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JUNE 27, 1997

# MONETARY POLICY ALTERNATIVES

PREPARED FOR THE FEDERAL OPEN MARKET COMMITTEE  
BY THE STAFF OF THE BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

**June 27, 1997**

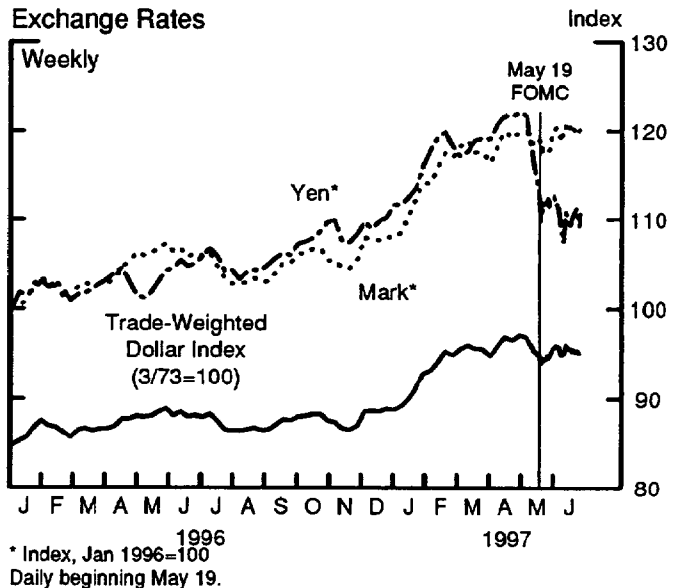
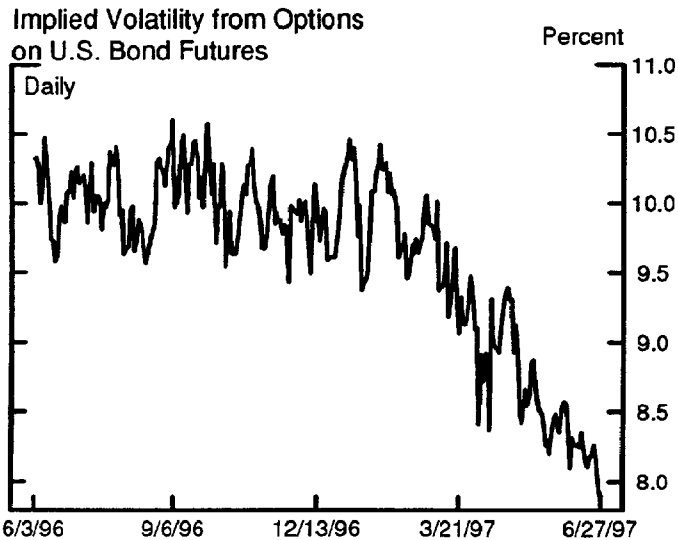
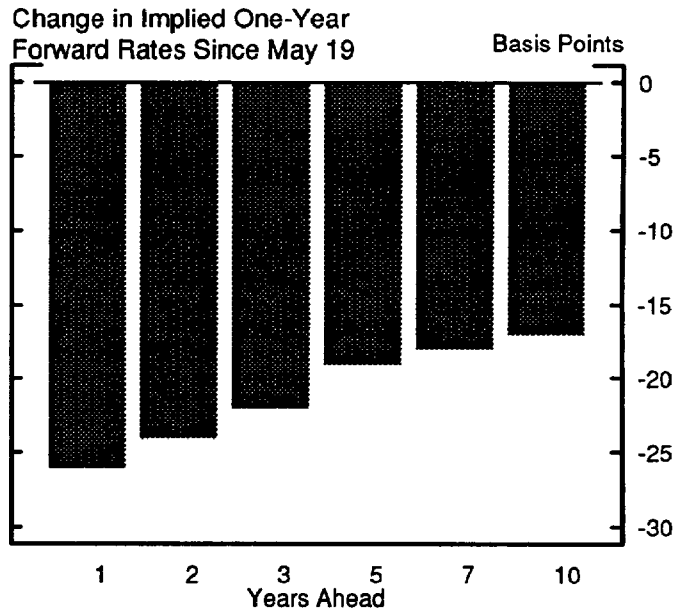
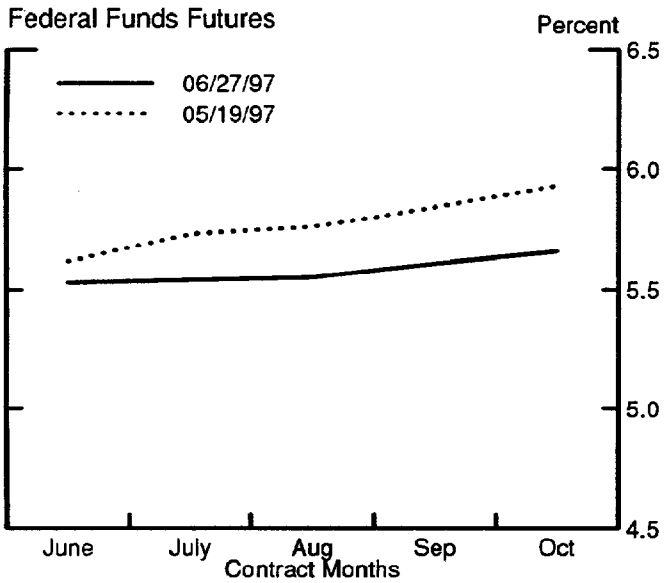
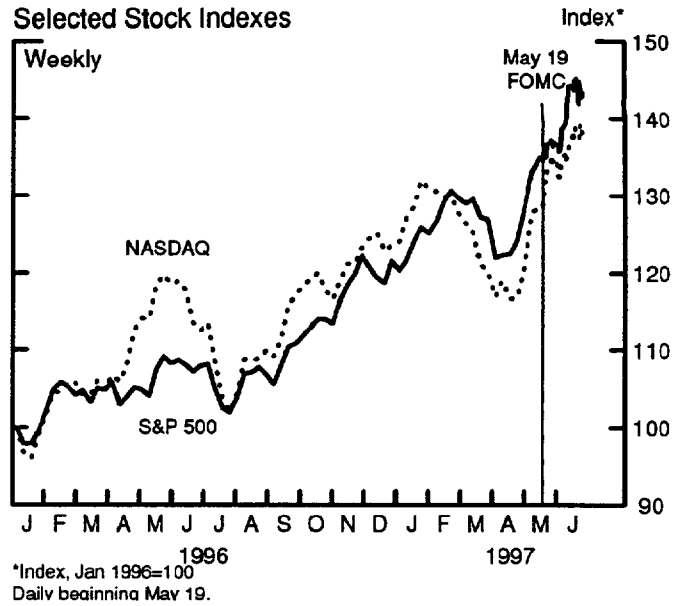
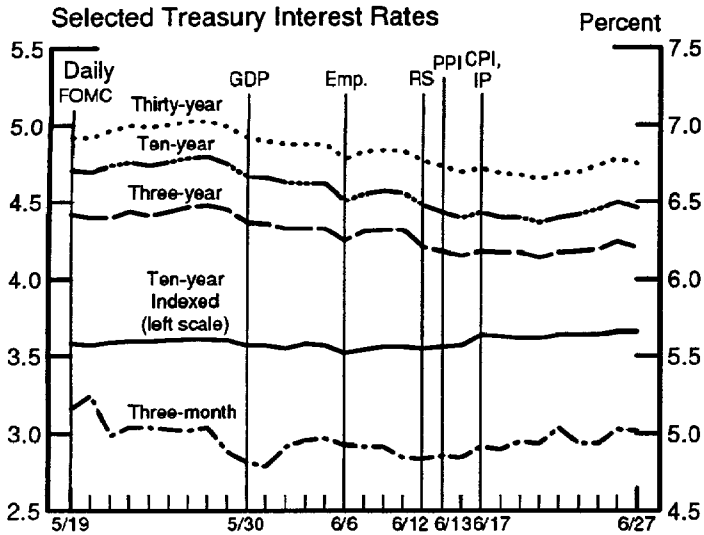
**MONETARY POLICY ALTERNATIVES**

**Recent Developments**

(1) Since the Committee meeting on May 20, the federal funds rate has averaged near its unchanged intended level of 5-1/2 percent. Most other market interest rates declined, on balance, apparently in response to incoming data suggesting that growth of final demand was slowing markedly in the current quarter and inflation was remaining well-contained (Chart 1). Private short-term rates dropped 5 to 15 basis points; rates on Treasury bills, however, fell more as bills continued to be paid down in volume in response to robust federal tax receipts. Futures rates for federal funds and Eurodollars now suggest that the likelihood that markets had attached to additional near-term System tightening at the time of the May meeting has evaporated; indeed, markets seem to anticipate that policy is likely to be on hold well into next year and perhaps beyond.

(2) Rates on intermediate- and longer-term instruments declined about 15 to 25 basis points, with forward rates dropping noticeably all along the yield curve. The view that a downshift in inflation expectations--perhaps precipitated by a string of consistently good inflation readings--contributed to this decline is supported by the considerable narrowing over the intermeeting period of the spread between nominal interest rates and the rate on the Treasury's indexed note. The narrowing in that spread also may reflect a reduction in uncertainty about future inflation and, hence, the size of the inflation risk premium embedded in nominal rates--a notion consistent with the sizable drop in the implied volatility of note and bond yields in recent months. These developments were, on net, quite positive for equity

**Chart 1**



markets, which moved up sharply on balance over the intermeeting period to reach record levels.

(3) The dollar's weighted-average exchange value appreciated about 2/3 percent, on balance, over the intermeeting period even though U.S. long-term rates fell by more than the average of foreign long-term rates; the latter declined 15 basis points. The dollar appreciated more than 1-1/2 percent against the DM and most other continental European currencies in response to a growing perception in the market that none of the major European countries will be able to comply strictly with the Maastricht deficit criterion--implying that if EMU goes forward, it will be with a broad group of countries. The market apparently believes that a broad EMU, and one that might place a bit greater emphasis on reducing unemployment given the results of the French election, will be less committed to the monetary discipline required for price stability. The dollar declined 1 percent against the yen amid growing market focus on recent and prospective increases in Japan's current account surplus. Short-term interest rates in most industrial countries were little changed over the intermeeting period. Short-term rates moved up in the United Kingdom and Canada after the newly independent Bank of England increased its repo rate by 1/4 percentage point and the Bank of Canada raised its bank rate by the same amount. Italian short-term rates are expected to fall next week after the Bank of Italy announced late today that it would cut both its discount and Lombard rates by 50 basis points effective next Monday.

; the Desk did not

intervene.

(4) Broad money grew moderately this month. M2 is estimated to have increased at a 4-1/4 percent rate in June after expanding at a subdued pace over April and May. From the fourth quarter of last year through June, M2 grew at a 4-3/4 percent rate, placing it just a bit below the 5 percent upper bound of its annual range. This outcome is about in line with that envisioned by the staff at the time of the February Committee meeting, despite what is now expected to be considerably more rapid nominal income growth than had been projected. The velocity of M2 was apparently up about 1 percent at an annual rate in the first half of the year--although M2's opportunity cost was little changed--perhaps because the substantial flows into equity mutual funds included some savings that would have been in M2. Still, this is a relatively small increase in velocity, and the relationship between M2 velocity and its opportunity cost re-established over the last couple of years appears to remain broadly intact. M3 is estimated to have increased at a 3-1/2 percent pace in June, down from the 5-1/4 percent average rate in April and May. Rapid M3 growth over most of the first half of the year--associated with robust expansion of bank credit, paydowns of liabilities to foreign offices with proceeds from large time deposit issuance, and rapid growth in MMMFs--left M3 in June 3/4 percentage point above the 6 percent upper bound of its range, in line with the staff's expectation in February.

(5) Private debt growth has picked up in recent months, reflecting greater credit demands and continuing favorable supply conditions for the business sector. Debt of the household sector, though still growing more rapidly than disposable income, has continued to expand at the more moderate rate established in the final months of last year. With the strengthening in the expansion of nonfederal debt, total debt growth has edged up in recent

months despite a marked slowing in its federal component. Domestic nonfinancial debt grew at a 4-3/4 percent annual rate from the fourth quarter of last year through May, near the middle of its annual range.

**MONEY, CREDIT, AND RESERVE AGGREGATES**  
(Seasonally adjusted annual rates of growth)

	April	May	June	96:Q4 to June <sup>3</sup>
<b><u>Money and Credit Aggregates</u></b>				
M1	-11.3	-2.7	-2.0	-3.1
Adjusted for sweeps	.5	4.6	-.7	4.4
M2	6.0	-.1	4.2	4.7
M3	8.9	1.5	3.4	6.7
Domestic nonfinancial debt	5.8	4.0	n.a.	4.8
Federal	2.4	-3.9	n.a.	1.3
Nonfederal	7.0	6.8	n.a.	6.1
Bank Credit	11.3	1.8	6.1	8.6
Adjusted <sup>1</sup>	13.4	4.6	6.9	8.5
<b><u>Reserve Measures</u></b>				
Nonborrowed Reserves <sup>2</sup>	-24.5	-9.3	-7.7	-11.2
Total Reserves	-21.9	-9.6	-7.3	-11.0
Adjusted for sweeps	3.3	6.2	-3.1	5.0
Monetary Base	1.6	4.0	6.2	4.7
Adjusted for sweeps	4.2	5.6	6.2	6.5
Memo: (millions of dollars)				
Adjustment plus seasonal borrowing	261	243	258	--
Excess Reserves	1010	1241	1176	--

1. Adjusted to remove effects of mark-to-market accounting rules (FIN 39 and FASB 115).

2. Includes "other extended credit" from the Federal Reserve.

3. For nonfinancial debt, 96:Q4 to May.

NOTE: Monthly reserve measures, including excess reserves and borrowing are calculated by prorating averages for two-week reserve maintenance periods that overlap months. Reserve data incorporate adjustments for discontinuities associated with changes in reserve requirements.



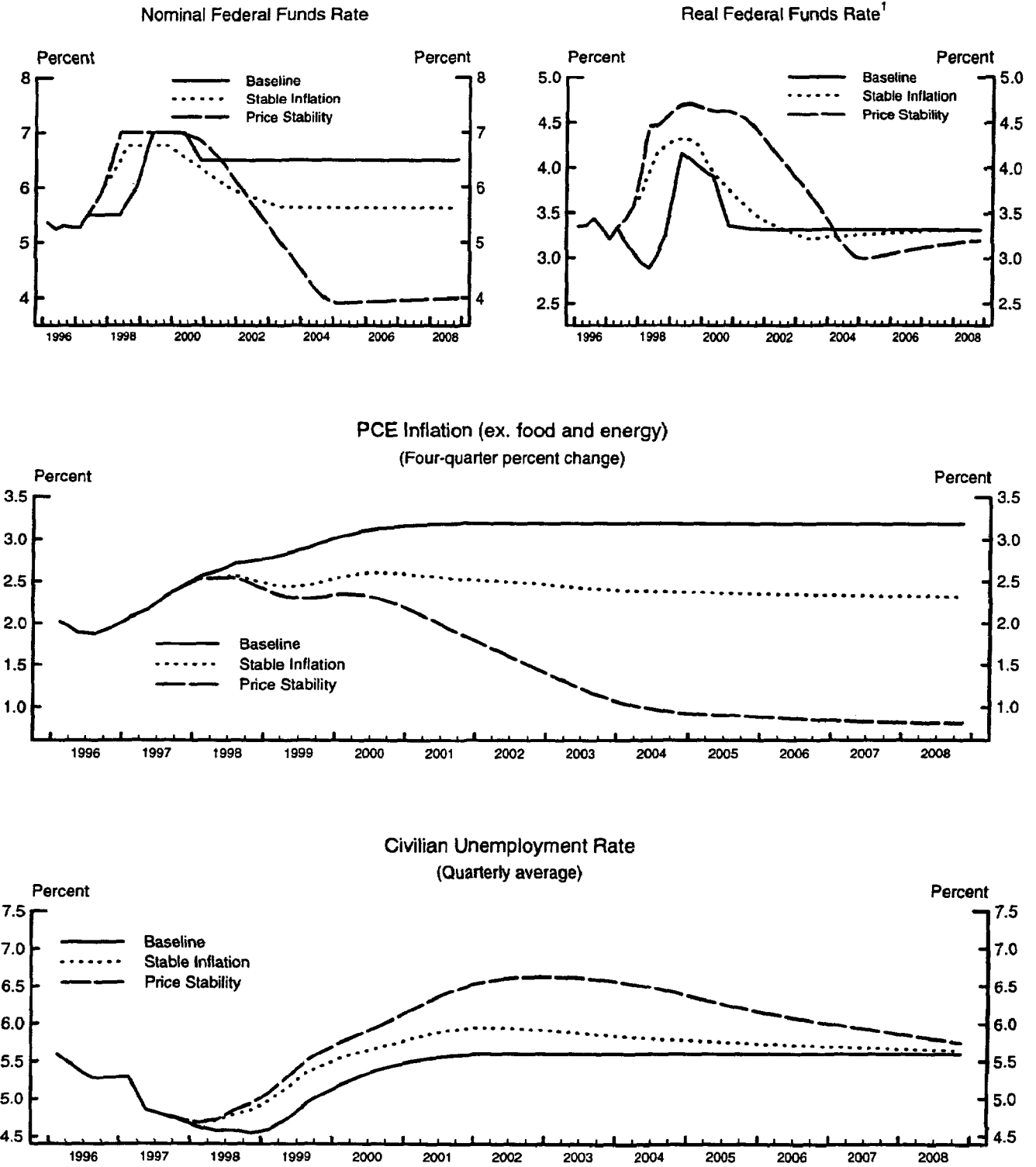
### Longer-Term Strategies

(6) This section provides a longer-term perspective on several strategic issues confronting the Committee. With the Greenbook forecast of unemployment throughout 1998 a percentage point below the staff's working assumption for the NAIRU, inflation would be expected to be on a rising trajectory into 1999. In light of this outlook, we first present alternative strategies, derived using the staff's econometric model, that the Committee could select for containing or reducing inflation in the medium term. Second, because the news on both inflation and unemployment has been better than the staff anticipated, we present a model simulation in which the NAIRU is substantially lower than the staff's present assessment. Third, we use the staff model to gauge four specific rules for conducting monetary policy, each of which embeds a long-run inflation objective in a monetary policy reaction function that also pays attention to variations in output.

(7) The first and second exercises are based on Greenbook assumptions through 1998 and judgmental extensions beyond. Specifically, we assume that the federal budget comes into balance by early in the next decade and that the chronic current account deficit puts downward pressure on the dollar. In addition, except in the scenario where we adjust it lower, we assume that the NAIRU is 5.6 percent. In the staff model, the sacrifice ratio over five years is about 2; that is, a 1 percentage point reduction in inflation can be achieved only by pushing the unemployment rate above the NAIRU by the equivalent of about 2 percentage point for one year.

(8) The baseline scenario, shown by the solid lines in Chart 2, is the Greenbook forecast through 1998, extended for subsequent years using the staff model with limited

Chart 2  
Alternative Strategies for Monetary Policy



1. The real federal funds rate is calculated as the quarterly nominal funds rate minus the four-quarter percent change in the PCE chain-weight price index excluding food and energy.

Note: Data points are plotted at the midpoint of each period.

judgmental adjustments. With inflation on an upward track in early 1999, the Committee picks up the pace of its tightening actions, but avoids inducing an outright recession.<sup>1</sup> The nominal funds rate is moved up to 7 percent by mid-1999. As a result, when the unemployment rate rises to the NAIRU two years later, consumer price inflation levels off at a little more than 3 percent. The real federal funds rate settles at about 3.3 percent. This real funds rate is near the levels of the past two or three years, which in the staff view have been associated with a build-up of pressures on resources. However, it is consistent with output at its potential and steady inflation in the out years because the imposition of fiscal restraint through 2002 and the appreciable decline in equity prices over the next few years restrain aggregate demand.

(9) The stable inflation strategy limits the near-term increase in inflation in the Greenbook forecast and ultimately brings it back to near its currently prevailing rate. This scenario--which is plotted by the dotted lines and extends the "tighter" alternative in the Greenbook--entails raising the federal funds rate to about 6-3/4 percent by the middle of 1998 and maintaining that level for a little more than a year. While the unemployment rate

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<sup>1</sup> In the charts, inflation is measured by the core PCE chain-weight price index, and past movements in this index are used to proxy for inflation expectations in converting nominal to real interest rates. Core PCE inflation increases a few tenths more than broader GDP measures of inflation over the next several years. We feel core PCE gives a reasonably clear view of the underlying inflation tendencies, though it may not accurately depict inflation expectations and thus may tend to distort the profile of real rates shown in the charts. In particular, core PCE inflation has a more pronounced increase over the next several years than do broader GDP measures of inflation. In the simulation results, the model relies on a more complex calculation of expected inflation to derive real rates.

remains below the NAIRU for a time, inflation is damped in the near term both by the strengthening foreign exchange value of the dollar and by falling inflation expectations over the short run associated with slower economic growth and tighter monetary policy. Eventually, though, the unemployment rate will have to be kept above the NAIRU for a while to offset the inflationary momentum imparted by the economy operating above its potential from 1996 through 1999.

(10) The third strategy--shown by the dashed line in Chart 2--is designed to achieve price stability within seven years or so. Price stability is defined here as an inflation rate slightly less than 1 percent, consistent with the staff's estimate of measurement error.<sup>2</sup> To achieve this objective, the Committee would need to boost the nominal funds rate to 7 percent by early 1998 and hold it there for a couple of years. Although the *nominal* funds rate under this scenario never exceeds its level under the stable-inflation scenario by more than 50 basis points, the gap between the two *real* rate trajectories is temporarily as wide as 100 basis points. The unemployment rate remains noticeably above the NAIRU for most of the simulation period.<sup>3</sup>

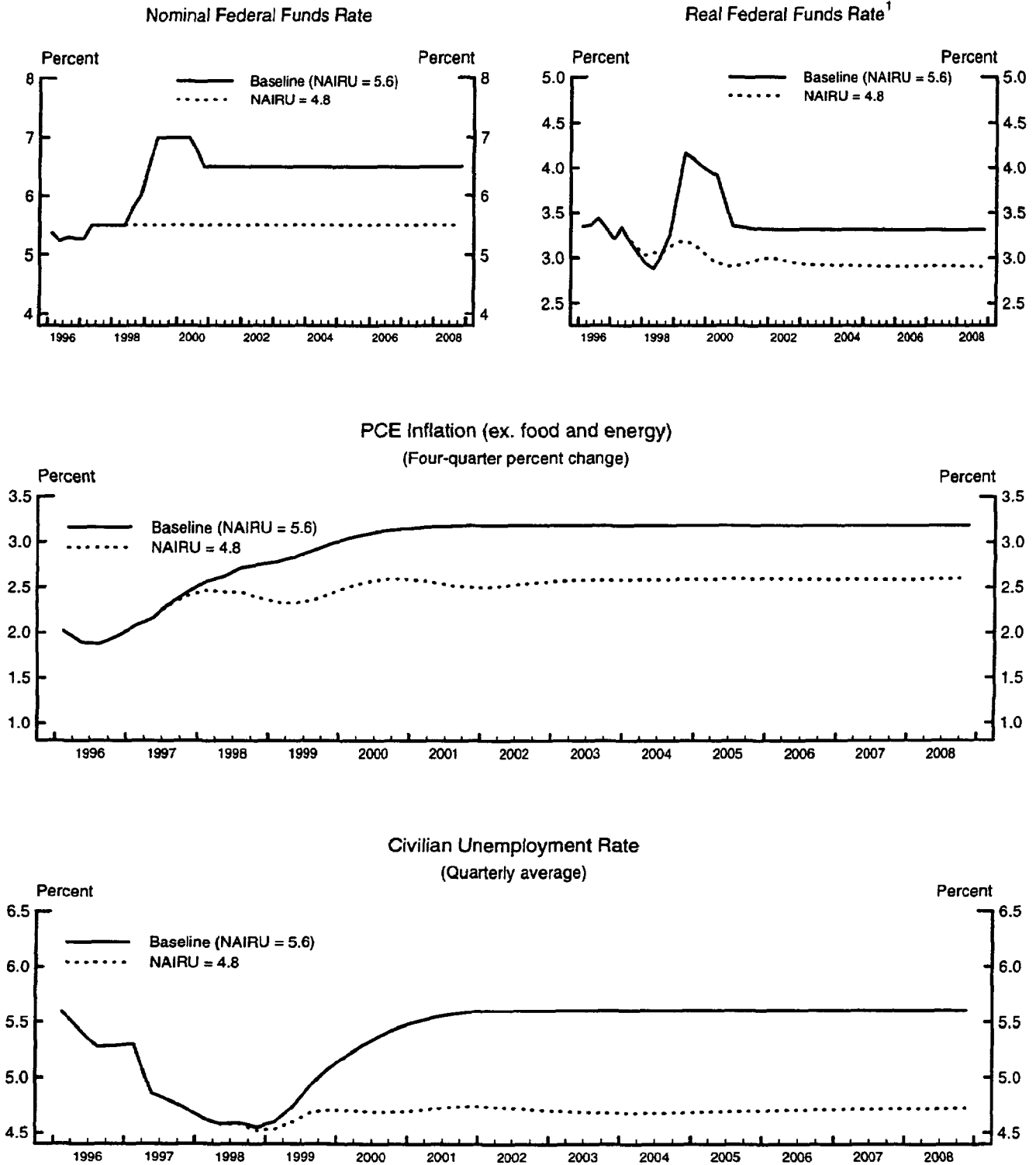
(11) The recent behavior of inflation raises the possibility that the NAIRU could be considerably below the current staff estimate of 5.6 percent. Chart 3 compares the baseline discussed above (the solid lines) with a situation in which the NAIRU has been and will remain at 4-3/4 percent (the dotted lines). In that circumstance, the equilibrium real federal

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<sup>2</sup> See "Toward a Working Definition of Price Stability," by David E. Lebow, Deborah J. Lindner, Daniel E. Sichel, and Robert J. Tetlow, mimeo, Federal Reserve Board, June 1997.

<sup>3</sup> As in past model simulations, we have not assumed any feedback from lower inflation on to the level or growth of potential output.

Chart 3  
Alternative NAIRUs



1. The real federal funds rate is calculated as the quarterly nominal funds rate minus the four-quarter percent change in the PCE chain-weight price index excluding food and energy.

Note: Data points are plotted at the midpoint of each period.

funds rate would be lower than in the baseline because the economy could support a higher level of production and spending on a sustained basis. Under this reading of labor-market conditions, the recent level of the real funds rate is near its equilibrium, and holding the nominal federal funds rate at its current level would contain inflation.

(12) The remainder of this section evaluates the performance of four explicit policy rules or Federal Reserve reaction functions. Our method of evaluating these rules is not tied to the Greenbook projection; instead, it involves subjecting the staff econometric model to a series of “shocks”—that is, economic developments unexplained by the model equations. For these “stochastic simulations,” we randomly draw from the shocks the economy has experienced over the last thirty years.

(13) All of the rules set the nominal funds rate in terms of inflation and the output gap, but the nature and strength of the responses vary across the rules, as shown in the table. One rule we study was proposed by John Taylor. In this rule, the prescribed nominal federal funds rate is calculated as the sum of an estimated equilibrium real federal funds rate, plus the most recent four-quarter rate of inflation, plus half the difference between the actual inflation rate over the most recent four quarters and the long-run inflation target (1 percent in our exercise), plus half the percentage difference between actual and potential output.<sup>4</sup>

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<sup>4</sup> In algebraic terms, the rule is given by:

$$i_t = r^* + \pi_{t-1} + 0.5[\pi_{t-1} - \pi^*] + .5(Q_t - Q_t^*),$$

where  $i$  is the nominal federal funds rate,  $r^*$  is the equilibrium real funds rate,  $\pi$  is the four-quarter rate of inflation, and  $Q - Q^*$  is the output gap in percentage terms.

**Coefficients of the Alternative Policy Rules**

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	Taylor	Henderson McKibbin	Opportunism	Target Zone
Output <sup>1</sup>	0.5	2.0	2.0	2.0
Inflation <sup>2</sup>	0.5	1.0	--	--
Inflation inside the zone	--	--	0.0	0.0
Inflation outside the zone <sup>3</sup>	--	--	2.5	2.5

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1. Percent deviation of output from potential.

2. Percentage point deviation of inflation from long-run target.

3. Percentage point deviation of inflation from upper or lower end of opportunistic or target zone.

(14) A second rule we examine was proposed by Henderson and McKibbin.<sup>5</sup> It has the same form as the Taylor rule, but adjusts the nominal interest rate by the *full* amount of the inflation gap and *twice* the output gap. Some previous research based on stochastic simulations like those presented here has suggested that this rule may yield better macro-economic performance than the Taylor rule.

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<sup>5</sup> See "A Comparison of Some Basic Monetary Policy Regimes for Open Economies: Implications of Different Degrees of Instrument Adjustment and Wage Persistence," by Dale Henderson and Warwick J. McKibbin, Carnegie-Rochester Conference Series on Public Policy (39) 221-318.

(15) A third rule we consider attempts to capture the main features of the “opportunistic” approach to monetary policy. This approach resembles the Henderson-McKibbin rule in the strength of its response to the output gap, but in reaction to inflation it has two distinctive features. First, the policy response to the observed rate of inflation is calculated relative to an *intermediate* target for inflation rather than to the long-run target. The intermediate target is specified as a weighted average of the long-run target and the recently prevailing rate of inflation. As a consequence, the intermediate target moves, shifting in the same direction as the prevailing rate of inflation, but by a lesser amount. This specification implies that, in the course of a disinflation, the opportunistic policymaker will become more dissatisfied with any given rate of inflation above the long-run target as the prevailing rate comes down. For example, an inflation outcome of 3 percent may look desirable when the prevailing rate is 4 percent, but undesirable when the prevailing rate is 2 percent. A conventional policymaker would be equally dissatisfied with a 3 percent inflation outcome regardless of the recently prevailing inflation rate.

(16) The second distinctive feature of the opportunistic approach is the “zone of opportunism”: When actual inflation is close to the intermediate target (within 1 percentage point in our specification), the opportunistic policymaker responds to changes in inflation only by moving the nominal funds rate enough to keep the *real* funds rate unaffected. When inflation is outside the zone of opportunism, however, the opportunistic policymaker responds vigorously to each additional percentage point of inflation or deflation—even more vigorously, in our specification, than the Henderson-McKibbin policymaker.



(17) The fourth rule we consider is designed to capture the behavior of a policymaker who is aiming to contain inflation within a specified target zone. This “zone targeter” can be understood as resembling a conventional Henderson-McKibbin policymaker in the strength of the response to the output gap, but the inflation objective is a fixed target zone rather than a single point. Alternatively, the zone targeter can be understood as resembling an opportunistic policymaker, but with the target zone fixed over time. Like the opportunist, the zone targeter responds to small changes in inflation within the zone by only enough to hold the real funds rate unchanged and responds vigorously to changes in inflation that are outside the zone. In the simulations reported below, we assume that the target zone extends from 0 to 2 percent.<sup>6</sup>

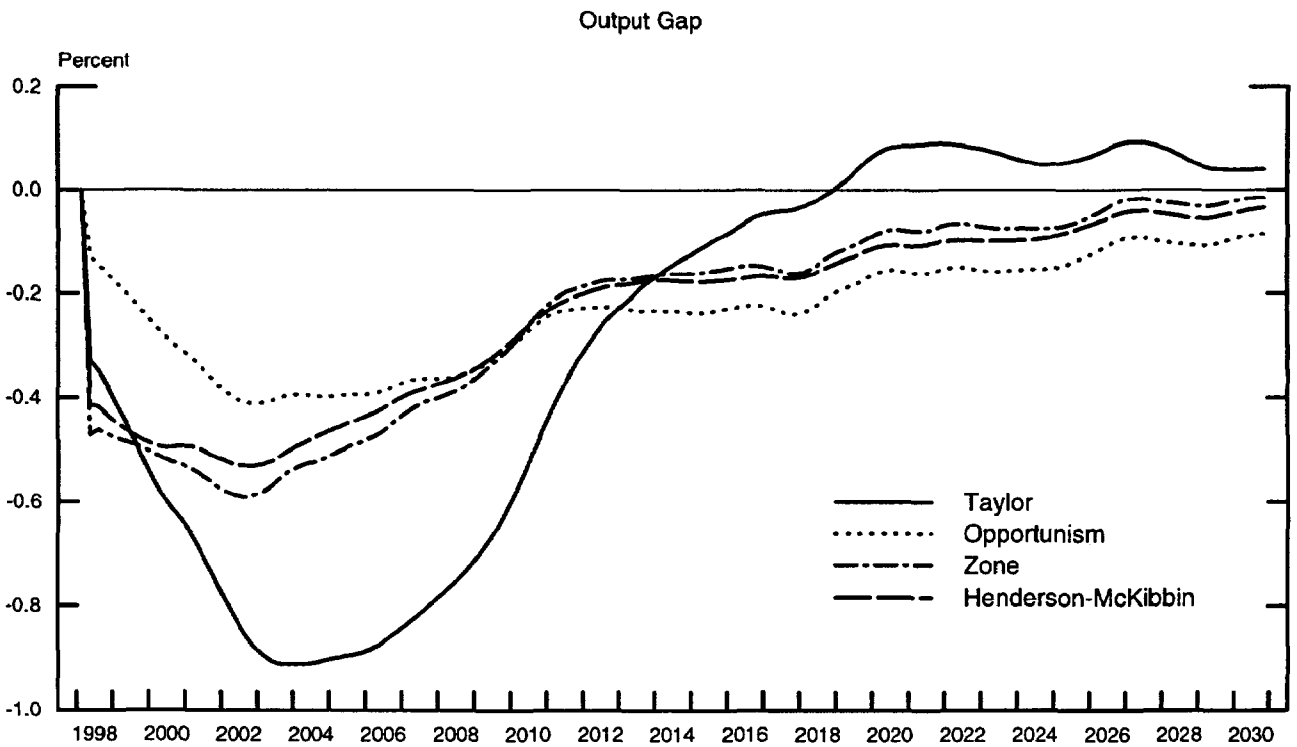
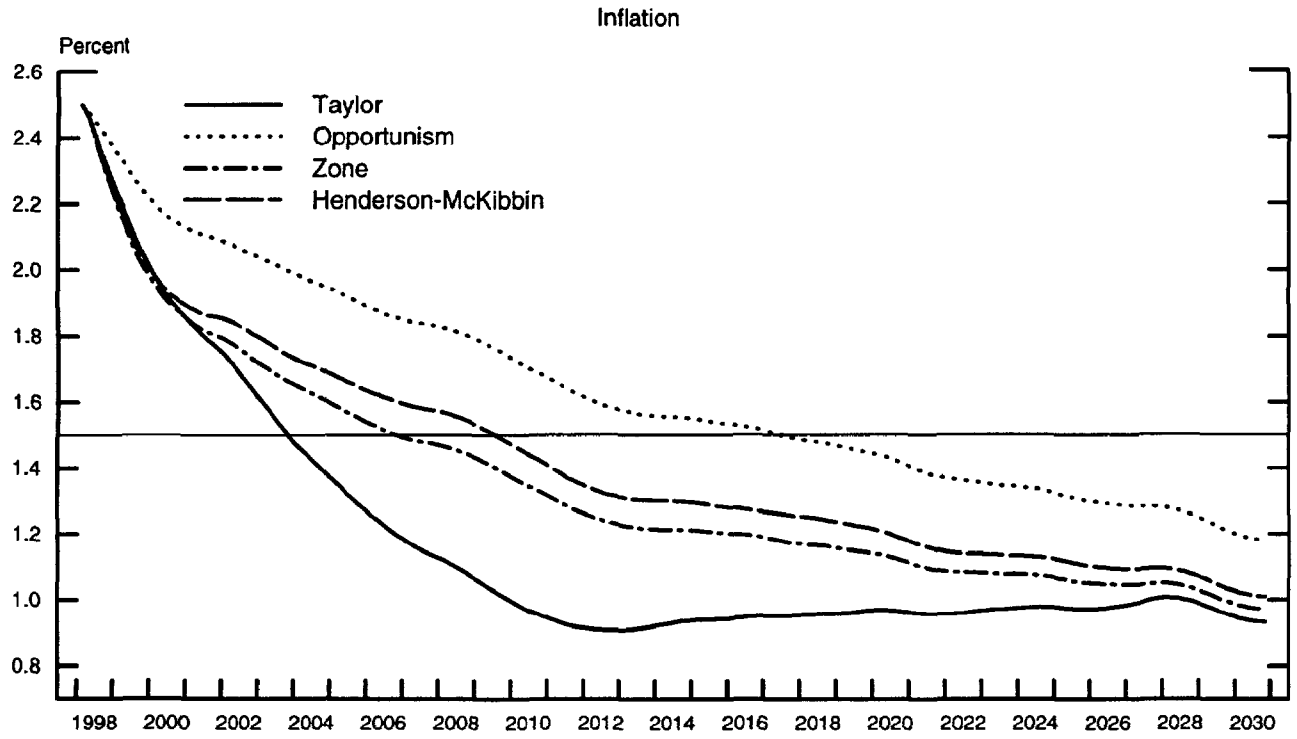
(18) Chart 4 examines the performance of the four policy rules in achieving a long-run inflation objective of 1 percent.<sup>7</sup> We constructed this chart by simulating the staff econometric model 1,000 times under each rule. In each simulation, we started with inflation at 2-1/2 percent and the economy producing at its potential. We then hit the model with a sequence of random shocks and allowed the policymaker to react to the resulting situation according to the four rules. For each rule, the chart displays the average of the resulting 1,000 inflation trajectories (top panel) and the average of the resulting 1,000 output-gap trajectories (bottom panel). These averages allow us to gauge how quickly the disinflation

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<sup>6</sup> For more information about the four rules, see “A Quantitative Exploration of the Opportunistic Approach to Disinflation,” by Athanasios Orphanides, David Small, Volker Wieland, and David Wilcox, June 1997, Board of Governors of the Federal Reserve System.

<sup>7</sup> Along these transition paths to 1 percent inflation, we assume the public does not have full confidence that the rules will be followed exactly. Its expectation of the long-term trend to inflation falls only gradually in light of realized gains in lowering inflation.

Chart 4  
 Expected Paths for Output and Inflation Under Alternative Policy Strategies  
 Based on Stochastic Simulations of FRB/US



might be expected to unfold if the economy retains the same structure and experiences the same type of shocks as in the past.

(19) All four rules succeed in bringing the average inflation trajectory down toward the long-run target of 1 percent. Because under some of the rules the long-run target is achieved on average only in the indefinite future, we assess the speed of convergence under each rule by measuring the length of time until the average inflation trajectory crosses the 1-1/2 percent level. As can be seen in the chart, the Taylor-type policymaker is first to arrive at this mark, the inflation zone targeter and the Henderson-McKibbin policymaker are next, and the opportunistic policymaker is last.<sup>8</sup> Not surprisingly, given the inflation results, the Taylor policymaker, on average, imposes the deepest recession in the early going, while the

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<sup>8</sup> The Taylor policymaker arrives at 1-1/2 percent inflation more quickly than does the Henderson-McKibbin policymaker because the latter assigns a higher *relative* priority to stabilizing output. This means that if both policymakers strive to lower inflation, the resulting output shortfall prompts the Henderson-McKibbin policymaker to ease off a bit more than it does the Taylor policymaker. The zone targeter beats the opportunist to 1-1/2 percent inflation because the former calculates the inflation response relative to the long-run target whereas the opportunist calculates it relative to the intermediate target. The zone targeter also beats the Henderson-McKibbin policymaker (albeit by a narrow margin); evidently, the zone targeter makes up for tolerance of low, positive, inflation by applying a relatively stiff penalty to inflation outside the zone.

opportunist keeps output closest to potential.<sup>9</sup> The ultimate cost in terms of cumulative output loss to get to 1 percent inflation is approximately the same under all four rules. The time to disinflate for the opportunist depends on the size and nature of the shocks hitting the economy. If those shocks in the future more closely resemble the shocks that have occurred during the past ten years (which have been relatively tranquil), then the time required for the economy to reach 1-1/2 percent inflation would be extended noticeably.

(20) These simulation results illustrate only two aspects of the macroeconomic consequences of letting policy be guided by the various formal rules--the expected time to disinflate, and the accompanying path of output. Equally important are the implications of the rules for the variability of output and inflation. In studying this issue of variability, we abstract from any initial period of disinflation, and focus instead on the properties that the model economy would exhibit once the rule in question has been in effect for a very long time. Consistent with that focus on the steady state, in these simulations we assume that

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<sup>9</sup> Later in the scenario, the relative positions switch: Having achieved the long-run inflation objective (indeed, having overshoot it slightly), the Taylor policymaker runs output at the highest level, on average. By contrast, the opportunist still runs the economy with a small amount of slack on average, even twenty years into the simulation. The shortfall of output from potential under the opportunistic rule is greatest early in the simulations, when inflation is close to the upper bound of the opportunistic region. In such circumstances, the opportunistic policymaker reacts asymmetrically to shocks; those that put upward pressure on inflation are offset aggressively and therefore result in output shortfalls. Later in the simulations when the opportunistic policymaker is more comfortably within the opportunistic zone, shocks push inflation outside the opportunistic zone less frequently, so the asymmetric policy responses and their effects on output are less prevalent.

private-sector agents fully understand the rule that the Federal Reserve is using to guide policy.<sup>10</sup>

(21) The top panel in Chart 5 displays the distribution of inflation under each of the rules, while the bottom panel shows the distribution of the output gap. In these simulations, the opportunistic rule and the Taylor rule both fare relatively poorly: The opportunistic rule produces a distinctly more diffuse distribution of inflation (top panel), while achieving only a slightly more concentrated distribution of the output gap (bottom panel); the Taylor rule produces a more diffuse distribution of the output gap while gaining nothing on the inflation front.

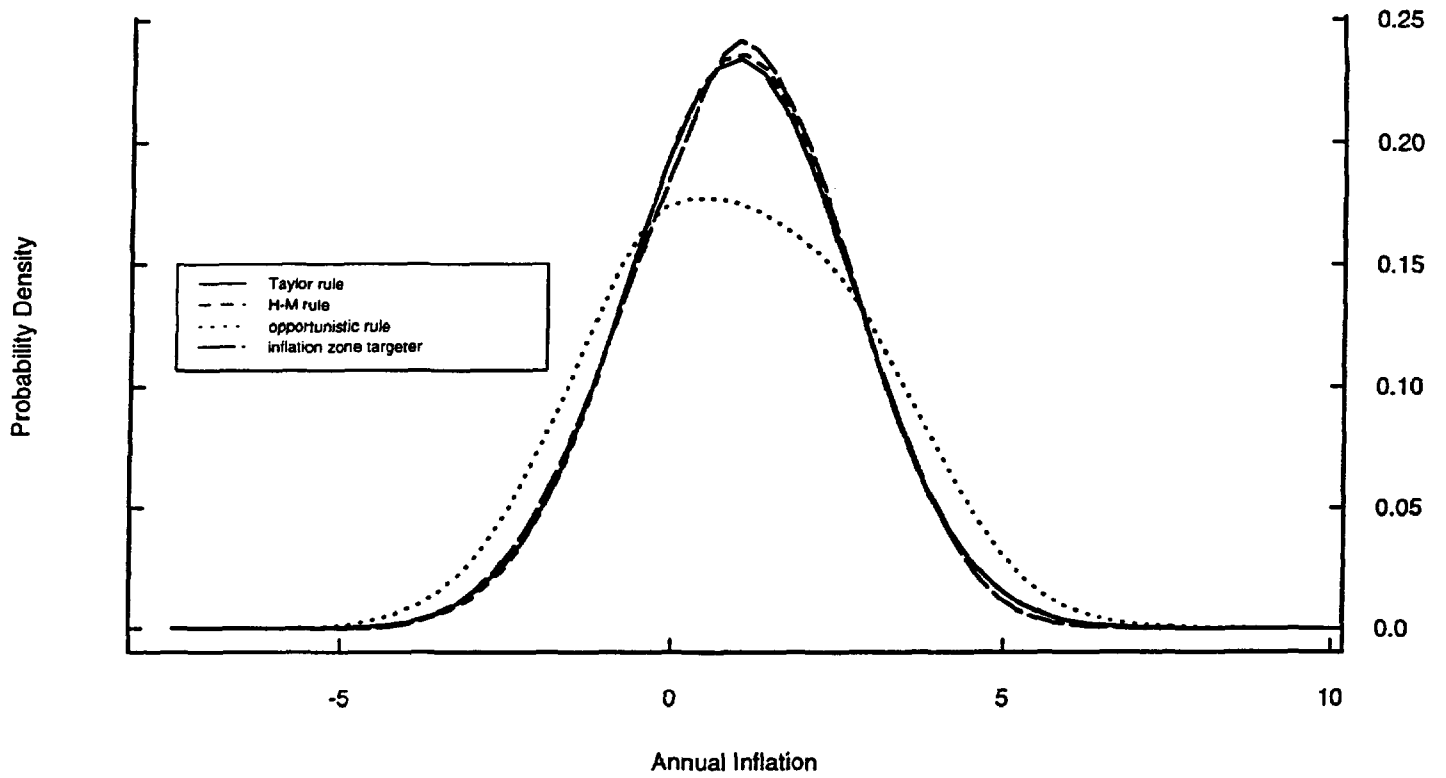
(22) All these rules are disciplined ways of conducting policy, and in the context of the model structure and distribution of shocks would produce less output and inflation variability than the U.S. economy experienced over history. In the simulations we summarize here, the Henderson-McKibbin rule and the inflation zone targeting rule generally outperform the Taylor rule and the opportunistic rule. The opportunistic rule produces a more diffuse distribution of inflation because the policymaker's target zone shifts over time. Both of the winners feature relatively vigorous responses to deviations of output from potential and deviations of inflation from the long-run target. In practice, policymakers must solve

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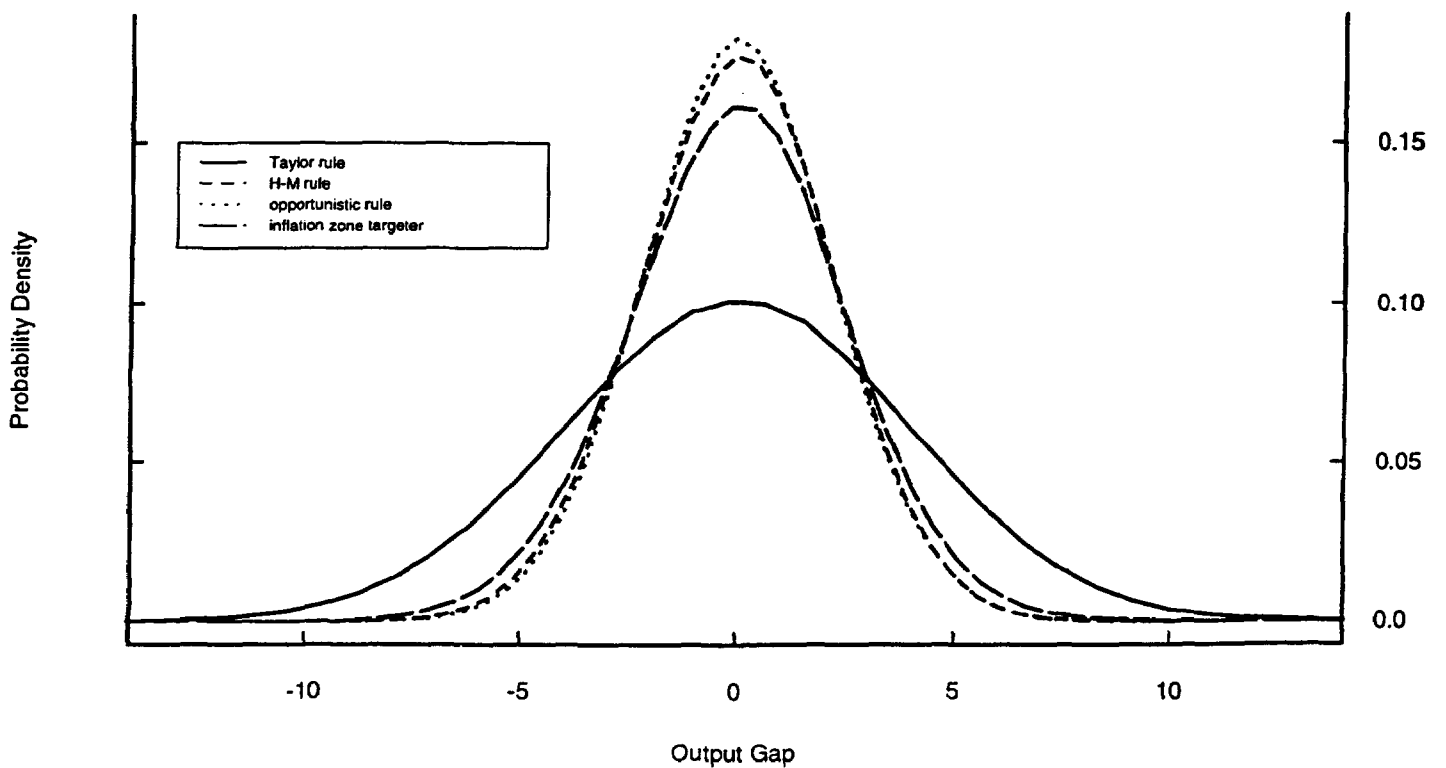
<sup>10</sup> This assumption of model-consistent expectations differs from that used in the disinflation analysis, where the public was assumed to have only an approximate understanding of the nature of monetary policy and the economy as a whole. To be exact, in the earlier analysis expectations were derived from a small-scale VAR model that approximates the average historical behavior of the economy (including monetary policy). This assumption was deemed more appropriate for analyzing how the economy might respond—particularly in the first few years—to a program of disinflation carried out under policy rules not previously employed by the FOMC.

Chart 5

Steady-State Distributions of Inflation



Steady-State Distributions of Output



considerably more difficult problems than the ones addressed in these simulations: Among other things, they confront substantial uncertainty about the actual structure of the economy, and they face the real possibility of structural change. These and other factors might counsel adopting less forceful policy responses.

**Annual Ranges for Money and Debt**

(23) The issues concerning the Committee's decision about the ranges for money and debt for 1997 and 1998 would seem to be similar to those faced at other recent Humphrey-Hawkins meetings. In particular, the choice boils down to deciding between continuing to structure the ranges as benchmarks for monetary and credit growth under conditions of price stability with historically normal behavior of velocity, or aligning them with probable outcomes for money and debt. Because money, in particular M2, has likely tacked on two more quarters of relatively predictable behavior this year, the Committee may feel a bit more confident in announcing ranges that it expects to be consistent with its economic outlook. If it chooses to do so, however, the Committee will need to decide whether to adopt higher ranges than those used recently, given that under the staff forecast money would be expected to grow near the upper ends of the existing ranges. While a decision to align money ranges with expected outcomes need not, as a logical matter, imply that the Committee was upgrading money in judging its policy stance, it may also want to consider whether a more stable demand means that money should be accorded added weight as one of the many indicators relevant for policymaking.

**Background**

(24) Because the economy is not expected to be at price stability, the staff again is projecting money growth associated with the Greenbook forecast to be near, or above, the upper ends of the current money growth ranges. In the Greenbook, nominal GDP increases 5-1/2 percent this year before slowing to 4-1/4 percent in 1998 when the expansion of real output is restrained, in part, by slightly less accommodative financial conditions. The



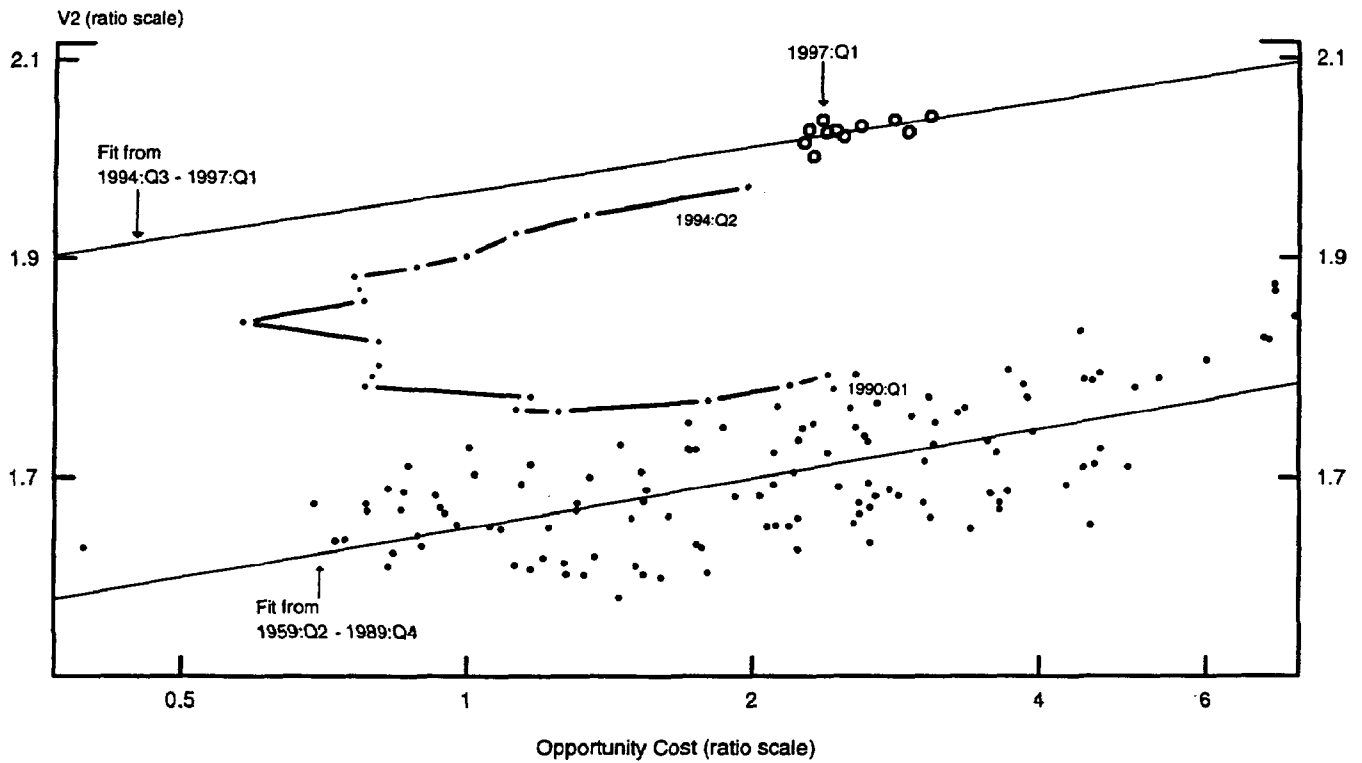
projections of M2 in 1997 and 1998 assume a continuation of the recent experience in which demand for that aggregate has been broadly consistent with its historical relationship with income and opportunity costs, albeit at a higher level of velocity. Against this backdrop, M2 is expected to grow 4-1/2 percent this year and 4 percent in 1998. The small increase in V2 in 1997 largely reflects the rise in velocity in the first half of this year. In 1998, the projected rise in V2 results from the widening of opportunity costs late in the year, when the System is assumed to tighten. With equity prices projected to decline next year, flows into equity mutual funds would no longer be restraining M2 and boosting its velocity beyond that predicted by the money demand function, as seems to have occurred to a limited extent this year. (Chart 6 shows that the staff forecast of velocity in both years is well within the recent cluster of velocity/opportunity cost observations.)

(25) Growth in M3 has continued to outpace that of nominal GDP in the first half of this year, albeit by a narrower margin than in the past couple of years, and the staff expects M3 to outrun income through the end of 1998 (Chart 7). Acting to boost M3 over the next year and a half is the expectation of continued robust expansion in bank credit, which is projected to exceed growth in GDP and nonfinancial debt as banks continue to find healthy profits in intermediation. Also contributing to the downward drift in M3 velocity is the growing popularity of M3 money funds for liquidity management by businesses and further substitution of large time deposits for other funding sources. As a consequence, M3 is expected to increase 6-1/2 percent this year and 6 percent next.

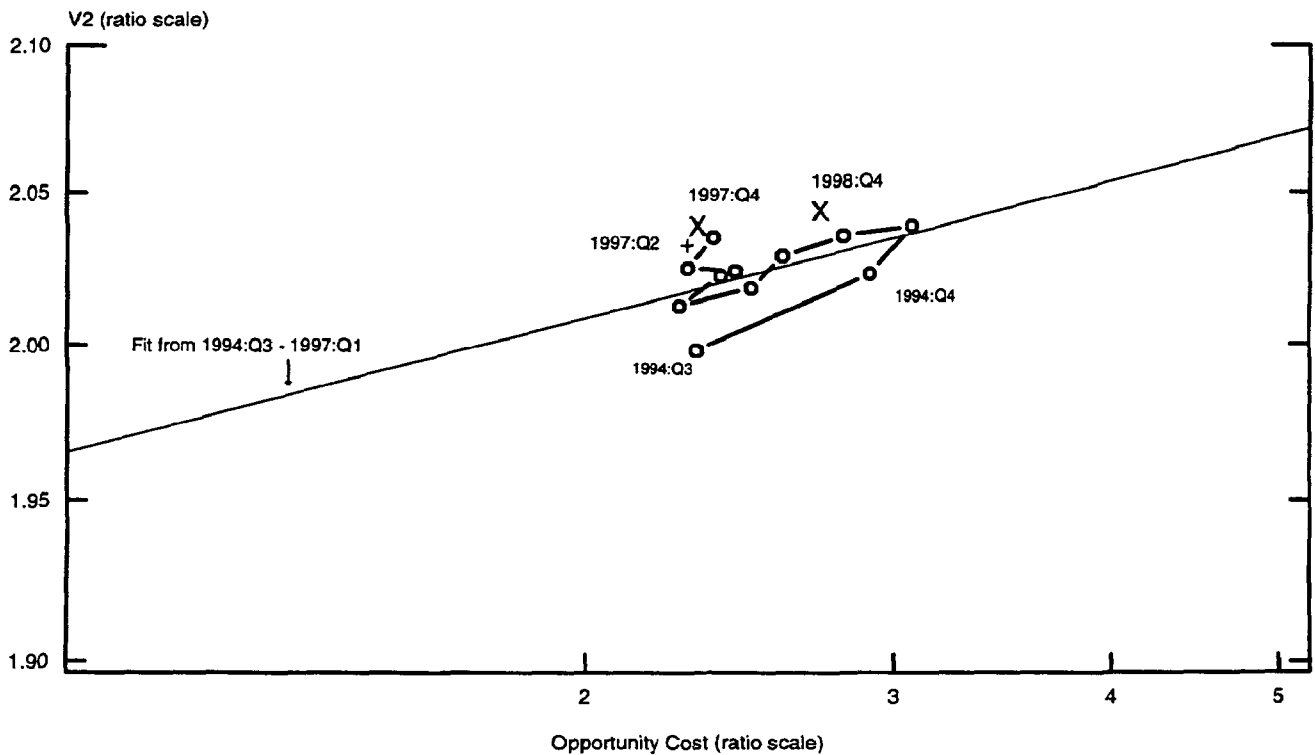
(26) The total debt of domestic nonfinancial sectors is forecast to expand this year and next a bit more slowly than in the past couple of years--about 5 percent per year. The

Chart 6

M2 Velocity and Opportunity Cost  
1959:Q1-1997:Q1



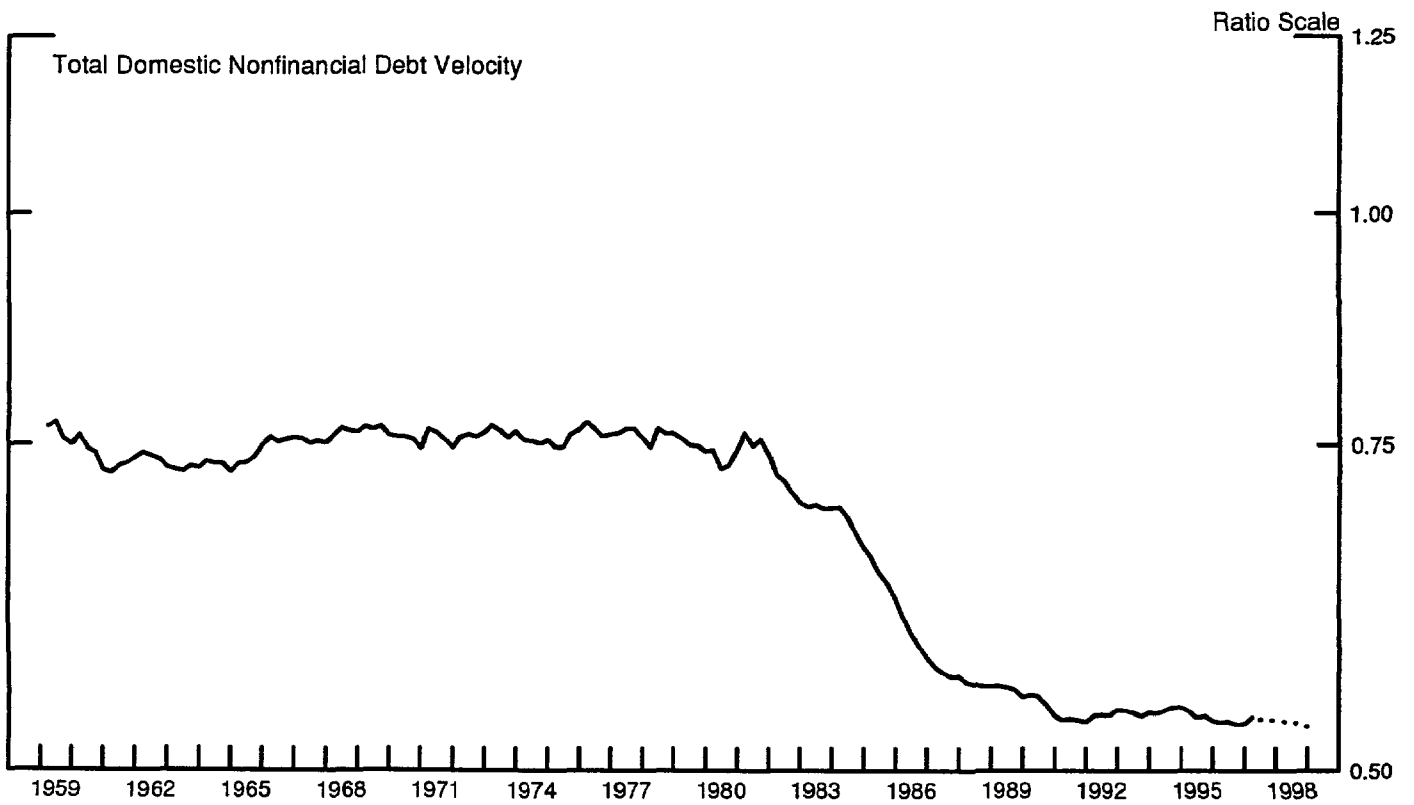
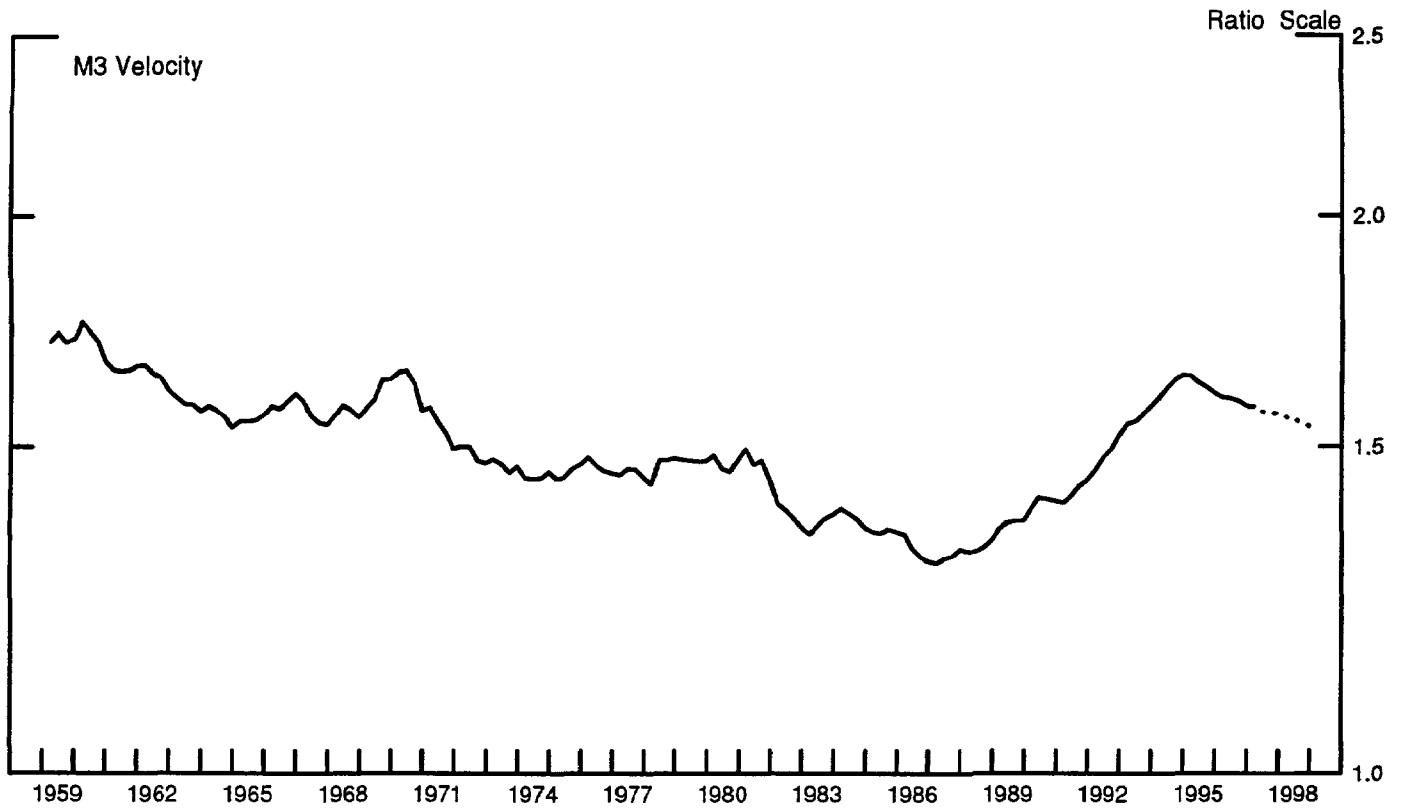
1994:Q3-1997:Q2; 1997:Q4, 1998:Q4



+ -- 1997:Q2 observation based on Greenbook forecast for nominal GDP and partially projected M2.  
X -- 1997:Q4 and 1998:Q4 observations based on Greenbook forecasts for nominal GDP and projections of M2.

Chart 7

Actual and Projected Velocity of M3 and Debt



modest slowdown is accounted for by the federal sector, in keeping with narrower federal deficits. Growth in the nonfederal component stays around the fairly strong 6 percent pace of recent years; within that total, household debt decelerates, while business borrowing expands a little when profits and, thus, internal funds level out. Credit supply conditions should stabilize or even tighten a notch as lenders continue to react to the difficulties of marginal borrowers in the household sector and begin to see narrowing profit margins as portending some erosion of the very favorable debt-carrying capacity of businesses. Nonetheless, the forecast does not embody "headwinds" that would greatly constrain borrowing and spending.

**Ranges for 1997 and 1998**

(27) Shown below are two alternative sets of ranges for M2, M3, and debt for Committee consideration for 1997 and 1998, along with the staff projections for both years. Alternative I is the same as the ranges adopted last February for 1997.<sup>11</sup> Alternative II would raise the M2 and M3 ranges by one and two percentage points, respectively, to center them better on the staff's expectations. The alternative II range for the debt aggregate is the same as the alternative I range on the rationale that, with the staff forecast around the midpoint of that range, there would seem to be no need for an upward adjustment.

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<sup>11</sup> It is also same as the provisional ranges for 1997 selected in July 1996 and the same as the ranges for 1996.

**Growth of Money and Debt and Alternative Ranges  
(percent)**

	<b>1997 (projected)</b>	<b>1998 (projected)</b>	<b>Alt. I</b>	<b>Alt. II</b>
<b>M2</b>	4-1/2	4	1 to 5	2 to 6
<b>M3</b>	6-1/2	6	2 to 6	4 to 8
<b>Debt</b>	5	5	3 to 7	3 to 7
<b>Memo: Nominal GDP</b>	5-1/2	4-1/4		

(28) As in the past couple of years, the Committee may wish to retain the alternative I ranges, even though staff projections are around their upper ends, on the grounds that sufficient uncertainty persists regarding M2 and M3 velocity relationships to suggest that the best use for the ranges still is as benchmarks for noninflationary monetary growth.<sup>12 13</sup> Although the more predictable behavior of M2 demand has continued over the first half of the year, the Committee may view the re-established relationships as not adequately tested under a variety of circumstances to be confident in their persistence. For example, greater variation in interest rates and nominal income could provoke substantial shifting between M2 assets

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<sup>12</sup> If the Committee retains this rationale, it might want to consider whether it should lower the range for debt. This aggregate, like M2, has tended to grow over time at about the same pace as nominal GDP, suggesting that a 1 to 5 percent range for debt would be more consistent with the benchmark money growth ranges.

<sup>13</sup> Note also that the current range for M2 appears most consistent with steady state nominal GDP growth of around 3 percent. This would seem to imply that the Committee was seeking true price stability--assuming trend real growth of 2 percent or so and around 3/4 percentage point of measurement bias in the deflator. If the Committee thought that output growth might be greater going forward because of more favorable productivity trends or was concerned that nominal rigidities argued for inflation a bit above true price stability, these ranges might need to be higher to reflect the Committee's long-run expectations.

and mutual funds, since the latter are now much more readily available than in the 1970s and 1980s. Moreover, even if money demand remains reasonably predictable, the Committee may value the ranges primarily as a means of signifying long-term goals, a role that they began to take on in the second half of the 1980s. Although the Committee used M2 growth as one of its indicators at that time, the emphasis was more on longer-term trends than on recent behavior relative to the range, in part because the interest elasticity of M2 meant that its velocity varied appreciably over the shorter-run, albeit fairly predictably, with changes in the stance of policy.

(29) Alternatively, the Committee could see the better behavior of money demand as making velocity relationships sufficiently predictable to warrant an attempt, at least on a provisional basis, to let the public know approximately what rates of growth of money and debt it thought were likely to accompany its expectations for economic performance. Supplying such an expectation might be viewed as more in the spirit of the Federal Reserve Act, which calls for the Federal Reserve to provide "objectives and plans" for money and credit in the specific years. While that expectation would not be a "plan" or "objective," it might be helpful to the public. Should the Committee wish to move in this direction but on a very tentative basis, one possible approach would be to retain the current ranges and their rationale for 1997, but to adopt provisional 1998 ranges that were keyed to the Committee's expected outcomes. The Committee could emphasize the provisional nature of the ranges and the opportunity to re-examine the ranges and their rationale next February in light of experience in the second half of 1997. If the Committee saw growth in M2 or the other aggregates as having some value as indicators relevant for policy, the case for presenting

ranges designed to capture expected growth would be strengthened. Given the relatively close relationship of M2 and nominal income of late, persistent strength or weakness of money relative to expectations, unless evidently caused by a demand shift or short-term policy action, might raise questions about whether nominal GDP was on track.

(30) If the Committee decided to align the ranges more closely with expected or desired outcomes, it still might wish to retain the specifications of alternative I, particularly for 1998. These relatively low ranges would be consistent with an intent to counter a tendency for inflation to drift higher, as under the staff forecast. Indeed, the rise in interest rates envisioned in the intermediate strategy to hold inflation constant in the previous section of the bluebook would likely produce M2 growth rates of 4-1/4 percent in 1997 and 3 percent in 1998, and M3 growth that dropped well within a 2 to 6 percent range in 1998. Even if the Committee believed there were greater prospects for favorable supply-side outcomes than does the staff--and thus better prospects for either more output growth or less inflation--alternative I might still be favored if the Committee wished to signal its intent to implement a relatively tight policy stance and thereby ensure that any such shock would be translated, at least in part, into lower inflation.

(31) The staff projections for M2 and M3 growth would be encompassed by alternative II ranges in both years. As compared with alternative I, the Committee could use alternative II to indicate an intent to pursue a less restrictive policy, which would not be as likely to involve raising short-term interest rates substantially to fight the inflationary tendencies in the staff forecast. Such a policy approach also would allow more of any favorable supply developments to be taken in greater output and less in lower inflation,

because nominal income would be expected to grow more rapidly than in the staff forecast under these circumstances, at least for a time.



### Short-run Policy Alternatives

(32) Two short-run policy alternatives are presented below for Committee consideration. Under alternative B, the intended federal funds rate would be maintained at its current 5-1/2 percent level. Under alternative C, it would be raised 1/4 percentage point to 5-3/4 percent. (A variant of the standard wording of the operational paragraph of the directive that includes a specific reference to the federal funds rate appears on page 30.)

(33) Incoming information since the last Greenbook has led the staff to strengthen its real growth forecast over coming quarters, implying a bit lower trajectory for the unemployment rate, even as the prospects for containing inflation this year have brightened. Compared with the central tendencies of the members' forecasts for 1997 announced in February, real GDP and employment this year promise to be appreciably more robust, while CPI inflation seems in train to come in much lower. For 1998, with the unemployment rate holding at around a 4-1/2 percent rate during the year, the staff forecasts that inflation will pick up and be poised to increase further in 1999; a partial reversal over the next year of recent increases in the exchange value of the dollar removes one source of downward pressure on inflation.

(34) The Committee may favor the unchanged federal funds rate of alternative B if it thinks that chances are that the staff has not gone far enough to incorporate a more favorable tradeoff between resource use and inflation into the outlook. But even if the staff's current forecast were to prove about right, the deterioration in inflation performance would unfold gradually enough that the Committee may judge that it can afford to wait for clearer evidence on the situation. Certainly, the hard evidence in hand does not point to an imminent

step up in inflation, despite the low rate to which unemployment has fallen. And the odds that recent inflation performance reflects, at least to some degree, a more lasting structural change, as opposed to a confluence of temporary factors, surely go up the longer inflation remains subdued. No change in the stance of monetary policy at this FOMC meeting is built into the structure of market interest rates, so financial market prices would react little to the Committee's choice of alternative B. Over the upcoming intermeeting period, some firming in Treasury bill rates should accompany the return to positive net issuance of bills, while early signs of a pickup in economic growth after a pause in the second quarter could well induce some upward pressures on bond yields. In the context of evidence of a widening trade deficit, these interest rate increases are not expected to contribute to upward pressure on the dollar.

(35) The 1/4 percentage-point increase in the federal funds rate embodied in alternative C might seem appropriate if the Committee sees the likelihood of intensifying inflation pressures, as in the Greenbook, and wishes to impart some resistance to the anticipated acceleration of prices. The idea that the current degree of pressure on productive resources could be sustained without inducing an eventual upward spiral in wages and prices might be viewed by the Committee as still too speculative to risk deferring further preemptive policy action. Indeed, it could even believe, as does the staff, that many of the forces that have acted to hold down inflation in the recent past are likely to be abating in the near future. For example, a list of the forces that might be mostly played out by now include: (i) increases in the labor force participation rate, which have kept strong aggregate demand from generating a still lower unemployment rate; (ii) lower increases in the cost of worker benefits,

which have restrained labor costs; (iii) slow adjustment in inflation expectations to the lower path of actual inflation, which also has conditioned wage and price setting; and (iv) appreciation of the exchange value of the dollar, which has induced outright declines in import prices. Judging by the relationships incorporated in the "Longer-Term Strategies" section of this document, a 25 basis point rise in the funds rate represents only a small down payment on the increase that would be needed to contain inflation permanently at about a 2-1/2 percent rate. Should the Committee want to improve the prospects of holding inflation down to such a rate, it might consider a 50 basis point firming at this FOMC meeting. Even if the tradeoff between resource use and inflation through the end of next year proves to be still more favorable than is now incorporated in the staff forecast or in those model exercises, the consequences of choosing a more restrained policy stance at this meeting may not be seen as adverse. The Committee might well view it as a favorable outcome if the economic expansion were to proceed at a slightly slower-than-projected pace but with a declining path for inflation that better conformed to the Federal Reserve's long-run goal of stable prices.

(36) The 25 basis point firming in alternative C would catch market participants off guard, inducing an immediate selloff in securities markets and an appreciation of the dollar in exchange markets, with short-term interest rates jumping by virtually the same amount as the intended funds rate. Market participants would likely interpret the tightening as another preemptive action that would underscore their sense of the Federal Reserve's anti-inflationary resolve. To the extent that, as seems likely, market participants continued to perceive that any potential inflationary threat was rather muted, they would probably extrapolate further firming moves only to a limited extent, thereby restraining the reaction in financial market

prices. A 50 basis point firming would, of course, represent an even greater surprise to market participants and would induce a still sharper backup in interest rates and drop in equity prices.

(37) The staff's projections of money and debt growth this year, assuming maintenance of the unchanged federal funds rate of alternative B, were described in the previous section. In brief, for the year as a whole the staff projects growth of M2 and M3 of 4-1/2 and 6-1/2 percent, respectively, just below their pace from 1996:Q4 to June, and of domestic nonfinancial debt of 5 percent, just above its pace from 1996:Q4 to May. Maintenance of the slightly higher short-term interest rates of alternative C would lower these growth rates only slightly over this year.

Alternative Levels and Growth Rates for Key Monetary Aggregates

	M2		M3		M1		
	Alt. B	Alt. C	Alt. B	Alt. C	Alt. B	Alt. C	
<b>Levels in Billions</b>							
Apr-97	3901.8	3901.8	5061.6	5061.6	1065.1	1065.1	
May-97	3901.4	3901.4	5068.0	5068.0	1062.7	1062.7	
Jun-97	3915.1	3915.1	5082.4	5082.4	1060.9	1060.9	
Jul-97	3928.8	3928.3	5106.6	5106.3	1057.8	1057.7	
Aug-97	3942.9	3941.2	5131.4	5130.3	1055.0	1054.4	
Sep-97	3957.3	3954.3	5156.0	5154.1	1052.7	1051.6	
Oct-97	3971.7	3967.5	5180.8	5178.1	1051.1	1049.4	
Nov-97	3986.2	3981.1	5205.3	5202.1	1049.8	1047.4	
Dec-97	4000.9	3995.0	5230.0	5226.4	1049.2	1046.2	
<b>Monthly Growth Rates</b>							
Apr-97	6.0	6.0	8.9	8.9	-11.3	-11.3	
May-97	-0.1	-0.1	1.5	1.5	-2.7	-2.7	
Jun-97	4.2	4.2	3.4	3.4	-2.0	-2.0	
Jul-97	4.2	4.0	5.7	5.6	-3.5	-3.7	
Aug-97	4.3	4.0	5.8	5.7	-3.2	-3.7	
Sep-97	4.4	4.0	5.8	5.6	-2.6	-3.2	
Oct-97	4.4	4.0	5.8	5.6	-1.8	-2.6	
Nov-97	4.4	4.1	5.7	5.6	-1.5	-2.2	
Dec-97	4.4	4.2	5.7	5.6	-0.7	-1.4	
<b>Quarterly Averages</b>							
97 Q1	5.9	5.9	8.0	8.0	-0.7	-0.7	
97 Q2	4.1	4.1	6.5	6.5	-5.8	-5.8	
97 Q3	3.8	3.6	4.8	4.7	-2.9	-3.1	
97 Q4	4.4	4.0	5.8	5.6	-2.0	-2.6	
<b>Growth Rate</b>							
From	To						
Dec-96	Jun-97	4.3	4.3	6.1	6.1	-3.7	-3.7
Jun-97	Sep-97	4.3	4.0	5.8	5.6	-3.1	-3.5
Jun-97	Dec-97	4.4	4.1	5.8	5.7	-2.2	-2.8
96 Q4	Jun-97	4.7	4.7	6.7	6.7	-3.1	-3.1
96 Q4	Sep-97	4.6	4.5	6.5	6.4	-3.1	-3.2
96 Q4	Dec-97	4.6	4.5	6.4	6.3	-2.7	-2.9
Jun-97	97 Q4	4.4	4.1	5.8	5.7	-2.5	-3.0
93 Q4	94 Q4	0.6	0.6	1.7	1.7	2.5	2.5
94 Q4	95 Q4	4.0	4.0	6.2	6.2	-1.6	-1.6
95 Q4	96 Q4	4.6	4.6	6.8	6.8	-4.6	-4.6
96 Q4	97 Q2	5.0	5.0	7.3	7.3	-3.2	-3.2
96 Q4	97 Q4	4.6	4.5	6.4	6.3	-2.8	-3.0
<b>1997 Annual Ranges:</b>		1.0 to 5.0		2.0 to 6.0			

**Directive Language**

(38) Presented below for the members' consideration is draft wording relating to the Committee's ranges for the aggregates in 1997 and 1998 along with the standard and alternative language for the operational paragraph for the intermeeting period.

**1997 and 1998 Ranges**

The paragraph that follows includes the usual options and updating changes. In addition, staff suggests deleting the term "monitoring" in the reference to the growth of total domestic nonfinancial debt. The deletion would seem to avoid any inference that the monetary aggregates receive a degree of emphasis that substantially distinguishes their role from that of non-financial debt in the formulation of monetary policy.

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. In furtherance of these objectives, the Committee REAFFIRMED at THIS its meeting in ~~February~~ THE RANGES IT HAD established IN FEBRUARY ~~ranges~~ for growth of M2 and M3 of 1 to 5 percent and 2 to 6 percent respectively, measured from the fourth quarter of 1996 to the fourth quarter of 1997. [IN FURTHERANCE OF THESE OBJECTIVES, THE COMMITTEE AT THIS MEETING RAISED/LOWERED THE RANGES IT HAD ESTABLISHED IN FEBRUARY FOR GROWTH OF M2 AND M3 TO RANGES OF \_\_\_ TO \_\_\_ PERCENT AND \_\_\_ TO \_\_\_ PERCENT RESPECTIVELY, MEASURED FROM THE FOURTH QUARTER OF 1996 TO THE FOURTH QUARTER OF 1997.] The ~~monitoring~~ range for growth

of total domestic nonfinancial debt was MAINTAINED set at 3 to 7 percent (RAISED/LOWERED TO \_\_\_ TO \_\_\_ PERCENT) for the year. FOR 1998, THE COMMITTEE AGREED ON TENTATIVE RANGES FOR MONETARY GROWTH, MEASURED FROM THE FOURTH QUARTER OF 1997 TO THE FOURTH QUARTER OF 1998, OF \_\_\_ TO \_\_\_ PERCENT FOR M2 AND \_\_\_ TO \_\_\_ PERCENT FOR M3. THE COMMITTEE PROVISIONALLY SET THE ASSOCIATED RANGE FOR GROWTH OF TOTAL DOMESTIC NONFINANCIAL DEBT AT \_\_\_ TO \_\_\_ PERCENT FOR 1998. The behavior of the monetary aggregates will continue to be evaluated in the light of progress toward price level stability, movements in their velocities, and developments in the economy and financial markets.

#### **OPERATIONAL PARAGRAPH**

Shown below is (1) standard draft wording for the operational paragraph that includes the usual options for Committee consideration and (2) possible alternative wording for Committee consideration that makes explicit reference to the federal funds rate and recasts part of the sentence on possible intermeeting adjustments to policy.

#### **Standard Version**

In the implementation of policy for the immediate future, the Committee seeks to DECREASE (SLIGHTLY/SOMEWHAT)/maintain/ INCREASE (SLIGHTLY/SOMEWHAT) the existing degree of pressure on reserve positions. In the context of the Committee's long-run objectives for

price stability and sustainable economic growth, and giving careful consideration to economic, financial, and monetary developments, somewhat (SLIGHTLY) greater reserve restraint would (MIGHT) or (SOMEWHAT) slightly lesser reserve restraint (WOULD) might be acceptable in the intermeeting period. The contemplated reserve conditions are expected to be consistent with MODERATE GROWTH ~~some moderation in the expansion of~~ M2 and M3 over coming months.

**ALTERNATE WORDING**

In the implementation of policy for the immediate future, the Committee seeks to maintain current/tighten/ease (somewhat/slightly) conditions in reserve markets consistent with the federal funds rate remaining at/increasing to/decreasing to an average of around \_\_\_ percent. In the context of the Committee's long-run objectives for price stability and sustainable economic growth, and giving careful consideration to economic, financial, and monetary developments, decisions regarding the desirability of adjusting the federal funds rate during the intermeeting period should give

(1) equal weight to developments indicating a need to tighten or ease the stance of policy,

(2) greater weight to developments indicating a need to tighten/ ease the stance of policy.

The contemplated reserve conditions are expected to be consistent with moderate growth in M2 and M3 over coming months.



Chart 8

# Actual and Projected M2

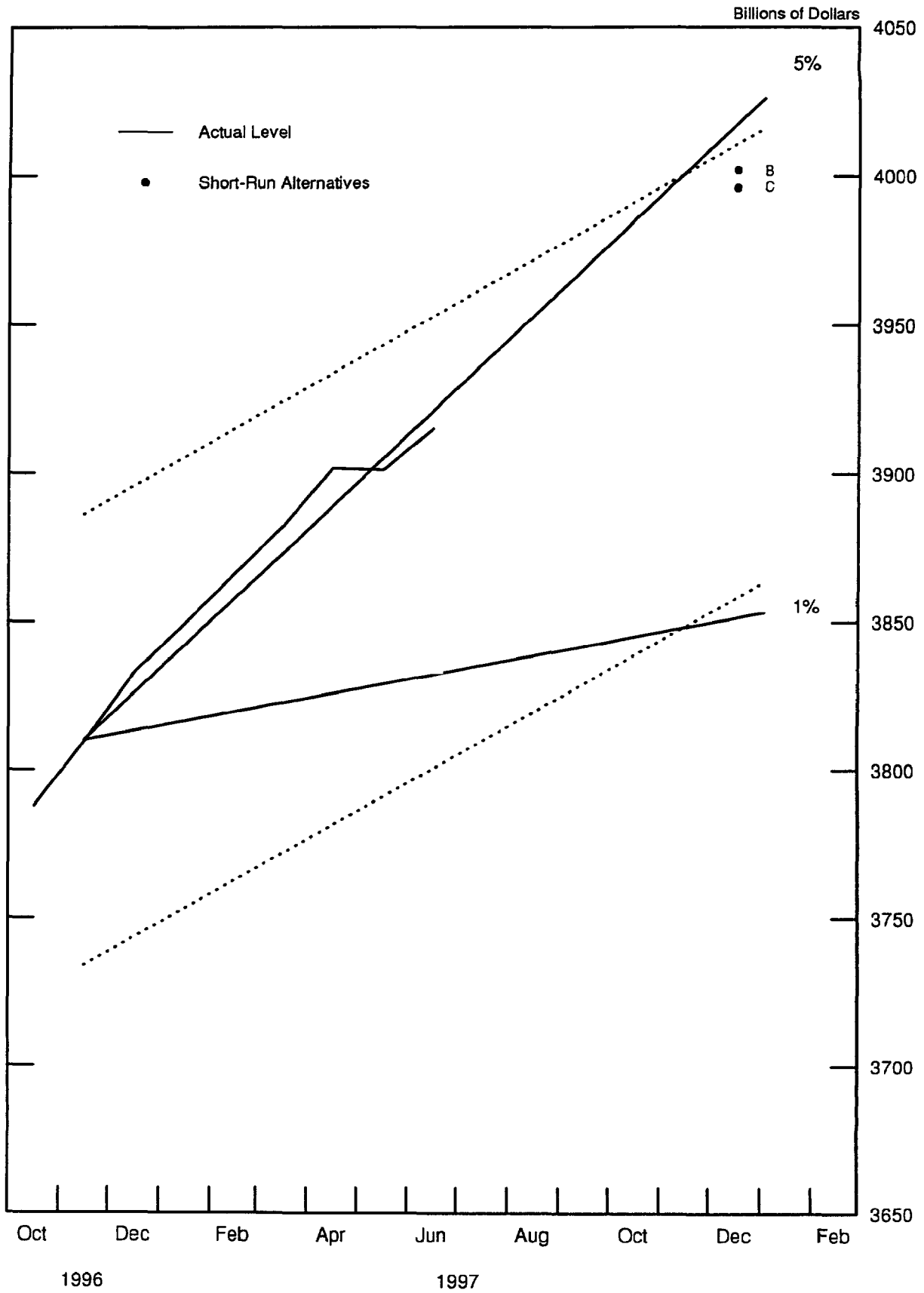


Chart 9

# Actual and Projected M3

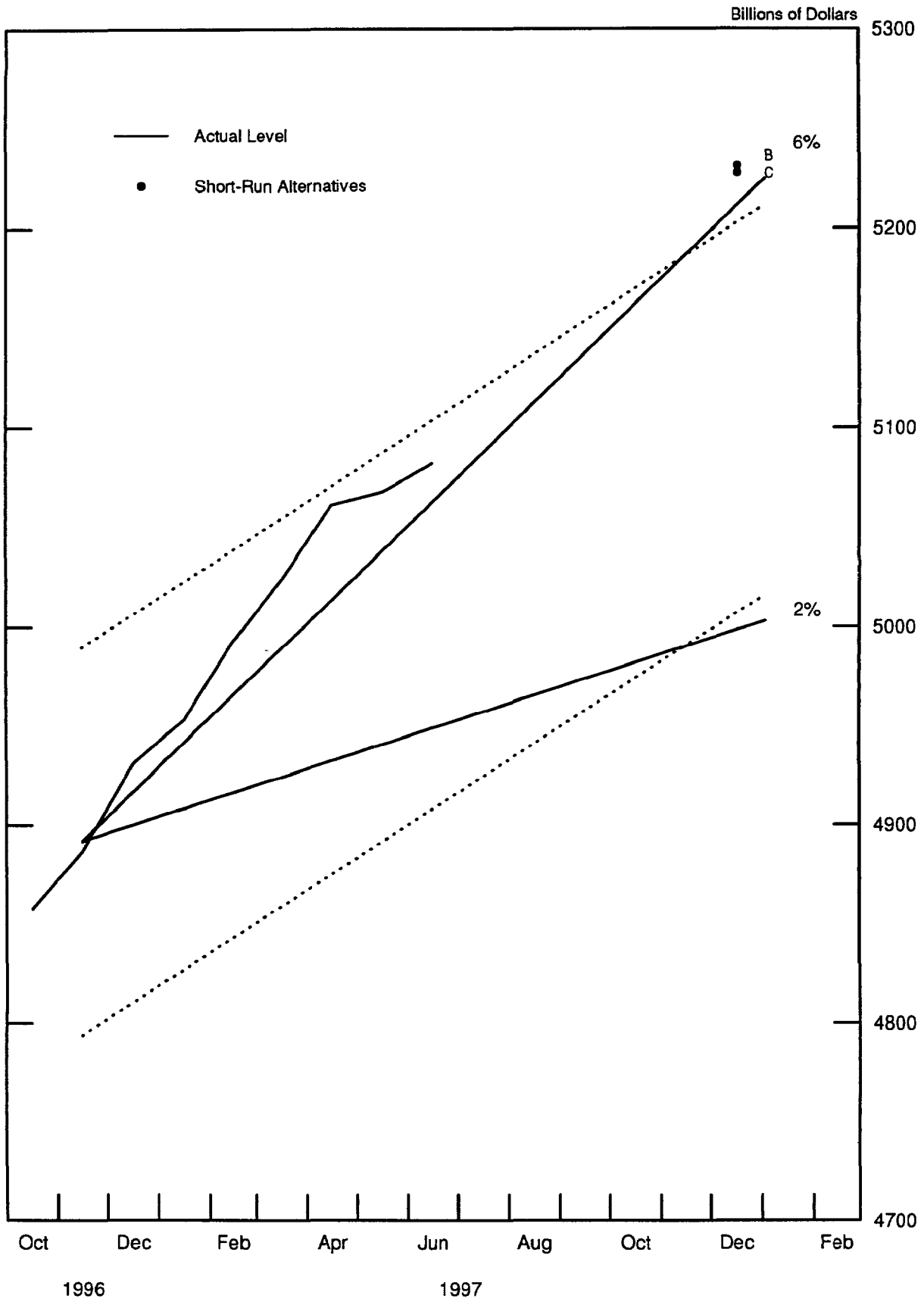
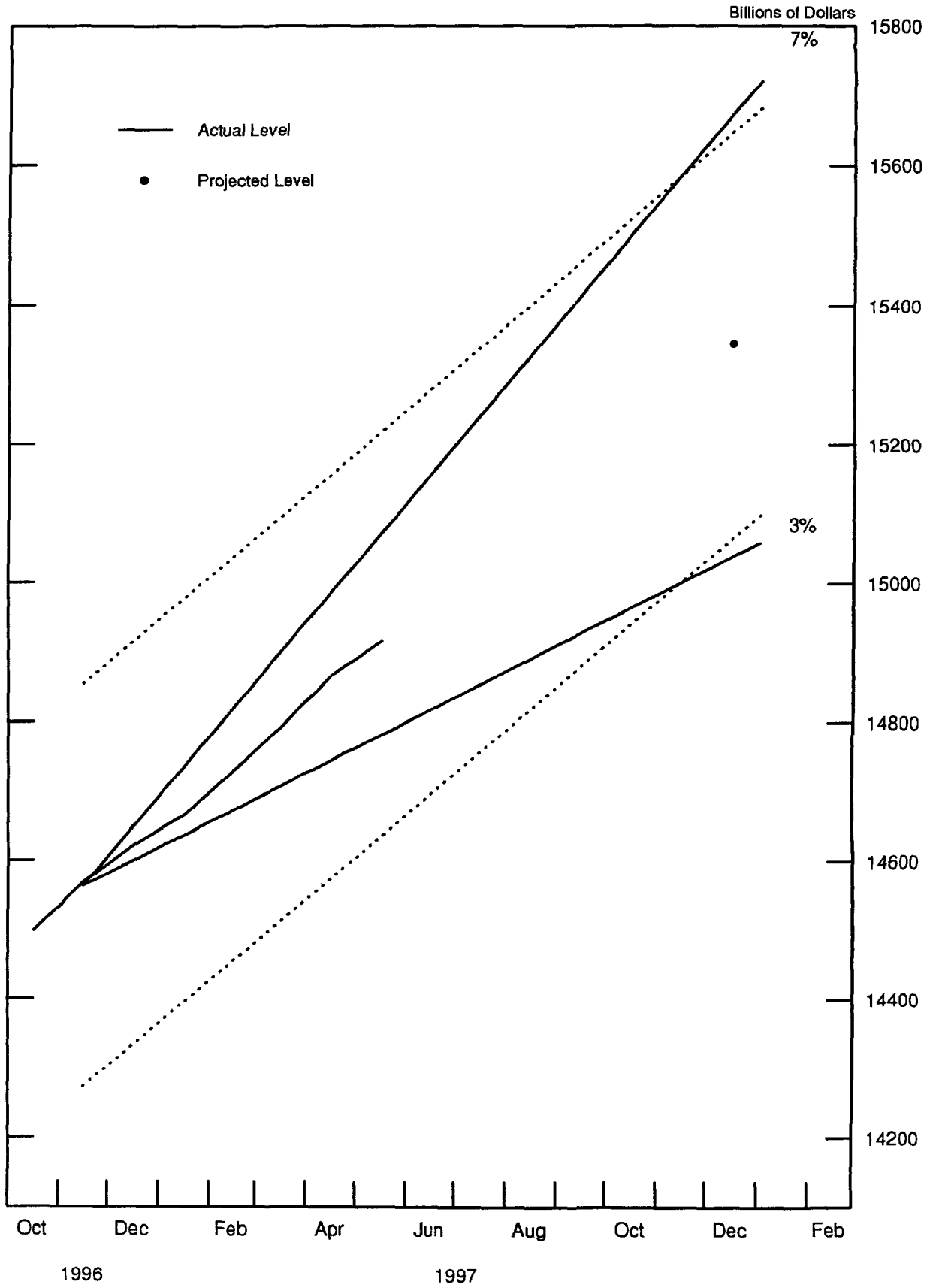


Chart 10

### Actual and Projected Debt



Appendix A

ADOPTED LONGER-RUN RANGES FOR THE MONETARY AND CREDIT AGGREGATES

(percent annual rates)

	M1		M2		M3		Domestic Non-financial Debt <sup>1</sup>	
QIV 1979 - QIV 1980	4 - 6.5	(7.3) <sup>2,3</sup>	6 - 9	(9.8)	6.5 - 9.5	(9.9)	6 - 9	(7.9)
QIV 1980 - QIV 1981	3.5 - 6	(2.3) <sup>2,4</sup>	6 - 9	(9.4)	6.5 - 9.5	(11.4)	6 - 9	(8.8) <sup>5</sup>
QIV 1981 - QIV 1982	2.5 - 5.5	(8.5) <sup>2</sup>	6 - 9	(9.2)	6.5 - 9.5	(10.1)	6 - 9 <sup>6</sup>	(7.1) <sup>5</sup>
QIV 1982 - QIV 1983	5 - 9 <sup>7</sup>	(7.2)	7 - 10 <sup>8</sup>	(8.3)	6.5 - 9.5	(9.7)	8.5 - 11.5	(10.5)
QIV 1983 - QIV 1984	4 - 8 <sup>9</sup>	(5.2)	6 - 9	(7.7)	6 - 9	(10.5)	8 - 11	(13.4)
QIV 1984 - QIV 1985	3 - 8	(12.7)	6 - 9	(8.6)	6 - 9.5	(7.4)	9 - 12	(13.5)
QIV 1985 - QIV 1986	3 - 8	(15.2)	6 - 9	(8.9)	6 - 9	(8.8)	8 - 11	(12.9)
QIV 1986 - QIV 1987	n.s. <sup>10</sup>	(6.2)	5.5 - 8.5	(4.0)	5.5 - 8.5	(5.4)	8 - 11	(9.6)
QIV 1987 - QIV 1988	n.s.	(4.3)	4 - 8	(5.3)	4 - 8	(6.2)	7 - 11	(8.7)
QIV 1988 - QIV 1989	n.s.	(0.6)	3 - 7	(4.6)	3.5 - 7.5	(3.3)	6.5 - 10.5	(8.1)
QIV 1989 - QIV 1990	n.s.	(4.2)	3 - 7	(3.9)	1 - 5 <sup>11</sup>	(1.8)	5 - 9	(6.9)
QIV 1990 - QIV 1991	n.s.	(8.0)	2.5 - 6.5	(3.1)	1 - 5	(1.3)	4.5 - 8.5	(4.5)
QIV 1991 - QIV 1992	n.s.	(14.3)	2.5 - 6.5	(1.9)	1 - 5	(0.5)	4.5 - 8.5	(4.6)
QIV 1992 - QIV 1993	n.s.	(10.5)	1 - 5 <sup>12</sup>	(1.4)	0 - 4 <sup>12</sup>	(0.6)	4 - 8 <sup>12</sup>	(4.9)
QIV 1993 - QIV 1994	n.s.	(2.3)	1 - 5	(1.0)	0 - 4	(1.4)	4 - 8	(5.3)
QIV 1994 - QIV 1995	n.s.	(-1.8)	1 - 5	(4.2)	2 - 6 <sup>13</sup>	(6.1)	3 - 7	(5.3)
QIV 1995 - QIV 1996	n.s.	(-4.6)	1 - 5	(4.6)	2 - 6	(6.8)	3 - 7	(5.0)
QIV 1996 - QIV 1997 <sup>14</sup>	n.s.	(-3.1)	1 - 5	(4.7)	2 - 6	(6.7)	3 - 7	(4.8)

NOTE: Numbers in parentheses are actual growth rates as reported at end of policy period in February Monetary Policy Report to Congress. Subsequent revisions to historical data (not reflected above) have altered growth rates by up to a few tenths of a percent.

n.s. -- not specified.

Footnotes on following page

1. Targets are for bank credit until 1983; from 1983 onward targets are for domestic nonfinancial sector debt.
2. The figures shown reflect target and actual growth of M1-B in 1980 and shift-adjusted M1-B in 1981. M1-B was relabelled M1 in January 1982. The targeted growth for M1-A was 3-1/2 to 6 percent in 1980 (actual growth was 5.0 percent); in 1981 targeted growth for shift-adjusted M1-A was 3 to 5-1/2 percent (actual growth was 1.3 percent).
3. When these ranges were set, shifts into other checkable deposits in 1980 were expected to have only a limited effect on growth of M1-A and M1-B. As the year progressed, however, banks offered other checkable deposits more actively, and more funds than expected were directed to these accounts. Such shifts are estimated to have decreased M1-A growth and increased M1-B growth each by at least 1/2 percentage point more than had been anticipated.
4. Adjusted for the effects of shifts out of demand deposits and savings deposits. At the February FOMC meeting, the target ranges for observed M1-A and M1-B in 1981 on an unadjusted basis, expected to be consistent with the adjusted ranges, were -(4-1/2) to -2 and 6 to 8-1/2 percent, respectively. Actual M1-B growth (not shift adjusted) was 5.0 percent.
5. Adjusted for shifts of assets from domestic banking offices to International Banking Facilities.
6. Range for bank credit is annualized growth from the December 1981 - January 1982 average level through the fourth quarter of 1982.
7. Base period, adopted at the July 1983 FOMC meeting, is 1983 QII. At the February 1983 meeting, the FOMC had adopted a 1982 QIV to 1983 QIV target range for M1 of 4 to 8 percent.
8. Base period is the February-March 1983 average.
9. Base period, adopted at the July 1985 FOMC meeting, is 1985 QII. At the February 1983 meeting, the FOMC had adopted a 1984 QIV to 1985 QIV target range for M1 of 4 to 7 percent.
10. No range for M1 has been specified since the February 1987 FOMC meeting because of uncertainties about its underlying relationship to the behavior of the economy and its sensitivity to economic and financial circumstances.
11. At the February 1990 meeting, the FOMC specified a range of 2-1/2 to 6-1/2 percent. This range was lowered to 1 to 5 percent at the July 1990 meeting.
12. At the February 1993 meeting, the FOMC specified a range of 2 to 6 percent for M2, 1/2 to 4-1/2 percent for M3, and 4-1/2 to 8-1/2 percent for domestic nonfinancial debt. These ranges were lowered to 1 to 5 percent for M2, 0 to 4 percent for M3, and 4 to 8 percent for domestic nonfinancial debt at the July 1993 meeting.
13. At the February 1995 FOMC meeting, the FOMC specified a range of 0 to 4 percent. This range was raised to 2 to 6 percent at the July 1995 meeting.
14. Growth rates in parentheses for the monetary aggregates are from 1996 QIV to June 1997 and for nonfinancial debt are from 1996 QIV to May 1997.

6/26/97 (MARP)

**SELECTED INTEREST RATES**  
(percent)

	Short-Term								Long-Term							
	federal funds	Treasury bills secondary market			CDs secondary market	comm. paper	money market mutual fund	bank prime loan	U.S. government constant maturity yields			corporate A-utility recently offered	municipal Bond Buyer	conventional home mortgages		
		3-month	6-month	1-year	3-month	1-month			3-year	10-year	30-year			secondary market	primary market	
		1	2	3	4	5	6	7	8	9	10	11	12	13	fixed-rate	fixed-rate
96 -- High	5.61	5.18	5.37	5.61	5.57	5.83	5.15	8.50	6.59	7.02	7.16	8.23	6.34	8.72	8.42	6.01
-- Low	5.08	4.79	4.71	4.57	5.13	5.28	4.73	8.25	4.95	5.59	5.97	7.00	5.63	7.35	6.94	5.19
97 -- High	5.86	5.24	5.41	5.67	5.73	5.94	5.03	8.50	6.65	6.93	7.13	8.27	6.14	8.56	8.18	5.91
-- Low	5.05	4.87	5.00	5.17	5.35	5.37	4.80	8.25	5.93	6.30	6.56	7.69	5.72	7.92	7.56	5.45
Monthly																
Jun 96	5.27	5.09	5.25	5.48	5.46	5.45	4.76	8.25	6.49	6.91	7.06	8.13	6.25	8.59	8.32	5.92
Jul 96	5.40	5.15	5.30	5.52	5.53	5.44	4.81	8.25	6.45	6.87	7.03	8.07	6.15	8.56	8.25	5.98
Aug 96	5.22	5.05	5.13	5.35	5.40	5.39	4.82	8.25	6.21	6.64	6.84	7.87	6.00	8.33	8.00	5.84
Sep 96	5.30	5.09	5.24	5.50	5.51	5.45	4.82	8.25	6.41	6.83	7.03	8.06	6.11	8.48	8.23	5.85
Oct 96	5.24	4.99	5.11	5.25	5.41	5.37	4.82	8.25	6.08	6.53	6.81	7.83	5.97	8.22	7.92	5.64
Nov 96	5.31	5.03	5.07	5.14	5.38	5.39	4.83	8.25	5.82	6.20	6.48	7.54	5.85	7.91	7.62	5.53
Dec 96	5.29	4.91	5.04	5.18	5.44	5.70	4.85	8.25	5.91	6.30	6.55	7.63	5.91	8.01	7.60	5.52
Jan 97	5.25	5.03	5.10	5.30	5.43	5.43	4.85	8.25	6.16	6.58	6.83	7.93	5.99	8.21	7.82	5.56
Feb 97	5.19	5.01	5.06	5.23	5.37	5.39	4.83	8.25	6.03	6.42	6.69	7.81	5.90	8.03	7.65	5.49
Mar 97	5.39	5.14	5.26	5.47	5.53	5.51	4.82	8.30	6.38	6.69	6.93	8.08	6.04	8.35	7.90	5.64
Apr 97	5.51	5.16	5.37	5.64	5.71	5.61	4.94	8.50	6.61	6.89	7.09	8.23	6.14	8.46	8.14	5.87
May 97	5.50	5.05	5.30	5.54	5.70	5.61	--	8.50	6.42	6.71	6.94	8.01	5.94	8.24	7.94	5.81
Weekly																
Mar 12 97	5.19	5.07	5.19	5.39	5.44	5.42	4.80	8.25	6.26	6.58	6.85	8.09	6.02	8.27	7.84	5.61
Mar 19 97	5.26	5.12	5.25	5.44	5.50	5.45	4.81	8.25	6.38	6.72	6.97	8.11	6.06	8.34	7.94	5.71
Mar 26 97	5.40	5.24	5.35	5.54	5.62	5.60	4.83	8.29	6.47	6.75	6.96	8.22	6.09	8.56	7.97	5.71
Apr 2 97	5.86	5.20	5.33	5.67	5.68	5.69	4.96	8.50	6.59	6.90	7.09	8.26	6.14	8.46	8.18	5.80
Apr 9 97	5.37	5.13	5.33	5.63	5.70	5.63	4.96	8.50	6.59	6.89	7.10	8.27	6.14	8.51	8.15	5.91
Apr 16 97	5.48	5.16	5.41	5.66	5.72	5.61	4.91	8.50	6.65	6.93	7.13	8.19	6.13	8.37	8.16	5.89
Apr 23 97	5.48	5.18	5.40	5.62	5.71	5.59	4.94	8.50	6.60	6.86	7.07	8.24	6.13	8.49	8.08	5.86
Apr 30 97	5.61	5.18	5.37	5.66	5.73	5.60	4.96	8.50	6.59	6.86	7.07	7.98	6.01	8.25	8.01	5.84
May 7 97	5.55	5.08	5.33	5.57	5.71	5.60	4.96	8.50	6.42	6.69	6.92	7.97	5.98	8.21	7.94	5.82
May 14 97	5.49	5.06	5.29	5.54	5.71	5.60	4.98	8.50	6.42	6.69	6.90	8.00	5.91	8.24	7.91	5.78
May 21 97	5.52	5.09	5.32	5.51	5.71	5.64	4.98	8.50	6.40	6.70	6.92	8.07	5.91	8.26	7.92	5.80
May 28 97	5.43	5.04	5.25	5.54	5.69	5.59	4.99	8.50	6.45	6.77	7.01	8.02	5.91	8.23	7.94	5.83
Jun 4 97	5.54	4.88	5.22	5.47	5.68	5.61	5.02	8.50	6.37	6.67	6.91	7.90	5.85	8.14	7.85	5.78
Jun 11 97	5.48	4.92	5.19	5.43	5.68	5.60	5.00	8.50	6.31	6.56	6.83	7.84	5.77	7.97	7.72	5.67
Jun 18 97	5.62	4.87	5.11	5.34	5.66	5.59	5.03	8.50	6.18	6.43	6.72	7.77	5.72	7.95	7.61	5.66
Jun 25 97	5.42	4.96	5.09	5.35	5.65	5.60	--	8.50	6.17	6.41	6.69	7.84	5.82	8.01	7.58	5.66
Daily																
Jun 20 97	5.39	4.94	5.10	5.33	5.64	5.60	--	8.50	6.14	6.37	6.65	--	--	--	--	--
Jun 26 97	5.50	5.03	5.06	5.33	5.66	5.61	--	8.50	6.24	6.50	6.78	--	--	--	--	--
Jun 27 97	5.50p	5.02	5.06	5.32	5.68	5.62	--	8.50	6.20	6.46	6.75	--	--	--	--	--

NOTE: Weekly data for columns 1 through 11 are statement week averages. Data in column 7 are taken from Donoghue's Money Fund Report. Columns 12, 13 and 14 are 1-day quotes for Friday, Thursday or Friday, respectively, following the end of the statement week. Column 13 is the Bond Buyer revenue index. Column 14 is the FNMA purchase yield, plus loan servicing fee, on 30-day mandatory delivery commitments. Column 15 is the average contract rate on new commitments for fixed-rate mortgages (FRMs) with 80 percent loan-to-value ratios at major institutional lenders. Column 16 is the average initial contract rate on new commitments for 1-year, adjustable-rate mortgages (ARMs) at major institutional lenders offering both FRMs and ARMs with the same number of discount points.

p - preliminary data

### Money and Credit Aggregate Measures

Seasonally adjusted

JUNE 30, 1997

Period	Money stock measures and liquid assets						Bank credit	Domestic nonfinancial debt <sup>1</sup>		
	M1	M2	nontransactions components		M3	L	total loans and investments <sup>1</sup>	U. S. government <sup>2</sup>	other <sup>2</sup>	total <sup>2</sup>
			In M2	In M3 only						
	1	2	3	4	5	6	7	8	9	10
<b>Annual growth rates(%):</b>										
Annually (Q4 to Q4)										
1994	2.5	0.6	-0.3	6.6	1.7	2.7	6.9	5.7	5.1	5.2
1995	-1.6	4.0	6.7	15.3	6.2	7.4	8.7	4.4	5.9	5.5
1996	-4.6	4.6	8.8	15.2	6.8	6.6	4.1	3.8	5.9	5.4
Quarterly(average)										
1996-Q3	-6.5	3.4	7.7	12.8	5.4	6.4	1.7	3.8	5.7	5.2
1996-Q4	-7.3	5.0	10.1	19.2	8.1	7.1	6.8	3.2	5.6	5.0
1997-Q1	-0.7	5.9	8.5	15.5	8.0	6.6	10.4	1.8	5.5	4.6
1997-Q2 pe	-5½	4	8	14½	6½					
Monthly										
1996-JUNE	-1.7	5.3	8.2	7.0	5.7	8.8	2.2	2.1	6.0	5.0
JULY	-7.2	2.6	6.8	11.4	4.4	4.9	3.7	6.0	6.1	6.1
AUG.	-9.7	4.1	9.9	8.9	5.1	6.1	-2.6	4.5	4.8	4.7
SEP.	-7.2	4.0	8.6	21.6	7.8	8.4	6.0	1.0	5.1	4.0
OCT.	-14.3	4.0	11.4	25.9	8.7	5.1	8.2	3.8	5.9	5.4
NOV.	-0.2	6.8	9.6	8.4	7.2	8.5	8.6	4.2	6.3	5.8
DEC.	1.1	7.5	10.0	23.3	11.0	8.2	9.3	2.9	5.0	4.4
1997-JAN.	-1.3	5.2	7.8	5.9	5.4	2.8	11.3	-0.6	5.2	3.7
FEB.	0.9	5.1	6.7	24.4	9.4	9.0	12.4	1.8	6.1	5.0
MAR.	-6.0	5.1	9.4	16.9	7.8	7.8	7.0	4.7	5.6	5.3
APR.	-11.3	6.0	12.6	18.7	8.9	8.2	11.3	2.4	7.0	5.8
MAY	-2.7	-0.1	0.8	6.9	1.5		1.8			
JUNE pe	-2	4	7	1	3					
<b>Levels (\$billions):</b>										
Monthly										
1997-JAN.	1079.8	3849.7	2770.0	1103.7	4953.4	6111.0	3809.0	3778.6	10888.4	14667.0
FEB.	1080.6	3866.0	2785.4	1126.1	4992.1	6156.7	3848.3	3784.2	10944.0	14728.2
MAR.	1075.2	3882.5	2807.2	1142.0	5024.4	6196.6	3870.8	3799.1	10994.7	14793.8
APR.	1065.1	3901.8	2836.7	1159.8	5061.6	6239.0	3907.1	3806.8	11059.1	14865.9
MAY	1062.7	3901.4	2838.7	1166.5	5068.0		3913.0			
Weekly										
1997-MAY	5	1064.3	3894.0	2829.7	1165.9	5059.9				
12		1060.5	3892.5	2832.0	1169.5	5062.0				
19		1060.9	3900.5	2839.6	1167.2	5067.6				
26		1064.6	3910.0	2845.4	1161.3	5071.3				
JUNE	2	1070.3	3909.4	2839.1	1168.3	5077.7				
9 p		1060.9	3910.0	2849.0	1167.8	5077.8				
16 p		1061.7	3911.1	2849.4	1167.1	5078.1				

1. Adjusted for breaks caused by reclassifications.

2. Debt data are on a monthly average basis, derived by averaging end-of-month levels of adjacent months, and have been adjusted to remove discontinuities.

p preliminary

pe preliminary estimate

## Components of Money Stock and Related Measures

Seasonally adjusted

JUNE 30, 1997

Period	Currency	Demand deposits	Other checkable deposits	Savings deposits <sup>1</sup>	Small denomination time deposits <sup>2</sup>	Money market mutual funds		Large denomination time deposits <sup>4</sup>	RP's <sup>5a</sup>	Eurodollars <sup>5a</sup>	Savings bonds	Short-term Treasury securities <sup>3</sup>	Commercial paper <sup>6</sup>	Bankers acceptances <sup>3</sup>
						Retail <sup>2</sup>	Institution-only							
						1	2							
<b>Levels (\$billions):</b>														
<b>Annual (Q4)</b>														
1994	352.4	384.9	404.8	1164.0	806.5	379.8	197.4	358.7	176.6	81.8	179.7	378.8	402.2	13.6
1995	371.4	390.3	362.1	1127.3	930.4	451.0	244.7	416.3	186.7	91.8	184.4	465.5	439.3	11.6
1996	392.6	400.9	278.3	1258.8	942.8	528.1	293.1	483.5	194.4	110.9	187.0	478.0	486.1	12.2
<b>Monthly</b>														
<b>1996-MAY</b>														
JUNE	377.7	407.1	323.5	1195.6	928.4	484.5	263.6	442.5	202.7	97.0	186.1	453.0	468.0	10.7
JULY	379.9	410.6	316.4	1204.1	928.8	493.6	269.7	448.9	195.3	97.8	186.4	470.8	470.1	11.1
AUG.	382.8	408.7	308.7	1211.0	930.5	499.6	274.0	455.2	194.1	97.9	186.7	473.8	473.0	11.5
SEP.	385.2	405.8	300.4	1222.7	934.1	506.1	278.8	459.3	192.3	98.4	186.9	478.3	477.7	11.7
OCT.	387.6	404.9	292.2	1231.5	937.5	513.2	285.2	466.8	194.1	101.2	187.1	484.2	482.0	12.0
NOV.	390.2	398.2	283.2	1246.3	940.8	520.5	288.1	479.2	195.5	107.1	187.1	476.7	479.6	12.1
DEC.	392.5	402.1	276.8	1259.0	943.2	527.1	292.0	481.7	194.6	109.3	187.0	486.5	483.2	12.2
1997-MAY	395.2	402.4	274.8	1271.0	944.4	536.6	299.3	489.6	193.0	116.3	187.0	470.8	495.5	12.2
<b>1997-MAY</b>														
JAN.	397.0	401.7	272.5	1282.5	945.0	542.4	296.3	491.4	196.1	120.0	186.7	449.9	509.1	11.9
FEB.	400.5	404.2	267.3	1290.5	946.2	548.7	305.4	497.9	200.1	122.7	186.4	447.9	517.5	12.7
MAR.	402.4	402.8	261.6	1304.3	945.1	557.8	311.8	506.7	198.3	125.1	186.3	446.4	525.9	13.5
APR.	403.7	395.3	257.8	1321.1	946.4	569.2	311.6	519.6	200.2	128.4	186.2	442.0	536.3	12.8
MAY	406.1	395.3	253.1	1320.9	950.7	567.2	311.6	521.8	198.6	134.4				

1. Includes money market deposit accounts.
2. Includes retail repurchase agreements. All IRA and Keogh accounts at commercial banks and thrift institutions are subtracted from small time deposits.
3. Excludes IRA and Keogh accounts.
4. Net of large denomination time deposits held by money market mutual funds, depository institutions, U.S. government, and foreign banks and official institutions.
5. Net of money market mutual fund holdings of these items.
6. Includes both overnight and term.

p preliminary



**NET CHANGES IN SYSTEM HOLDINGS OF SECURITIES<sup>1</sup>**  
Millions of dollars, not seasonally adjusted

June 27, 1997

Period	Treasury bills			Treasury coupons						Federal agencies redemptions (-)	Net change outright holdings total <sup>4</sup>	Net RPs <sup>5</sup>
	Net purchases <sup>2</sup>	Redemptions (-)	Net change	Net purchases <sup>3</sup>				Redemptions (-)	Net Change			
				within 1 year	1-5	5-10	over 10					
1994	17,484	---	17,484	1,238	9,168	3,818	3,606	2,337	15,493	942	32,035	-7,412
1995	10,932	900	10,032	390	4,966	1,239	3,122	1,776	7,941	1,103	16,870	-1,023
1996	9,901	---	9,901	524	3,898	1,116	1,655	2,015	5,179	409	14,670	5,351
1996 ---Q1	---	---	---	---	---	---	---	1,228	-1,228	108	-1,336	-8,879
---Q2	3,399	---	3,399	65	1,839	654	920	787	2,691	138	5,952	2,959
---Q3	---	---	---	459	2,060	462	735	---	3,716	79	3,637	-2,454
---Q4	6,502	---	6,502	---	---	---	---	---	---	85	6,417	13,726
1997 ---Q1	---	---	---	818	3,985	---	1,117	607	5,314	230	5,084	-18,046
1996 June	3,311	---	3,311	---	---	---	---	---	---	40	3,271	-711
July	---	---	---	---	---	---	---	---	---	52	-52	7,118
August	---	---	---	459	2,060	462	735	---	3,716	---	3,716	-9,267
September	---	---	---	---	---	---	---	---	---	27	-27	-304
October	---	---	---	---	---	---	---	---	---	63	-63	3,625
November	6,502	---	6,502	---	---	---	---	---	---	10	6,492	584
December	---	---	---	---	---	---	---	---	---	12	-12	9,518
1997 January	---	---	---	---	---	---	---	607	-607	187	-793	-10,151
February	---	---	---	818	1,125	---	---	---	1,943	27	1,916	-7,371
March	---	---	---	---	2,861	---	1,117	---	3,978	17	3,961	-524
April	4,006	---	4,006	---	---	---	---	376	1,548	24	5,530	41,665
May	---	---	---	---	---	---	---	---	3,206	---	3,206	-42,664
Weekly												
March 5	---	---	---	---	---	---	---	---	---	---	---	-9,508
12	---	---	---	---	1,438	---	1,117	---	2,555	---	2,555	7,457
19	---	---	---	---	1,423	---	---	---	1,423	---	1,423	-4,186
26	---	---	---	---	---	---	---	---	---	17	-17	2,699
April 2	---	---	---	---	---	---	---	---	---	---	---	-4,002
9	4,006	---	4,006	---	---	---	---	---	---	---	4,006	2,933
16	---	---	---	---	---	---	---	376	-376	10	-386	1,451
23	---	---	---	---	---	---	---	---	---	---	---	9,245
30	---	---	---	---	---	---	---	---	1,924	14	1,910	27,694
May 7	---	---	---	---	---	---	---	---	988	---	988	-25,562
14	---	---	---	---	---	---	---	---	2,218	---	2,218	-13,014
21	---	---	---	---	---	---	---	---	---	---	---	-2,803
28	---	---	---	---	---	---	---	---	---	---	---	-3,375
June 4	---	---	---	---	---	---	---	---	---	307	-307	10,757
11	---	---	---	---	---	---	---	---	---	67	-67	-4,583
18	---	---	---	---	---	---	---	---	1,649	100	1,549	3,511
25	596	---	596	---	---	---	---	---	1,642	---	2,238	4,393
Memo: LEVEL (bil. \$) <sup>6</sup>												
June 25			209.6	35.5	96.8	38.5	43.1		213.9		424.3	-13.9

1. Change from end-of-period to end-of-period.

2. Outright transactions in market and with foreign accounts.

3. Outright transactions in market and with foreign accounts, and short-term notes acquired in exchange for maturing bills. Excludes maturity shifts and rollovers of maturing issues.

4. Reflects net change in redemptions (-) of Treasury and agency securities.

5. Includes change in RPs (+), matched sale-purchase transactions (-), and matched purchase sale transactions (+).

6. The levels of agency issues were as follows:

within 1 year	1-5	5-10	over 10	total
0.8	0.4	0.3	0.0	1.5

June 25