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THE EFFECT OF CHANGES IN THE FEDERAL FUNDS RATE TARGET ON MARKET INTEREST RATES IN THE 1970s

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I. INTRODUCTION

The standard empirical test of whether the Federal Reserve can influence interest rates is to regress interest rates on current and past (actual or unexpected) values of money growth. This literature generally finds little support for the view that the Fed can influence interest rates, except perhaps through the positive impact on inflation expectations of increases in money growth. Based on an exhaustive survey of the empirical studies on the impact of money growth on short-term interest rates, Reichenstein [1987, p. 80][1], concludes that "the Fed appears to have little control over month-to-month changes in [short-term] interest rates."

This conclusion conflicts with the standard view among participants in the financial markets that the Fed has a strong influence on interest rate movements. This view rests on three principles. First, the Federal Reserve's policy instrument is the federal funds rate. Second, the Fed makes discrete changes in its federal funds rate target in reaction to new information affecting its policy decisions, such as money growth rates, inflation rates, unemployment, and foreign exchange rates, and these target changes are highly persistent and seldom quickly reversed. Third, interest rates of longer maturity are determined by the expected level of the funds rate (the one-day rate) over the relevant time horizon (abstracting from default risk). These three principles imply that the Fed influences market rates through its control of the current funds rate and its influence on expected future

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[1] See this paper for a comprehensive list of references in this literature.

values of the funds rate.[2] (We leave the issue of maturity until later, but certainly the view would be that changes in the funds rate target are persistent enough to cause movements in one-year rates.)

A test of this view of the influence of monetary policy on interest rates is to identify Fed actions or statements that signal changes in the funds rate target and then to examine the reaction of interest rates to these signals. An increase in interest rates at a given maturity following a perceived increase in the funds rate target is evidence that the Fed influences interest rates at that maturity. In this paper we estimate the reaction of interest rates to changes in the funds rate target in the period from September 1974 through September 1979. This period is unique in that the Fed controlled the funds rate so closely that the public could perceive most changes in the funds rate target on the day they occurred, and these changes were reported in the financial press on the following day. We find that changes in the Fed's funds rate target were followed by large movements in the same direction in short-term interest rates, moderate movements in intermediate-term rates and small but significant movements in long-term rates.

The reactions of three-month, six-month and twelve-month Treasury bill rates to changes in the federal funds rate target were very similar. This result indicates that new information influencing funds rate expectations has little effect on the slope of the Treasury bill yield curve from three to twelve months. This result could explain the lack of support for the expectations theory from a number of studies that have tested the theory using short-term interest rates. We discuss this hypothesis below.

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[2]See Goodfriend [1987] for a technical discussion of the feasibility of interest rate smoothing under rational expectations.

II. FEDERAL FUNDS RATE TARGET CHANGES

Under the operating procedures used by the Fed from the early 1970s to October 6, 1979 the Federal Open Market Committee (FOMC) gave the New York Trading Desk an initial target for the federal funds rate. During the period between FOMC meetings this target was adjusted within the range specified by the FOMC in response to incoming data on money growth and other macroeconomic variables. By changing nonborrowed reserves through open market operations, the funds rate was maintained within a narrow band around the current target.

Beginning in late 1974 the Fed's control of the funds rate became so firm on a day to day basis that the public was able to perceive most changes in the funds rate target on the day they occurred. These perceived changes in the target were consistently reported on the following business day in the *Wall Street Journal*. We used the *Journal* to compile a record of 76 changes in the target over the period from September 1974 to September 1979. These target changes are shown in Table 1 and the *Journal* reports from which they are taken are given in Appendix A. Table 1 shows the old and new funds rate targets on the day of changes in the target, the midpoints of the old and new target ranges, and the size of the target changes. Early in the period the targets were reported as 1/2 percentage point ranges. In late 1975 these ranges fell to 1/4 percentage point, and by early 1976 the *Journal* simply announced a point target for the funds rate. Early in the period the target changes were generally 1/4 percentage point. Beginning in mid-1975 most target changes were 1/8 percentage point, although occasionally there were 1/4 percentage point changes in the target and toward the end of the period there were three changes of 3/8 percentage point.

Appendix A provides the headline of the *Journal* story announcing each funds rate target change, the relevant quotation from the *Journal*, and the old

TABLE 1

FEDERAL FUNDS RATE TARGET CHANGES

		Funds Rate Targets					Bill Rates			Bond Rates				
Date	Day	Old Target	Midpt	New Target	Midpt	Change	3mth	6mth	12mth	3yr	5yr	7yr	10yr	20yr
13-Sep-74	Fri	11 1/2 - 12	11.75	11 - 11 1/2	11.25	-0.500	-0.31	-0.14	-0.15	-0.05	-0.04	-0.03	0.00	0.02
23-Sep-74	Mon	11 - 11 1/2	11.25	10 3/4 - 11 1/4	11.00	-0.250	-0.15	-0.08	-0.11	-0.07	-0.11	-0.14	-0.11	-0.07
04-Oct-74	Fri	10 1/2 - 11	10.75	10 1/4 - 10 3/4	10.50	-0.250	-0.57	-0.40	-0.42	-0.14	-0.09	-0.06	-0.02	-0.02
18-Oct-74	Fri	10 - 10 1/2	10.25	9 1/2 - 10	9.75	-0.500	-0.20	-0.32	-0.31	-0.11	-0.10	-0.06	-0.02	-0.03
03-Dec-74	Tue	9 - 9 1/2	9.25	8 3/4 - 9 1/4	9.00	-0.250	0.23	-0.13	-0.14	0.00	0.04	0.01	0.03	0.06
16-Dec-74	Mon	8 1/2 - 9	8.75	8 1/4 - 8 3/4	8.50	-0.250	-0.18	-0.14	-0.12	0.00	0.01	-0.04	-0.04	-0.01
02-Jan-75	Thu	8 1/4 - 8 3/4	8.50	8 - 8 1/2	8.25	-0.250	-0.17	-0.09	-0.06	0.00	-0.02	0.00	0.02	0.01
03-Jan-75	Fri	8 - 8 1/2	8.25	7 3/4 - 8 1/4	8.00	-0.250	-0.15	-0.13	-0.05	-0.01	0.02	0.02	0.01	-0.02
06-Jan-75	Mon	7 3/4 - 8 1/4	8.00	7 1/2 - 8	7.75	-0.250	-0.06	-0.12	-0.13	-0.04	-0.02	-0.03	-0.04	-0.03
07-Jan-75	Tue	7 1/2 - 8	7.75	7 1/4 - 7 3/4	7.50	-0.250	-0.20	-0.21	-0.12	-0.03	0.01	0.01	-0.01	0.00
14-Jan-75	Tue	7 - 7 1/2	7.25	6 3/4 - 7 1/4	7.00	-0.250	-0.20	-0.21	-0.02	-0.03	0.01	0.04	0.03	0.00
31-Jan-75	Fri	6 3/4 - 7 1/4	7.00	6 1/4 - 6 3/4	6.50	-0.500	-0.05	-0.13	-0.10	-0.02	-0.01	-0.01	-0.01	-0.03
13-Feb-75	Thu	6 1/4 - 6 3/4	6.50	6 - 6 1/2	6.25	-0.250	-0.08	-0.02	-0.01	-0.04	0.00	0.03	0.02	0.08
14-Feb-75	Fri	6 - 6 1/2	6.25	5 3/4 - 6 1/4	6.00	-0.250	-0.18	-0.17	-0.17	-0.07	-0.12	-0.11	-0.09	-0.11
21-Feb-75	Fri	5 3/4 - 6 1/4	6.00	5 1/2 - 6	5.75	-0.250	-0.07	0.04	0.06	-0.02	0.03	-0.02	-0.08	-0.06
26-Mar-75	Wed	5 1/2 - 6	5.75	5 1/4 - 5 3/4	5.50	-0.250	-0.02	0.03	0.03	0.05	0.03	-0.18	-0.01	-0.01
08-May-75	Thu	5 - 5 1/2	5.25	4 3/4 - 5 1/4	5.00	-0.250	-0.04	-0.05	-0.05	-0.05	-0.04	0.02	0.02	-0.04
20-Jun-75	Fri	5 - 5 1/2	5.25	5 1/2 - 6	5.75	0.500	0.50	0.46	0.39	0.26	0.18	0.20	0.14	0.05
16-Jul-75	Wed	5 3/4 - 6 1/4	6.00	5 7/8 - 6 3/8	6.13	0.125	0.02	0.04	0.06	0.10	0.07	0.06	0.05	0.03
21-Jul-75	Mon	6	6.00	6 1/8	6.13	0.125	0.16	0.16	0.21	0.04	0.05	0.04	0.01	0.03
22-Jul-75	Tue	6 1/8	6.13	6 - 6 1/2	6.25	0.125	0.15	0.12	0.09	0.04	0.01	0.01	0.03	0.00
03-Oct-75	Fri	6 - 6 1/4	6.13	5 7/8 - 6 1/8	6.00	-0.125	-0.20	-0.21	-0.33	-0.24	-0.22	-0.18	-0.11	-0.07
21-Oct-75	Tue	5 7/8 - 6 1/8	6.00	5 1/2 - 5 3/4	5.63	-0.375	-0.25	-0.17	-0.14	-0.12	-0.05	-0.02	-0.02	-0.07
07-Nov-75	Fri	5 3/8 - 5 5/8	5.50	5 1/4 - 5 1/2	5.38	-0.125	-0.14	-0.15	-0.08	-0.15	-0.10	-0.06	-0.03	-0.01
12-Nov-75	Wed	5 1/4 - 5 1/2	5.38	5 1/8 - 5 3/8	5.25	-0.125	0.06	0.06	0.09	0.07	0.08	0.06	0.05	0.03
06-Jan-76	Tue	5 1/8	5.13	5	5.00	-0.125	-0.08	-0.15	-0.22	-0.05	-0.09	-0.08	-0.10	-0.04
27-Feb-76	Fri	4 3/4	4.75	5	5.00	0.250	0.12	0.27	0.21	0.11	0.09	0.09	0.09	0.08
30-Mar-76	Tue	4 5/8 - 5 1/8	4.88	4 3/4	4.75	-0.125	0.09	0.09	0.05	0.04	0.03	0.00	0.01	0.00
23-Apr-76	Fri	4 3/4	4.75	4 7/8	4.88	0.125	0.15	0.11	0.16	0.17	0.12	0.08	0.07	0.04
05-May-76	Wed	4 7/8	4.88	5	5.00	0.125	-0.01	-0.01	-0.01	0.02	0.03	0.04	0.02	0.01
12-May-76	Wed	5	5.00	5 1/8	5.13	0.125	0.06	0.10	0.11	0.02	0.02	0.03	0.02	0.04
14-May-76	Fri	5 1/8	5.13	5 1/4	5.25	0.125	0.06	0.12	0.10	0.06	0.06	0.04	0.01	-0.02
19-May-76	Wed	5 1/4	5.25	5 3/8	5.38	0.125	0.03	0.05	0.08	0.04	0.01	0.02	0.00	0.01
09-Jul-76	Fri	5 1/2	5.50	5 1/4	5.25	-0.250	-0.08	-0.12	-0.15	-0.10	-0.07	-0.06	-0.04	-0.03
08-Oct-76	Fri	5 1/4	5.25	5	5.00	-0.250	-0.11	-0.14	-0.10	-0.23	-0.15	-0.10	-0.05	-0.05
19-Nov-76	Fri	5	5.00	4 3/4	4.75	-0.250	-0.15	-0.16	-0.20	-0.14	-0.15	-0.14	-0.09	-0.06
14-Dec-76	Tue	4 3/4	4.75	4 5/8	4.63	-0.125	-0.04	-0.02	-0.01	-0.02	-0.03	-0.02	-0.01	-0.01
25-Apr-77	Mon	4 5/8 - 4 3/4	4.69	4 3/4 - 4 7/8	4.81	0.125	0.00	0.03	0.06	0.06	0.02	0.04	0.04	0.02
27-Apr-77	Wed	4 3/4 - 4 7/8	4.81	4 7/8 - 5	4.94	0.125	-0.05	0.02	0.07	0.02	-0.01	0.01	0.00	-0.01
10-May-77	Tue	5 1/8 - 5 1/4	5.19	5 1/4 - 5 3/8	5.31	0.125	0.14	0.10	0.06	0.03	0.02	0.02	0.02	0.01
19-May-77	Thu	5 1/4	5.25	5 3/8	5.38	0.125	0.11	0.18	0.19	0.10	0.11	0.06	0.06	0.04
28-Jul-77	Thu	5 3/8	5.38	5 5/8	5.63	0.250	0.15	0.15	0.13	0.09	0.07	0.08	0.05	0.03
09-Aug-77	Tue	5 3/4	5.75	5 7/8	5.88	0.125	0.22	0.16	0.11	0.06	0.05	0.03	0.04	0.04
12-Aug-77	Fri	5 7/8	5.88	6	6.00	0.125	-0.01	0.00	0.05	0.01	0.02	0.01	0.01	0.00
09-Sep-77	Fri	6	6.00	6 1/8	6.13	0.125	0.20	0.18	0.23	0.16	0.13	0.12	0.08	0.07
22-Sep-77	Thu	6 1/8	6.13	6 1/4	6.25	0.125	0.09	0.13	0.12	0.08	0.03	0.04	0.03	0.03
30-Sep-77	Fri	6 1/4	6.25	6 3/8	6.38	0.125	0.06	0.04	0.06	0.00	0.01	0.01	0.02	0.00
07-Oct-77	Fri	6 3/8	6.38	6 1/2	6.50	0.125	-0.01	0.00	0.03	0.05	0.02	0.04	0.04	0.03
31-Oct-77	Mon	6 1/2	6.50	6 5/8	6.63	0.125	0.18	0.21	0.20	0.10	0.06	0.06	0.06	0.02
09-Jan-78	Mon	6 1/2	6.50	6 3/4	6.75	0.250	0.41	0.38	0.36	0.31	0.26	0.19	0.16	0.15
19-Apr-78	Wed	6 3/4	6.75	7	7.00	0.250	0.18	0.22	0.18	0.14	0.10	0.06	0.05	0.03
27-Apr-78	Thu	7	7.00	7 1/4	7.25	0.250	0.13	0.09	0.19	0.02	0.02	0.01	0.02	0.02
18-May-78	Thu	7 1/4	7.25	7 1/2	7.50	0.250	0.07	0.11	0.12	0.04	0.05	0.05	0.04	0.04
21-Jun-78	Wed	7 1/2	7.50	7 3/4	7.75	0.250	0.10	0.05	0.06	0.10	0.04	0.04	0.03	0.04
20-Jul-78	Thu	7 3/4	7.75	7 7/8	7.88	0.125	0.01	0.05	0.13	0.01	0.03	0.04	0.04	0.03
16-Aug-78	Wed	7 7/8	7.88	8	8.00	0.125	0.26	0.23	0.21	0.19	0.14	0.09	0.09	0.08
18-Aug-78	Fri	8	8.00	8 1/8	8.13	0.125	0.12	0.08	0.07	0.02	0.00	-0.01	-0.02	0.00
28-Aug-78	Mon	8 1/8	8.13	8 1/4	8.25	0.125	0.09	0.09	0.07	0.01	-0.02	0.00	0.01	0.00
08-Sep-78	Fri	8 1/4	8.25	8 3/8	8.38	0.125	0.08	0.07	0.07	0.01	0.01	0.01	0.00	0.00
20-Sep-78	Wed	8 3/8	8.38	8 1/2	8.50	0.125	0.14	0.09	0.06	0.03	0.02	0.06	0.08	0.07
25-Sep-78	Mon	8 1/2	8.50	8 5/8	8.63	0.125	-0.06	0.02	0.00	0.01	0.04	0.04	0.00	0.01
28-Sep-78	Thu	8 5/8	8.63	8 3/4	8.75	0.125	-0.06	-0.04	-0.04	0.00	-0.01	-0.01	0.00	0.00
18-Oct-78	Wed	8 3/4	8.75	8 7/8	8.88	0.125	-0.22	-0.06	-0.02	0.04	0.01	0.03	0.02	0.01
20-Oct-78	Fri	8 7/8	8.88	9	9.00	0.125	0.00	0.07	0.04	0.03	0.02	0.03	0.02	0.02
26-Oct-78	Thu	9	9.00	9 1/8	9.13	0.125	0.23	0.12	0.17	0.03	0.07	0.04	0.07	0.03
31-Oct-78	Tue	9 1/8	9.13	9 1/2	9.50	0.375	0.30	0.32	0.10	0.27	0.23	0.09	0.10	0.02
01-Nov-78	Wed	9 1/2	9.50	9 3/4	9.75	0.250	0.11	0.09	0.04	-0.28	-0.29	-0.32	-0.32	-0.18
28-Nov-78	Tue	9 3/4	9.75	9 7/8	9.88	0.125	0.17	0.04	0.04	0.01	0.00	0.00	0.00	0.00
19-Dec-78	Tue	9 7/8	9.88	10	10.00	0.125	-0.05	0.07	0.09	0.03	0.00	0.01	0.01	0.01
15-Jan-79	Mon	10	10.00	10 1/8	10.13	0.125	0.10	0.00	0.00	0.00	-0.01	0.01	0.01	0.00
27-Apr-79	Fri	10 - 10 1/8	10.06	10 1/8 - 10 3/8	10.25	0.189	0.55	0.29	0.24	0.12	0.05	0.05	0.05	0.03
20-Jul-79	Fri	10 1/4	10.25	10 5/8	10.63	0.375	0.17	0.13	0.07	0.04	0.00	-0.03	-0.06	-0.01
15-Aug-79	Wed	10 5/8	10.63	11	11.00	0.375	0.06	0.07	0.17	0.03	0.04	0.03	0.02	0.01
24-Aug-79	Fri	11	11.00	11 1/4	11.25	0.250	0.12	0.11	0.16	0.10	0.08	0.08	0.09	0.04
04-Sep-79	Tue	11 1/4	11.25	11 3/8	11.38	0.125	0.22	0.26	0.30	0.13	0.06	0.07	0.08	0.06
19-Sep-79	Wed	11 3/8	11.38	11 1/2	11.50	0.125	-0.21	-0.25	-0.16	-0.05	-0.07	-0.04	-0.05	-0.02

and new targets. The quotations describing the target changes generally have two parts. The first part announces that a change in the target has occurred and, in most cases, announces the new target. The second part reports the Federal Reserve action -- or lack of action -- in the money market that indicated to the public that the target had been changed. This action was reported in all but three cases. The old and new targets are generally based on the quotations from the following day's Journal shown in Appendix A, although occasionally we identified the targets from issues of the Journal other than the day following the target change. These occasions are noted on the right hand side of Appendix A under the new and old targets.

In most cases identifying the old and new funds rate targets from the Journal's report on the day following a target change was straightforward, although in a few cases some judgment was required. We used the following rules. First, occasionally -- especially in late 1974 and the first half of 1975 -- the Journal reports the target changes in somewhat speculative language. For instance, the stories frequently use such language as "the Fed may have lowered the target range [3-Dec-74]" or "Fed actions...appeared to indicate that the Federal Reserve has lowered the target range [4-Oct-74]." We treat these as target changes, and they are almost always confirmed as such in subsequent issues of the Journal. Second, occasionally -- especially early in the period -- the Journal reports a target change but indicates uncertainty over the new level of the target, using such language as "Specialists took yesterday's injection of reserves as indicating that the Fed prefers to see funds trade in the 5 1/4% to 5 3/4% range, or possibly even lower [26-Mar-75]." In such cases we set the new target as that indicated as most likely by the Journal story. As shown in Appendix A, these targets are generally confirmed in subsequent issues of the Journal, although there are a small number of cases when the less likely possibility suggested by the Journal turns out to be the new target. Third, on a small number of occasions, when a change in the funds rate target is reported in the following day's Journal the level of the new target is not specified in that issue of the Journal. As shown in Appendix A, in these cases we usually get the new target level from one of the next two issues of the Journal, although in four instances there is a longer lag before the Journal reports the new target level.

On 21 occasions, almost all of which were prior to mid-1977, the Journal did not clearly identify the day on which a change in the funds rate target occurred. As a result, there are 21 gaps in the funds rate target series shown in Table 1. Each of these gaps is discussed in Appendix B.

III. REGRESSION RESULTS

Table 1 shows the movements on days of changes in the federal funds target in the 3-month, 6-month, and 12-month bill rates, and in the 3-year, 5-year, 7-year, 10-year, and 20-year bond rates.[3] We estimate the response of these rates to changes in the funds rate target with the regression:

$$\Delta R_t = b1 + b2 \Delta RFF_t + u_t, \qquad (1)$$

where ΔRff_t is the change in the funds rate target or in the midpoint of the target range and ΔR_t is the change in the bill or bond rate the day of the target change. An important assumption underlying this regression is that

[3]The Treasury bill rates are converted from discount rates to simple interest rates calculated on a 365-day basis. The bond rates are yields adjusted to constant maturities by the U.S. Treasury.

movements in the funds rate target cause movements in other market rates and not the reverse. We discuss this assumption below.

The regression results are shown in Table 2.[4] The coefficient of the funds rate target change is significant at the 1% level in all the regressions. The magnitude of the coefficients is fairly stable across the three bill rates and then falls steadily through the 20-year bond rate. Bill rates rose 50 to 55 basis points in response to a one percentage point change in the funds rate target. At the long end of the maturity spectrum, the 20-year bond rate rose about 10 basis points for a one percentage point change in the funds rate.[5]

As a check of our procedure of using the Wall Street Journal to identify the day of changes in the funds rate target, we reestimated equation 1 using daily changes in the three-month, six-month and twelve-month bill rates on the two market days before, the day of, and the two market days after the target changes. (These rates changes are reported in Appendix C.) To avoid overlapping of the data, we excluded from the sample those target changes that preceded or followed other target changes by four market days or less. This

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[4]We exclude the November 1, 1978 change in the target from the regression. On this day the Treasury and the Federal Reserve announced a program aimed at supporting the dollar in the foreign exchange markets. The government announced that it would sharply increase its available stock of foreign exchange for use in more intensive intervention activities. On the day of this announcement the dollar appreciated almost 7 percent against the German mark. Treasury bill rates increased, while intermediate- and long-term rates fell sharply.

[5]A comparison of the regression results with those from our paper on the post-October 1979 period [1987] show that the relative response of long-term interest rates to policy actions signaling a change in the funds rate target is lower in the pre-October 1979 period than in the post-October 1979 period.

TABLE 2

THE EFFECT OF FUNDS RATE TARGET CHANGES ON MARKET INTEREST RATES

$$\Delta R_t = b1 + b2\Delta RFF_t + u_t$$

	b1	b2	R^2	SER	D.W.
3-month bill rate	.016 (1.04)	.554 (8.10)*	.47	.13	1.89
6-month bill rate	.017 (1.44)	.541 (10.25)*	.59	.10	1.82
12-month bill rate	.024 (2.02)**	.500 (9.61)*	.56	.10	1.94
3-year bond rate	.018 (2.16)**	.289 (7.87)*	.46	.07	1.59
5-year bond rate	.012 (1.66)	.208 (6.43)*	.36	.06	1.59
7-year bond rate	.009 (1.47)	.185 (6.78)*	.39	.05	1.89
10-year bond rate	.012 (2.34)**	.131 (5.85)*	.32	.04	1.94
20-year bond rate	.007 (1.73)	.098 (5.46)*	.29	.03	2.04

t-statistics in parentheses
* significant at 1 percent level using a two-tailed test
**significant at 5 percent level using a two-tailed test

reduced the sample from 76 to 47 target changes. These regressions are reported in Table 3.

As shown in the third row of Table 3, the coefficients on the day of the funds rate target changes are very close to those reported for the full sample in Table 2. Also, there is little evidence of any systematic movement in bill rates on the day before or two days before the days identified by the Journal as having funds rate target changes, although in the twelve-month regression the coefficient is significant at the 5% level with a coefficient of 0.11. The funds rate coefficients in all three regressions on the day following the reported target changes, however, are significant at the 1% level, and average a little more than one-third of the coefficients on the day of the reported change. In the regressions for two days following the reported funds rate target changes, the coefficient on the six-month bill rate is significant at the 5% level, but the coefficients in the other two regressions are not significant and the explanatory power of these regressions is nil.

These regression results indicate that at times it took market participants at least a day following the initial Fed action signaling a target change to be completely sure that a change had occurred. The results are consistent with the Journal reporting of the target changes. As noted in Appendix A, some of the Journal stories reporting a target change had an element of uncertainty. These target changes were generally confirmed by the Journal the following day, although in some cases the changes were not confirmed until two or more days following the initial Journal story.

The interpretation of the regression results in this section rests on the assumption that movements in the funds rate target cause movements in other market rates and not the reverse. We believe this is a reasonable assumption. For reverse causation to be a valid concern in these regressions, changes in

TABLE 3

THE MOVEMENT IN BILL RATES ON DAYS
SURROUNDING FUNDS RATE TARGET CHANGES

$$\Delta R_t = b_1 + b_2 \Delta RFF_t + u_t$$

ΔR_t	3-month		6-month		12-month	
	b2	R^2	b2	R^2	b2	R^2
two days before	.111 (1.29)	.03	.041 (0.82)	.01	.113 (2.34)**	.11
one day before	-.034 (0.73)	.01	.035 (0.92)	.02	.073 (1.71)	.06
day of target change	.559 (6.49)*	.48	.549 (8.14)*	.60	.543 (8.11)*	.59
one day after	.241 (2.77)*	.15	.182 (3.59)*	.22	.185 (3.63)*	.23
two days after	.061 (1.00)	.02	.099 (2.61)**	.13	.018 (0.40)	.00

t-statistics in parentheses
*significant at 1 percent level using a two-tailed test
**significant at 5 percent level using a two-tailed test

the Fed's funds rate target would have to be triggered by contemporaneous daily changes in market rates. We know of no evidence that they are, nor are we familiar with any arguments along these lines. Further, on the days of changes in the funds rate target documented in this paper the Wall Street Journal generally attributed the movement in market rates to the target changes. There is no reason to believe that the Journal was not capable in this period of accurately reporting the reaction of market interest rates to open market operations signaling changes in the funds rate target. Finally, the significant positive correlation between changes in the funds rate target and movements in the bill rate the day following the target changes -- shown in Table 3 -- is consistent with changes in the funds rate target causing movements in other market rates, whereas the reverse causation argument offers no explanation for this correlation.

IV. RELEVANCE OF REGRESSION RESULTS FOR TESTS OF THE EXPECTATIONS THEORY USING MONEY MARKET YIELDS

The standard interpretation by market participants of movements in Treasury bill rates on days of changes in the funds rate target is that the movements are due to changes in expectations of funds rate levels over the life of the bill. This interpretation of our regression results provides strong support for the expectations theory of the term structure of interest rates. We found similar support for the expectations theory in a related paper on the effect of discount rate announcements on Treasury bill rates [Cook and Hahn, 1988]. In that paper we distinguished between (1) alignment announcements, which indicate the discount rate is being change to realign it with market rates, (2) policy announcements, which indicate the discount rate is being changed because of the Fed's concern over the money supply or other macroeconomic variables, and (3) hybrid announcements, which contain the language of both alignment and policy announcements. We found that throughout the 1973-85 period the Federal Reserve systematically used policy and hybrid discount rate announcements to signal persistent changes in the funds rate. Market participants understood the funds rate signals contained in these announcements and used these signals to revise their expectations of the future path of the funds rate. These revisions in funds rate expectations caused movements in bill rates.

Additional evidence that expectations of the funds rate are a determinant of longer-term money market rates comes from the literature on the effect of money announcements on short-term interest rates. This literature shows a positive reaction of Treasury bill rates at all maturities to announcements of unexpected increases in the money supply. Under the "policy anticipations hypothesis" -- which is the most widely accepted explanation for this phenomenon -- this reaction occurs because the Fed is expected to raise or lower the funds rate in response to deviations of money from its target path.[6]

The coefficients from the regressions relating changes in Treasury bill rates at different maturities to federal funds rate target changes, policy and hybrid discount rate announcements, and money announcements are summarized in the top part of Table 4. A striking aspect of these coefficients is the relative stability from the three-month through the twelve month maturities. There is no decline in the coefficients of the money announcement regressions and the pre-October 1979 discount rate regressions, and there is only a slight

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[6]We argue that the policy anticipations hypothesis is consistent with the reaction of both short-and long-term interest rates to money announcements in Cook and Hahn [1986, 1987].

TABLE 4

THE REACTION OF TREASURY BILL RATES BY MATURITY
TO EVENTS CHANGING FEDERAL FUNDS RATE EXPECTATIONS

A. Coefficients of Treasury Bill Rate Regressions

	3-month	6-month	12-month
Federal Funds Rate Target Changes			
Sept. 1974–Oct. 1979	.554 (8.10)	.541 (10.25)	.500 (9.61)
Discount Rate Announcements*			
Jan. 1973–Oct. 1979	.26 (2.66)	.32 (3.54)	.30 (3.15)
Oct. 1979–Dec. 1985	.73 (7.38)	.61 (7.61)	.59 (7.54)
Money Announcements**			
Sept. 1977–Oct. 1979	.072 (3.11)		.072 (4.73)
Oct. 1979–Oct. 1982	.364 (6.58)		.338 (7.59)
Oct. 1982–Sept. 1984	.190 (5.77)		.216 (5.62)

B. Change in Bill Rates Following Major Policy Announcements

	3-month	6-month	12-month
Oct. 6, 1979 Announcement	1.20	1.07	1.15
Oct. 9, 1982 Announcement	-.39	-.57	-.57

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* the three-month and six-month regression coefficients are from Cook and Hahn [1988]; the twelve-month regression was done for this paper

** from Gavin and Karamouzis [1984]

t-statistics in parentheses

decline in the coefficients of the funds rate regressions and the post-October 1979 discount rate regressions.[7] The bottom part of Table 4 shows the reaction of the three-month, six-month and twelve-month bill rates to the major monetary policy announcements since 1970: (1) the Fed's October 6, 1979 announcement that it was changing to a to a "nonborrowed reserve" operating procedure in order to better control the money supply and (2) Chairman Volcker's October 9, 1982 announcement of the de-emphasis of M1, which was widely viewed as formally signaling the end of the October 6, 1979 operating procedure. The reaction of rates across the three maturities to these announcements was also stable, with the exception of the relatively weak reaction of the three-month rate to the October 1982 announcement.

The similarity in the response of bill rates across the three-, six- and twelve-month bill rates to federal funds rate target changes, money announcements, discount rate announcements, and major policy announcements means new information influencing expectations of the future level of the funds rate has little effect on the slope of the Treasury bill yield curve from three to twelve months. Under the expectations theory, this stable pattern of bill rate responses across these maturities arises if changes in the funds rate target are expected to persist for the subsequent year. It also arises if the

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[7]The money announcement coefficients are from Gavin and Karamouzis [1984, p. 30]. Roley and Walsh [1985, p. 1015] report almost identical coefficients for the three-month and one-year rate regressions from October 1979 to October 1982 (.364 and .355), and similar but slightly declining coefficients for the pre-October 1979 period (.065 and .052). Loeys [1985, p. 239] estimates the reaction of the three-month spot rate and the three- to twelve-month forward rate to money announcements. He reports roughly equal coefficients in the pre-October 1979 period (.059 and .057) slightly declining coeffiecients in the October 1979 to August 1981 period (.432 and .359) and moderately declining coefficients in the period from December 1981 to December 1983 (.240 and .161).

funds rate is expected to change in the near future and then stay at its new level for the subsequent year. For example, suppose a discount rate announcement generates expectations of a 50 basis point change in the funds rate the following week, after which no further changes in the rate are expected. In such a case under the expectations theory the effect on the slope of the yield curve from three to six months and six to twelve months would be negligible. The difference between the current one-week and one-month rates would be 37 basis points, but the difference between the three-month and six-month rates would be only 2 basis points and the difference between the six- and twelve-month rates would be only one basis point.

The strong evidence that expectations of the future level of the funds rate influence current market interest rates contrasts with the results of a recent group of papers that have studied the slope of the money market yield curve and found little, if any, support for the expectations theory.[8] The standard test of the expectations theory in these papers is to regress changes in the three-month rate from period t to period t+1 on the difference between the six-month and three-month spot rates in period t (or on the difference between the three-month forward and spot rates in period t). As shown by Mankiw and Summers [1984, pp. 239-241], if an unknown but variable liquidity premium is left out of this regression, then the greater the proportion of the

[8]These papers include Mankiw and Summers [1984], Mankiw and Miron [1986], and Shiller, Campbell and Shoenholtz [1983]. Hendershott [1984] finds no support for the expectations theory from a regression of the change in the bill rate on the difference between the current forward and spot bill rates, but when he includes unexpected changes in variables derived from a structural model of interest rate determination as right hand side variables in this regression he finds some support for the theory. Fama (1986) concludes that the variation in forward rates calculated from Treasury bill yields is primarily variation in current expected returns rather than in forecasts of changes in interest rates.

variance in the slope of the yield curve explained by movements in the liquidity premium -- and the less explained by expected changes in the three-month rate -- the greater will be the downward bias of the slope coefficient from the value predicted by the expectations theory. As the proportion of the variance in the slope explained by expectations gets very small, the estimated coefficient of the slope approaches zero.

The evidence from Table 4 indicates that the slope of the yield curve from three to twelve months is not responsive to new information influencing interest rate (i.e. funds rate) expectations. In light of this evidence, it seems quite plausible that the variance of the yield curve over this range is dominated by movements in the liquidity premium. Hence, this evidence offers an explanation for why tests of the expectations theory using rates at these maturities provide so little support for the theory.

V. CONCLUSION

The data presented in this paper indicate that changes in the federal funds rate target in the 1970s caused large movements in short-term interest rates, moderate movements in intermediate-term rates, and small movements in long-term rates. These results support the standard view among financial market participants that the Federal Reserve has a strong influence on market interest rates through its control of the funds rate.

The evidence from this paper indicates that expectations of the future level of the funds rate strongly influence other money market rates. This evidence in support of the expectations theory is consistent with the evidence from other studies on the effect of monetary policy announcements and money announcements on Treasury bill rates. It appears to be at odds, however, with the lack of support for the expectations theory from papers that have tested the theory using short-term interest rates. The insensitivity of the slope of the yield curve from three to twelve months to new information influencing funds rate expectations offers a possible explanation for the apparently conflicting results from the two sets of studies.

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APPENDIX A

FEDERAL FUNDS RATE TARGETS

Date	Headline	Quotation	New Target	Old Target
Friday 9/13/74	Fed, Apparently Easing Curb on Credit, Adds to Reserves in the Banking System	Friday's maneuver, dealers said, indicated the Fed may have lowered its target range on federal funds to the 11% to 11 1/2% vicinity.... Over the past three weeks or so, the Fed had used a rate of about 12% on federal funds as a trigger to inject reserves and about an 11 1/2% rate as a trigger to absorb funds. The hint of the possible new relaxation came Friday afternoon when the Fed moved to inject reserves into the banking network, which already had appeared to be relatively comfortable for funds. Specifically, the Federal Reserve injection came when the rate on so-called federal funds pierced the 11 1/2% level and hit 11 5/8%.	11 - 11 1/2	11 1/2 - 12
Monday 9/23/74	Fed Tacitly Confirms Further Easing Of Credit in Its Money-Market Dealings	The Federal Reserve System tacitly confirmed it eased credit another notch through its operations yesterday in the short-term money market. The nation's money managers injected funds into the banking system twice yesterday when the federal funds rate hovered around 11 1/4%....The central bank yesterday injected reserves first when federal funds were at 11 5/16%, and again when they traded at 11 3/16%, dealers said. That prompted specialists to speculate that the maximum level at which funds would be added was dropped to 11 1/4%, and that funds would be absorbed when the rate falls to 10 3/4%. Only last week the range was 11 1/2% and 11%.	10 3/4 - 11 1/4	11 - 11 1/2
Friday 10/4/74	Fed's Apparent Credit Easing May Spur More Prime Rate Cuts, Perhaps to 11 1/2%	In recent days it was assumed the Federal Reserve preferred to see funds trade in the 10 1/2% to 11% range, with the money manager draining reserves when funds went below 10 1/2% and adding them when they traded above	10 1/4 - 10 3/4	10 1/2 - 11

Date	Headline	Quotation	New Target	Old Target
		11%. Friday's actions, the analysts said, appeared to indicate that the Federal Reserve has lowered the current target range to 10 1/4% to 10 3/4%, or perhaps even to 10% to 10 1/2%. According to money specialists, the Federal Reserve moved Friday to inject funds into the banking system when the rate on so-called federal funds pressed slightly above 10 3/4%.		
Friday 10/18/74	Fed Apparently Eases Credit Rein Again; More Banks Reduce Prime Interest Rates	The Federal Reserve System has apparently eased its credit stance another notch....As recently as a week ago, the central bank absorbed funds when the rate dipped to 10%, and injected funds at the 10 1/2% level. The Fed's open-market movements will be closely watched this week to determine the new intervention points, which many specialists believe will be 9 1/2% to absorb reserves and 10% to inject them. The rate on federal funds, or reserves banks lend each other, fell to 9 1/2% from 10% without any move by the central bank to offset the decline.	9 1/2 - 10 confirmed in following day's Journal	10 - 10 1/2
Tuesday 12/3/74	Short-Term Rates Drop In Money Market On Signs That Fed Eased Credit Again	For the past few weeks the Federal Reserve has fostered a funds rate of around 9% to 9 1/2%. Because of the Fed's absence from the open market, some dealers said the Fed may have lowered the target range to possibly 8 3/4% to 9 1/4%. Specifically, the dealers said the Fed had allowed the rate of federal funds to drop well below 9% without intervening in the open market.	8 3/4 - 9 1/4	9 - 9 1/2

Date	Headline	Quotation	New Target	Old Target
Monday 12/16/74	Fed Gives Tacit Confirmation It Lowered Key Interest-Rate Target Another Notch	The Federal Reserve System, the nation's money manager, gave tacit confirmation yesterday that it had lowered a key interest-rate target by another notch....Specialists said that yesterday's maneuver clearly indicates the Fed prefers to see the funds rate move no higher than 8 3/4%, with a possible range of 8 1/4% to 8 3/4%. Some said the range even could be lower. In yesterday's developments, the Federal Reserve moved to inject the banking network with funds when the rate on so-called federal funds threatened to pierce the 8 3/4% level.	8 1/4 - 8 3/4	8 1/2 - 9 from the December 12 Journal
Thursday 1/2/75	Fed Apparently Loosens Credit a Notch By Injecting Funds as Key Rate Climbs	The Federal Reserve System, the nation's money manger, appears to have lowered by a notch its target on a key short-term interest rate.... Until recently, it had been assumed the Fed wanted to keep the funds rate at 8 1/4% to 8 3/4%. Now some analysts say, it appears the target might be 8% to 8 1/2%, or possibly lower. Specifically, the Fed moved aggressively to supply funds to the banking network yesterday when the federal funds rate rose to more than 8 1/2%.	8 - 8 1/2	8 1/4 - 8 3/4
Friday 1/3/75	Prime Rates May Tumble in Wake of Cut In Fed's Discount Fee to 7 1/4% at 6 Banks	Before the Fed maneuverings Friday, most analysts believed the board preferred to see funds trade in the 8% to 8 1/2% range. Now they say the range could be 7 3/4% to 8 1/4%, or possibly lower. On Friday, for instance, the Fed came into the money market twice to buy government securities....On both occasions, the rate on federal funds was hovering at less than 8 1/2%.	7 3/4 - 8 1/4	8 - 8 1/2
Monday 1/6/75	Fed Moves Push Some Fees Down In Money Market	As recently as last week, most analysts believed the Fed wanted federal funds to trade in the 8 1/4% to 8 3/4% area. Now, they believe, the target range may be as low as 7 1/2% to 8%.	7 1/2 - 8	7 3/4 - 8 1/4 the new target set the previous day

Date	Headline	Quotation	New Target	Old Target
		Of possibly more importance, the Fed yesterday allowed the interest rate banks charge one another on federal funds to fall significantly without intervention....Federal funds traded at slightly below 7 3/4% early yesterday afternoon before falling even further to about 7 1/2%.		
Tuesday 1/7/75	Fed Step Shows Much-Eased Credit Grip, Which Causes Broad Interest Rate Cuts	As recently as last week, analysts generally believed the Federal Reserve preferred to see the funds rate trade in an 8 1/4% to 8 3/4% range. Now they say the range more likely is 7 1/4% to 7 3/4%, or perhaps even 7% to 7 1/2%. The confirmation by the nation's money manager of lower target rates on federal funds came early yesterday afternoon, when the Fed let the rate on funds slip below 7 1/4% before moving to keep it from falling much further.	7 1/4 - 7 3/4	7 1/2 - 8 The new target set the previous day
Tuesday 1/14/75	Fed Apparently Lowers Target 1/4 Point On a Key Money Market Interest Rate	Most money analysts believe the Federal Reserve has lowered 1/4 percentage point its target on federal funds, uncommitted reserves banks lend one another. They say it appears the Fed prefers to see such funds trade in the 6 3/4% to 7 1/4% range, down from 7% to 7 1/2% late week.	6 3/4 - 7 1/4	7 - 7 1/2
Friday 1/31/75	Fed Apparently is Lowering Its Target For Key Short-Term Interest Rate Again	The Federal Reserve System, the nation's money manger, apparently has again lowered significantly its target on a key short-term interest rate....Most analysts now believe the Fed's target range on federal funds is 6 1/4% to 6 3/4%, possibly even lower. Previously, it was thought to be 6 3/4% to 7 1/2% [sic]. Specifically, the Fed moved actively Friday to supply funds to the banking network when the rate on federal funds hovered at 6 3/4%.	6 1/4 - 6 3/4	6 3/4 - 7 1/4 We treat the 7 1/2% as a typo and use 6 3/4% to 7 1/4%, which was the new target on January 14.

Date	Headline	Quotation	New Target	Old Target
Thursday 2/13/75	Fed Is Seen To Have Cut Key Rate Target	According to specialists, it appeared the Fed lowered to a range to 6% to 6 1/2%, or even possibly lower, its target rates on federal funds. It had been using a range of about 6 1/4% to 6 3/4% since late last month. The specialists said that the Federal Reserve yesterday moved to inject funds into the banking network when federal funds were trading at 6 3/8%.	6 - 6 1/2	6 1/4 - 6 3/4
Friday 2/14/75	Fed Apparently Cuts Target on Key Rate; Several Banks Reduce Prime to 8 3/4%	The maneuver was interpreted to mean the central bank may have lowered its interest-rate range on those reserves banks lend each other to between 5 3/4% and 6 1/4%. The central bank uses the rate on federal funds as a guide in adding or absorbing reserves from the banking system. The range apparently had been lowered to between 6% and 6 1/2% only the day before, dealers said. The Federal Reserve supplied funds to the banking system Friday when the interest rate on federal funds was 6 5/16%.	5 3/4 - 6 1/4	6 - 6 1/2
Friday 2/21/75	Fed Seems to Cut Federal Funds Interest Target	Actions taken by the Federal Reserve on Friday, analysts said, indicate the Fed probably prefers to see funds trading in the 5 1/2% to 6% range for now, down from the presumed previous range of 5 3/4% to 6 1/4%. Specialists reported the Fed moved twice to inject reserves into the banking network Friday, in each case when funds rates were hovering around 6 1/8%.	5 1/2 - 6	5 3/4 - 6 1/4
Wednesday 3/26/75	Fed Apparently Lowers a Key Target, Paving Way for More Prime Rate Cuts	Specialists took yesterday's injection of reserves as indicating that the Fed prefers to see funds trade in the 5 1/4% to 5 3/4% range, or possibly even lower. In recent weeks it had been generally assumed the Fed wanted the rates to be in the 5 1/2% to 6% vicinity.	5 1/4 - 5 3/4	5 1/2 - 6

Date	Headline	Quotation	New Target	Old Target
		The Fed's implied confirmation came yesterday when it moved to inject funds into the banking network as the federal funds rate pressed above 5 3/4%.		
Thursday 5/8/75	Fed Apparently Lowers Target for Rate on Federal Funds 1/4 Percentage Point	According to many specialists, it appears the Fed has lowered at least 1/4 percentage point the rate it prefers to see on federal funds....For much of the period since [late March], the Fed's operations appeared designed to keep the rate in a 5% to 5 1/2% range. Specifically, the Fed acquired Treasury bills yesterday through repurchase agreements when the rate on federal funds was hovering around 5 3/8%. This led some market participants to conclude the Fed may have gone to a target range of 4 3/4% to 5 1/4%, or possibly even lower.	4 3/4 - 5 1/4	5 - 5 1/2
Friday 6/20/75	Prime Rate's Downturn Is Seen Imperiled By Fed's Move to Tighten Its Credit Reins	The Fed indicated that it raised its target interest rate on federal funds an estimated 0.5 percentage point....As recently as the middle of last week, the average target was presumed to be 5 1/4%. The Fed's move became public when it moved to drain reserves from the banking network when the rate on federal funds was hovering just below 5 1/2%.	5 1/2 - 6	5 - 5 1/2
Wednesday 7/16/75	Fed May Have Tightened Credit Reins; Specialists Cite Its Federal Funds Moves	Until recently, it appeared the Fed was trying to keep the funds rate in the 5 3/4% to 6 1/4% range. The latest action, analysts said, could indicate a boost of 1/8 percentage point in the target. The early view is based on the fact the Fed on Tuesday drained reserves from the banking network when the rate on so-called federal funds fell to 5 7/8%. And yesterday	5 7/8 - 6 3/8	5 3/4 - 6 1/4

Date	Headline	Quotation	New Target	Old Target
		the Fed waited until the rate on funds hit 6 3/8% before entering the market to supply reserves.		
Monday 7/21/75	Fed Signals Tightening of Credit Reins Through Sizable Sales of Treasury Bills	The Federal Reserve System, the nation's money manager, gave implicit confirmation yesterday that it had tightened its credit reins a notch in the open money market....According to some market analysts, the sales [of Treasury bills] indicated that the Fed had boosted its target rate on federal funds at least 1/8 point....Previously, the average target was thought to have been 6%. The Federal Reserve's sales came when federal funds were trading at 6 1/16%, a level that just a week ago would have prompted by [sic] orders from the Fed.	6 1/8	6
Tuesday 7/22/75	Near-Term Rates Continue to Rise; Fed Moves Again	Several specialists said the move indicated that the Fed probably has decided to keep federal funds in a 6% to 6 1/2% range, possibly seeking an average rate of 6 1/8% [sic] or slightly higher. According to dealers, the temporary sell order came when federal funds were trading at 6 1/16%.	6 - 6 1/2 confirmed in the following day's <u>Journal</u>	6 1/8 the new target set the previous day
Friday 10/3/75	Fed Pumps Reserves Into Bank Network, Setting Off a Rally in Short-Term Market	The cash infusion triggered a sharp rally in the short-term money market on hopes the central bank's action signaled an easier monetary policy. The market upturn was touched off as the central bank entered into repurchase agreements when the interest rate on federal funds was 6 3/16%.	5 7/8 - 6 1/8 confirmed in the <u>Journal</u> two days later	6 - 6 1/4 from the October 1 <u>Journal</u>
Tuesday 10/21/75	Fed Appears to Ease Credit Rein Further; Short-Term Interest Rates Drop Sharply	According to market specialists, the actions were taken when federal funds were trading between 5 1/2% and about 5 3/4%. Specialists	5 1/2 - 5 3/4	5 7/8 - 6 1/8

Date	Headline	Quotation	New Target	Old Target
		generally interpreted the action to mean the Fed had lowered its target rates on funds to that range, and possibly even lower.... Previously, it was generally thought the Federal Reserve was aiming for a 5 7/8% to 6 1/8% range. The Fed's apparently easier policy was signaled when it moved to inject reserves into the banking system with federal funds trading at relatively low interest rates.		
Friday 11/7/75	Fed Failure to Prop Federal Funds Rate Seen Signaling Still Easier Credit Stance	Until Friday, it was generally thought the Fed wanted to see funds trade in the 5 3/8% to 5 5/8% range. Now, analysts believe, the range could be 5 1/4% to 5 1/2% and perhaps lower. Specialists said the Fed allowed the rate on federal funds to drop below 5% Friday without taking action to prop the key rate.	5 1/4 - 5 1/2	5 3/8 - 5 5/8
Wednesday 11/12/75	Fed Buys Treasury Bills in Two Stages, Underlining Move Toward Easier Credit	Specialists said the actions indicated the Fed wanted funds to trade below 5 1/2%, perhaps in the 5 1/8% to 5 3/8% range. Until late last week, it appeared the Fed was aiming at a 5 3/8% to 5 5/8% trading range. The Federal Reserve's injections came in the form of temporary purchase of Treasury bills, once in the morning and then later again in the afternoon. In both instances, the maneuvers came with so-called federal funds trading at 5 1/2%.	5 1/8 - 5 3/8	5 1/4 - 5 1/2 the new target established the previous Friday
Tuesday 1/6/76	Fed Signals an Ease in Short-Term Rates, Sending Treasury Bill Prices Up Sharply	The specialists said the Fed's actions yesterday indicated the money manager had lowered its target rate on federal funds, uncommitted reserves that banks lend one another. They guessed the Fed currently is aiming for an average rate of 5%, possibly lower, on federal funds, down from a presumed average target of 5 1/8% only last month.	5	5 1/8

Date	Headline	Quotation	New Target	Old Target
		The sign of further credit ease came when the Federal Reserve moved to add reserves to the banking system when federal funds were trading at just 5 1/8%.		
Friday 2/27/76	Fed Tightens Credit, May Move Further, Which Could Lead to Boost in Prime Rate	The Federal Reserve System, which Friday pulled in its credit reins a bit, may draw in the reins even further over the next few weeks.... Since early this year, the Fed has tried to keep at 4 3/4% or so the key rate, which acts as a type of base for most other short-term interest rates. The Fed's tighter credit stance became apparent Friday when the reserve system allowed the rate on so-called federal funds to pierce 5% without intervening to hold it down.	5 confirmed in the Journal two days later	4 3/4
Tuesday 3/30/76	Federal Reserve System Clearly Indicates Preference for 4 3/4% Federal Funds Rate	The Federal Reserve System gave a clear signal yesterday that it would prefer to keep the rate on so-called federal funds in the 4 3/4% vicinity....Until recently, there has been much debate concerning the Federal Reserve's target rate on federal funds. Late last month, for example, Fed operations indicated the target was boosted to about 5% from around 4 3/4%. Later Fed activities suggested the action wasn't quite as drastic, with it possibly having gone to a permissible range of 4 5/8% to 5 1/8% in the funds rate rather than the 4 3/4% average rate concept. Yesterday, however, the Fed left little doubt that the current target is about 4 3/4%. The Federal Reserve moved to push reserves into the banking system shortly after noon as the rate on funds showed signs of piercing 4 7/8%.	4 3/4	4 5/8 - 5 1/8
Friday 4/23/76	Fed Delays in Adding Bank Funds Split Opinion on Whether Credit Is Tightened	Money analysts again are engaged in a high-stakes game of Clue, trying to decide whether the Federal Reserve System has tightened	4 7/8 confirmed in the following day's Journal	4 3/4

Date	Headline	Quotation	New Target	Old Target
		its credit reins. This time the players are about evenly divided between those that say there hasn't been any change in monetary policy and those that hold there has been a slight tightening. On Friday, the rate on federal funds was solidly at 4 7/8%. Still, the Federal Reserve waited until well past noon before supplying reserves. In recent weeks anything even slightly above 4 3/4% triggered a quick response from the Fed.		
Wednesday 5/5/76	Fed Said to Have Tightened Credit Reins, Set Rate Target of 5% on Federal Funds	Money market analysts said the Fed apparently has adopted a 5% interest rate target on so-called federal funds, uncommitted reserves banks lend one another. If true, that would represent a 1/8-percentage-point boost from the 4 7/8% target established only late last month. The Fed allowed federal funds to trade at 4 7/8% to 5% throughout the morning and early afternoon. At about 1:15 p.m. EDT, however, when funds hit 5 1/16%, the Fed moved to add reserves into the banking network by acquiring Treasury bills from dealers who agreed to buy them back at a later date.	5 confirmed in the following day's Journal	4 7/8
Wednesday 5/12/76	Short-Term Interest Rates Move Higher On Fears Fed May Be Tightening Credit	The possibility that the Federal Reserve System again may be tightening credit sent short-term interest rates racing upward yesterday. The fear of a tighter credit policy came as the rate on so-called federal funds pressed upward to 5 1/4% before the Federal Reserve intervened to inject funds into the banking network. In recent days the Fed had quickly supplied reserves whenever the funds rate pierced through 5 1/16%.	5 1/8 confirmed in the following day's Journal	5 the new target established the previous Wednesday

Date	Headline	Quotation	New Target	Old Target
Friday 5/14/76	Pause in Fed's Credit Tightening Is Seen After Apparent Rise in Key Rate to 5 1/4%	That, at least, is the opinion of many analysts who watched the Fed boost its interest-rate target on federal funds from 4 3/4% late last month to 5 1/8% in the middle of last week and cap it with an apparent further increase to 5 1/4% Friday. The indication of a 5 1/4% funds target came Friday when the Federal Reserve allowed funds to trade at rate of 5 3/16% and more without intervening to stem the upward move. Analysts said past experience indicated the Fed probably would have injected reserves with rates that high if [the] target rate were less than 5 1/4%.	5 1/4	5 1/8
Wednesday 5/19/76	Fed Hints at Further Credit Tightening, Putting Upward Pressure on Prime Rate	Since late last month the Fed boosted its target interest rate on so-called federal funds by 3/4 percentage point. Yesterday, it indicated a further boost of 1/8 point to a target of 5 3/8%. The hint of a tighter Fed policy came yesterday when the Fed waited until the rate on federal funds hit 5 7/16% before entering the market to supply reserves to the banking system.	5 3/8	5 1/4
Friday 7/9/76	Fed May Be Willing to Ease Reins More On Credit in Weeks Ahead, Analysts Say	On Friday, the Federal Reserve gave tacit confirmation that it had lowered to about 5 1/4% from 5 1/2% its target rate on federal funds, which are uncommitted reserves banks lend one another. The confirmation came as the Federal Reserve waited until the funds rate fell to 5 3/16% early Friday afternoon. Within 10 minutes of hitting the 5 3/16% level, however, the Fed sold government securities to dealers and agreed to buy them back later.	5 1/4	5 1/2
Friday 10/8/76	Short-Term Interest Rates Press Lower Amid Belief Fed Has Eased Credit Reins	Some money market specialists said the Fed's actions Friday indicated that the central bank has lowered its target rate on federal funds, the uncommitted reserves banks lend	5	5 1/4

Date	Headline	Quotation	New Target	Old Target
		one another. They guessed the Fed currently is aiming for an average rate of 5%, down from a previous target presumed to be 5 1/4%. The signal of credit accommodation was detected by some market specialists when the Federal Reserve allowed federal funds to trade at 5% at one point during the day, and 4 7/8% later on, before moving to drain reserves from the banking network. Previously, the Fed would have moved sooner and more swiftly to boost rates toward 5 1/4%, observers said.		
Friday 11/19/76	Fed Eases Reins On Credit, Cuts Discount Rate	Less than 1 1/2 hours [after mid-morning], the Fed gave the money market a policy-easing signal, indicating a lowering to 4 3/4% from 5% of its interest rate target on federal funds, reserves banks lend one another. Until Friday, the Federal Reserve has been aiming at maintaining a 5% rate on federal funds, which had been in effect since early last month. At about noon EST, however, the Fed moved to inject reserves into the banking system while federal funds were trading at a rate below 5%.	4 3/4	5
Tuesday 12/14/76	Easing of Credit Reins Another Notch Receives the Fed's Implicit Confirmation	The Federal Reserve System, the nation's money manager, gave an implicit confirmation that it has eased its credit reins another notch. Analysts said the Fed's actions in the open market yesterday indicated it is shooting for an interest rate of 4 5/8% or lower on federal funds, uncommitted reserves banks lend one another. Late last month, the Federal Reserve lowered its target rate on federal funds to 4 3/4% from 5%. On Dec. 3, a number of specialists said there were signs that the Fed had further trimmed	4 5/8	4 3/4

Date	Headline	Quotation	New Target	Old Target
		the target to 4 5/8%, but the Fed itself gave few clues in the marketplace to back that view. Yesterday, the Fed confirmed the view by injecting reserves into the banking network when federal funds were trading at only 4 3/4%, indicating it would prefer a rate lower than 4 5/8% [sic].		
Monday 4/25/77	Federal Reserve Moves Toward Tighter Credit, Some Analysts Believe	The Federal Reserve System may be in the process of pulling in its credit reins a notch, according to some money analysts....[An economist] estimates the Fed currently is seeking to hold the rate on so-called federal funds to 4 3/4% to 4 7/8%, up modestly from 4 5/8% to 4 3/4% earlier.... But others state the Fed hasn't changed policy.	4 3/4 to 4 7/8 confirmed in the <u>Journal</u> two days later (this is a borderline case; see next target change)	4 5/8 - 4 3/4
Wednesday 4/27/77	Almost All Money Specialists Now Agree That Fed Has Tightened Its Credit Reins	There was near unanimity among money specialists yesterday that the Federal Reserve System had tightened its credit reins a notch. There had been some speculation earlier in the week of a stiffer Fed policy, but many analysts at the time said they needed more evidence....Until recently, the Fed aimed to keep the rate on federal funds in a range of about 4 5/8% to 4 3/4%. Based on the Fed's recent maneuvers, the target now looks like 4 7/8% to 5%, said David M. Jones, an economist with Aubrey G. Lanston & Co. That evidence, many said, came yesterday as the Federal Reserve allowed the rate on so-called federal funds to rise to almost 5% before taking any offsetting action. When the action did come, specialists said, it was in a roundabout fashion.	4 7/8 to 5 confirmed in the following day's <u>Journal</u>	4 3/4 to 4 7/8 We treat part of the target change as occurring two days earlier.
Tuesday 5/10/77	Fed Hints Tighter Credit Reins in Move To Drain Federal Funds as Rate Drops	The Federal Reserve System, the nation's money manager, gave a strong hint that it is tightening its credit reins another notch....	5 1/4 - 5 3/8	5 1/8 - 5 1/4

Date	Headline	Quotation	New Target	Old Target
		Until yesterday's action, most analysts believed the Federal Reserve was aiming for a funds rate of 5 1/8% to 5 1/4%. Now, some analysts think the target range may be 5 1/4% to 5 3/8%. The hint came when the Fed moved to drain reserves from the banking system as the rate on so-called federal funds fell to 5 3/16%.		
Thursday 5/19/77	Fed Gives Hint Its Credit Reins Might Tighten	The Federal Reserve System, the nation's money market [sic], hinted it might again be tightening its credit reins. But analysts were at odds over the issue. Specifically, the Fed allowed the rate to rise to 5 3/8% during the early afternoon and to 5 1/2% later on in the day. In the recent past, the Fed had intervened any time the rate topped 5 1/4%.	5 3/8 confirmed in the May 27 Journal	5 1/4 From May 13 Journal
Thursday 7/28/77	Sharp Rise in Money Supply Spurs Fed To Tighten Credit; Interest Rates Spurt	Even before the figures were made public, the Fed began to draw in its credit reins, boosting by 1/4 percentage point or so its target rate on so-called federal funds. In the open market, the Fed allowed the rate on federal funds to rise to almost 5 3/4% before taking action to temper the rise. Previously, the Fed sought to maintain a funds rate of about 5 3/8%.	5 5/8	5 3/8
Tuesday 8/9/77	Fed Hints It Might Be Tightening Credit; Federal-Fund Target Rate Put at 5 7/8%	Many analysts viewed the action as a signal that the Fed is boosting to 5 7/8% or perhaps 6% from 5 3/4% its target rate on federal funds, the uncommitted reserves banks lend one another. Specifically, the Fed drained reserves yesterday at about 10:45 a.m. EDT, selling securities to dealers and simultaneously agreeing to buy them back tomorrow. The maneuver took place when funds were trading at 5 5/8% bid, 5 11/16 offered.	5 7/8 confirmed in the Journal two days later	5 3/4

Date	Headline	Quotation	New Target	Old Target
		The Fed came back at about 12:25 p.m. and again sold securities to dealers, this time agreeing to buy them back today. Funds were trading at 5 11/16% at the time.		
Friday 8/12/77	Pressures Mounting to Raise Prime Rate As Fed's Activities Tighten Credit Reins	The tightening was underscored Friday when the Fed pushed to 6% the rate on so-called federal funds, uncommitted reserve banks lend one another. The Federal Reserve signaled Friday it was seeking a 6% interest rate on federal funds when it drained reserves from the banking network with funds trading at 5 15/16%.	6	5 7/8 The new target set the previous Tuesday
Friday 9/9/77	Fed's Market Moves to Be Watched to See If Credit-Tightening Steps Will Continue	Market actions of the Federal Reserve System will be watched closely this week to assess whether recent credit-tightening moves will continue. Last Friday, the central bank drained reserves from the banking system when so-called federal funds--reserves banks lend one another--hit 6%, a new high point for such maneuvers, analysts said.	6 1/8 confirmed in the following day's Journal	6
Thursday 9/22/77	Fed Acts Again To Slow Growth of Money Supply	Based on Fed market operations yesterday, analysts said it appears the authorities' target rate on federal funds, a key determinant of short-term interest rates, is 6 1/4%, up from the 6 1/8% set in mid-September. In yesterday's trading, the Fed allowed the funds rate to go as high as 6 5/16% before intervening to pump funds into the market.	6 1/4	6 1/8

Date	Headline	Quotation	New Target	Old Target
Friday 9/30/77	Even Tighter Credit Seen as Fed Appears to Boost Federal Funds Rate Target to 6 3/8%	The concern over possible tighter credit reins was heightened Friday when the Federal Reserve indicated it had raised to at least 6 3/8% from 6 1/4% its target interest rate on federal funds. The Fed's determination was evident Friday when it let federal funds trade at an interest rate of 6 3/8%, 6 7/16% and finally 6 1/2% before taking any offsetting action.	6 3/8	6 1/4
Friday 10/7/77	Money Supply May Post Another Spurt; Fed Expected to Tighten Credit Further	Just last Friday the Fed gave an implicit signal that it had boosted to 6 1/2% from 6 3/8% its target interest rate for federal funds. The Fed gave tacit confirmation of the boost to 6 1/2% from 6 3/8% in its funds target by moving to drain reserves from the banking system Friday on two occasions when funds were trading at the 6 3/8% level.	6 1/2	6 3/8
Monday 10/31/77	The Fed Clamps a Tight Vise on Credit and New Treasury Note Prices Plunge	Specifically, the Fed raised to at least 6 5/8% from 6 1/2% its target interest rate on federal funds... It did so by draining large amounts of reserves from the banking net-work, first through temporary sales of government securities and then through outright sales of U.S. Treasury bills....Both of yesterday's maneuvers came when funds were already trading at 6 1/2%.	6 5/8	6 1/2
Monday 1/9/78	Federal Reserve Moves to Tighten Credit in Escalating Effort to Bolster U.S. Dollar	In its action yesterday, the Fed indicated it had boosted to at least 6 3/4% from 6 1/2% its target interest rate on federal funds, a key money measure. Yesterday's credit tightening became evident when the Fed moved to drain reserves from the banking network at a time when federal funds were trading at 6 9/16%.	6 3/4	6 1/2

Date	Headline	Quotation	New Target	Old Target
Wednesday 4/19/78	Fed's Intervention in the Money Markets Fosters Confusion Among Some Analysts	Intervention yesterday by the Federal Reserve System in the money markets prompted some analysts initially to conclude the Fed was signaling an attempt to tighten credit. But on closer analysis, some money market experts say the Fed's intentions remain unclear. Yesterday, the Fed came into the market with matched sales, or reverse repurchase agreements, to absorb bank reserves with the federal funds rate trading at 6 3/4%.	7 confirmed in the following day's Journal	6 3/4 from the following day's Journal
Thursday 4/27/78	Federal Reserve Again Tightens Credit; Basic Money Supply Rose in Latest Week	In the latest action, the Fed boosted to 7 1/4% from 7% its target interest rate on federal funds, which are uncommitted reserves banks lend one another. As recently as April 18, the target was 6 3/4%. The Fed signaled the tightening by allowing the interest rate on federal funds to rise to 7 5/16% yesterday before finally taking offsetting action at 1:30 p.m. EST.	7 1/4	7
Thursday 5/18/78	Fed, Signaling a Tougher Credit Policy, Drains Reserves From Banking Network	In recent weeks, it's believed the Fed has been trying to foster a 7 1/4% funds rate. But yesterday's reserve draining indicates the Fed wants the rate higher. The signal of a tougher policy stance came yesterday when the Fed moved to drain reserves from the banking network at a time when so-called federal funds were trading at 7 1/4%.	7 1/2 confirmed two days later in the Journal	7 1/4
Wednesday 6/21/78	Fed Boosts Federal Funds Target Rate; Move May Presage Other Key Increases	In yesterday's action, the Fed indicated it boosted to 7 3/4% from 7 1/2% its target interest rate on federal funds. The indication of the Fed's tightening came yesterday morning when the Federal Reserve allowed the rate on funds to pierce 7 7/8% before taking any offsetting action.	7 3/4	7 1/2

Date	Headline	Quotation	New Target	Old Target
Thursday 7/20/78	Federal Reserve Tightens Credit a Notch, But Extent of Move Remains Unclear	The Federal Reserve System has tightened its credit reins another notch....There is still some debate, though, on the extent of the tightening move. Many analysts said evidence is growing that the Federal Open Market Committee, the Fed's policy-making body, decided at its latest meeting last Tuesday to increase its target rate for federal funds to 8% from 7 3/4%. But a few analysts disagreed, saying the Fed appears to have moved its target up to only 7 7/8% to allow itself more flexibility.	7 7/8 confirmed two days later in the <u>Journal</u>	7 3/4
Wednesday 8/16/78	The Fed Apparently is Reining in Credit in Wake of Dollar's Continued Decline	Analysts said the Fed's actions yesterday indicated the nation's money manager was boosting to at least 8% from 7 7/8% its target interest rate on federal funds, reserves banks lend each other. The hint of the tightening came when the Fed allowed the rate on federal funds to pierce 8% without taking any overt action to inject more reserves into the banking network.	8	7 7/8
Friday 8/18/78	Fed Raises Discount Rate to 7 3/4%, Signals 8 1/8% Fee on Federal Funds	Separately, the Federal Reserve signaled that it has settled at least temporarily on an 8 1/8% target interest rate on federal funds, reserves that banks lend each other. In its open market operations, the Fed indicated where it wants the rate on federal funds by draining reserves from the banking network when the rate on funds dipped below 8%. Later, when the funds rate rose to 8 1/4%, the Fed injected reserves.	8 1/8	8 the new target established the previous Wednesday
Monday 8/28/78	Fed Apparently Tightens Credit Spigot, This Time to Dampen Domestic Growth	According to specialists who watch Fed operations closely, the nation's money manager appeared to boost to at least 8 1/4% from 8 1/8% its target interest rate for federal funds.	8 1/4	8 1/8

Date	Headline	Quotation	New Target	Old Target
		The indication of a tighter credit policy came when the Federal Reserve allowed federal funds to trade above 8 1/4% before intervening to counteract the trend.		
Friday 9/8/78	Fed Appears to Tighten Its Credit Reins Despite Indicators Inflation is Abating	But that belief was shattered when the Federal Reserve gave what many considered to be a clear signal that it had boosted to 8 3/8% from 8 1/4% its target rate on federal funds. The Fed's indication of tighter credit came when it drained reserves from the banking network when federal funds were trading at 8 1/4%.	8 3/8	8 1/4
Wednesday 9/20/78	The Fed Acts to Tighten Credit Further By Raising Federal Funds Target Rate	Specifically, the Fed yesterday indicated it has raised to at least 8 1/2% from 8 3/8% its target rate on so-called federal funds. The Fed itself left little doubt that it was tightening. With federal funds trading at the former 8 3/8% target, the Fed drained reserves from the banking system.	8 1/2	8 3/8
Monday 9/25/78	Fed Signals Raise in Federal Funds Target to 8 5/8%	In operations yesterday, the Fed gave an implicit signal it had raised to 8 5/8% from 8 1/2% its target rate on federal funds. The hint of yesterday's tightening came when the Federal Reserve allowed funds to trade at 8 5/8% for a significant period before injecting reserves into the banking network.	8 5/8	8 1/2
Thursday 9/28/78	Fed Target on Funds Seems Lifted to 8 3/4%	The Federal Reserve System, stepping up its inflation battle, appears to have boosted to 8 3/4% its interest rate target on federal funds.... Just last Monday, the Fed boosted to 8 5/8% from 8 1/2% the funds-rate target.	8 3/4	8 5/8

Date	Headline	Quotation	New Target	Old Target
		The indication of an 8 3/4% target rate on federal funds came as the Fed allowed funds to hover at that level and slightly above. The Fed did move to inject reserves into the banking network with funds trading at 8 13/16%. But dealers termed the action more of a token move, one which signaled an 8 3/4% target rate.		
Wednesday 10/18/78	Rate on Federal Funds Appears Raised to At Least 8 7/8% in Fed Credit Move	Analysts said yesterday's action indicated the Fed boosted to at least 8 7/8% from 8 3/4% its target interest rate on federal funds. The credit tightening move by the Fed was signaled when the nation's money manager moved to drain reserves from the banking system while federal funds were trading at about 8 7/8%.	8 7/8	8 3/4
Friday 10/20/78	Increase in Banks' Prime Interest Rate to 10 1/4% is Seen as Early as This Week	On Friday, for example, the Fed raised to at least 9% from 8 7/8% its target interest rate on federal funds, uncommitted reserves banks lend one another. On Friday, the Fed allowed the rate on federal funds to rise above 9% without directly intervening to stem the upward movement immediately.	9	8 7/8
Thursday 10/26/78	Interest Rates on Big Bank CDs Climb Sharply	In its operations yesterday, the Federal Reserve indicated it was seeking a target interest rate of at least 9 1/8% on federal funds in carrying out monetary policy. Yesterday the Fed allowed funds to trade at 9 1/8% or so, without taking any overt steps to drive the rate down.	9 1/8	9 the new target set the previous Friday
Tuesday 10/31/78	Chase Manhattan Boosts to 10% Its Prime Rate	Yesterday's move indicated the Fed had raised to 9 3/8% or 9 1/2% from 9 1/8% its target interest rate on federal funds, uncommitted reserves banks lend each other.	9 1/2 confirmed in the following day's <u>Journal</u>	9 1/8

Date	Headline	Quotation	New Target	Old Target
		In yesterday's maneuvering, the Fed allowed federal funds to trade at 9 1/2% during the lunch-hour period here without taking any overt action to temper the upward drive.		
Wednesday 11/1/78	Prime Rate Seen at 11% or More Before Year-End	On Tuesday, the nation's central bank indicated the target had been boosted to about 9 1/2% from 9 1/8%. Yesterday, funds traded at 10% for most of the day, and the Fed at one point injected reserves into the system, indicating it didn't want the rate to go higher. Thus, it appeared the current target is somewhere between 9 1/2% and 10%. [This action was part of the Treasury/Federal Reserve program to strengthen the dollar.]	9 3/4 confirmed in the November 16 Journal	9 1/2
Tuesday 11/28/78	Fed Move Indicates It Lifted Target Rate on Federal Funds to 9 7/8% from 9 3/4%	The Federal Reserve System gave implicit confirmation that it has boosted to 9 7/8% from 9 3/4% its target interest rate on federal funds, reserves banks lend each other. The signal came yesterday when the Fed allowed funds to trade at about 10% before acting to temper the rise by injecting reserves into the banking network.	9 7/8	9 3/4
Tuesday 12/19/78	Fed Move to Drain Bank System Reserves Seen a Signal of More Credit Tightening	The Federal Reserve System took action in the money market yesterday that prompted some analysts to conclude that the Fed is tightening credit another notch. Nevertheless, the money markets reacted quickly when the Fed moved yesterday when federal funds were trading at 9 7/8% to drain reserves from the banking system.	10 confirmed in the January 5 Journal	9 7/8 the new target set November 28
Monday 1/15/79	Fed Apparently Tightens Credit Reins, Boosting to 10 1/8% Target Rate on Funds	The Federal Reserve System apparently tightened its credit reins another notch, boosting to 10 1/8% from 10% its target interest rate on federal funds.	10 1/8	10

Date	Headline	Quotation	New Target	Old Target
		Yesterday the Fed gave additional evidence of a new tightening move. That evidence came when the Fed allowed the rate on federal funds to rise to 10 1/8% without taking an overt action to stem the increase.		
Friday 4/27/79	Big Upward Push on Interest Rates is Expected as Fed Tightens Credit	Analysts surveying the situation said the Fed probably boosted to a range of 10 1/8% to 10 3/8% its target interest rate on federal funds. Previously it maintained a 10% to 10 1/8% range. The signal of a tighter credit policy came when the Federal Reserve moved to drain reserves from the banking system when federal funds were trading at 10 /16% [sic]. Previously, the Fed had acted to drain reserves only when the funds rate declined to about 9 15/16%.	10 1/8 - 10 3/8 confirmed in the following day's <u>Journal</u>	10 - 10 1/8
Friday 7/20/79	Tighter Credit Policy of Fed Facing Test on Foreign Exchange Markets	Although the Fed didn't give any clear indication of the new funds rate goal, money specialists guessed it could be as high as 10 3/4%, up from the old target of 10 1/4%. The Fed waited until early afternoon Friday, when the federal funds rate hit almost 10 3/4%, to inject reserves into the banking network. That could leave the new target at anywhere from 10 1/2% to 10 3/4%.	10 5/8 confirmed in the August 7 <u>Journal</u>	10 1/4
Wednesday 8/15/79	Fed Acts to Tighten Credit; Banks Go on to Boost Prime Rate to 12%	Just how high the Fed wants interest rates wasn't immediately clear. But money analysts said the Fed initially will aim for an interest rate target of about 11% on federal funds, or reserve banks lend one another. The target had been about 10 5/8%. The Federal Reserve signaled its tighter credit policy by draining reserves from the banking network at a time when federal funds were trading at 10 3/4%. That indicated it wanted the rate even higher.	11	10 5/8

Date	Headline	Quotation	New Target	Old Target
Friday 8/24/79	Rise in Prime Rate to Record 12 1/4% Seen Following Move by Fed to Tighten Credit	The Federal Reserve Board under its new chairman, Paul A. Volcker, underscored its resolve to battle inflation Friday when it boosted to about 11 1/4% from 11% its target interest rate on federal funds. The Fed signaled its latest credit tightening Friday by allowing the federal funds rate to drift above 11 1/4% before taking any offsetting action. Previously, it would have taken counteraction when the rate pressed beyond 11%.	11 1/4	11
Tuesday 9/4/79	Fed Apparently Tightens Credit; Some Rates Soar	The Federal Reserve System apparently tightened its credit spigot by boosting to 11 3/8% from 11 1/4% its target interest rate on federal funds. The indication of a tougher credit policy came when the Fed allowed funds to trade at 11 3/8% without taking overt action to temper the rate rise. Indeed, the Fed waited until funds hit 11 1/2% before injecting reserves.	11 3/8	11 1/4
Wednesday 9/19/79	Fed Indicates It Wants Credit to Get Tighter	Yesterday's action indicated a Fed increase to 11 1/2% from 11 3/8% in the target interest rate on federal funds, reserves that banks lend each other. To accomplish this, the Fed drained reserves from the banking network while funds were trading at 11 3/8%. Many market specialists had expected the Fed to boost the target rate to as high as 11 3/4% in its efforts to quell the nation's inflationary pressures.	11 1/2	11 3/8

APPENDIX B

GAPS IN FUNDS RATE TARGET SERIES

1. Between Tuesday September 23, 1974 and Friday October 4, 1974 there is a gap in the series from 10 3/4 - 11 1/4% to 10 1/2 - 11%. The September 24 Journal reported that action by the Fed on September 23 "prompted specialists to speculate that the maximum level at which funds would be added was dropped to 11 1/4% and that funds would be absorbed when the rate falls to 10 3/4%." The October 7 Journal reported that "in recent days it was assumed that the Federal Reserve preferred to see funds trade in the 10 1/2% to 11% range." The Journal did not report a specific day when the target range was reduced from 10 3/4 - 11 1/4% to 10 1/2 - 11%, so there is a -1/4 percentage point gap in the series.

2. Between Friday October 4, 1974 and Friday October 18, 1974 there is a gap in the series from 10 1/4 - 10 3/4% to 10 - 10 1/2%. The October 7 Journal reported that the target range had been lowered to "10 1/4 - 10 3/4%, or perhaps even to 10 - 10 1/2%." The October 21 Journal reported that "as recently as a week ago, the central bank absorbed funds when the rate dipped to 10% and injected funds at the 10 1/2% level." In the funds rate target series we set the new target on October 4 at 10 1/4 - 10 3/4%. Hence, there is a -1/4 percentage point gap in the series.

3. Between Friday October 18, 1974 and Tuesday December 3, 1974 there is a gap in the series from 9 1/2 - 10% to 9 - 9 1/2%. The October 21 Journal reported that many specialists believed the new funds rate range was 9 1/2 to 10%. The December 4 Journal reported that "for the past few weeks the

Fed has fostered a funds rate of around 9% to 9 1/2%." The day of the reduction in the range from 9 1/2 - 10% to 9 - 9 1/2% was not identified in the Journal. Hence, there is a -1/2 percentage point gap in the series.

4. Between Tuesday December 3, 1974 and Monday December 16, 1974 there is a gap in the series from 8 3/4 - 9 1/4% to 8 1/2 - 9%. The December 4 Journal reported a likely reduction in the target to 8 3/4 - 9 1/4%. The December 12 Journal refers to the "8 1/2 to 9% target range generally presumed." The Journal did not report the day on which the target range fell from 8 3/4 - 9 1/4% to 8 1/2 - 9%. Hence, there is a -1/4 percentage point gap in the series.

5. Between Tuesday January 7, 1975 and Tuesday January 14, 1975 there is a gap in the series from 7 1/4 - 7 3/4% to 7 - 7 1/2%. The January 8 Journal reported that analysts believed the range on January 7 had been reduced to "7 1/4 - 7 3/4%, or perhaps even 7 - 7 1/2%." The January 15 Journal reports that late in the previous week the funds rate range was 7 to 7 1/2%. In the funds rate target series we set the new target on January 7 at 7 1/4 - 7 3/4%. Hence, there is a -1/4 percentage point gap in the series.

6. Between Wednesday March 26, 1975 and Thursday May 8, 1975 there is a gap in the series from 5 1/4 - 5 3/4% to 5 - 5 1/2%. The March 27 Journal reported that specialists "took yesterday's injection of reserves as indicating the Fed prefers to see funds trade in the 5 1/4 - 5 3/4% range, or possibly even lower." The May 9 Journal reported that "For much of the period since [late March] the Fed's operations appeared designed to keep the rate in a 5 - 5 1/2% range." In the funds rate target series, we set the

new target on March 26 at 5 1/4 - 5 3/4%. Hence, there is a -1/4 percentage point gap in the series.

7. Between Thursday May 8, 1975 and Friday June 20, 1975 there is a gap in the series from 4 3/4 - 5 1/4% to 5 - 5 1/2%. The May 9 Journal reported a decline in the funds rate to 4 3/4 - 5 1/4%. The June 23 Journal says that "as recently as the middle of last week, the average target was presumed to be 5 1/4%." The Journal did not report a specific day when the target midpoint was raised from 5 to 5 1/4%. Hence, there is a 1/4 percentage point gap in the series.

8. Between Friday June 20, 1975 and Wednesday July 16, 1975 there is a gap in the series from 5 1/2 - 6% to 5 3/4 - 6 1-4%. The June 23 Journal reported an increase in the funds rate target to 5 1/2 - 6%. The July 8 Journal reported that specialists believed the Fed currently was trying to keep the funds rate in the 5 3/4 - 6 1/4% range. The Journal did not report a specific day when the range was raised from 5 1/2 - 6% to 5 3/4 - 6 1/4%. Hence, there is a 1/4 percentage point gap in the series.

9. Between Wednesday July 16, 1975 and Monday July 21, 1975 there is a gap from 5 7/8 - 6 3/8% (6 1/8% midpoint) to 6%. The July 17 Journal reported a probable increase in the target range from 5 3/4 - 6 1/4% (midpoint 6%) to 5 7/8 - 6 3/8% (midpoint 6 1/8%). Yet the July 22 Journal reported an increase in the target from 6 to 6 1/8% and said that "Previously, the average target was thought to have been 6%," which appears to indicate that market participants may have misunderstood the Fed's actions on July 16. Nevertheless, we include the increase on July 16 as a perceived change in the target, so we have a -1/8 percentage point gap in the series.

10. Between Tuesday July 22, 1975 and Friday October 3, 1975 there is a gap from 6 - 6 1/2% (6 1/4 midpoint) to 6 - 6 1/4% (6 1/8 midpoint). The July 23 Journal reported a Fed move from 6 1/8% to a "6 - 6 1/2% range, possibly seeking an average rate of 6 1/8% [sic] or slightly higher," and the July 24 Journal confirmed that the new target range was 6 - 6 1/2%. The October 1 Journal reported that "Since July, market participants have thought the target range to be 6 - 6 1/4% or so." The day of the decrease in the range from 6 - 6 1/2% to 6 - 6 1/4% was not reported by the Journal so we have a -1/8 percentage point gap in series.

11. Between Tuesday October 21, 1975 and Friday November 7, 1975 there is a gap from 5 1/2 - 5 3/4% to 5 3/8 - 5 5/8%. The October 22 Journal reported a decline in the funds rate range to 5 1/2 - 5 3/4% and "possibly even lower." The November 10 Journal reported that "until Friday it was generally thought the Fed wanted to see funds trade in the 5 3/8 - 5 5/8% range." We put the funds rate target on October 21 at 5 1/2 - 5 3/4%, so there is a -1/8 percentage point gap in the funds rate series.

12. Between Wednesday November 12, 1975 and Tuesday January 6, 1976 there is a gap from 5 1/8 - 5 3/8% (midpoint 5 1/4%) to 5 1/8%. The November 13 Journal reported a decline in the funds rate range to 5 1/8 - 5 3/8%. The December 31 Journal reported that "Many analysts believe the Fed currently is seeking an average rate of 5 1/8% or so on federal funds....Until last week, the target was thought to have been about 5 1/4%." The Journal did

not report a specific day when the target midpoint was reduced from 5 1/4% to 5 1/8%, so there is a -1/8% percentage point gap in the series.

13. Between Tuesday January 6, 1976 and Friday February 27, 1976 there is a gap from 5% to 4 3/4%. The January 7 Journal reported that the Fed was aiming for a funds rate of 5% or possibly lower, and the 5% target was confirmed in the January 9 Journal. The January 12 Journal reported some confusion over whether the target was currently 5% or 4 3/4% and the March 1 Journal reported that "Since early this year, the Fed has tried to keep [the funds rate] at 4 3/4% or so" Because the Journal did not identify the specific day the funds rate target was reduced from 5 to 4 3/4%, there is a gap in the series of -1/4 percentage point.

14. Between Friday February 27, 1976 and Tuesday March 30, 1976 there is a gap from 5% to 4 5/8 - 5 1/8% (midpoint 4 7/8%). The March 1 Journal reported that the Fed had raised its target from 4 3/4%, and a target of 5% was confirmed in the March 3 Journal. The March 31 Journal reported that sometime after the increase in the target at the end of February "Fed activities suggested the action wasn't quite as drastic" as had been indicated and the Fed was seeking a funds rate range of 4 5/8 - 5 1/8% (midpoint 4 7/8%). Either the public misread the Fed's February 27 move or the Fed subsequently lowered the target range and the exact date was not reported in the Journal. In either case we have a gap of -1/8 percentage point in the funds rate target series.

15. Between Wednesday May 19, 1976 and Friday July 9, 1976 there is a gap from 5 3/8% to 5 1/2%. The May 20 Journal reported that the funds rate

target was boosted to 5 3/8%. The May 21 Journal reported confusion over whether the new target was 5 3/8 or 5 1/2% and the May 24 Journal confirmed that the new target was 5 1/2%. The Journal did not report a specific day when the funds rate target was raised from 5 3/8 to 5 1/2% so we have a gap of 1/8 percentage point in the funds rate target series.

16. Between Thursday December 14, 1976 and Monday April 25, 1977 there is a gap in the series from 4 5/8% to 4 5/8 - 4 3/4%. The December 15 Journal reported a reduction in the funds rate target from 4 3/4% to "4 5/8% or lower." The April 26 Journal reported that the funds rate target range before April 25 had been 4 5/8 - 4 3/4% (4 11/16 midpoint). The day of the increase in the target from 4 5/8% to 4 5/8 - 4 3/4% was not reported by the Journal so we have a gap of 1/16 percentage point in the funds rate target series.

17. Between Wednesday April 27, 1977 and Tuesday May 10, 1977 there is a gap in the series from 4 7/8 - 5% to 5 1/8 - 5 1/4%. The April 28 Journal suggested an increase in the target to 4 7/8 - 5%, and this range was confirmed in the April 29 Journal. The May 11 Journal reported that prior to the Fed's actions on May 10 most analysts believed the Fed was aiming for a funds rate of 5 1/8 - 5 1/4%. The day of the increase in the target from 4 7/8 - 5% to 5 1/8 - 5 1/4% was not reported by the Journal. Hence, there is a gap of 1/4 percentage point gap the funds rate series.

18. Between Tuesday May 10, 1977 and Thursday May 19, 1977 there is a gap in the series from 5 1/4 - 5 3/8% (5 5/16 midpoint) to 5 1/4%. The May 11 Journal indicated an increase in the funds rate target to 5 1/4 - 5 3/8%.

The May 13 Journal subsequently reported that "the Fed appears to be trying to keep the funds rate around 5 1/4%." In the funds rate target series we set the new target on May 10 at 5 1/4 - 5 3/8%, so there is a -1/16 percentage point gap in the funds rate series.

19. Between Thursday July 28, 1977 and Tuesday August 9, 1977 there is a gap in the series from 5 5/8% to 5 3/4%. The July 29 Journal reported that the Fed had raised the funds rate target to 5 5/8%. The August 1 Journal indicated uncertainty over whether the new target was 5 5/8% or 5 3/4% and the August 8 Journal confirmed that the target was 5 3/4%. The day of the increase from 5 5/8% to 5 3/4% was not identified by the Journal, so there is an 1/8 percentage point gap in the funds rate series.

20. Between Monday October 31, 1977 and Monday January 9, 1978 there is a gap in the series from 6 5/8 to 6 1/2%. The November 1 Journal reported that the Fed raised its target from 6 1/2% to at least 6 5/8%, and the 6 5/8% target was confirmed in the November 4 Journal. The November 25 Journal reported that the Fed had reverted back to a 6 1/2% target early in November, but the day this occurred was not identified by the Journal at the time. Hence we have a -1/8 percentage point gap in the series.

21. Between January 15, 1979 and Friday March 27, 1979 there is a gap in the series from 10 1/8% to 10 - 10 1/8%. The January 15 Journal reported that the Fed raised its target to 10 1/8%. The March 30 Journal reported that previously the Fed had been maintaining a funds rate range of 10 - 10 1/8%. The day of the decrease in the target from 10 1/8% to 10 - 10 1/8% was not identified by the Journal, so there is a -1/16 percentage point gap in the series.

Appendix C: Movement in Treasury Bill Rates Over Five Market Days Surrounding Funds Rate Target Changes

		funds rate	3-month bill rate					6-month bill rate					12-month bill rate				
Date	Day	Chnge	−2	−1	0	+1	+2	−2	−1	0	+1	+2	−2	−1	0	+1	+2
13-Sep-74	Fri	-0.500	-0.01	0.20	-0.31	-0.90	-0.02	0.06	0.16	-0.14	-0.47	-0.10	-0.04	0.20	-0.15	-0.27	0.23
23-Sep-74	Mon	-0.250	-0.75	-0.05	-0.15	0.06	0.08	-0.07	-0.04	-0.08	-0.14	0.06	-0.27	-0.14	-0.11	0.19	-0.01
04-Oct-74	Fri	-0.250	0.10	0.28	-0.57	0.00	0.41	0.12	0.04	-0.40	-0.08	0.05	0.10	-0.13	-0.42	-0.34	0.02
18-Oct-74	Fri	-0.500	-0.02	0.11	-0.20	-0.04	-0.17	-0.11	0.03	-0.32	-0.10	-0.02	0.00	-0.10	-0.31	-0.11	0.08
03-Dec-74	Tue	-0.250	-0.14	-0.17	0.23	-0.06	0.01	-0.15	-0.04	-0.13	-0.16	0.01	-0.08	0.02	-0.14	-0.06	0.01
16-Dec-74	Mon	-0.250	0.27	-0.07	-0.18	-0.39	0.04	0.28	-0.10	-0.14	-0.07	0.04	-0.04	-0.07	-0.12	-0.02	0.00
14-Jan-75	Tue	-0.250	0.09	0.10	-0.20	0.10	-0.17	0.05	0.04	-0.21	0.12	-0.14	0.05	0.03	-0.02	0.08	-0.07
31-Jan-75	Fri	-0.500	0.11	-0.04	-0.05	-0.02	-0.06	0.02	0.03	-0.13	-0.08	-0.19	0.01	-0.01	-0.10	-0.21	-0.08
26-Mar-75	Wed	-0.250	0.16	-0.01	-0.02	-0.03	0.04	0.09	0.09	0.03	-0.03	0.06	0.08	0.05	0.03	-0.01	0.07
08-May-75	Thu	-0.250	0.10	0.03	-0.04	-0.05	-0.23	0.03	-0.02	-0.05	-0.05	-0.19	0.08	-0.05	-0.05	-0.10	-0.25
20-Jun-75	Fri	0.500	0.34	-0.15	0.50	-0.05	0.10	0.20	0.05	0.46	-0.08	0.11	0.18	0.00	0.39	0.02	0.18
03-Oct-75	Fri	-0.125	-0.05	-0.05	-0.20	-0.05	0.09	-0.07	-0.09	-0.21	-0.08	0.01	-0.07	-0.09	-0.33	-0.11	0.11
21-Oct-75	Tue	-0.375	-0.08	0.01	-0.25	0.07	-0.01	-0.02	0.02	-0.17	0.02	-0.03	-0.07	0.00	-0.14	0.02	-0.03
06-Jan-76	Tue	-0.125	0.02	0.03	-0.08	-0.07	-0.08	0.03	0.00	-0.15	-0.06	-0.05	0.02	0.02	-0.22	-0.09	0.03
27-Feb-76	Fri	0.250	-0.03	0.01	0.12	0.21	0.05	-0.02	0.02	0.27	0.19	-0.02	0.00	0.05	0.21	0.23	-0.05
30-Mar-76	Tue	-0.125	0.03	0.02	0.09	-0.02	0.04	0.06	0.04	0.09	-0.02	0.02	0.08	0.00	0.05	0.00	0.10
23-Apr-76	Fri	0.125	-0.04	0.09	0.15	-0.02	-0.01	-0.03	0.09	0.11	0.01	-0.02	-0.03	0.10	0.16	0.02	-0.06
05-May-76	Wed	0.125	-0.03	-0.01	-0.01	0.06	0.08	0.00	-0.01	-0.01	0.03	0.05	0.00	-0.07	-0.01	0.07	0.06
09-Jul-76	Fri	-0.250	0.01	-0.07	-0.08	-0.09	-0.01	0.01	-0.13	-0.12	-0.05	0.03	0.02	-0.15	-0.15	-0.07	0.05
08-Oct-76	Fri	-0.250	-0.03	-0.04	-0.11	-0.03	0.01	-0.04	-0.04	-0.14	0.00	-0.01	-0.08	-0.08	-0.10	-0.03	-0.01
19-Nov-76	Fri	-0.250	-0.02	0.00	-0.15	-0.06	0.03	-0.03	0.00	-0.16	-0.06	0.01	-0.02	0.02	-0.20	-0.07	0.01
14-Dec-76	Thu	-0.125	-0.07	0.01	-0.04	-0.01	0.00	-0.05	0.04	-0.02	0.01	0.04	-0.08	0.04	-0.01	-0.01	0.02
10-May-77	Tue	0.125	0.06	0.01	0.14	0.10	-0.04	0.13	-0.01	0.10	0.09	-0.04	0.12	-0.01	0.06	0.09	-0.03
19-May-77	Thu	0.125	0.01	-0.02	0.11	0.08	-0.04	0.01	-0.02	0.18	-0.01	-0.06	0.01	-0.01	0.19	-0.01	-0.08
28-Jul-77	Thu	0.250	0.00	0.09	0.15	0.01	-0.05	-0.01	0.15	0.15	0.06	-0.03	-0.02	0.16	0.13	0.05	-0.02
09-Sep-77	Fri	0.125	0.02	0.01	0.20	0.02	0.08	0.01	0.02	0.18	0.01	0.02	0.02	0.01	0.23	0.00	-0.02
22-Sep-77	Thu	0.125	0.01	0.00	0.09	-0.01	0.02	0.04	0.01	0.13	-0.03	0.05	0.07	0.01	0.12	-0.03	0.06
30-Sep-77	Fri	0.125	-0.06	-0.03	0.06	0.06	0.16	-0.01	0.02	0.04	0.08	0.03	-0.01	0.02	0.06	0.07	0.02
07-Oct-77	Fri	0.125	0.03	0.00	-0.01	0.16	0.09	0.03	0.08	0.00	0.08	0.10	0.05	0.06	0.03	0.12	0.10
31-Oct-77	Mon	0.125	-0.05	-0.04	0.18	0.04	0.00	-0.02	-0.03	0.21	-0.04	0.03	-0.02	-0.02	0.20	-0.06	0.03
09-Jan-78	Mon	0.250	0.04	0.05	0.41	0.01	0.03	0.01	0.04	0.38	0.03	0.04	0.06	0.05	0.36	0.00	0.08
19-Apr-78	Wed	0.250	-0.04	0.05	0.18	-0.02	-0.05	-0.04	0.03	0.22	0.02	-0.01	0.01	0.00	0.18	0.04	-0.01
27-Apr-78	Thu	0.250	0.14	0.03	0.13	-0.02	-0.04	0.02	0.02	0.09	0.00	-0.01	0.00	0.05	0.19	0.01	-0.02
18-May-78	Thu	0.250	0.09	-0.06	0.07	0.04	0.03	0.05	-0.07	0.11	0.03	0.01	0.00	-0.05	0.12	0.02	0.01
21-Jun-78	Wed	0.250	-0.03	0.05	0.10	-0.03	0.05	-0.02	0.08	0.05	-0.04	0.04	-0.01	0.05	0.06	0.05	0.07
20-Jul-78	Thu	0.125	0.11	-0.03	0.01	-0.05	-0.20	-0.03	-0.02	0.05	-0.03	-0.08	-0.02	0.00	0.13	-0.02	-0.05
28-Aug-78	Mon	0.125	0.02	0.00	0.09	0.13	0.03	0.03	-0.01	0.09	0.12	0.03	0.04	-0.02	0.07	0.04	0.04
08-Sep-78	Fri	0.125	0.01	0.01	0.08	0.04	0.04	-0.01	0.02	0.07	0.07	0.05	-0.01	0.02	0.07	0.01	0.01
28-Nov-78	Tue	0.125	0.24	0.11	0.17	-0.15	0.03	0.29	0.04	0.04	-0.07	-0.04	0.33	-0.02	0.04	-0.05	-0.02
19-Dec-78	Tue	0.125	0.19	0.19	-0.05	0.04	0.04	0.19	0.20	0.07	0.00	-0.04	0.19	0.17	0.09	0.02	0.00
15-Jan-79	Mon	0.125	0.03	0.07	0.10	0.00	0.00	-0.03	0.11	0.00	-0.02	-0.02	-0.01	0.02	0.00	0.00	-0.02
27-Apr-79	Fri	0.188	-0.03	0.07	0.55	-0.11	-0.06	-0.03	0.04	0.29	-0.07	-0.01	0.04	0.07	0.24	-0.11	-0.05
20-Jul-79	Fri	0.375	-0.03	0.01	0.17	0.02	-0.06	0.00	0.02	0.13	0.02	0.00	0.07	0.04	0.07	0.00	0.04
15-Aug-79	Wed	0.375	0.01	0.02	0.06	-0.03	0.06	0.01	-0.03	0.07	-0.07	0.04	0.01	-0.07	0.17	-0.02	0.06
24-Aug-79	Fri	0.250	0.02	-0.03	0.12	0.01	0.10	0.01	0.00	0.11	0.00	0.07	0.04	0.00	0.16	-0.05	0.04
04-Sep-79	Tue	0.125	-0.02	0.06	0.22	0.05	0.21	-0.01	0.12	0.26	0.07	0.14	0.04	0.14	0.30	0.02	0.10
19-Sep-79	Wed	0.125	0.09	0.03	-0.21	0.01	-0.12	0.08	0.10	-0.25	0.02	-0.12	0.09	0.03	-0.16	0.01	-0.06