb.) 8.1/8.2/12.3 (Mar.)	1300	-481	0	819	819	768	Federal funds rate moving down to around 15%	15.53	13 (3)
Mar. 18		-3.1/-2.3/7.8 (Feb.) 9.7/9.6/15.6 (Mar.)	1300	-472	0	828	848	774	na	14.13	13 (3)
Mar. 25		10.3/10.2/18.9 (Mar.)	1300	-349	0	951	1131	888	some firming of Federal funds, to perhaps 15% over the course of the week	13.48	13 (3)
Apr. 1		8.7/8.7/16.5 (Mar.)	1300	-402	0	898	1162	1464	near 15	14.93	13 (3)

1/ (Shift-adjusted.)

2/ The January-February projections of the narrow aggregates...were well below those presented to the Committee earlier in the week.

3/ This increase (in the total reserve path) represented about 85% of the potential technical adjustments.

4/ After the weekend, it was evident that achieving the nonborrowed reserve objective would be inconsistent with the 15 percent lower bound to the Federal funds rate. At a special FOMC meeting on Tuesday, it was decided in light of the relative strength in M2 and M3 and the recent easing in money market conditions, to accept some shortfall in the narrower aggregates. The 15 percent lower bound on the funds rate was not changed, although it was understood that occasional trading at somewhat lower rates would be acceptable. In response to the change in the directive, the nonborrowed reserve path was adjusted downward consistent with achieving borrowing of $1.1 billion. This meant lowering the nonborrowed reserve path by about $330 million in the remaining two weeks of the first subperiod ($165 million on average for the four-week subperiod).

5/ (Without this adjustment the paths) would have implied negligible borrowing in the March 4 week--a result that appeared inconsistent with the lower bound to the Federal funds range or with likely borrowing levels for upcoming weeks...It was decided to aim for nonborrowed reserves consistent with...$1020 million level of borrowing.

Appendix Table 15: Four-Week Period Ending April 29, 1981 and Three-Week Period Ending May 20, 1981

Week	Monetary Aggregates: M1B/M2 Path from Mar. to June 1/	Monetary Aggregates: M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Adjustment Plus Seasonal Borrowing: Gap Between Projected and Path Level of Total Reserves	Adjustment Plus Seasonal Borrowing: Additional Adjustments to Average Target	Adjustment Plus Seasonal Borrowing: Revised Average Target	Adjustment Plus Seasonal Borrowing: Target for Remaining Weeks in Period	Adjustment Plus Seasonal Borrowing: Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
Apr. 8	5.5/10.5 (Mar. to June) 5.5/10.5 (Apr.) 5.5/10.5 (May)	7.6/15.8 (Mar.) 5.5/10.2 (Apr.) 12.2/8.9 (May--N.Y.)	1150	0	0	1150	1150	887	na	15.43	13 (3)
Apr. 15		5.5/14.3 (Apr.) 10.7/8.9 (May--N.Y.)	1150	33	0	1183	1282	1142	Given banks' recent reluctance to borrow, some further...firming above the recent 15 1/2% level was viewed as possible	15.33	13 (3)
Apr. 22		8.1/12.7 (Apr.) 10.4/10.2 (May--N.Y.)	1150	97 2/	0	1247	1480	863	some further firming in the Federal funds rate, perhaps to the 16% level or a little higher	15.55	13 (3)
Apr. 29		18.0/13.7 (Apr.) 1.4/6.9 (May--N.Y.)	1150	-10 3/	0	1140	1667	2278	Federal funds rate of well above 16% as the week progressed	16.28	13 (3)
May 6		15.6/11.3 (Apr.) (May--na)	1150	552	250 4/	1953	1953	2471 5/	na	18.91	13.29 (3.29)
May 13		13.9/10.4 (Apr.) (May--na)	1150	374	484 6/	2008	1777	1733	18 to 20	18.21	14 (4)
May 20		[no projections in report]	1150	389	484	2023	1863	1975	18 to 20	18.89	14 (4)

1/ [Shift-adjusted.]

2/ A review of technical factors...suggested the potential for modest downward adjustment to the reserve paths. However, given the volatility of the data and the modest size of the suggested changes, no revisions were made.

3/ A review of technical factors...showed sizable potential downward adjustments to the path. The effect of making these adjustments would have raised the projected borrowing level...to as high as $2.8 billion. In order to smooth the transition between reserve periods...it was decided to leave the reserve paths for the first subperiod unchanged.

4/ Given the size of this [total reserves] gap, a decision was made, in consultation with the Chairman, to lower the average nonborrowed reserve path relative to the total reserve path by $250 million.

5/ It appeared at midweek that borrowings at the discount window would substantially exceed the level anticipated in the path construction. To have met the nonborrowed reserve objective...would have tended to dilute the effects of Monday's discount rate action.

6/ a) It was decided, in consultation with the Chairman, to lower the average nonborrowed reserve path by another $120 million...in response to the overrun in total reserves.
b) Finally, also in consultation with the Chairman, it was decided to adjust the average nonborrowed reserve path downward because of the $343 million undershoot in nonborrowed reserves in the first week of the subperiod...Consequently, the average nonborrowed reserve path for the three-week period was lowered by an additional $114 million ($343 ÷ 3).

Appendix Table 16: Four-Week Period Ending June 17, 1981 and Three-Week Period Ending July 8, 1981

Week	Monetary Aggregates: M1B/M2 Path from Apr. to June 1/	Monetary Aggregates: M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Adjustment Plus Seasonal Borrowing: Gap Between Projected and Path Level of Total Reserves	Adjustment Plus Seasonal Borrowing: Additional Adjustments to Average Target	Adjustment Plus Seasonal Borrowing: Revised Average Target	Adjustment Plus Seasonal Borrowing: Target for Remaining Weeks in Period	Adjustment Plus Seasonal Borrowing: Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
May 27	3.0 or less/6.0 (Apr. to June) 0.0/4.6 2/ (May) 6.0/7.4 (June)	0.0/4.6 2/ (May)	2100	0	0	2100	2100	2923 3/	around 20	18.71	14 (4)
June 3		-2.6/3.7 (May)	2100	6 4/	206 5/	2312	2108	1954	Move up during the course of the week to a 19 to 20% range from the 17 1/4 to 17 3/4% range early in the week	18.40	14 (4)
June 10		-3.4/4.4 (May)	2100	-63 6/	206	2243	2048	2207	around 20	19.33	14 (4)
June 17		-4.3/4.3 (May) 1.1/6.2 (June)	2100	-60 7/ 8/	206	2247	1902	1895	na	19.10	14 (4)
June 24	3.5/na (Mar. to June) 9/	-4.0/4.4 (May) -3.2/6.5 (June)	1800 9/	-179	0	1621	1621	2305	down from the 20 to 22% area prevailing at the start of the week to a range closer to 18%	19.20	14 (4)
July 1		-5.1/4.1 (May) -5.4/5.4 (June)	1800	-134	168 10/	1834	1599	1735	18 to 19	18.84	14 (4)
July 8		[not in report]	1800	-164 11/	168	1804	1372	1868	Normally...17 to 18% area. However, such a decline seemed unlikely given the high funds rate that carried over from the previous week and the tightness that was evident over the weekend.	19.93	14 (4)

1/ [Shift-adjusted.]

2/ The May estimates available at the time the paths were built, a few days after the meeting, were considerably weaker than those presented at the meeting. Given the Committee's preference for such slowing, the paths were built to accept the Board staff's May projections. Accordingly, monthly M1B growth rate patterns of 0 and 6 percent for May and June were chosen, recognizing that lower June growth could be accepted it it were to develop.

3/ [Given the high level of borrowing before the weekend] attainment of the nonborrowed reserve path would have produced overabundant total and excess reserves, a situation inconsistent with the current thrust of policy. Therefore action aimed at attaining a level of nonborrowed reserves considerably lower than the path.

4/ The total and nonborrowed average reserve paths were reduced by $113 million to accommodate the weak aggregate growth, in keeping with the Committee's indicated willingness to accept some shortfall.

5/ In view of the heavy borrowing over Memorial Day weekend, which was viewed as a temporary demand shift...the average nonborrowed reserve path was reduced further by $206 million.

6/ To accommodate the Committee's preference for 3% or less growth of M1B, both [reserve] paths were reduced by $43 million.

7/ Given the Committee's objective for M1B growth over May and June at 3% or less a further downward revision to the average path for the first subperiod of $24 million was made to accommodate the money weakness.

8/ To avoid having borrowing dip sharply for one week, only to rise again in the following week, a transition adjustment was made to the first subperiod. An additional downward revision of $43 million was made to the average reserve paths for the first subperiod.

9/ [M1B] was running well below the maximum May-June growth path set at the May meeting, and below the level deemed acceptable by the Committee on June 17 [at a telephone conference.] At that time the Committee had indicated it was willing to see a March to June growth rate of 3 1/2% for M1B, which is what the Board staff had projected...The Committee's preference [was] for about $1.8 billion of borrowing in the event that money growth stayed at the rates projected at the time of the June 17 discussion.

10/ The nonborrowed reserve path was lowered by $168 million to accommodate the bulge in borrowing that occurred in the previous week.

11/ In anticipation of the Committee's July 6 and 7 meeting, half of the [upward path] adjustments were incorporated.

Appendix Table 17: Three-Week Period Ending July 29, 1981 and Three-Week Period Ending August 19, 1981

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1B/M2 Path from June to Sep 1/	M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
July 15	7.0/8.5 (June to Sep.) 8.6/8.5 (July)	14.0/12.1 (July--N.Y.)	1500	0	0	1500	1500	1294	by the end of the week...17 to 18%, down from the 20 1/2 to 20 3/4% range prevailing at the start of the week	18.76	14 (4)
July 22		9.2/10.8 (July)	1500	32	0	1532	1651	1730	18 to 19%	19.05	14 (4)
July 29		6.3/9.1 (July)	1500	-8	0	1492	1450	1978	18%	18.54	14 (4)
Aug. 5		3.2/8.2 (July)	1500	-155 2/	0	1345	1345	1118	na	18.25	14 (4)
Aug. 12		3.2/8.6 (July)	1500	-139	-76 3/	1285	1370	1271	na	18.29	14 (4)
Aug. 19		3.4/8.0 (July)	1500	-158	-76	1266	1409	1400	18%	18.19	14 (4)

1/ [Shift-adjusted.]

2/ The full amount of potential technical adjustments ($193 million) were made to the average total and nonborrowed reserve paths.

2/ The nonborrowed reserves path was raised an additional $76 million to offset the shortfall in borrowing in the August 5 week--since that shortfall had emerged despite a fairly firm money market and may have reflected some greater than usual reluctance to borrow following the fairly sizable borrowing of the previous week.

Appendix Table 18: Four-Week Period Ending September 16, 1981 and Three-Week Period Ending October 7, 1981

Week	Monetary Aggregates: M1B/M2 Path from June to Sep. 1/	Monetary Aggregates: M1B/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Adjustment Plus Seasonal Borrowing: Gap Between Projected and Path Level of Total Reserves	Adjustment Plus Seasonal Borrowing: Additional Adjustments to Average Target	Adjustment Plus Seasonal Borrowing: Revised Average Target	Adjustment Plus Seasonal Borrowing: Target for Remaining Weeks in Period	Adjustment Plus Seasonal Borrowing: Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate (surcharge)
Aug. 26	7.0/10.5 (June to Sep.) 11.1/14.0 2/ (Aug.) 6.2/9.3 (Sep.)	3.4/8.0 (July) 6.6/13.6 (Aug.)	1400	-158	0	1242	1242	1571	na	17.41	14 (4)
Sep. 2		4.0/12.5 (Aug.)	1400	-200	[93] 3/	[1293] 4/	1200	1258	17	16.89	14 (4)
Sep. 9		2.0/11.6 (Aug.)	1400	-318 5/	[122] 6/	[1204] 7/	995	1349	17%, or perhaps a little below	16.50	14 (4)
Sep. 16		3.4/12.5 (Aug.)	1400	-298	[191] 8/	[1293]	995	1062	16 1/2	16.09	14 (4)
Sep. 23		5.1/12.4 (Aug.) 3.1/9.8 (Sep.)	1400	-447	0	953	953	1121	15 1/2 to 16 1/2	15.33	14 (3.71)
Sep. 30		6.9/12.8 (Aug.) 2.3/9.9 (Sep.)	1400	-419	0	981	912	1059	15 to 16	15.00	14 (3)
Oct. 7		[not in report]	1400	-379	0	1021	883	733	15 to 16	15.46	14 (3)

1/ [Shift-adjusted.]

2/ The monthly pattern of growth for August and September...reflected the expected pattern at the time of the meeting. Subsequently, projections of M1B growth for August were revised downward to a rate well below path.

3/ Borrowing in the August 26 week had averaged $1571 million...apparently reflecting some increased willingness by banks to use the window. In order to avoid having the high borrowing level in the first week of the subperiod distort to the low side the anticipated borrowing levels for the remaining three weeks of the subperiod, the anticipated borrowing level for each of the remaining weeks was retained at $1200 million. [The arithmetic of the adjustment is (1571-1200)/4 = 93.]

4/ [The Report lists this number as 1200.]

5/ The...reserve paths were raised by $150 million out of a total of $215 million of potential upward adjustments.

6/ In developing the nonborrowed reserve objectives and corresponding borrowing levels for the remaining two weeks of the period, it was decided to continue disregarding the higher-than-expected borrowing in the first week of the interval... [The arithmetic of the adjustment is (1571-1082)/4 = 122, where 1082 is the revised average target that would have occurred without the adjustment.]

7/ [The Report lists this number as 1082.]

8/ [This adjustment was made to keep the borrowed reserve objective for the current week at $995, the same level as the previous week.]

Appendix Table 19: Three-Week Period Ending October 28, 1981 and Three-Week Period Ending November 18, 1981

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1B/M2 Path from Sep. to Dec.1/	M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Oct. 14	7.0/10.0 (Sep. to Dec.) 7.1/11.8 (Oct.) 6.8/11.2 (Nov.) 7.0/6.7 (Dec.)	-4.3/6.3 (Sep.)	850	0	0	850	850	687	na	14.93	14 (2.57)
Oct. 21		7.4/10.9 (Oct.)	850	-71	0	779	825	811	14 1/2 to 15 1/2	15.32	14 (2)
Oct. 28		8.6/10.7 (Oct.)	850	-69	0	781	845	723	largely in a 14 1/2 to 15 1/2% range--though perhaps with trades more often in the upper part of the range	14.87	14 (2)
Nov. 4		5.1/9.0 (Oct.)	850	-144	0	706	706	785	slightly to moderately above the discount rate	14.79	13.57 (2)
Nov. 11		3.4/9.2 (Oct.)	850	-194	-56 2/	600	508	850	13 1/2 to 14	14.01	13 (2)
Nov. 18		[not in report]	850	-154	[-18] 3/	[678] 4/	400	435	slightly above the basic 13% discount rate, by perhaps 1/2 percentage or so	13.17	13 (1.43)

1/ [Shift-adjusted.]

2/ In order to encourage a somewhat speedier resumption of desired money growth, the nonborrowed reserve path was raised by an additional $56 million.

3/ In order to avoid introducing such a large reduction in the degree of reserve pressure on banks only a few days in advance of the FOMC meeting, it was decided to...allow for a borrowing level of $400 million in the final week.

4/ [The report lists this number as 640.]

Appendix Table 20:

Five-Week Period Ending December 23, 1981

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate (surcharge)
Week	M1B/M2 Path from Oct. to Dec. 1/	M1B/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Nov. 25	7.0/11.0 (Oct. to Dec.) 6.0/13.9 2/ (Nov.) 7.9/9.6 (Dec.)	6.0/13.9 (Nov.)	400	0	0	400	400	214	close to, or a little above, the 13% discount rate	12.42	13
Dec. 2		5.7/16.3 (Nov.)	400	25	[-42] 3/	383	425	192	remain in the neighborhood of the discount rate	12.48	13
Dec. 9		8.0/16.6 (Nov.)	400	53	[-100] 4/	353	453	493	in the neighborhood of the discount rate	12.04	12.14
Dec. 16		8.2/16.4 (Nov.)	400	95	[-117] 5/	378	496	268	a bit above the discount rate	12.26	12
Dec. 23		[not in report]	400	99	[-165] 6/	334	500	460	a little above the 12% discount rate	12.43	12
Dec. 23			400	99	[-195] 7/	304	350				

1/ [Shift-adjusted.]

2/ In building the reserve paths over the intermeeting period, it was decided to use the Board staff's projected aggregate growth rates in November and the implied growth rates for December consistent with the Committee's two-month targets.

3/ In view of the Committee's concern about borrowing going significantly above $400 million and given the sense that borrowing was unintendedly light in the first week, it was decided to forgive the undershoot in borrowing and hold the borrowing gap in remaining weeks to $425 million.

4/ It seemed appropriate to make allowance for the unintentionally light borrowing in the first two weeks and set the nonborrowed reserve objective for the remaining weeks based on the $453 million of average borrowing for the period.

5/ An allowance continued to be made for the unintentionally low level of borrowing of the first two weeks.

6/ The nonborrowed reserve objective was established on the basis of $500 million of adjustment and seasonal borrowing, about the same implied borrowing level as anticipated in the previous week.

7/ On the last day of the week, in light of the discussions at Tuesday's FOMC meeting, it seemed appropriate to provide reserves...in an amount more consistent with borrowing of $350 million or so.

Appendix Table 21:

Six-Week Period Ending February 3, 1982

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing							Federal Funds Rate		Discount Rate
Week	M1/M2 Path from Nov. to Mar. 1/	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Dec. 30	4 to 5/9 to 10 (Nov. to Mar.) 8.2/10.8 (Dec.) 3.3/6.1 (Jan.)	8.2/10.8 (Dec.)	300	0	0	300	300	710	close to, or slightly above, the 12% discount rate, although greater firmness was thought to be possible due to seasonal pressures	12.54	12
Jan. 6		11.8/11.8 (Dec.)	300	206	89 2/	595	1000 2/ (465)	1261	na	12.98	12
Jan. 13		11.2/11.4 (Dec.)	300	324	89	713	577	806	12 1/2 to 13	12.42	12
Jan. 20		11.5/11.5 (Dec.)	300	486	276 3/	1062	1200	755	13 1/2%, or possibly higher, although it was expected that it might take a few days to get up to that level	12.96	12
Jan. 27		20.6/11.6 (Jan.)	300	517	276	1093	1513	2272	around 14	13.98	12
Feb. 3		[not in report]	300	614	[303] 4/	1217	1500	1635	around 14 or a bit higher	14.77	12

1/ M1 is equivalent to M1B, but the target was set using the measure not adjusted for NOW account shifts.

2/ The nonborrowed reserve path was lowered further by $89 million...to allow for $1.0 billion in the current [year-end] week and $465 million in each of the final four weeks.

3/ Following a conference call of the Committee on Friday, the nonborrowed reserve path was lowered by an additional $187 million...to strengthen the response to the overshoot in money growth.

4/ Given the strength in the aggregates and the immenence of the FOMC meeting, it was decided to aim for nonborrowed reserves associated with borrowing of $1500 million in the final week.

Appendix Table 22: Four-Week Period Ending March 3, 1982 and Four-Week Period Ending March 31, 1982

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
Week	M1/M2 Path from Jan. to Mar.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Feb. 10	0.0/8.0 1/ (Jan. to Mar.) 0.0/6.7 (Feb.) 0.0/9.2 (Mar.)	21.0/11.1 (Jan.)	1500	0	0	1500	1500	1439	14 to 15	15.19	12
Feb. 17		20.7/11.3 (Jan.)	1500	-95	0	1405	1394	1681	14 to 15	15.61	12
Feb. 24		-5.6/3.8 (Feb.)	1500	-81	0	1419	1278	1678	14 to 15%, perhaps in the lower part of that range	13.86	12
Mar. 3		-5.6/2.9 (Feb.)	1500	-116	100 2/	1484	1139	1278	around 14	14.07	12
Mar. 10		-4.8/3.1 (Feb.)	1500	-274	0	1226	1226	1141	14	14.35	12
Mar. 17		-4.0/3.5 (Feb.)	1500	-145 3/	-21 4/	1334	1398	1163	14 1/2	14.89	12
Mar. 24		-3.7/4.1 (Feb.)	1500	-171 5/	-80 6/	1249	1346	1343	15	14.48	12
Mar. 31		2.1/10.0 (Mar.)	1500	-157 7/	-80	1263	1405	1329	14 to 15	14.99	12

1/ It was also noted that some decline in M1 would be associated with a more rapid attainment of the longer run ranges and would be acceptable in the context of reduced pressure in the money market.

2/ The nonborrowed reserve path was lowered by $100 million to adjust for the unusually strong demand for borrowing in the week of February 24. (Borrowing averaged $400 million above the implied level for the week even though the money market eased substantially.)

3/ The total and nonborrowed reserve paths were lowered...taking half of the available multiplier adjustments after minor modifications.

4/ The nonborrowed reserve path...was raised by $21 million on average to allow for the relatively light borrowing in the first week, which appeared to reflect a downward shift in the demand for discount window accommodation.

5/ Both paths were lowered...taking part of the available multiplier adjustments while also making a modest allowance for the weakness in M2.

6/ The nonborrowed reserve path was raised by $59 million to allow for the relatively low level of borrowing in the second week of the period which apparently reflected some continuing reluctance of banks to use the discount window.

7/ If any appreciable amount of these [technical] adjustments was taken the implied borrowing level in the final week...would have been raised well above recent levels. This result seemed questionable given that money growth over the February-March interval was below path and that the FOMC meeting was just a few days away. Therefore, no adjustments were made.

Appendix Table 23: Four-Week Period Ending April 28, 1982 and Three-Week Period Ending May 19, 1982

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
Week	M1/M2 Path from Mar. to Jun.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Apr. 7	3.0/8.0 (Mar. to June) 9.1/9.5 1/ (Apr.) 0.0/7.1 (May) 0.0/7.2 (June)	1.1/10.1 (Mar.)	1150	0	0	1150	1150	1200	14	15.15	12
Apr. 14		1.6/10.8 (Mar.)	1150	88	0	1238	1250	1103	14 to 14 1/2	14.68	12
Apr. 21		1.6/10.9 (Mar.)	1150	168	-37 2/	1281	1411	1411	15%, or possibly somewhat higher	15.01	12
Apr. 28		12.0/9.9 (Apr.)	1150	164 3/	-37	1277	1394	1595	14 to 15	14.72	12
May 5		12.0/9.8 (Apr.)	1150	-23 4/	0	1127	1127	1286	13 1/2 to 14 1/2% [although] it was expected to take awhile before trading in that range emerged	15.53	12
May 12		11.8/9.6 (Apr.)	1150	-44	0	1106	1016	928	would work down to the 14% area from the high rates in the previous week	14.97	12
May 19		[not in report]	1150	-35 5/	-29 6/	1086	1044	784	expected to move toward the 14% area	14.67	12

1/ On the basis of preliminary projections of likely April growth, the reserve paths were constructed using M1 growth rates of 9.1% for April and zero percent in May and June.

2/ The nonborrowed reserve path was raised by $37 million to allow for the unintentionally low level of borrowing in the second week of the period, apparently reflecting a shift in the demand for borrowing.

3/ The total and nonborrowed reserve paths were lowered...taking nearly half the available multiplier adjustments.

4/ The projected demand for total reserves over the three weeks was...$23 million below path. This result emerged even though growth for the month of April was above path, as the bulge over path was in early April, while levels in late April or in prospect for early May are on balance a shade below path.

5/ The total and nonborrowed reserve paths...were raised by $119 million, taking all of the technical adjustments.

6/ The nonborrowed reserve path was raised by $29 million to allow for an apparent downward shift in the demand for borrowing in the second week.

Appendix Table 24:

Six-Week Period Ending June 30, 1982

Week	Monetary Aggregates: M1/M2 Path from Mar. to Jun.	Monetary Aggregates: M1/M2 Projection on Friday	Adjustment Plus Seasonal Borrowing: Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Federal Funds Rate: Expected	Federal Funds Rate: Actual	Discount Rate
May 26	3.0/8.0 1/ (Mar. to June) -3.4/9.6 (May) 1.6/4.9 (June)	-3.4/9.6 (May)	800	0	0	800	800	884	14 or somewhat under	13.70	12
June 2		-2.9/9.9 (May)	800	24	15 2/	839	828	916	13 1/2	13.43	12
June 9		-3.4/9.4 (May)	800	13	30 3/	843	812	1189	13 1/2	13.60	12
June 16		-2.7/9.5 (May)	800	50	61 4/	911	821	827	13 1/2 to 14	14.24	12
June 23		-1.9/10.3 (May) 3.5/5.8 (June)	800	114 5/	61	975	1014	919	14	14.17	12
June 30		3.5/5.4 (June)	800	99 6/	60	959	1014	1523	ordinarily, 14%. However, pressures associated with the statement date were expected to push the funds rate up closer to 15%	14.81	12

1/ The committee noted that deviations from these targets should be evaluated in light of changes in the relative importance of NOW accounts as a savings vehicle.

2/ The nonborrowed reserve path was reduced by an additional $15 million to allow for an apparent shift in the demand for borrowing in the first week of the interval.

3/ The nonborrowed reserve path was lowered by $15 million to allow for the unusual demand for borrowing in the statement week ending June 2. (One large West Coast bank had borrowed a sizable amount on Wednesday, despite a generally comfortable money market and high excess reserves nationwide).

4/ The bulk of the additional borrowing [the week of June 9] occurred when reserves fell short as a result of a breakdown in the funds transfer wire at one of the Federal Reserve offices on Wednesday. In these circumstances, it seemed appropriate to offset some, but not all, of the shortfall in nonborrowed reserves and the associated overborrowing in the reserve path for the remaining weeks. A decision was made to forgive half of the overborrowing and lower the nonborrowed reserve path average relative to total reserves by $31 million.

5/ Taking all of the [potential downward adjustments to the total and nonborrowed reserve paths] would have resulted in borrowing over the remaining two weeks of $1.2 billion, up from $827 million the previous week....It seemed appropriate to limit the amount of adjustment borrowing forced in the final two weeks and only half of the potential adjustments was taken.

6/ Taking these [technical] adjustments would have resulted in a rise of $300 million in the borrowing forced on the banking system in the final week of the inter-meeting interval (compared to the previous week). However, in view of the proximity of the FOMC meeting, when the monetary growth objectives would be set for the third quarter, it seemed appropriate to retain the same borrowing gap, $1,014 million, as that set in the previous week.

Appendix Table 25: Four-Week Period Ending July 28, 1982 and Four-Week Period Ending August 25, 1982

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
Week	M1/M2 Path from June to Sep.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
July 7	5.0/9.0 1/ (June to Sep.) 6.9/9.3 (July) 2.4/9.0 (Aug.) 5.5/8.4 (Sep.)	-0.5/5.4 (June)	800	0	0	800	800	985	13 to 14%; however...the rate might not fall to that range until the end of the statement week or the beginning of the following week	14.47	12
July 14		-1.3/5.8 (June)	800	-84 2/	0	716	626	488 3/	12 1/2 to 13 1/2	13.18	12
July 21		-1.6/5.9 (June)	800	-97 4/	-85 5/	618	500	562	12 1/2 to 13% before the reduction in the discount rate late Monday and slightly above the new discount rate after the cut	12.14	11.86
July 28		2.1/10.1 (July)	800	-83	-85	632	493	524	Normally...11 1/2 to 12% given the 11 1/2% discount rate...However, the funds rate tended to trade at 11% or below early in the week, apparently due to anticipation of further declines in short-term interest rates.	11.02	11.5
Aug. 4		1.1/9.2 (July)	800	-208 6/	-100 7/	492	492	660	close to or slightly above the discount rate	11.15	11.29
Aug. 11		0.0/9.3 (July)	800	-255	-100	445	373 (330) 8/	305	close to the 11% discount rate	10.90	11
Aug. 18		0.0/9.3 (July)	800	-252	-161 9/	387	292	360	around or slightly below the discount rate	10.11	10.79
Aug. 25		[not in report]	800	-231	-161	408	307	491	Normally...10 1/2. But since trading occurred well below that level early in the week, it seemed more likely that the average Federal funds rate would be closer to 9%.	9.04	10.5

1/ At its meeting on [Thursday] July 1 the FOMC...noted that more rapid growth [in the aggregates] would be acceptable depending on evidence indicating that economic and financial uncertainties were leading to exceptional liquidity demands. In addition it was noted tht seasonal uncertainties, higher social security payments, and the impact of the tax cut might lead to a bulge in M1.

2/ The total and nonborrowed reserve paths were raised...[to take account of] about half of the potential technical adjustments.

3/ In a fragile market atmosphere, the Desk resolved doubts on the side of making sure that the banking system had sufficient reserves.

4/ The total and nonborrowed reserve paths were raised [to take account of] all of the potential technical adjustments.

5/ In view of the below path money numbers and the still sensitive state of the financial markets, the nonborrowed reserve path was raised by an additional $85 million.

6/ The reserve paths...were raised by...all the potential technical adjustments.

7/ A supplemental upward adjustment of $100 million was made to the nonborrowed reserves path to encourage the return of money to path.

8/ On Monday, the classification of a loan from the discount window of about $100 million was changed from adjustment credit to extended credit, following a merger of the bank in question. Since extended credit borrowing is included with nonborrowed reserves in the construction of the paths, the interim objective late in the week was regarded as being higher by about $43 million (three-sevenths of $100 million).

9/ The nonborrowed reserves path was raised by $61 million to allow for a reclassification of borrowing by a merged bank from adjustment credit to extended credit. [(17/28)*100 = 61]

Appendix Table 26: Three-Week Period Ending September 15, 1982 and Three-Week Period Ending October 6, 1982

	Monetary Aggregates		Adjustment Plus Seasonal Borrowing						Federal Funds Rate		Discount Rate
Week	M1/M2 Path from June to • Sep.	M1/M2 Projection on Friday	Initial Average Target	Gap Between Projected and Path Level of Total Reserves	Additional Adjustments to Average Target	Revised Average Target	Target for Remaining Weeks in Period	Actual Borrowing for Current Week	Expected	Actual	
Sep. 1	5.0/9.0 (June to Sep.) 8.8/14.5 1/ (Aug.) 6.6/2.6 (Sep.)	8.8/14.5 1/ (Aug.)	350 2/	0	0	350	350	391	9 1/2%, or in a broad range of 9 to 10%	10.15	10.07
Sep. 8		9.6/14.2 (Aug.)	350	36	0	386	384	828 3/	10	10.14	10
Sep. 15		10.6/14.2 (Aug.)	350	104	283 4/	737	993	1213	10% or somewhat higher	10.27	10
Sep. 22		10.4/14.2 (Aug.)	350	294	0	644	644 5/	691	slightly above the 10% discount rate	10.31	10
Sep. 29		17.1/6.1 (Sep.)	350	495	-248 6/	597	550	625	around, or slightly above, the 10% discount rate	10.12	10
Oct. 6		[not in report]	350	564	[-309] 7/	605	500	481	around the 10% discount rate--though with higher rates early in the period due to pressures associated with the end-of-quarter date	10.77	10

1/ The monetary aggregates [were] somewhat stronger in August than had been expected at the time of the Committee meeting...The paths were built to incorporate the projected strength in August.

2/ In light of the recent strengthening in money growth an initial borrowing assumption of $350 million was used in constructing the nonborrowed reserve path, the high end of the range indicated at the meeting.

3/ A large portion of the overrun was made by two banks experiencing special funding problems.

4/ The nonborrowed reserve path was also lowered by $283 million to adjust for special-situation borrowing not considered reflective of normal reserve availability pressures.

5/ This borrowing level did not make an allowance for special-situation borrowing, the extent of which was quite uncertain.

6/ Following a Committee conference call, the nonborrowed reserve path was raised by $248 million, in effect accommodating the more rapid growth in money which was consdered acceptable given the preponderant strength in NOW accounts and given also the overall background of weakness in the economy and fragile world-wide financial conditions.

7/ Consistent with the September 24 conference call discussion, a borrowing gap of $500 million was "implanted" for the final week of the subperiod.

APPENDIX B

This Appendix arranges in compact form the data from Appendix A for the targeted and actual levels of borrowed reserves, the expected and actual funds rate, and the discount rate. The first through sixth columns in the table show targeted and actual borrowing levels at the discount window. All figures in these columns are in millions. The first column shows the initial target set by the FOMC for average borrowed reserves in the intermeeting period. The second column shows the gap between the projected and path levels of average total reserves. The third column shows any judgmental adjustments in the average borrowed reserve target. The fourth column adds to the initial target for average borrowed reserves the total reserve gap plus any judgemental adjustments to obtain a revised target for average borrowed reserves. The fifth column shows the borrowed reserve target for the current and remaining weeks in the intermeeting period (or subperiod). Column six shows the actual borrowing level for the week.

The seventh column in the table shows the midpoint of the federal funds rate range expected by the Desk near the beginning of the statement week (usually on Friday), and the eighth column shows the actual weekly average funds rate. The seventh column is left blank if there is no clear midpoint to the expected funds rate range in the Report of Open Market Operations, and the column has an "na" if there is no discussion of the expected funds rate in the Report. The last two columns in the table show the discount rate and surcharge.

In the second subperiod of the intermmeting period ending July 8, 1981, the borrowed reserve target was lowered from $2100 million to $1800 million in an FOMC telephone conference. Rather than treating this as a separate period, I treat it as a judgmental adjustment in the borrowed reserve target in the middle of the July 8, 1981 intermeeting period. In the week of November 28, 1979 there was $175 million "as of" borrowing that was reclassified as nonborrowed reserves the week of December 19, 1979. In the week of January 6, 1982 the borrowed reserve target was set at $1.0 billion for the current week (the year-end week) and $465 million for each of the final four weeks in the period. The borrowing target was changed in the middle of the weeks of February 25, 1981 and December 23, 1981 following FOMC meetings.

	BORROWED RESERVES						FUNDS RATE		DISCOUNT RATE	
Date	Initial Average Target (1)	Total Reserve Gap (2)	Judgmental Adjustments (3)	Revised Average Target (4)	Target for Remaining Weeks (5)	Actual Borrowing (6)	Midpoint Expected Funds Rate (7)	Actual Funds Rate (8)	Discount Rate (9)	Surcharge (10)
10-Oct-79	1500	0	0	1500	1500	938		12.00	11.29	0
17-Oct-79	1500	200	0	*1700	1800	1530		13.22	12	0
24-Oct-79	1500	*467	0	*1967	2700	2960		15.14	12	0
31-Oct-79	1500	360	*122	*1982	2500	3056		15.61	12	0
07-Nov-79	1500	0	0	1500	1500	1928	13.50	13.77	12	0
14-Nov-79	1500	240	0	*1740	1650	1857	13.50	13.30	12	0
21-Nov-79	1500	300	*35	*1835	1720	1865	13.50	13.10	12	0
28-Nov-79	1700	0	0	1700	1700	2021/1846	13.25	12.46	12	0
05-Dec-79	1700	100	0	*1800	1800	1819	13.25	13.77	12	0
12-Dec-79	1700	0	0	*1700	1500	1291	13.25	13.79	12	0
19-Dec-79	1700	0	-100	*1600	1500	1684	13.25	13.90	12	0
26-Dec-79	1700	-400	-200	1100	1100	1224	13.00	13.49	12	0
02-Jan-80	1700	-280	-150	*1270	1300	1431	13.00	14.04	12	0
09-Jan-80	1700	-200	*-182	*1318	1300	732	na	13.94	12	0
16-Jan-80	1000	0	0	1000	1000	1223		13.91	12	0
23-Jan-80	1000	0	0	1000	940	1197	13.63	13.77	12	0
30-Jan-80	1000	-50	0	*950	694	1821		13.54	12	0
06-Feb-80	1000	-85	*320	*1235	700	759	na	12.80	12	0
13-Feb-80	1250	-38	0	1212	1212	1236	na	13.64	12	0
20-Feb-80	1250	313	67	*1630	1828	2194		14.87	12.71	0
27-Feb-80	1250	541	67	*1858	2144	2057		14.62	13	0
05-Mar-80	1250	626	400	2276	2276	2508	16.00	16.17	13	0
12-Mar-80	1250	644	400	*2294	2187	3439	16.63	16.45	13	0
19-Mar-80	1250	724	*737	*2711	2187	3001	na	16.24	13	1.29
26-Mar-80	2750	26	0	2776	2776	2660	17.00	17.78	13	3
02-Apr-80	2750	62	-150	*2662	2663	2262		19.39	13	3
09-Apr-80	2750	-313	-150	*2286	2170	2386	na	19.04	13	3
16-Apr-80	2750	-295	-150	*2305	2108	2276	na	18.35	13	3
23-Apr-80	2750	-432	*-61	*2257	1700	2555		17.56	13	3
30-Apr-80	1375	-588	0	787	787	1916	14.50	15.12	13	3
07-May-80	1375	-802	151	724	327	562	13.50	12.96	13	2.57
14-May-80	1375	-821	151	*705	170	207		10.85	13	0
21-May-80	1375	-854	151	*672	0	99	11.00	10.71	13	0
28-May-80	100	0	0	100	100	307		9.46	13	0
04-Jun-80	100	0	0	100	31	105		10.74	12	0
11-Jun-80	100	-6	0	*94	0	32		9.68	12	0
18-Jun-80	100	0	0	*100	0	120	na	8.99	11.14	0
25-Jun-80	100	0	0	100	100	44	na	9.08	11	0
02-Jul-80	100	0	0	*100	128	74	na	9.41	11	0
09-Jul-80	100	0	*-27	*73	100	17	na	9.26	11	0
16-Jul-80	75	0	0	75	75	121	na	8.98	11	0
23-Jul-80	75	0	0	75	64	45	na	8.68	11	0
30-Jul-80	75	33	0	108	125	343	na	8.98	10.57	0
06-Aug-80	75	57	0	132	75	570	na	9.60	10	0
13-Aug-80	75	159	0	234	93	117		8.85	10	0

	BORROWED RESERVES						FUNDS RATE		DISCOUNT RATE	
Date	Initial Average Target	Total Reserve Gap	Judgmental Adjustments	Revised Average Target	Target for Remaining Weeks	Actual Borrowing	Midpoint Expected Funds Rate	Actual Funds Rate	Discount Rate	Surcharge
20-Aug-80	75	128	0	203	203	83	na	9.35	10	0
27-Aug-80	75	282	0	357	425	500		10.03	10	0
03-Sep-80	75	362	0	437	534	1150		10.47	10	0
10-Sep-80	75	285	150	510	409	537		10.22	10	0
17-Sep-80	75	380	150	605	755	1213	11.00	10.64	10	0
24-Sep-80	750	382	0	1132	1132	1384		10.85	10	0
01-Oct-80	750	495	0	1245	1210	1873	11.88	12.38	10.86	0
08-Oct-80	750	323	200	1273	1036	1248	12.00	12.59	11	0
15-Oct-80	750	442	200	1392	1228	1107		12.64	11	0
22-Oct-80	750	438	200	1388	1328	1203	12.75	12.55	11	0
29-Oct-80	1300	209	0	1509	1509	1440		13.17	11	0
05-Nov-80	1300	201	0	1501	1521	1878	13.63	13.99	11	0
12-Nov-80	1300	219	100	1619	1579	2067	15.00	14.65	11	0
19-Nov-80	1300	300	150	1750	1615	1979		15.22	11.43	0.86
26-Nov-80	1500	403	0	1903	1903	2215		17.43	12	2
03-Dec-80	1500	341	170	2011	1960	2142	17.50	17.72	12	2
10-Dec-80	1500	261	170	1931	1766	1786	19.50	18.82	12.86	2.86
17-Dec-80	1500	210	170	1880	1629	1505	19.50	19.83	13	3
24-Dec-80	1500	0	0	1500	1500	1650	na	19.44	13	3
31-Dec-80	1500	-57	0	1443	1374	1627	17.50	18.45	13	3
07-Jan-81	1500	-177	0	1323	1008	1117		20.06	13	3
14-Jan-81	1500	-170	0	1330	927	1333		19.64	13	3
21-Jan-81	1500	-301	0	1199	1199	1205		19.35	13	3
28-Jan-81	1500	-332	0	1168	1150	1793		18.12	13	3
04-Feb-81	1500	-414	280	1366	1100	1201	17.50	17.19	13	3
11-Feb-81	1300	-169	0	1131	1131	1113	17.00	16.51	13	3
18-Feb-81	1300	-327	0	973	926	1145		15.81	13	3
25-Feb-81	1300	-351	0	949	769	1642		14.96	13	3
25-Feb-81	1300	-351	166	1115	1100	1642		14.96	13	3
04-Mar-81	1300	-484	*414	1230	1020	1299	na	15.73	13	3
11-Mar-81	1300	-481	0	819	819	768	15.00	15.53	13	3
18-Mar-81	1300	-472	0	828	848	774	na	14.13	13	3
25-Mar-81	1300	-349	0	951	1131	888		13.48	13	3
01-Apr-81	1300	-402	0	898	1162	1464	15.00	14.93	13	3
08-Apr-81	1150	0	0	1150	1150	887	na	15.43	13	3
15-Apr-81	1150	33	0	1183	1282	1142		15.33	13	3
22-Apr-81	1150	97	0	1247	1480	863		15.55	13	3
29-Apr-81	1150	-10	0	1140	1667	2278		16.28	13	3
06-May-81	1150	552	250	1953	1953	2471	na	18.91	13.29	3.29
13-May-81	1150	374	484	2008	1777	1733	19.00	18.21	14	4
20-May-81	1150	389	484	2023	1863	1975	19.00	18.89	14	4
27-May-81	2100	0	0	2100	2100	2923	20.00	18.71	14	4
03-Jun-81	2100	6	206	2312	2108	1954		18.40	14	4
10-Jun-81	2100	-63	206	2243	2048	2207	20.00	19.33	14	4
17-Jun-81	2100	-60	206	2247	1902	1895	na	19.10	14	4
24-Jun-81	2100	-179	-300	1621	1621	2305		19.20	14	4
01-Jul-81	2100	-134	-132	1834	1599	1735	18.50	18.84	14	4
08-Jul-81	2100	-164	-132	1804	1372	1868		19.93	14	4
15-Jul-81	1500	0	0	1500	1500	1294		18.76	14	4
22-Jul-81	1500	32	0	1532	1651	1730	18.50	19.05	14	4
29-Jul-81	1500	-8	0	1492	1450	1978	18.00	18.54	14	4
05-Aug-81	1500	-155	0	1345	1345	1118	na	18.25	14	4
12-Aug-81	1500	-139	-76	1285	1370	1271	na	18.29	14	4
19-Aug-81	1500	-158	-76	1266	1409	1400	18.00	18.19	14	4
26-Aug-81	1400	-158	0	1242	1242	1571	na	17.41	14	4
02-Sep-81	1400	-200	*93	*1293	1200	1258	17.00	16.89	14	4
09-Sep-81	1400	-318	*122	*1204	995	1349		16.50	14	4
16-Sep-81	1400	-298	*191	*1293	995	1062	16.50	16.09	14	4
23-Sep-81	1400	-447	0	953	953	1121	16.00	15.33	14	3.71
30-Sep-81	1400	-419	0	981	912	1059	15.50	15.00	14	3
07-Oct-81	1400	-379	0	1021	883	733	15.50	15.46	14	3

	BORROWED RESERVES						FUNDS RATE		DISCOUNT RATE	
Date	Initial Average Target	Total Reserve Gap	Judgmental Adjustments	Revised Average Target	Target for Remaining Weeks	Actual Borrowing	Midpoint Expected Funds Rate	Actual Funds Rate	Discount Rate	Surcharge
14-Oct-81	850	0	0	850	850	687	na	14.93	14	2.57
21-Oct-81	850	-71	0	779	825	811	15.00	15.32	14	2
28-Oct-81	850	-69	0	781	845	723		14.87	14	2
04-Nov-81	850	-144	0	706	706	785		14.79	13.57	2
11-Nov-81	850	-194	-56	600	508	850	13.75	14.01	13	2
18-Nov-81	850	-154	*-18	*678	400	435	13.50	13.17	13	1.43
25-Nov-81	400	0	0	400	400	214		12.42	13	0
02-Dec-81	400	25	*-42	383	425	192		12.48	13	0
09-Dec-81	400	53	*-100	353	453	493		12.04	12.14	0
16-Dec-81	400	95	*-117	378	496	268		12.26	12	0
23-Dec-81	400	99	*-165	334	500	460		12.43	12	0
23-Dec-81	400	99	*-195	304	350	460		12.43	12	0
30-Dec-81	300	0	0	300	300	710		12.54	12	0
06-Jan-82	300	206	89	595	1000/465	1261	na	12.98	12	0
13-Jan-82	300	324	89	713	577	806	12.75	12.42	12	0
20-Jan-82	300	486	276	1062	1200	755		12.96	12	0
27-Jan-82	300	517	276	1093	1513	2272	14.00	13.98	12	0
03-Feb-82	300	614	*303	1217	1500	1635		14.77	12	0
10-Feb-82	1500	0	0	1500	1500	1439	14.50	15.19	12	0
17-Feb-82	1500	-95	0	1405	1394	1681	14.50	15.61	12	0
24-Feb-82	1500	-81	0	1419	1278	1678		13.86	12	0
03-Mar-82	1500	-116	100	1484	1139	1278	14.00	14.07	12	0
10-Mar-82	1500	-274	0	1226	1226	1141	14.00	14.35	12	0
17-Mar-82	1500	-145	-21	1334	1398	1163	14.50	14.89	12	0
24-Mar-82	1500	-171	-80	1249	1346	1343	15.00	14.48	12	0
31-Mar-82	1500	-157	-80	1263	1405	1329	14.50	14.99	12	0
07-Apr-82	1150	0	0	1150	1150	1200	14.00	15.15	12	0
14-Apr-82	1150	88	0	1238	1250	1103	14.25	14.68	12	0
21-Apr-82	1150	168	-37	1281	1411	1411		15.01	12	0
28-Apr-82	1150	164	-37	1277	1394	1595	14.50	14.72	12	0
05-May-82	1150	-23	0	1127	1127	1286		15.53	12	0
12-May-82	1150	-44	0	1106	1016	928		14.97	12	0
19-May-82	1150	-35	-29	1086	1044	784		14.67	12	0
26-May-82	800	0	0	800	800	884		13.70	12	0
02-Jun-82	800	24	15	839	828	916	13.50	13.43	12	0
09-Jun-82	800	13	30	843	812	1189	13.50	13.60	12	0
16-Jun-82	800	50	61	911	821	827	13.75	14.24	12	0
23-Jun-82	800	114	61	975	1014	919	14.00	14.17	12	0
30-Jun-82	800	99	60	959	1014	1523		14.81	12	0
07-Jul-82	800	0	0	800	800	985		14.47	12	0
14-Jul-82	800	-84	0	716	626	488	13.00	13.18	12	0
21-Jul-82	800	-97	-85	618	500	562		12.14	11.86	0
28-Jul-82	800	-83	-85	632	493	524		11.02	11.50	0
04-Aug-82	800	-208	-100	492	492	660		11.15	11.29	0
11-Aug-82	800	-255	-100	445	373	305	11.00	10.90	11	0
18-Aug-82	800	-252	-161	387	292	360		10.11	10.79	0
25-Aug-82	800	-231	-161	408	307	491		9.04	10.50	0
01-Sep-82	350	0	0	350	350	391	9.50	10.15	10.07	0
08-Sep-82	350	36	0	386	384	828	10.00	10.14	10	0
15-Sep-82	350	104	283	737	993	1213		10.27	10	0
22-Sep-82	350	294	0	644	644	691		10.31	10	0
29-Sep-82	350	495	-248	597	550	625		10.12	10	0
06-Oct-82	350	564	*-309	605	500	481		10.77	10	0