Prefatory Note

The attached document represents the most complete and accurate version available based on original files from the FOMC Secretariat at the Board of Governors of the Federal Reserve System.

Please note that some material may have been redacted from this document if that material was received on a confidential basis. Redacted material is indicated by occasional gaps in the text or by gray boxes around non-text content. All redacted passages are exempt from disclosure under applicable provisions of the Freedom of Information Act.

Content last modified 03/31/2011.

CLASS I FOMC - RESTRICTED CONTROLLED (FR)

APRIL 28, 2005

MONETARY POLICY ALTERNATIVES

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

Class I FOMC **April 28, 2005**
Restricted Controlled (FR)

MONETARY POLICY ALTERNATIVES

Recent Developments

(1) The Committee's decision at its March meeting to increase the target federal funds rate 25 basis points to 2¾ percent was widely anticipated by market participants, as were the retention of the "measured pace" language and the assessment that the risks to sustainable growth and price stability were balanced.[1] However, the references in the statement to increased inflation pressures and to more evident pricing power, as well as the explicit conditioning of the balance of risks on "appropriate monetary policy action," were apparently read by investors as indicating that the Committee might tighten policy more rapidly than previously thought. In consequence, policy expectations firmed somewhat after the announcement and rose further on the heels of a larger-than-expected increase in consumer prices for February released on the next day.

(2) In the weeks that followed, however, readings on spending, employment, and production came in weaker than expected, on balance, and equity markets sold off significantly. In addition, the minutes of the March FOMC meeting were viewed as suggesting that the Committee perceived less upside risk to inflation than investors had earlier surmised. Market participants took particular note of the statement in those minutes that members believed that an accelerated path of policy tightening did not appear necessary at the time. Despite the subsequent publication

---

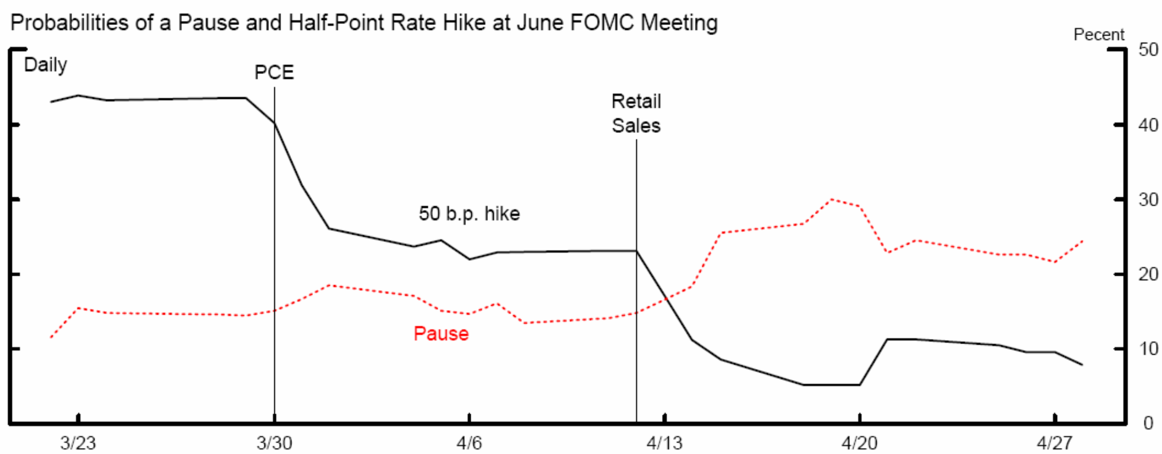
[1] The effective federal funds rate averaged 2.77 percent over the intermeeting period amid pressures from quarter-end flows and the April tax date. Late in the period, participants again bid up the funds rate in anticipation of tightening at this meeting. The Desk purchased $1.9 billion of Treasury coupon securities in the market and redeemed $211 million of two-year notes at an auction to comply with its per-issue portfolio guidelines. The volume of outstanding long-term RPs remained unchanged on balance at $17 billion.

of higher-than-expected consumer prices for March, the expected policy path rotated down on net over the intermeeting period (Chart 1). Options on federal funds futures indicate that investors are certain of a 25 basis point tightening at this meeting and have considerably scaled back the odds placed on a larger move in June (see box). Current futures prices also indicate a mean expectation for the federal funds rate a bit below 4 percent at the end of 2006, about 30 basis points lower than

Probability of a Pause or a Half-Point Increase

Money market futures prices indicate that the federal funds rate is expected to be raised to 3 percent at this meeting and to reach 3½ percent by the end of this year. Such a configuration is consistent with two more quarter-point increases in the funds rate target after this meeting spread over the five remaining FOMC meetings of the year. Thus, financial markets appear to be betting that the process of policy firming will be put on pause at some point in 2005.

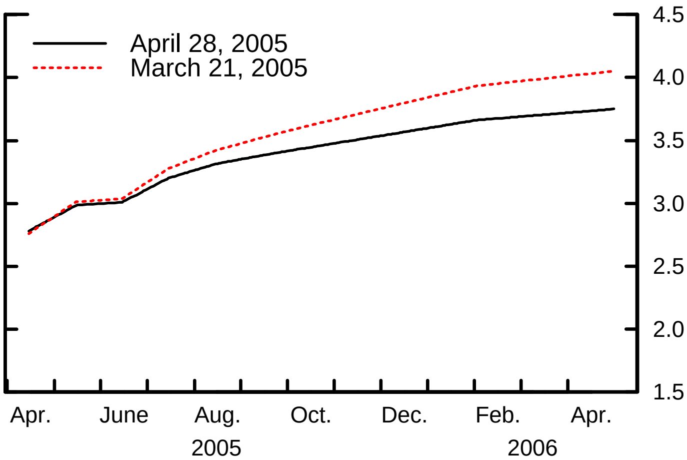
Given the relatively deep market in options on July federal funds futures, we can infer probabilities associated with various policy actions at the June FOMC meeting. As shown in the chart below, which takes a quarter-point tightening at the May meeting as a fait accompli, the implied probability of a half-point rate hike at the June meeting has declined over the intermeeting period from nearly even odds to below 10 percent. Much of this drop occurred after the February PCE price index release and in mid-April as equity prices turned down. In contrast, the probability of a pause at the June meeting has roughly doubled to about 25 percent over the same period.



Note. Implied by options on July federal funds futures with term premium adjustment. Assumes quarter-point hike at May meeting is fully priced in.

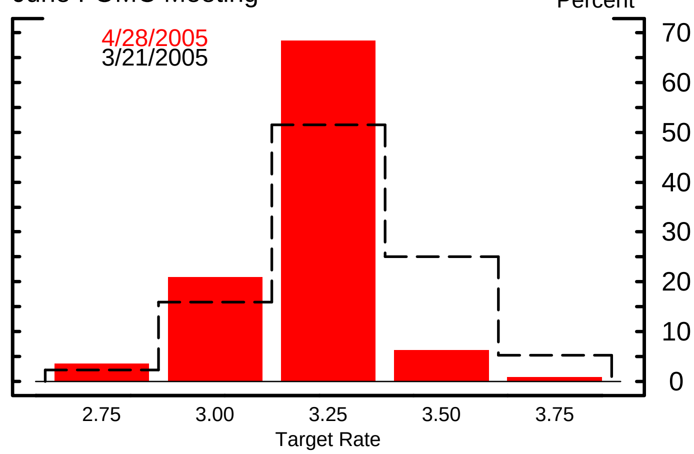
Chart 1
Interest Rate Developments

Expected Federal Funds Rates*



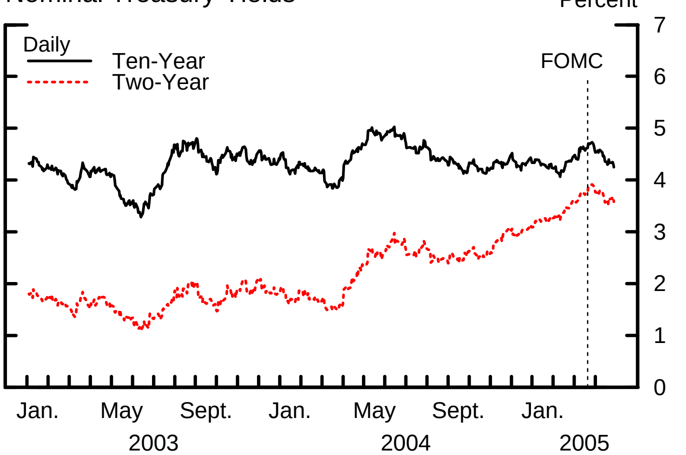
*Estimates from federal funds and eurodollar futures, with an allowance for term premia and other adjustments.

Probability Density for Target Funds Rate after June FOMC Meeting



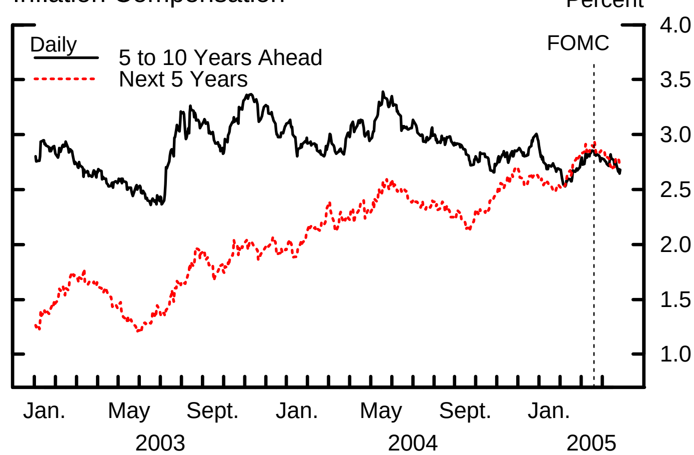
Note. Derived from options on July federal funds futures.

Nominal Treasury Yields*



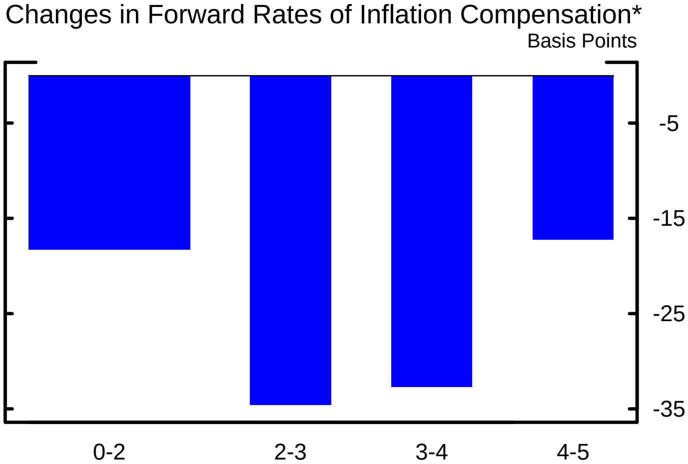
*Par yields from an estimated off-the-run Treasury yield curve.

Inflation Compensation*



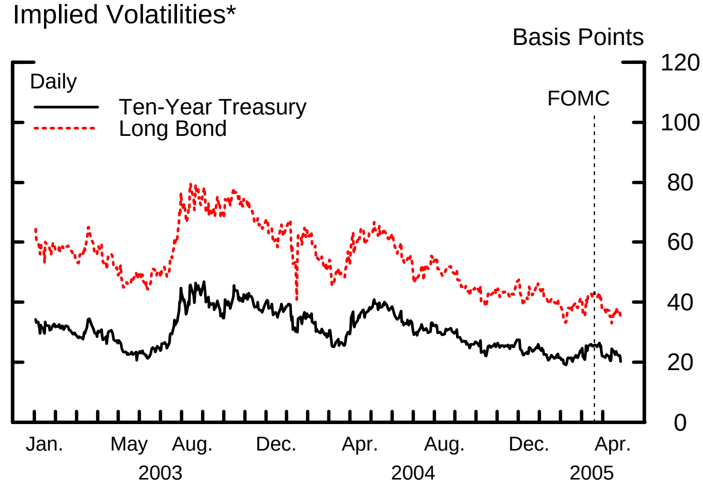
*Based on a comparison of an estimated TIPS yield curve to an estimated nominal off-the-run Treasury yield curve.

Changes in Forward Rates of Inflation Compensation*



*Changes since March 21, 2005, based on inflation swap quotes. Adjusted for indexation lag and seasonality effects.

Implied Volatilities*



*Based on options on long-term Treasury futures.

Note: Vertical lines indicate March 21, 2005. Last daily observations are for April 28, 2005.

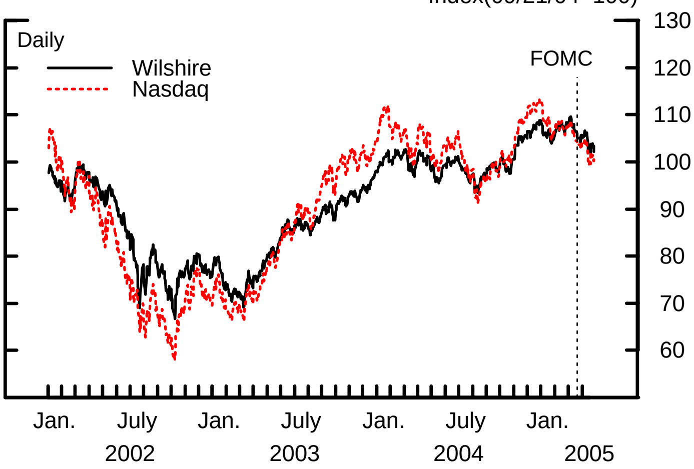
at the time of the last meeting. According to a recent survey by the Desk, primary dealers do not expect changes to the balance-of-risk sentence at this meeting, although some predict that the "measured pace" language will be dropped.

(3) The downward revision in policy expectations showed through to a 15 basis point decline in two-year nominal Treasury yields over the intermeeting period, while longer-term nominal yields moved down about 35 basis points. Judging from TIPS, a drop in real yields accounted for about half of the decline in longer-term nominal interest rates, implying that inflation compensation fell about 15 basis points. Model-based estimates of term premiums have fallen further over the intermeeting period, consistent with the decline in the volatility of long-term Treasury securities inferred from options prices and perhaps indicative of heightened safe-haven demands prompted by the downturn in equity markets.

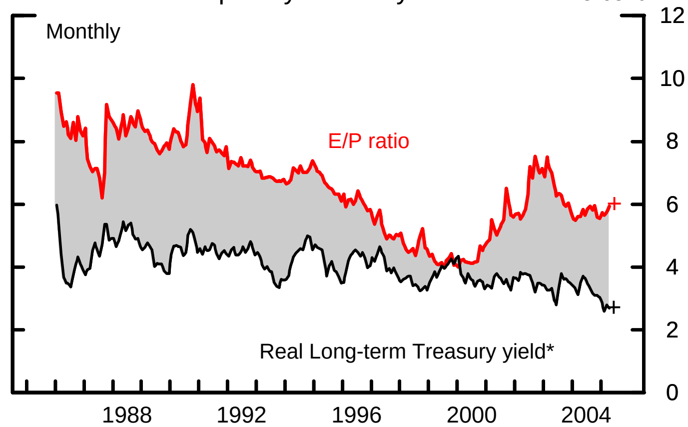
(4) Despite generally favorable earnings reports for the first quarter, broad equity indexes fell 3 to 5 percent over the intermeeting period, apparently responding to the softer economic outlook (Chart 2). In addition, investors' appetite for risk was diminished by downbeat news from Ford, General Motors, and a few other prominent firms and by additional reports of accounting irregularities in the insurance industry. A rough measure of the equity premium increased somewhat over the period, and implied volatilities on equities turned up, albeit from very low levels. Corporate bond spreads, while still modest compared with recent years, climbed over the intermeeting period: Those on investment-grade corporate securities widened about 10 to 20 basis points, and those on speculative-grade securities rose about 90 basis points (see box). Meanwhile, most other indicators of corporate credit quality have remained strong on balance. Although General Motors'

Chart 2
Capital Market Developments

Stock Prices

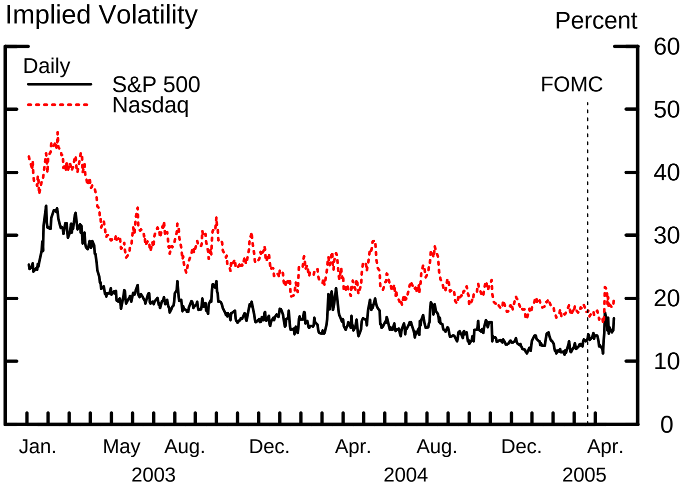


12-Month Forward Trend Earnings-Price Ratio for S&P 500 and Perpetuity Treasury Yield

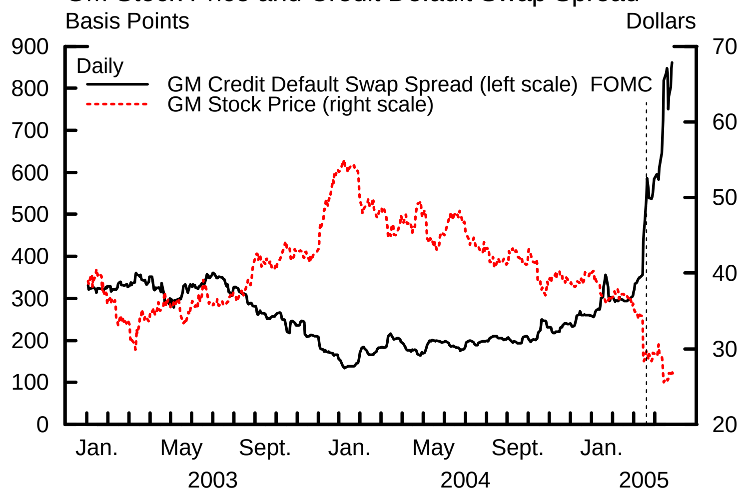


* Perpetuity Treasury yield minus Philadelphia Fed 10-year expected inflation.
Note. + Denotes the latest observation using daily interest rates and stock prices and latest earnings data from I/B/E/S.

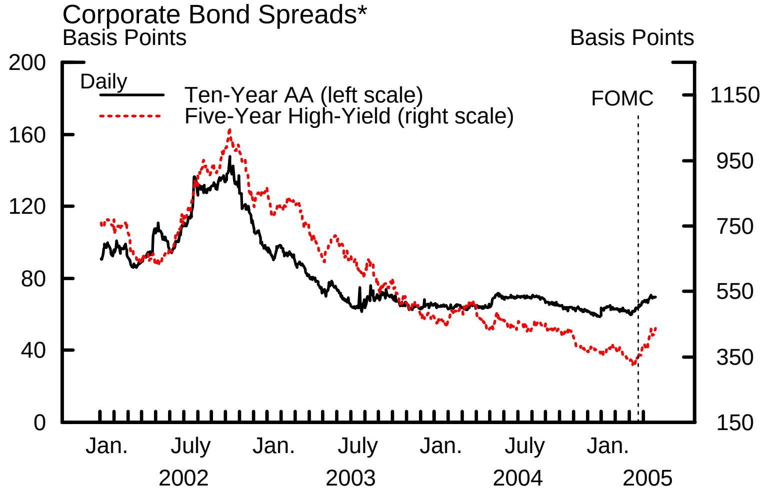
Implied Volatility



GM Stock Price and Credit Default Swap Spread

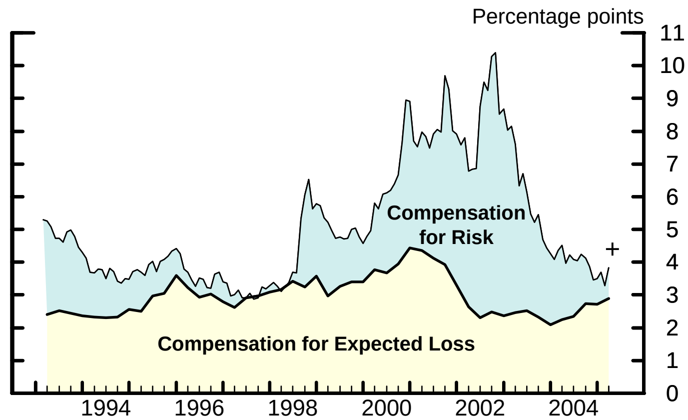


Corporate Bond Spreads*



*Measured relative to an estimated off-the-run Treasury yield curve.

Decomposition of High-Yield Bond Spread



Note. Merrill Lynch Master II minus 7-year Treasury. Staff estimates are shown for 2005Q1.
Note. + Denotes the latest observation of the high-yield bond spread.

Note: Vertical lines indicate March 21, 2005. Last daily observations are for April 28, 2005.

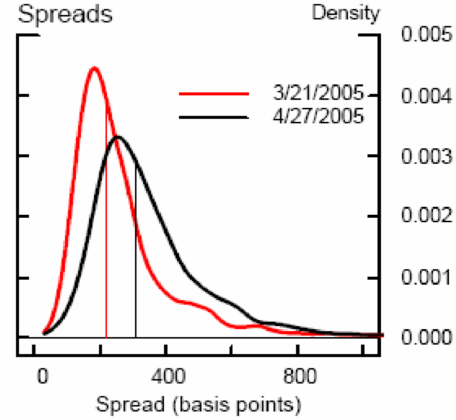
Credit Market Conditions

The softer economic outlook, concerns about the prospects of automobile manufacturers, and further reports of accounting irregularities in the insurance industry apparently made investors charier of risk. Negative corporate news mostly concerned investment-grade firms, but the associated widening in spreads was larger and more pervasive in the speculative-grade sector. As shown in the top panel at the right, the cross-sectional distribution of high-yield credit spreads shifted to the right and became more dispersed. Consistent with a somewhat diminished appetite for risk among investors, a staff estimate of the corporate bond risk premium rose a good bit from the very low levels it had reached in the first part of the year.

Signs of heightened risk awareness were also visible in the credit default swaps (CDS) market. Indexes of investment-grade and speculative-grade CDS have gained favor as vehicles to trade credit risk. Trading of tranches of those indexes, which insure against losses within a specific percentile range, has also grown rapidly in recent years. As was the case with bond and CDS index spreads, tranche spreads, including those on the super-senior slice of the investment-grade index, widened over the intermeeting period (the middle panel). This particular tranche would absorb losses only if they exceeded 15 percent of the value of the whole index, and its spread can thus be interpreted as a measure of investors' perception of the likelihood of extreme outcomes.

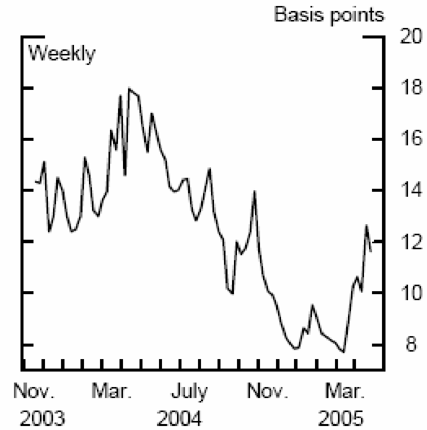
Options on CDS indexes also began trading recently. As shown in the bottom panel, the implied volatility computed from those options has climbed substantially since mid-March, indicating a greater sense of uncertainty among investors about movements in credit spreads going forward.

Distribution of High-yield Credit Spreads



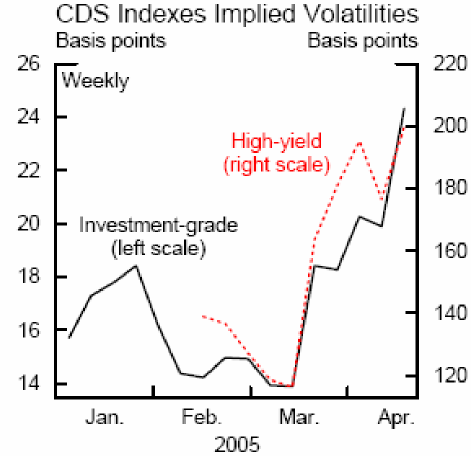
Note. The lines depict cross-sectional distributions of credit spreads on high-yield financial and nonfinancial corporate bonds estimated from Merrill Lynch data. Vertical lines denote the medians.

Super-senior Index Tranche



Source. JP Morgan.

CDS Indexes Implied Volatilities



Source. Bear Stearns.

debt remains investment grade, credit default swap (CDS) spreads on the firm's obligations gapped 250 basis points higher over the period to levels similar to those for poor-quality speculative-grade issuers. CDS spreads for Ford also rose, but by considerably less.

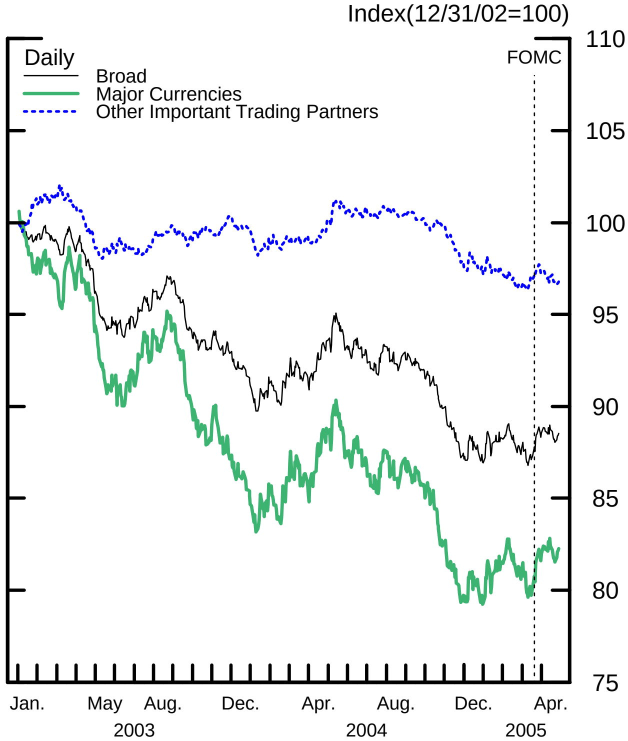
(5) Over the intermeeting period, the trade-weighted value of the dollar increased 2¼ percent on balance against a basket of major foreign currencies (Chart 3). The dollar rose steeply in late March on the heels of the FOMC announcement and indications of less robust growth abroad. Against most currencies, however, some of that gain has been erased this month, prompted in part by disappointing U.S. data and the release of the FOMC minutes. Even so, the dollar has continued to move higher versus the Canadian dollar as weaker-than-expected Canadian output and employment data, political uncertainties, and a decline of oil prices from their recent peak weighed on that currency. Euro-area data were also disappointing and suggested to market participants a less-robust outlook for growth there. For the period as a whole, the dollar has appreciated 4 percent versus the Canadian dollar, 2¼ percent versus the euro, and about 1 percent versus the yen.[2] Ten-year sovereign yields in most major foreign industrial countries declined 15 to 30 basis points, a bit less than comparable U.S. yields. Declines in foreign share prices outstripped those in the United States amid concerns about the strength of the global recovery. Turmoil in Chinese-Japanese political relations likely added to the downward pressure on Japanese equity prices, which fell 6 percent over the intermeeting period, and may have affected share prices more broadly in the region.

(6) The dollar declined slightly on average against the currencies of our other important trading partners over the intermeeting period. Movements against most currencies were modest, with the notable exception of the Brazilian *real*, against

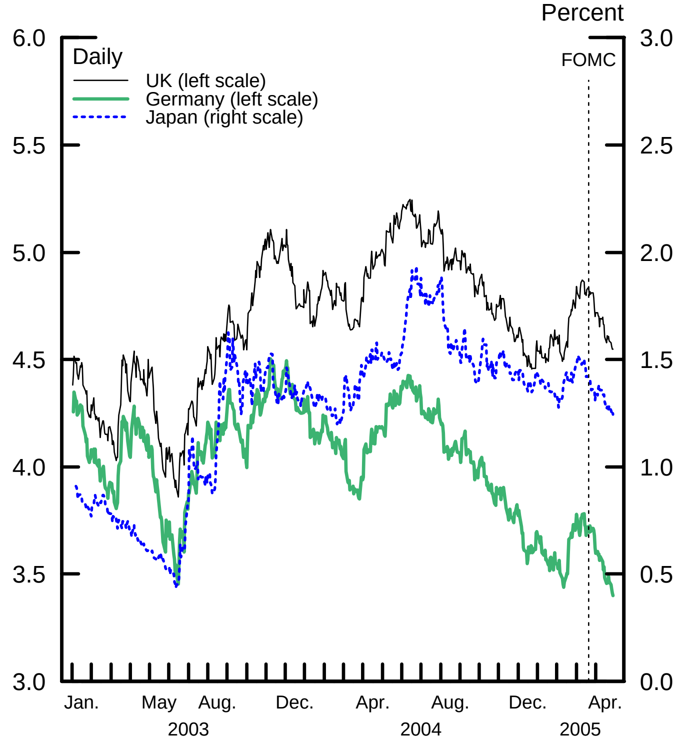
2

Chart 3
International Financial Indicators

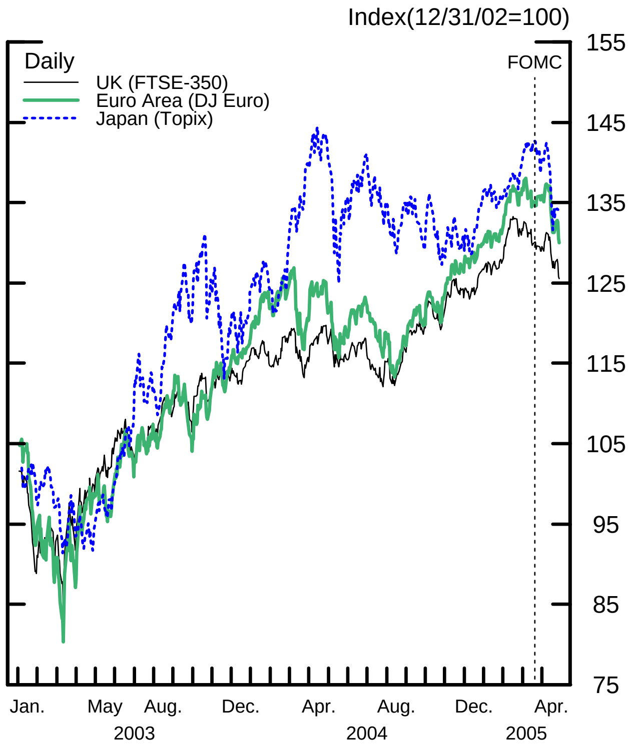
Nominal Trade-Weighted Dollar Indexes



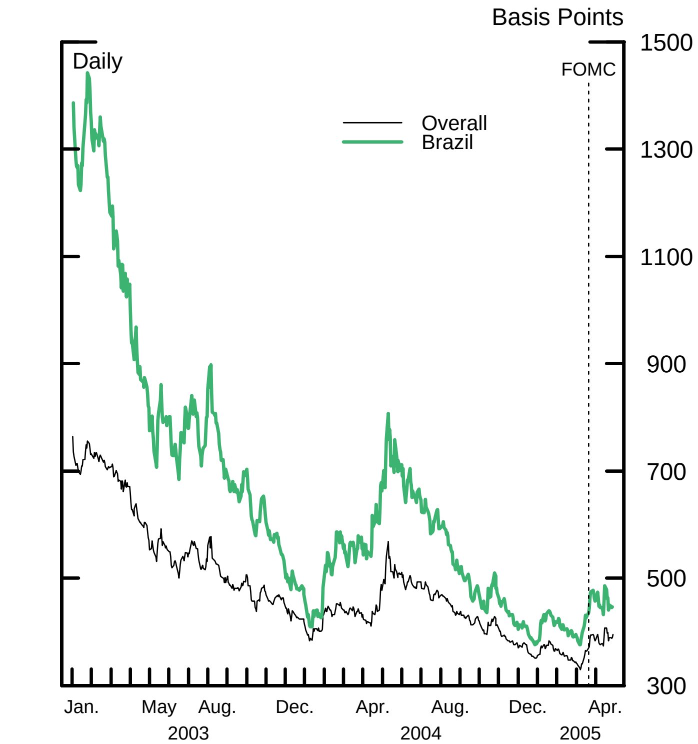
Ten-Year Government Bond Yields



Stock Price Indexes



EMBI+ Index



which the dollar fell almost 7 percent. Despite signs of slower growth in Brazil, the central bank ceased its operations in currency swaps in mid-March, which had been viewed as part of an official effort to weaken the *real*, and raised its main policy rate 25 basis points in mid-April to counter inflationary pressure. Brazilian stocks fell 10 percent over the intermeeting period, and stock prices in other Latin American countries also registered significant declines. Spreads on dollar-denominated sovereign bonds widened slightly over the intermeeting period. Various comments by G-7 officials emphasizing the need for China to modify its foreign exchange regime, as well as signs of growing protectionist pressures aimed at Chinese exports, pushed up the value of the renminbi versus the dollar in non-deliverable forward contracts.

(7) Domestic nonfinancial sector debt appears to have grown at a 9½ percent rate in the first quarter, boosted in part by hefty federal borrowing (Chart 4). Perhaps in response to rising corporate yields, gross bond issuance by nonfinancial corporations has remained subdued of late, especially in the high-yield sector, while retirements of outstanding bonds have stayed near last year's rapid pace. Meanwhile, commercial paper issuance and business borrowing from banks advanced at a brisk rate over the intermeeting period. Significant fractions of respondents to the latest Senior Loan Officer Opinion Survey reported stronger demand for commercial and industrial loans and continued easing of both lending standards and terms over the past three months. The staff estimates that household debt growth slowed somewhat in the first quarter from the robust pace recorded last year. Household credit quality has remained solid, notwithstanding the recent jump in personal bankruptcies sparked by the anticipation of bankruptcy reform.

(8) M2 is estimated to have grown at a 2¾ percent annual rate on average in March and April, about the same pace as earlier in the year. M2 growth remains below the estimated expansion of nominal income, although not by as much as

Chart 4
Debt and Money

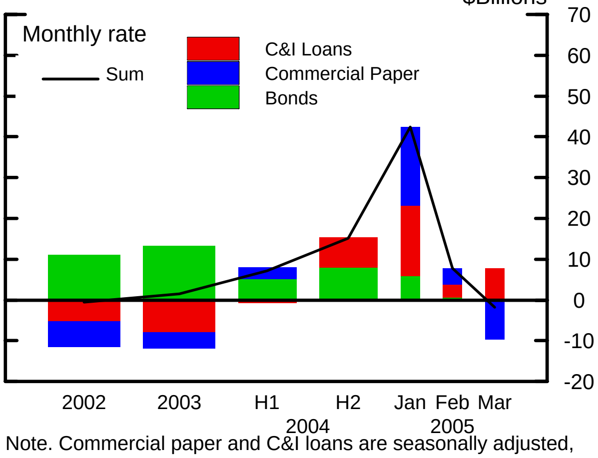
Growth of Nonfinancial Debt

Percent, s.a.a.r.

		Total	Nonfederal
2003		8.1	7.5
2004	Q1	9.3	8.7
	Q2	7.4	6.7
	Q3	8.3	9.1
	Q4	8.3	8.5
2005	Q1p	9.4	8.4

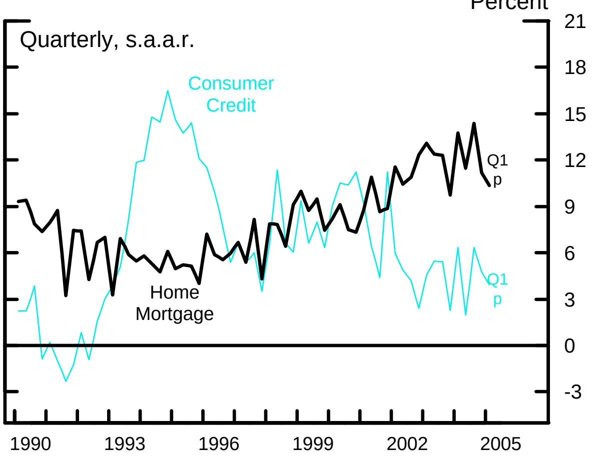
p Projected.

Changes in Selected Components of Nonfinancial Business Debt



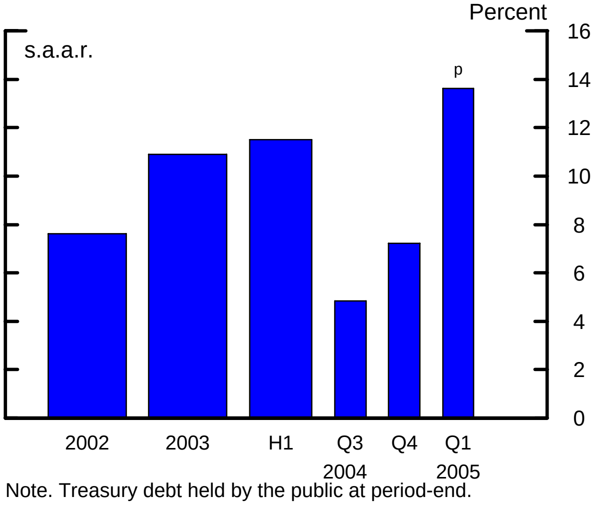
Note. Commercial paper and C&I loans are seasonally adjusted, bonds are not.

Growth of Household Debt



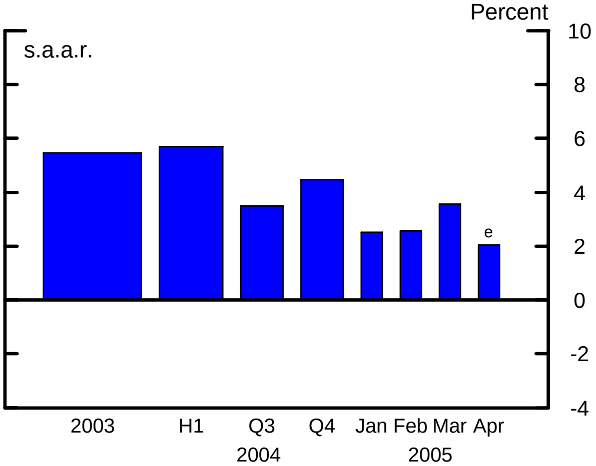
p Preliminary.

Growth of Federal Debt



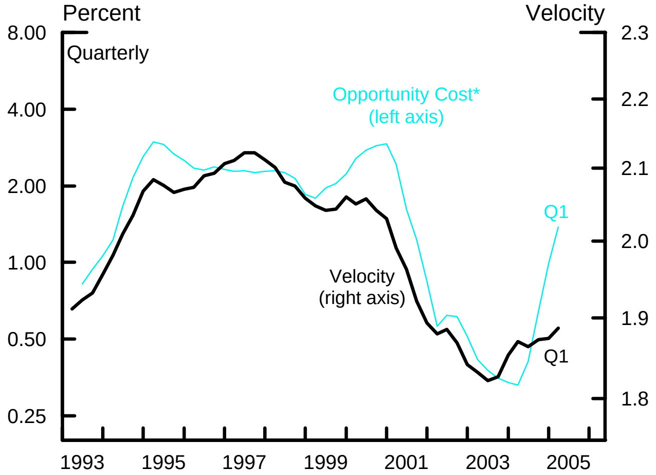
Note. Treasury debt held by the public at period-end.
p Projected.

Growth of M2



e Estimated.

M2 Velocity and Opportunity Cost



*Two-quarter moving average.

might have been expected given the increases in the opportunity costs of holding money balances. Even in the first quarter, when the velocity of M2 rose at a rate of about 2¾ percent, this monetary aggregate expanded somewhat faster than standard models would have predicted, perhaps owing to the flattening of the yield curve and declines in equity prices.

Policy Alternatives

(9) Incoming data over the intermeeting period led the staff to reduce significantly its projection for near-term growth of real activity, to nudge up its forecast for inflation, and to mark down its assumption for the path of monetary policy. The federal funds rate is now assumed to reach 3¼ percent by mid-year and to rise another 50 basis points by late 2006, a little less firming than currently built into markets and 25 basis points less cumulative action than assumed in the March Greenbook. In the current forecast, long-term nominal interest rates are projected to stay near current levels over the projection period, despite the assumed monetary policy tightening, as investors come to recognize that less firming will be necessary to contain inflation than they currently expect. Equity prices are expected to increase from their recent lower levels at a pace generating risk-adjusted returns in line with yields on fixed-income instruments, and the nominal trade-weighted index of the dollar's value against major foreign currencies is assumed to fall at an annualized rate of 2 percent. The price of West Texas Intermediate crude oil is forecast to be about flat on balance over the projection period and to finish 2006 close to $53 per barrel, approximately $3 above the level forecast in the March Greenbook. In these circumstances, real GDP is forecast to grow 3½ percent this year and next, a bit above the staff's estimate of the expansion of potential output. Nonetheless, resource slack persists over the forecast period, with the unemployment rate holding at 5¼ percent (a little above the staff's estimate of the natural rate of unemployment), in part as labor force participation rises in response to improving job prospects. With regard to inflation, the staff has read the sharp jump in the core CPI in March in large measure as the result of factors that are expected to have a much smaller effect on PCE prices. With some economic slack remaining, import prices rising less rapidly, and energy prices falling back somewhat as margins shrink, core PCE inflation is forecast to slow a little over the next two

Table 1: Alternative Language for the May FOMC Announcement

	March FOMC	Alternative A	Alternative B	Alternative C
Policy Decision	1. The Federal Open Market Committee decided today to raise its target for the federal funds rate by 25 basis points to 2-3/4 percent.	The Federal Open Market Committee decided today to raise its target for the federal funds rate ~~by~~ **a further** 25 basis points to **3** percent.	The Federal Open Market Committee decided today to raise its target for the federal funds rate by 25 basis points to **3** percent.	The Federal Open Market Committee decided today to raise its target for the federal funds rate by **50** basis points to **3-1/4** percent.
Rationale	2. The Committee believes that, even after this action, the stance of monetary policy remains accommodative and, coupled with robust underlying growth in productivity, is providing ongoing support to economic activity.	The Committee believes that, even after this action, the stance of monetary policy remains **somewhat** accommodative and, coupled with robust underlying growth in productivity, is providing ongoing support to economic activity.	[no change]	The Committee believes that, even after this action, the stance of monetary policy remains accommodative and~~, coupled with robust underlying growth in productivity,~~ is providing ongoing support to economic activity.
	3. Output evidently continues to grow at a solid pace despite the rise in energy prices, and labor market conditions continue to improve gradually.	**Recent data suggest that the solid pace of spending growth has slowed, partly in response to** ~~Output evidently continues to grow at a solid pace despite the rise in~~ **the earlier increases in** energy prices**.** ~~, and labor~~ **Labor** market conditions**, however, apparently** continue to improve gradually.	**Recent data suggest that the solid pace of spending growth has slowed somewhat, partly in response to** ~~Output evidently continues to grow at a solid pace despite the rise in~~ **the earlier increases in** energy prices. ~~, and labor~~ **Labor** market conditions**, however, apparently** continue to improve gradually.	Output ~~evidently~~ continues to grow at a ~~solid~~ pace ~~despite the rise in energy prices, and labor market conditions continue to improve gradually.~~ **sufficient to eliminate any remaining resource slack.**
	4. Though longer-term inflation expectations remain well contained, pressures on inflation have picked up in recent months and pricing power is more evident. The rise in energy prices, however, has not notably fed through to core consumer prices.	~~Though longer-term inflation expectations remain well contained, pressures~~ **While pressures** on inflation have picked up in recent months, and pricing power is more evident**, longer-term inflation expectations remain well contained.** ~~The rise in energy prices, however, has not notably fed through to core consumer prices.~~	~~Though longer-term inflation expectations remain well contained, pressures~~ **Pressures** on inflation have picked up in recent months, and pricing power is more evident. **Longer-term inflation expectations remain well contained**. ~~The rise in energy prices, however, has not notably fed through to core consumer prices.~~	Though longer-term inflation expectations remain well contained, pressures on inflation have picked up in recent months and pricing power is more evident. ~~The rise in energy prices, however, has not notably fed through to core consumer prices.~~
Assessment of Risk	5. The Committee perceives that, with appropriate monetary policy action, the upside and downside risks to the attainment of both sustainable growth and price stability should be kept roughly equal.	The Committee perceives that, with appropriate monetary policy ~~action~~, the upside and downside risks to the attainment of both sustainable growth and price stability should be kept roughly equal.	[no change]	~~The Committee perceives that, with appropriate monetary policy action, the upside and downside risks to the attainment of both sustainable growth and price stability should be kept roughly equal.~~
	6. With underlying inflation expected to be contained, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.	With underlying inflation expected to be ~~contained~~ **relatively low**, the Committee believes that **remaining** policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.	[no change]	~~With underlying inflation expected to be contained, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless,~~ **T**he Committee will respond to changes in economic prospects as needed to fulfill its obligation **to foster the attainment of both sustainable economic growth and** ~~maintain~~ price stability.

years. After a bulge in the first half of this year, overall PCE inflation is forecast to drop to a rate of about 1½ percent in the second half of 2005 and in 2006, and core PCE inflation is forecast to move down to around 1¾ percent late this year and to remain there in 2006.

(10) This Bluebook presents three policy alternatives for Committee consideration that are listed in Table 1. Under Alternatives A and B, the target federal funds rate would be increased 25 basis points at this meeting. Apart from updating the description of recent economic conditions, the statement under Alternative B could be quite similar to that issued following the March FOMC meeting. Alternative A would suggest that a near-term pause in the process of tightening could be in the cards. Under Alternative C, the federal funds rate would be boosted 50 basis points, and the language would be modified substantially. Some variant of the wording of this alternative might be appealing even if the Committee wished to tighten 25 basis points at this meeting if it also wanted to signal that its future actions spanned a wider range of outcomes than currently envisioned by market participants. More generally, the Committee could use constituent elements from more than one of these alternatives in constructing its statement.

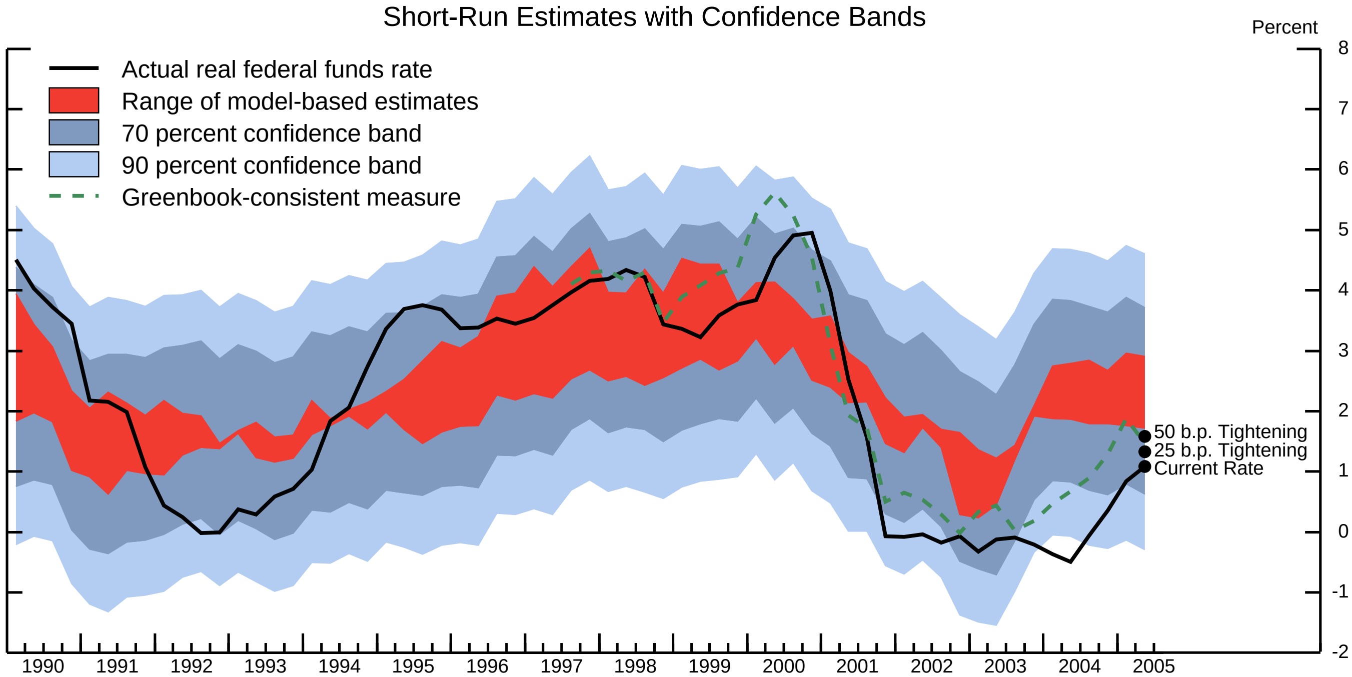
(11) Although recent economic data have pointed to noticeably less strength in spending and output in the first half of 2005 than anticipated at the time of the March meeting, the Committee may still be inclined to tighten policy another 25-basis-point notch at this meeting, as in **Alternative B**. The Committee might share the view of the staff that, even after additional policy firming, growth in economic activity will exceed, albeit only slightly, the rate of expansion of potential output in coming quarters. Such an outlook accords with staff estimates of the equilibrium real rate of interest, which remain above the current level of the real

federal funds rate (Chart 5).[3] Indeed, some relatively immediate increase in the nominal funds rate may be seen as necessary to prevent the real funds rate from declining as the result of the recent uptick in inflation. While the absence of much further progress in working down resource slack in this forecast may not be particularly attractive, policymakers might believe that the current situation is best described as one in which the economy has been hit by an adverse supply shock emanating from the ratcheting higher of oil prices. In such a circumstance, fate deals monetary policymakers an unappealing hand, in that pursuing greater resource utilization more aggressively could put price stability at risk and ensuring that inflation is kept in check could require a worsening of resource slack.

(12) The draft statement associated with Alternative B updates the wording of the March release in light of recent information on spending, employment, and inflation. As shown in Table 1, the Committee could indicate that "Recent data suggest that the solid pace of spending growth has slowed somewhat, partly in response to the earlier increases in energy prices. Labor market conditions, however, apparently continue to improve gradually." In view of the elevated CPI figures for the past couple of months, and more generally in recognition of increased uncertainty about the interpretation of recent inflation news, the draft wording for Alternative B also suggests that the Committee omit the view expressed in March that "the rise in energy prices, however, has not notably fed through to core consumer prices." (The Committee's consideration of such a change, however, could depend on the March reading on PCE prices, which will be released on the Friday before the meeting.) If the Committee drops that sentence, it might wish to reverse the order of the thoughts in the first sentence on inflation that appeared in

[3] Starting with this Bluebook, the TIPS-based measure of the equilibrium real interest rate incorporates an upward adjustment of 40 basis points to account for the anticipated average difference between total CPI inflation (the basis for TIPS indexation) and core PCE inflation (the basis for computing inflation expectations in the other measures).

Chart 5
Equilibrium Real Federal Funds Rate



Notes: The real federal funds rate is constructed as the difference between the quarterly average of the actual nominal funds rate and the log difference of the core PCE price index over the previous four quarters. For the current quarter, the nominal funds rate used is the target federal funds rate as of the Bluebook publication date.

Short-Run and Medium-Run Measures

	Current Estimate	*Previous Bluebook*
Short-Run Measures		
Greenbook-consistent measure	1.5	*2.2*
Single-equation model	1.7	*1.9*
Small structural model	2.9	*3.0*
Large model (FRB/US)	2.0	*2.1*
Confidence intervals for three model-based estimates		
70 percent confidence interval	0.6 - 3.7	
90 percent confidence interval	-0.3 - 4.6	
Medium-Run Measures		
TIPS-consistent measure	1.8*	*2.0**
Single-equation model	2.2	*2.2*
Small structural model	2.8	*2.9*
Confidence intervals for two model-based estimates		
70 percent confidence interval	1.5 - 3.4	
90 percent confidence interval	0.7 - 3.9	
Memo		
Actual real federal funds rate	1.09	*0.94*

Notes: Confidence intervals and bands reflect uncertainties about model specification, coefficients, and the level of potential output. The final column indicates the values for the current quarter based on the estimation for the previous Bluebook, except that the TIPS-consistent measure and the actual real funds rate are the values published in the previous Bluebook.
* Employs a 40 basis-point adjustment to account for the difference between total CPI inflation and core PCE inflation.

Equilibrium Real Rate Chart: Explanatory Notes

The equilibrium real rate is the real federal funds rate that, if maintained, would be projected to return output to its potential level over time. The short-run equilibrium rate is defined as the rate that would close the output gap in twelve quarters given a model's projection of the economy, and the medium-run concept is the value of the real funds rate projected to keep output at potential in seven years under the assumption that monetary policy acts to bring actual and potential output into line in the short run and then keep them equal thereafter. The real federal funds rate employs the log difference of the core PCE price index over the previous four quarters as a proxy for expected inflation, with the staff projection used for the current quarter. Since TIPS indexation is based on the total CPI, the TIPS-consistent measure incorporates an adjustment for the expected difference between CPI inflation and core PCE inflation.

Measure	Description
Single-Equation Model	The measure of the equilibrium real rate in the single-equation model is based on an estimated aggregate-demand relationship between the current value of the output gap and its lagged values as well as the lagged values of the real federal funds rate. In light of this model's simple structure, the short-run measure of the equilibrium real rate depends only on the recent position of output relative to potential, and the medium-run measure is virtually constant.
Small Structural Model	The small-scale model of the economy consists of equations for five variables: the output gap, the equity premium, the federal budget surplus, the trend growth rate of output, and the real bond yield. Unlike the estimates from the single-equation model, values of the equilibrium real rate also depend directly on conditions associated with output growth, fiscal policy, and capital markets.
Large Model (FRB/US)	Estimates of the equilibrium real rate using FRB/US—the staff's large-scale econometric model of the U.S. economy—depend on a very broad array of economic factors, some of which take the form of projected values of the model's exogenous variables. These projections make use of several simple forecasting rules which are appropriate for the three-year horizon relevant for the short-run concept but are less sensible over longer horizons. Thus, we report only the short-run measure for the FRB/US model.
Greenbook-consistent	Measures of the equilibrium real rate cannot be directly obtained from the Greenbook forecast, because the Greenbook is not based on a formal model. Rather, we use the FRB/US model in conjunction with an extended version of the Greenbook forecast to derive a Greenbook-consistent measure. FRB/US is first add-factored so that its simulation matches the extended Greenbook forecast, and then a second simulation is run off this baseline to determine the value of the real federal funds rate that closes the output gap. The medium-run concept of the equilibrium real rate is not computed because it requires a relatively long extension of the Greenbook forecast.
TIPS-consistent	Yields on TIPS (Treasury Inflation-Protected Securities) incorporate investors' expectations of the future path of real interest rates. The seven-year instantaneous real forward rate derived from TIPS yields as of the Bluebook publication date reflects the short-term real interest rate expected to prevail in seven years. This forward rate is adjusted down for a term premium, assumed to be 70 basis points, and adjusted up for the difference between total CPI inflation and core PCE inflation, projected to be 40 basis points in the medium run.

the March announcement to avoid communicating an excessively pessimistic view of inflation prospects. Apart from such updating, the announcement could be similar to the one issued after the March meeting. In particular, it would seem—assuming that members share an economic outlook broadly in line with that of the staff—that the Committee could retain its assessment of balanced risks to both sustainable growth and price stability under the assumption of "appropriate monetary policy action" that it adopted in March as well as its judgment that removal of policy accommodation can proceed at a measured pace.[4]

(13) Investors appear certain that the Committee will boost the target federal funds rate 25 basis points at this meeting. Also, most expect that the FOMC will not make major changes to its announcement, apart from those necessary to align the description of economic conditions with newly available information. While a growing minority of market participants in recent days have come to expect the "measured pace" language to be shed, it is hard to tell whether they would view such an outcome as a signal of a stepped-up pace of firming or of a pause. Assuming that those differing interpretations about offset each other, there is little reason to suspect that the market reaction to the adoption of Alternative B would be significant.

(14) If the Committee is reasonably sure that inflation will be well contained but is concerned that spending and output growth may have lost significant momentum of late and that progress in reducing resource slack may have stalled, it

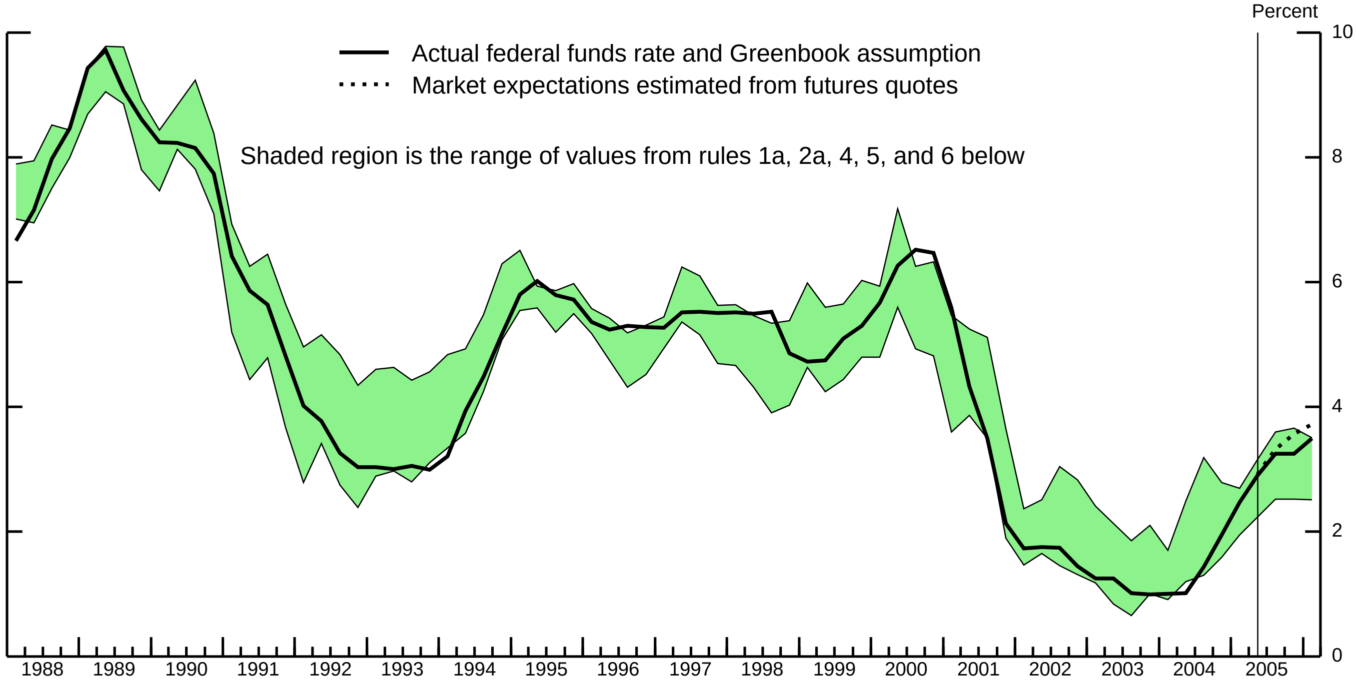
---

[4] Members might interpret the adverse news over the intermeeting period as raising the probabilities of outsized deviations of spending growth below that which is sustainable and inflation above that consistent with price stability. Such skewed risks might be expected to remain even after policy is set appropriately, implying that the Committee would view the risks to its two objectives individually as unbalanced—and in a manner that has offsetting implications for policy. However, much was made in markets of the Committee's explicit conditioning of the risk assessment on appropriate policy and the conclusion generally drawn was that it was close to tautological. While the selection of unbalanced risks is logically possible in the presence of significantly skewed probabilities, another change on the heels of the introduction of an explicit reference to appropriate policy would likely bewilder market participants.

may wish to combine a 25-basis-point firming of policy at this meeting with statement language that strongly suggests the possibility of a pause in firming at the June meeting, as in **Alternative A**. True, the Committee has repeatedly conveyed in its minutes that the "measured pace" language is consistent with a pause in the process of tightening, and market participants have priced in high odds of such a possibility later this year. But it cannot be ruled out that the present configuration of market prices is conditioned on the expectation that the statement will be used to signal the possibility of a pause in policy tightening. If so, the Committee might see merit in being more explicit. A more gradual elimination of accommodation might be appealing in light of the downward revision of nearly ¾ percentage point in the short-run measure of the equilibrium real interest rate consistent with the Greenbook forecast (the first line in the table in Chart 5); by that index, the real funds rate would be less than ¼ percentage point below its estimated equilibrium value after implementation of this alternative. In addition, a 3 percent nominal federal funds rate would sit high in the range of policy recommendations from simple policy rules provided in Chart 6—and especially so if members viewed 2 percent inflation in the core PCE index as an acceptable outcome. A gloomy view of the risks to the outlook for spending would presumably also incline the Committee to signal a pause. For instance, economic activity could be weaker in coming quarters than in the staff forecast for the reasons explored in the "sentiment slump" and "sentiment slump with financial spillover" scenarios in the Greenbook. As another possibility, members may be of the view that the slowing in spending and activity of late owes less to elevated energy prices and more to the cumulative monetary policy restraint put in place since June of last year than is implicit in the Greenbook.[5] Pausing to assess the effects already in the pipeline from cumulative

[5] While most longer-term yields remain below their levels just before tightening commenced, short- and intermediate-term yields are now much higher. Those latter increases may be crimping spending more than the staff has allowed for, either because the economy is now more sensitive to

Chart 6
Actual and Assumed Federal Funds Rate and Range of Values from Policy Rules and Futures Markets



Values of the Federal Funds Rate from Policy Rules and Futures Markets

	2005 Q1	2005 Q2	2005 Q3	2005 Q4	2006 Q1
Rules with Imposed Coefficients					
1. Baseline Taylor Rule: a) π*=1.5	2.70	3.16	3.60	3.66	3.51
b) π*=2	2.45	2.91	3.35	3.41	3.26
2. Aggressive Taylor Rule: a) π*=1.5	2.12	2.56	3.04	3.16	3.03
b) π*=2	1.87	2.31	2.79	2.91	2.78
3. First-difference Rule: a) π*=1.5	2.31	2.80	3.09	3.32	3.51
b) π*=2	2.06	2.55	2.59	2.57	2.51
Rules with Estimated Coefficients					
4. Outcome-based Rule	2.10	2.66	2.90	3.05	3.04
5. Greenbook Forecast-based Rule	2.24	2.63	2.66	2.64	2.61
6. FOMC Forecast-based Rule	1.95	2.24	2.53	2.52	2.51
7. TIPS-based Rule	2.48	3.04			
Memo					
Expected federal funds rate derived from futures		2.92	3.32	3.57	3.73
Actual federal funds rate and Greenbook assumption	2.47	2.90	3.25	3.25	3.50

Note: Rule prescriptions for 2005Q2 through 2006Q1 are calculated using current Greenbook projections for inflation and the output gap (or unemployment gap). For rules that contain the lagged funds rate, the rule's previous prescription for the funds rate is used to compute prescriptions for 2005Q3 through 2006Q1. It is assumed that there is no feedback from the rule prescriptions to the Greenbook projections through 2006Q1. The TIPS-based rule is computed using average TIPS and nominal Treasury yields to date.

Policy Rules Chart: Explanatory Notes

In all of the rules below, i_t denotes the federal funds rate, π_t the staff estimate at date t of trailing four-quarter core PCE inflation, $(y_t\text{-}y_t^*)$ the staff estimate (at date t) of the output gap, π^* policymakers' long-run objective for inflation, i_{t-1} the lagged federal funds rate, ε_{t-1} the residual from the rule's prescription the previous quarter, $(y_{t+3|t}\text{-}y_{t+3|t}^*)$ the staff's three-quarter-ahead forecast of the output gap, $(\Delta y_{t+3|t}\text{-}\Delta y_{t+3|t}^*)$ the staff's forecast of output growth less potential output growth three quarters ahead, $\pi_{t+3|t}$ a three-quarter-ahead forecast of inflation, and $(u_{t+3|t}\text{-}u_{t+3|t}^*)$ a three-quarter-ahead forecast of the unemployment gap. Data are quarterly averages taken from the Greenbook and staff memoranda closest to the middle of each quarter, unless otherwise noted.

Rule	Specification	Root-mean-square error	
		1988:1-2005:1	2001:1-2005:1
Rules with Imposed Coefficients			
1. Baseline Taylor Rule	$i_t = 2 + \pi_t + 0.5(y_t\text{-}y_t^*) + 0.5(\pi_t\text{-}\pi^*)$	.97[a]	1.08[a]
2. Aggressive Taylor Rule	$i_t = 2 + \pi_t + (y_t\text{-}y_t^*) + 0.5(\pi_t\text{-}\pi^*)$	.68[a]	.64[a]
3. First-difference Rule	$i_t = i_{t-1} + 0.5(\Delta y_{t+3\|t}\text{-}\Delta y_{t+3\|t}^*) + 0.5(\pi_{t+3\|t}\text{-}\pi^*)$	.97[a]	.43[a]
Rules with Estimated Coefficients			
4. Estimated Outcome-based Rule Rule includes both lagged interest rate and serial correlation in residual.	$i_t = .52i_{t-1} + 0.48\,[1.23 + 0.96(y_t\text{-}y_t^*) + 1.47\pi_t] + 0.51\varepsilon_{t-1}$	.23	.26
5. Estimated Greenbook Forecast-based Rule Rule includes both lagged interest rate and serial correlation in residual.	$i_t = .71i_{t-1} + 0.29\,[0.66 + 1.05(y_{t+3\|t}\text{-}y_{t+3\|t}^*) + 1.61\pi_{t+3\|t}] + 0.35\varepsilon_{t-1}$	.25	.27
6. Estimated FOMC Forecast-based Rule Unemployment and inflation forecasts are from semiannual "central tendency" of FOMC forecasts, interpolated if necessary to yield 3-qtr-ahead values; u_t^* forecast is from staff memoranda. Inflation forecasts are adjusted to core PCE deflator basis. Rule is estimated at semiannual frequency, and projected forward using Greenbook forecasts.	$i_t = 0.47i_{t-2} + 0.53\,[0.40 - 2.05(u_{t+3\|t}\text{-}u_{t+3\|t}^*) + 1.57\pi_{t+3\|t}]$	.45	.60
7. Estimated TIPS-based Rule $\pi_{comp5\|t}$ denotes the time-t difference between 5-yr nominal Treasury yields and TIPS. Sample begins in 1999 due to TIPS volatility in 1997-8.	$i_t = 0.97i_{t-1} + [-1.23 + 0.68\pi_{comp5\|t}]$	.41[b]	.43

[a] RMSE for rules with imposed coefficients is calculated setting $\pi^*=1.5$.

[b] RMSE for TIPS-based rule is calculated for 1999:1-2005:1.

policy restraint might therefore be in order, especially in light of the recent behavior of the stock market, bond spreads, and the foreign exchange value of the dollar.

(15) The statement accompanying selection of Alternative A could employ virtually the same text on aggregate spending and labor market conditions suggested for Alternative B—but omitting the word "somewhat"—as follows: "Recent data suggest that the solid pace of spending growth has slowed, partly in response to the earlier increases in energy prices. Labor market conditions, however, apparently continue to improve gradually." Regarding inflation, the sentence offered under Alternative B could be modified under this alternative by saying, "While pressures on inflation have picked up in recent months and pricing power is more evident, longer-term inflation expectations remain well contained." Also, consistent with a relatively benign view of inflation, the penultimate sentence could be changed to begin "With underlying inflation expected to be relatively low…" The second sentence of the announcement could be altered to indicate that "the stance of monetary policy remains somewhat accommodative," implying that the amount of policy accommodation still to be removed had been reduced. Correspondingly, in the second-to-last sentence, the Committee could refer to "remaining policy accommodation" instead of just to "policy accommodation." Finally, to reinforce that the trajectory for policy could involve a near-term pause, the statement could refer to "appropriate monetary policy" instead of "appropriate monetary policy action" in the assessment of risks.

(16) Market participants would not likely miss the hints in the announcement of Alternative A of a higher likelihood of a pause in June. Intermediate- and longer-term interest rates probably would drop appreciably, and equity markets would rally. The value of the dollar on foreign exchange markets would decrease along with the drop in U.S. yields. These market moves might be more sizable if investors read the

short rates or the relative importance of longer-term yields has been overstated historically because in prior episodes they covaried closely with short rates.

statement as evidence that inflation pressures could be less intense than previously perceived. In any event, market participants would likely be especially sensitive to readings on inflation over the upcoming intermeeting period.

(17) Should the Committee be particularly concerned that underlying inflation pressures may be intensifying, it might be attracted to the 50-basis-point increase in the federal funds rate of **Alternative C.** Members may be more inclined than the staff to assign signal, rather than noise, to the jump in the March CPI. Also, prices of far-dated crude oil futures contracts have remained elevated over the period since the last Greenbook, which could be seen as implying little likelihood of a significant unwinding of the previous run-up in energy costs. As discussed in an alternative scenario in the Greenbook, firms might pass on to their customers more of the higher energy costs than in the baseline forecast. Moreover, actual productivity growth appears to have slowed over recent quarters, and Committee members might be concerned that structural labor productivity will decelerate by more than incorporated in the staff projection. Taken together, higher energy prices and slower underlying productivity growth may be viewed as an especially adverse supply shock that lowers output in a manner that should be accepted rather than resisted. Abstracting from such gloom about aggregate supply, last summer's episode, as well as broader economic experience, suggests that "soft patches" crop up from time to time and do not necessarily threaten robust expansion of aggregate demand over a longer period. If the Committee believes that economic growth is likely to remain solid, it could move to check elevated inflation pressures by more vigorous policy action at this meeting. The words of Alternative C (from row 2 down) might have an appeal even if the Committee chose to firm 25 basis points at this meeting. A "C-lite" approach would convey a sense that the Committee wished to ensure that the market understood that future policy options spanned a wider range than the current statement might appear to some to allow. As long as references to the

accommodative stance of policy remain elsewhere in the statement, market participants would interpret that flexibility as introducing a tilt toward a firmer, rather than an easier, funds rate. Removing all forward-looking guidance would require excising characterizations of the degree of accommodation as well as the "measured pace" language.

(18) As indicated in Table 1, the Committee could consider a number of alterations to its statement in association with the selection of Alternative C to convey a heightened concern about inflation prospects. For example, the Committee could strike the reference to "robust underlying growth in productivity" in the second sentence. In addition, it could choose not to focus on the apparent recent slowing in output growth and simply note that "output continues to grow at a pace sufficient to eliminate any remaining resource slack." With regard to inflation, the Committee would probably wish to delete the sentence in the previous announcement that "The rise in energy prices, however, has not notably fed through to core consumer prices." Given the conditioning assumption of "appropriate monetary policy," the Committee could retain its assessment that the risks to attainment of sustainable growth and price stability are balanced. However, if the Committee wanted to gain flexibility to tighten policy at a faster pace in the future, it presumably would delete the risk assessment and the sentence expressing its belief that policy accommodation can be removed at a pace that is likely to be measured. (The characterization that policy is accommodative elsewhere in the statement would remain as the sole signal of the direction of future action.) Even after these deletions, the Committee might wish to underscore that its future actions would depend on evolving economic outcomes by indicating, with a nod to its dual objectives, that "The Committee will respond to changes in economic prospects as needed to fulfill its obligation to foster the attainment of both sustainable economic growth and price stability."

(19) The selection of the 50-basis-point increase in the federal funds rate of Alternative C would come as a considerable surprise to market participants. That hike, coupled with some or all of the changes in announcement wording discussed in the previous paragraph, would prompt investors to revise sharply upward their expectations for the path of monetary policy in the near term and likely beyond, and thus would have a pronounced effect on financial markets more generally. Interest rates would rise substantially across the yield curve, equity prices would probably decline, and the foreign exchange value of the dollar could increase significantly. The same language associated with a quarter-point increase in the funds rate would also send markets in the same direction, but to a lesser extent.

Money and Debt Forecasts

(20) Under the Greenbook forecast, rising short-term interest rates are expected to be accompanied by increasing opportunity costs of holding monetary assets as deposit interest rates, particularly those on liquid deposits, lag increases in market yields. As a result, growth of M2 is projected to remain weak, averaging just 2¾ percent for 2005 as a whole and 4 percent in 2006. Over the forecast period, the debt of nonfinancial corporations is projected to expand at a moderate rate. External financing needs are expected to be held down this year by inflows from abroad in response to temporary favorable tax treatment of repatriated earnings and high levels of liquid assets. In 2006, nonfinancial corporations are expected to tap credit markets to a somewhat greater extent, and net equity runoffs are projected to diminish. Household sector borrowing is anticipated to decelerate in coming quarters as house price increases slow and households begin to reverse the sharp decline in the saving rate that has occurred in recent years. In 2005 and 2006, federal debt is expected to grow at a pace a little below the 9 percent rate of increase

Alternative Growth Rates for M2
(percent, annual rate)

		Raise 25 bp*	Raise 50 bp**	Greenbook***
Monthly Growth Rates				
	Jan-05	2.5	2.5	2.5
	Feb-05	2.6	2.6	2.6
	Mar-05	3.6	3.6	3.6
	Apr-05	2.0	2.0	2.0
	May-05	3.8	3.5	3.8
	Jun-05	2.5	1.8	2.5
	Jul-05	1.4	0.6	1.0
	Aug-05	2.3	1.6	1.5
	Sep-05	2.8	2.2	2.0
Quarterly Growth Rates				
	2004 Q4	5.7	5.7	5.7
	2005 Q1	3.6	3.6	3.6
	2005 Q2	2.9	2.7	2.9
	2005 Q3	2.3	1.6	1.9
Annual Growth Rates				
	2004	5.2	5.2	5.2
	2005			2.7
	2006			4.0
Growth From	To			
Dec-04	Apr-05	2.7	2.7	2.7
Apr-05	Sep-05	2.6	2.0	2.2

* Increase of 25 basis points in the target federal funds rate at this meeting and no change thereafter.
** Increase of 50 basis points in the target federal funds rate at this meeting and no change thereafter.
*** This forecast is consistent with nominal GDP and interest rates in the Greenbook forecast.

of 2004. Overall, the debt of domestic nonfinancial sectors is projected to expand 7½ percent in 2005 and 6½ percent in 2006.

Directive and Balance of Risks Statement

(21) Draft language for the directive and draft risk assessments identical to those presented in Table 1 are provided below.

Directive Wording

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee in the immediate future seeks conditions in reserve markets consistent with MAINTAINING/increasing/REDUCING the federal funds rate AT/to an average of around ____________ ~~2-3/4~~ percent.

Risk Assessments

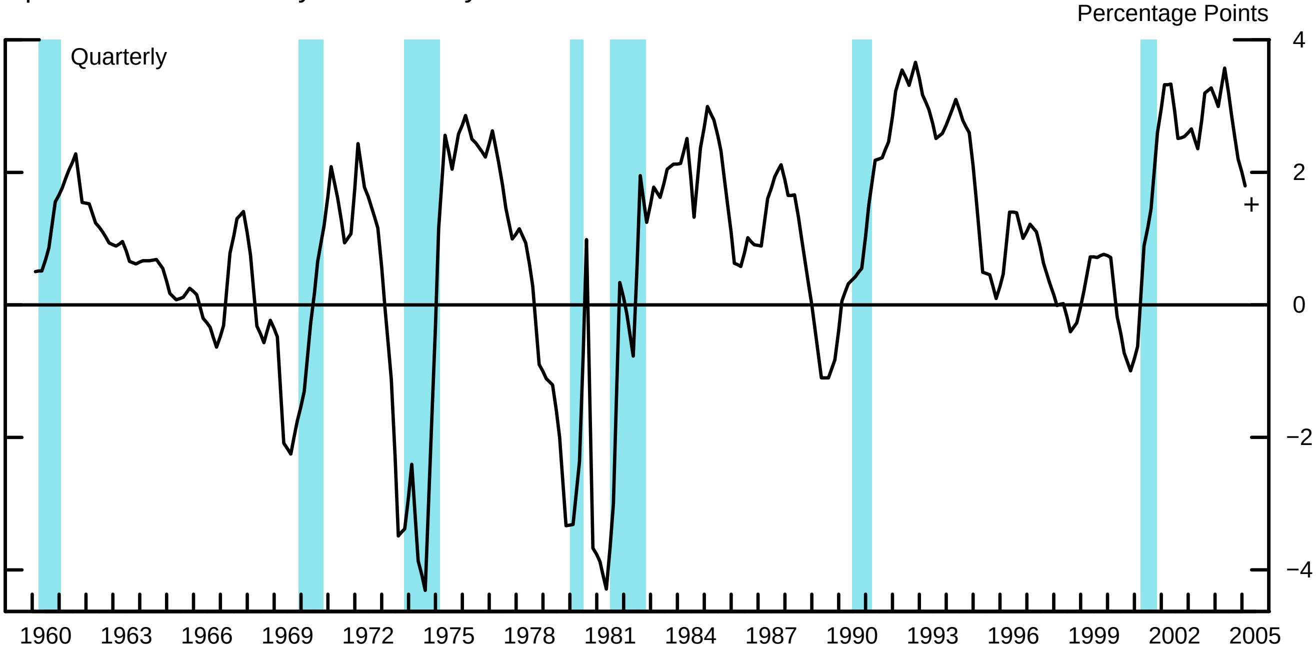
A. The Committee perceives that, with appropriate monetary policy, the upside and downside risks to the attainment of both sustainable growth and price stability should be kept roughly equal. With underlying inflation expected to be relatively low, the Committee believes that remaining policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.

B. The Committee perceives that, with appropriate monetary policy action, the upside and downside risks to the attainment of both sustainable growth and price stability should be kept roughly equal. With underlying inflation expected to be contained, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.

C. The Committee will respond to changes in economic prospects as needed to fulfill its obligation to foster the attainment of both sustainable economic growth and price stability.

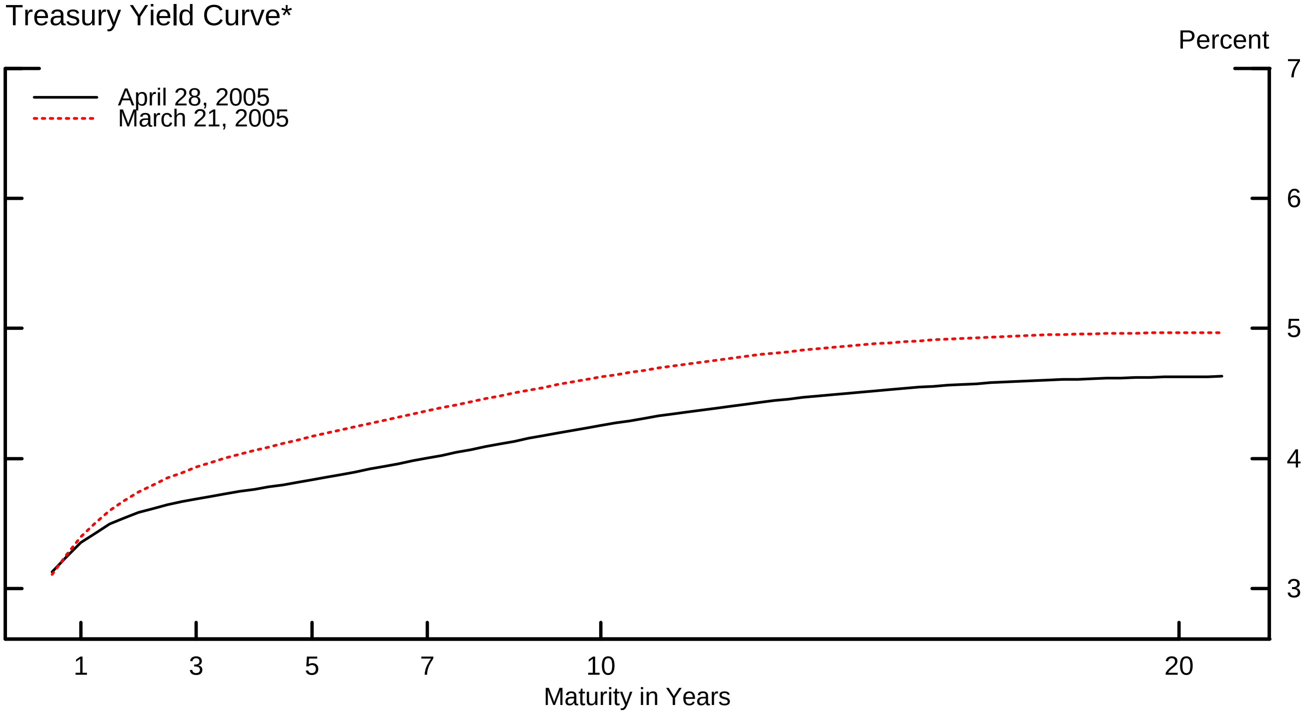
Treasury Yield Curve

Spread Between Ten−year Treasury Yield and Federal Funds Rate



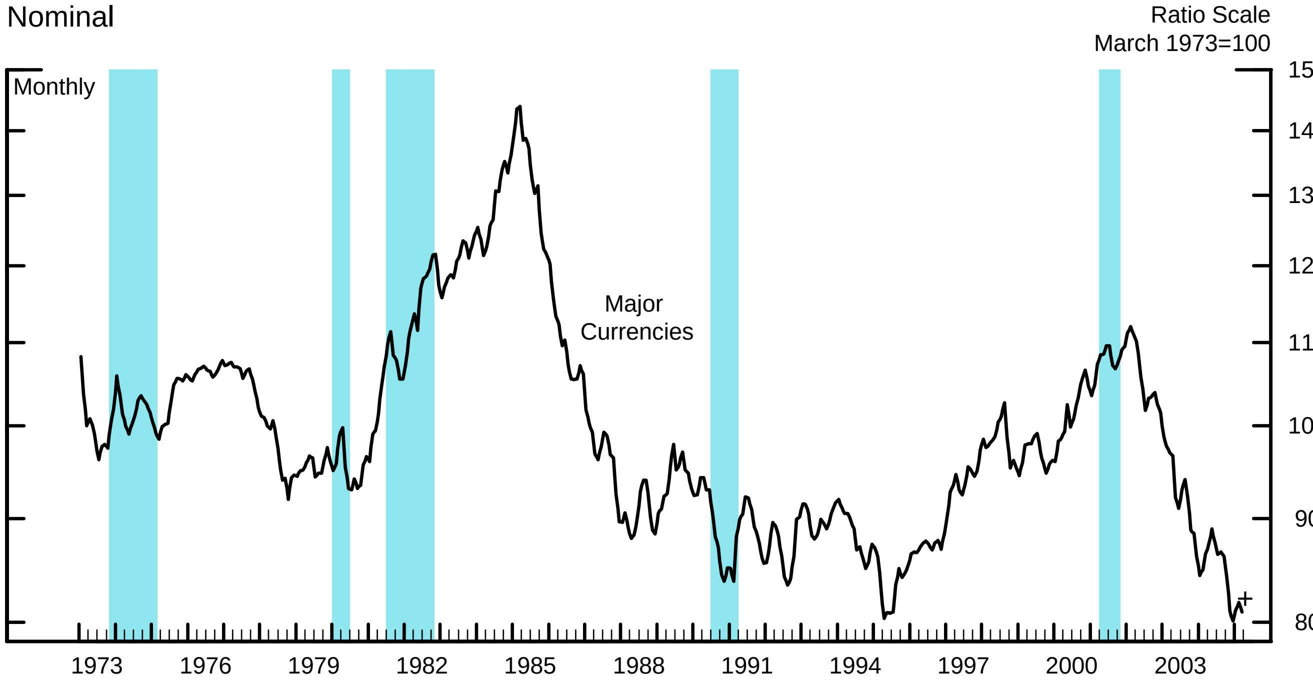
+ Denotes most recent weekly value.
Note. Blue shaded regions denote NBER−dated recessions.

Treasury Yield Curve*

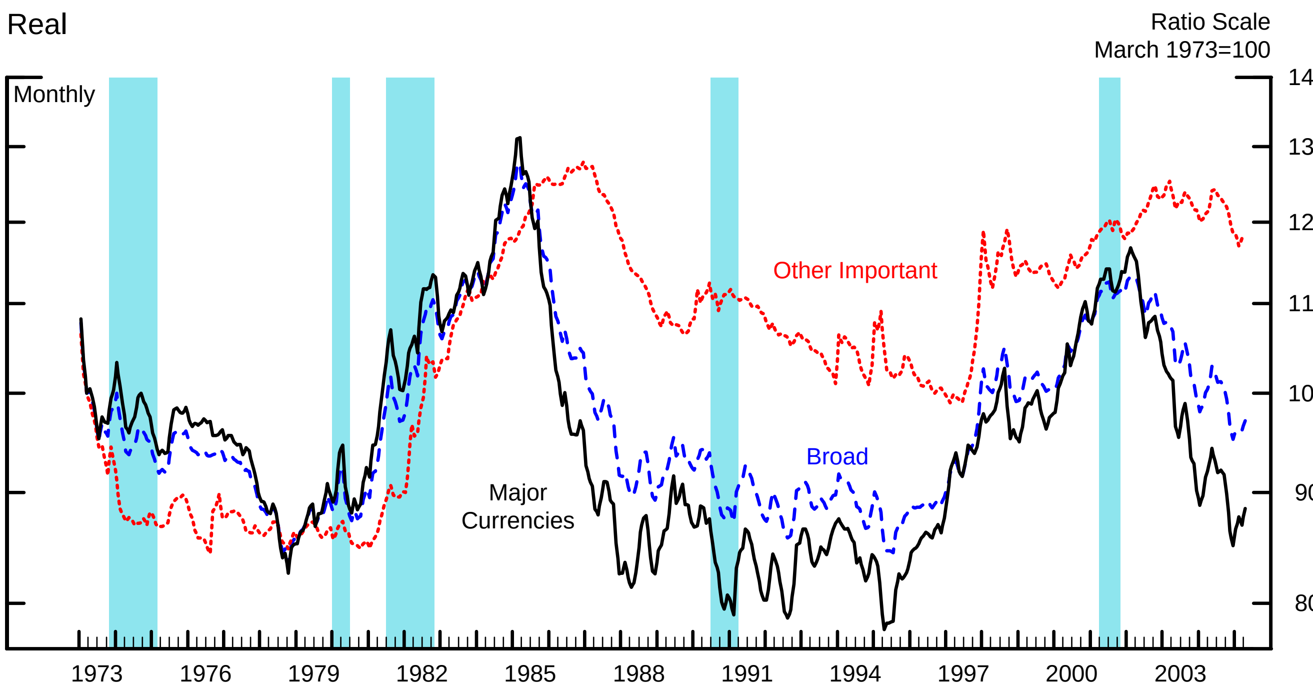


*Smoothed yield curve estimated from off−the−run Treasury coupon securities. Yields shown are those on notional par Treasury securities with semi−annual coupons.

Dollar Exchange Rate Indexes

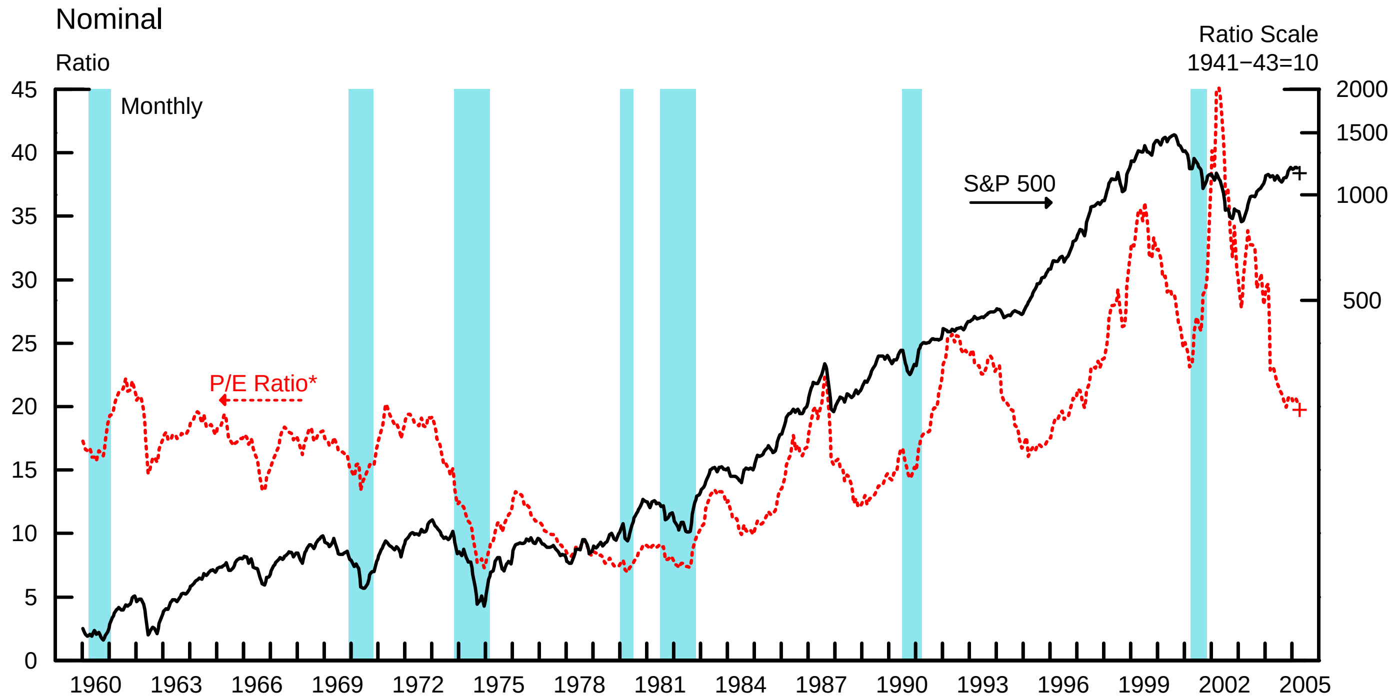


+ Denotes most recent weekly value.

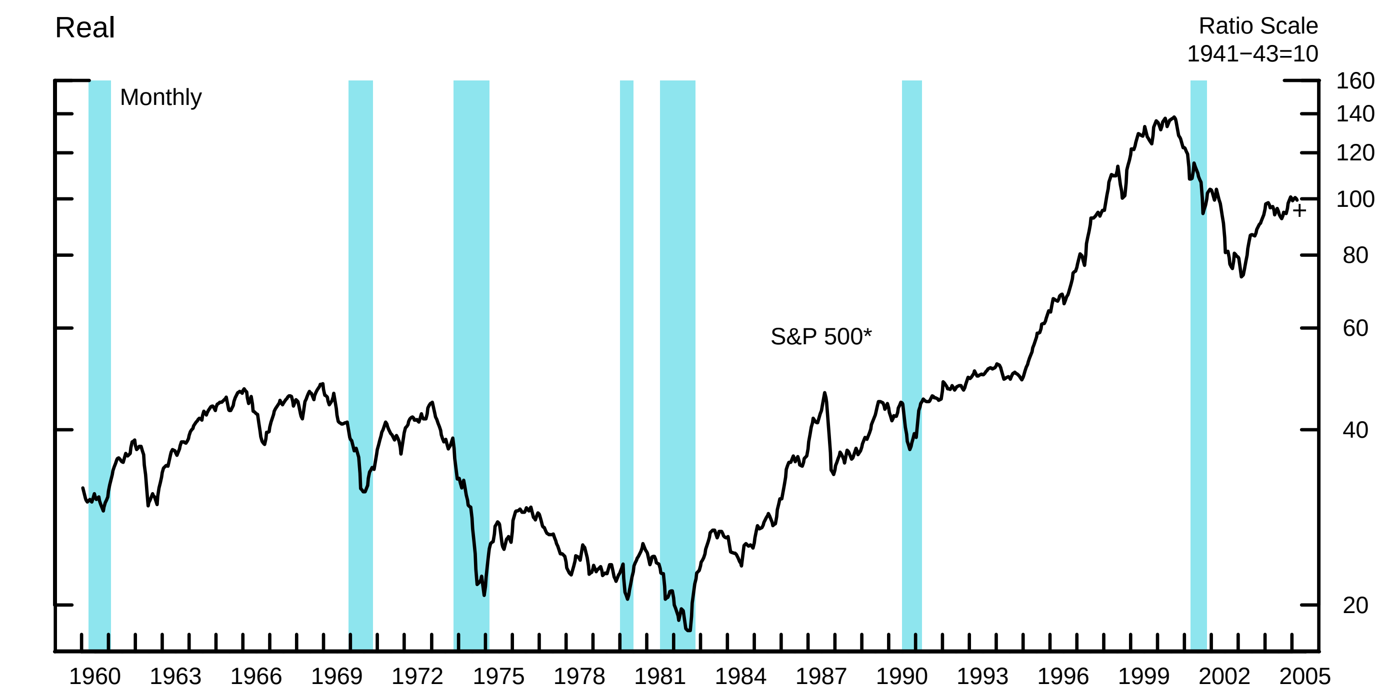


Note. The major currencies index is the trade−weighted average of currencies of the Euro area, Canada, Japan, the U.K., Switzerland, Australia, and Sweden. The other important trading partners index is the trade−weighted average of currencies of 19 other important trading partners. The Broad index is the trade−weighted average of currencies of all important trading partners. Real indexes have been adjusted for relative changes in U.S. and foreign consumer prices. Blue shaded regions denote NBER−dated recessions.

Stock Indexes



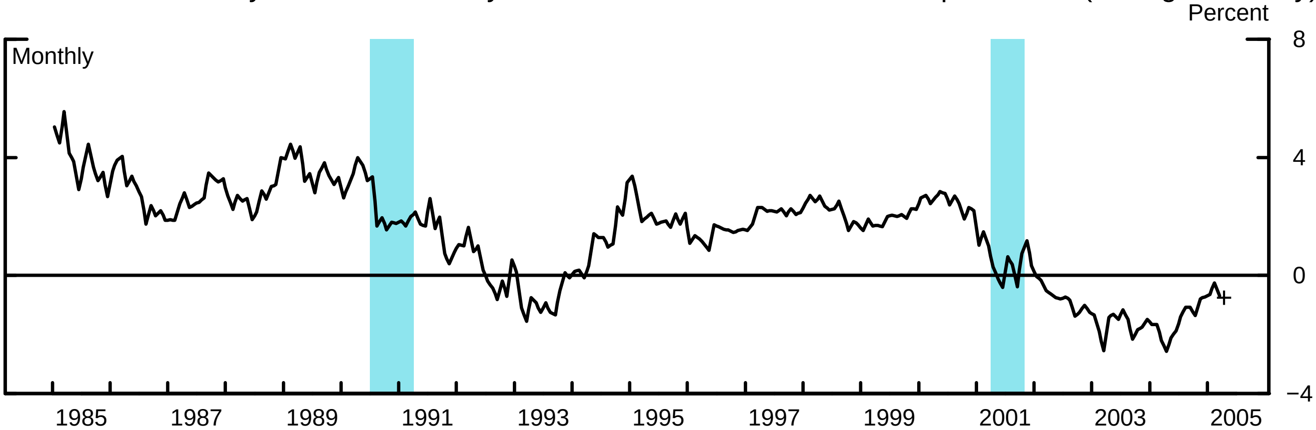
* Based on trailing four−quarter earnings.
+ Denotes most recent weekly value.



* Deflated by the CPI.
+ Denotes most recent weekly value.
Note. Blue shaded regions denote NBER−dated recessions.

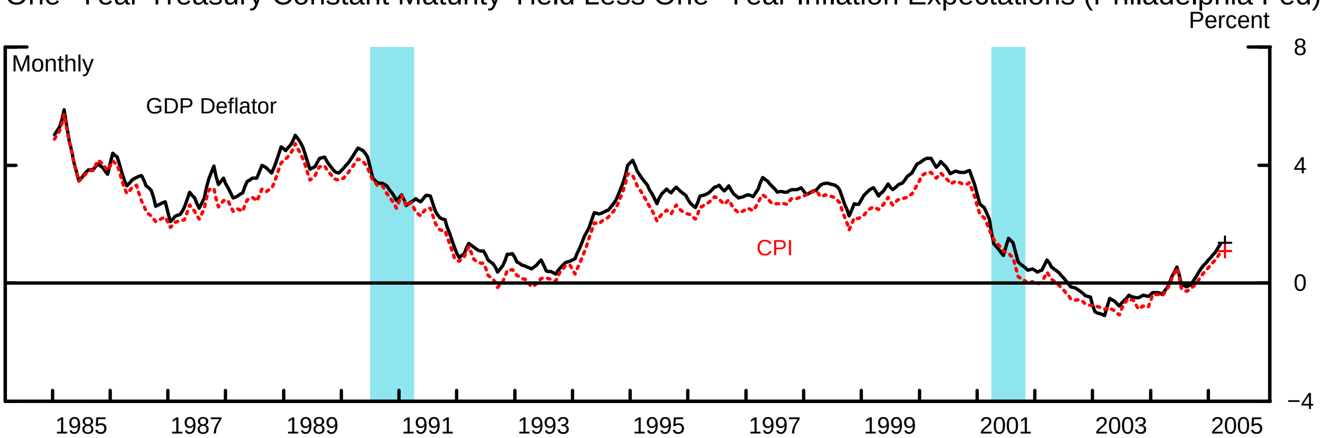
One−Year Real Interest Rates

One−Year Treasury Constant Maturity Yield Less One−Year Inflation Expectations (Michigan Survey)*



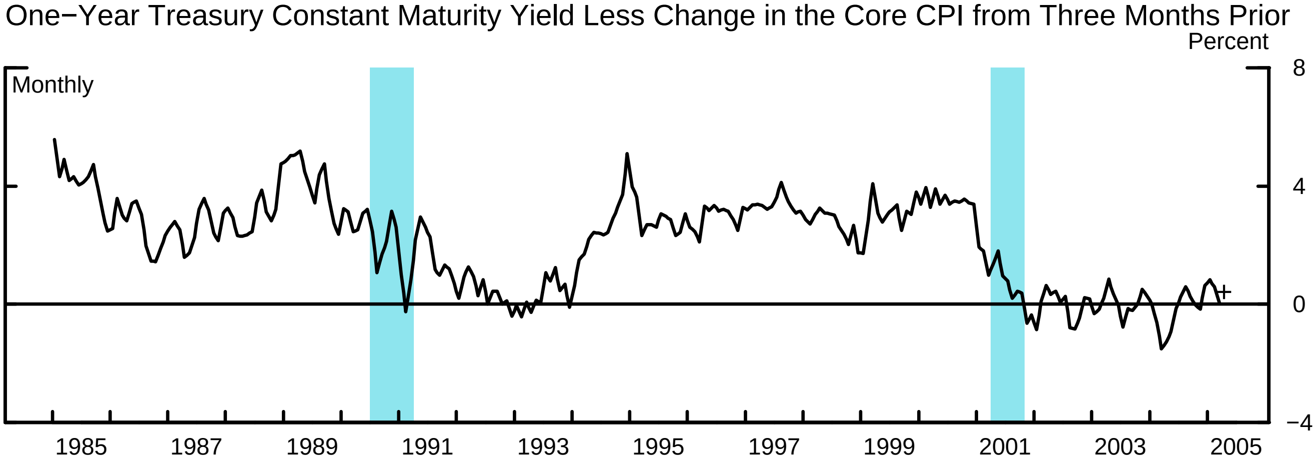
* Mean value of respondents.

One−Year Treasury Constant Maturity Yield Less One−Year Inflation Expectations (Philadelphia Fed)*



* ASA/NBER quarterly survey until 1990:Q1; Philadelphia Federal Reserve Bank Survey of Professional Forecasters thereafter. Median value of respondents.

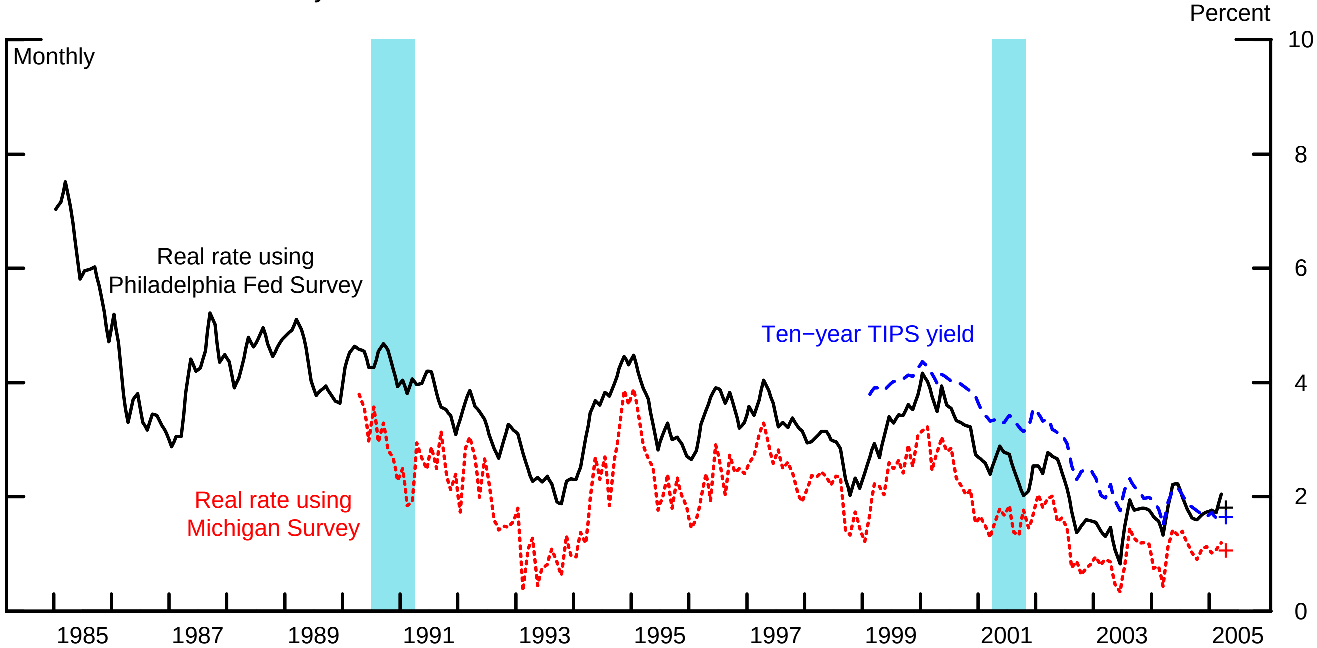
One−Year Treasury Constant Maturity Yield Less Change in the Core CPI from Three Months Prior



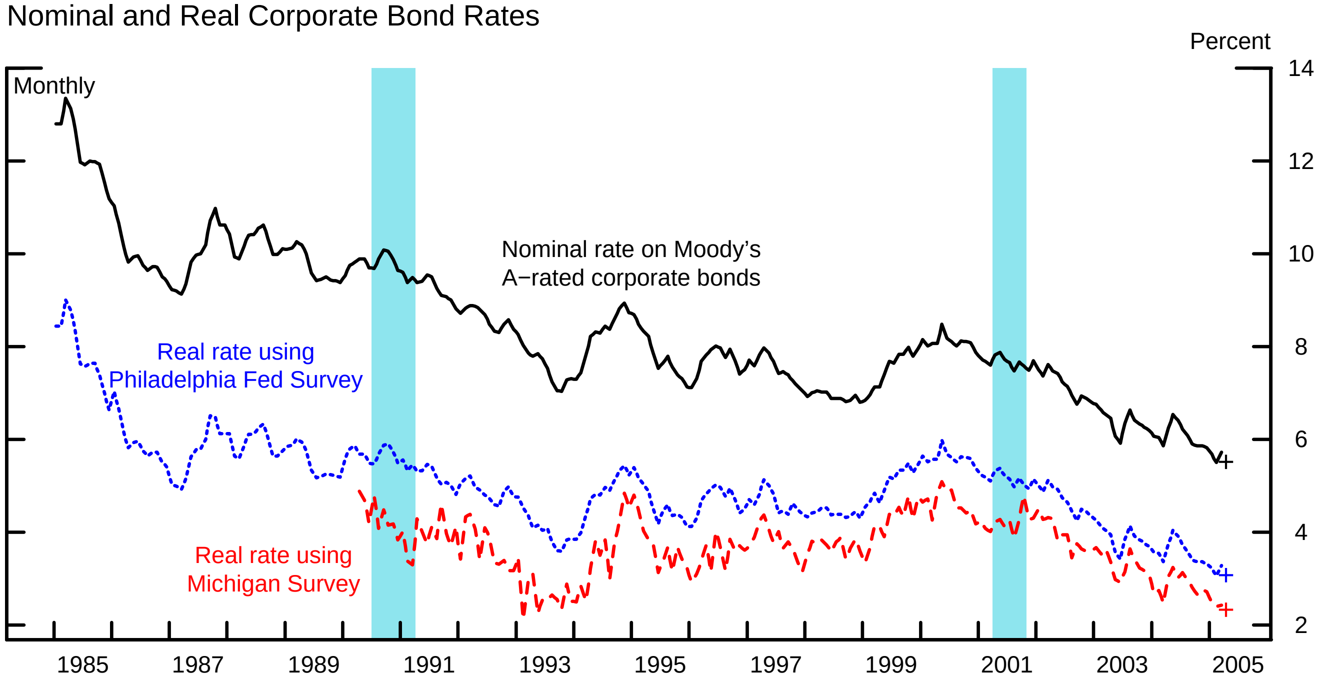
\+ Denotes most recent weekly Treasury constant maturity yield less most recent inflation expectation.
Note. Blue shaded regions denote NBER−dated recessions.

Long−Term Real Interest Rates*

Real Ten−Year Treasury Yields



Nominal and Real Corporate Bond Rates



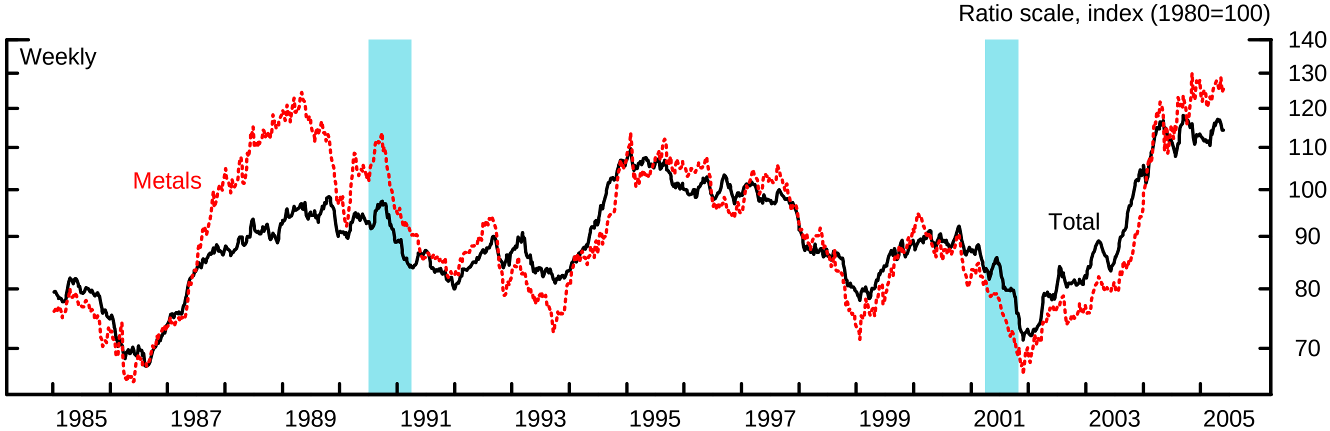
* For real rates, measures using the Philadelphia Fed Survey employ the ten−year inflation expectations from the Blue Chip Survey until April 1991 and the Philadelphia Federal Reserve Bank Survey of Professional Forecasters thereafter (median value of respondents). Measures using the Michigan Survey employ the five− to ten−year inflation expectations from that survey (mean value of respondents).

\+ For TIPS and nominal corporate rate, denotes the most recent weekly value. For other real rate series, denotes the most recent weekly nominal yield less the most recent inflation expectation.

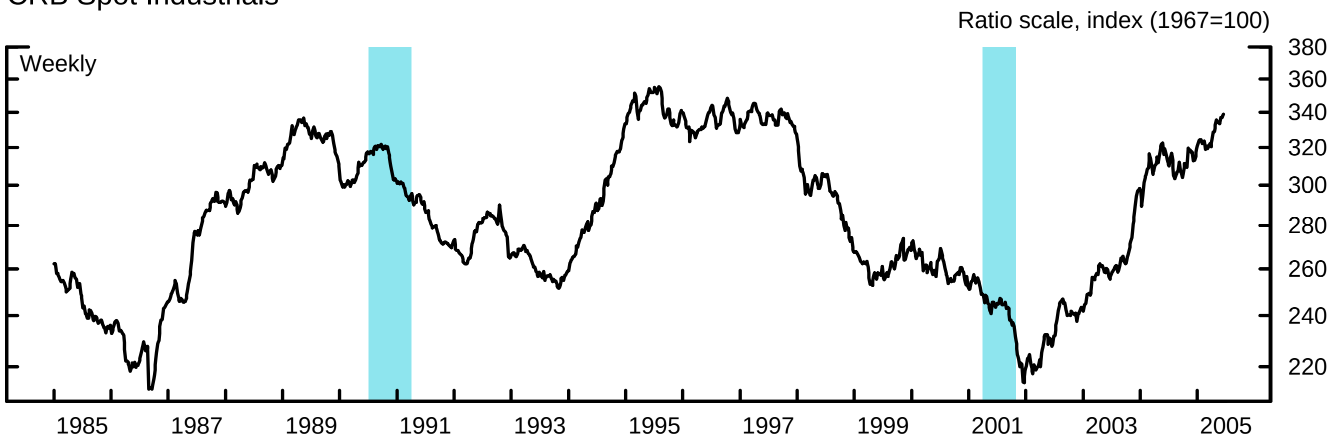
Note. Blue shaded regions denote NBER−dated recessions.

Commodity Price Measures

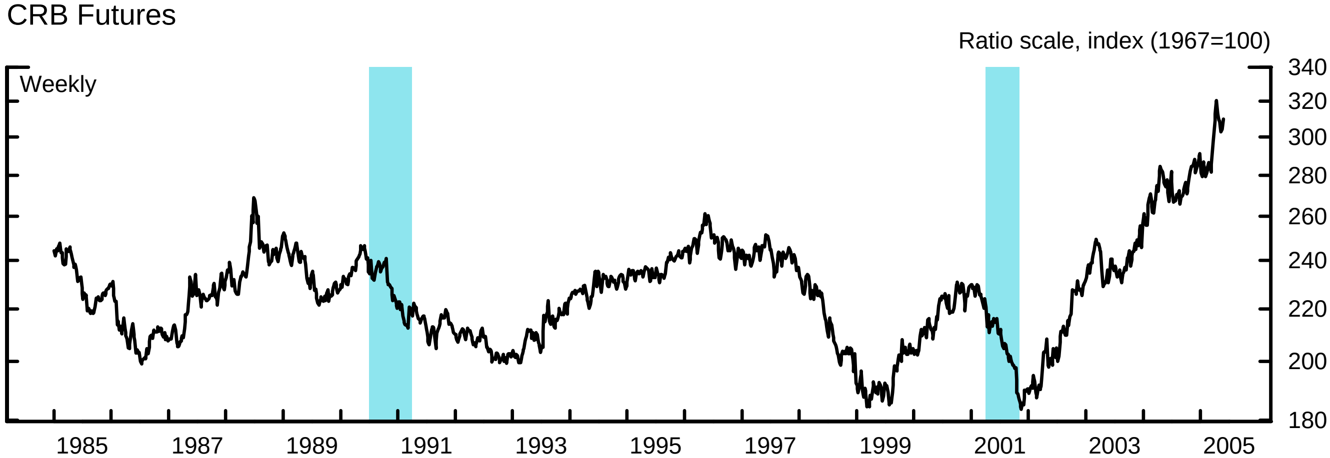
Journal of Commerce Index



CRB Spot Industrials

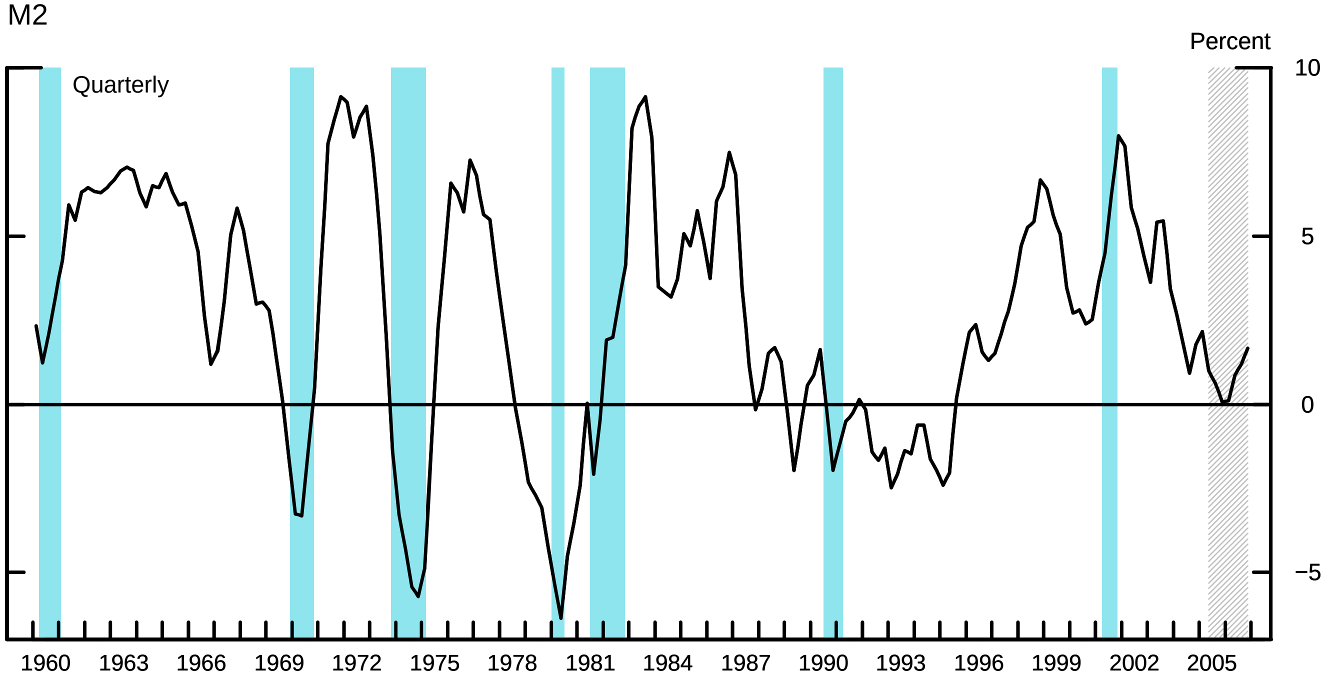


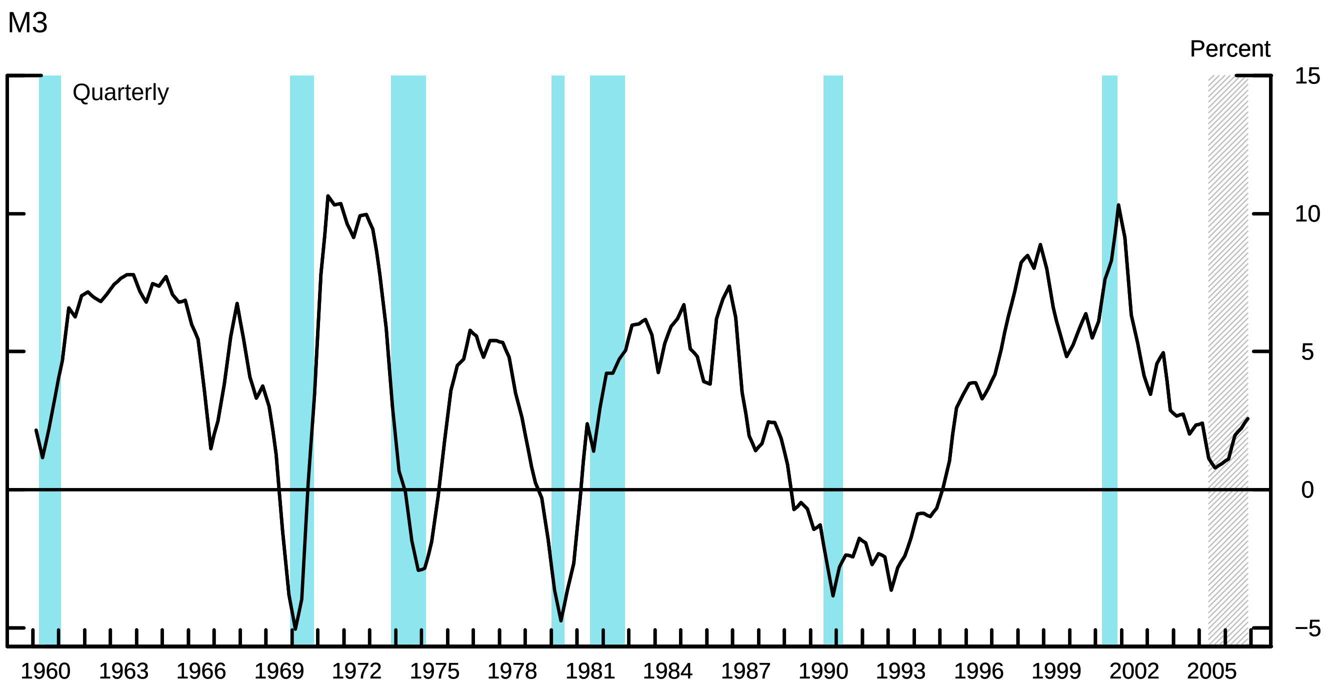
CRB Futures



Note. Blue shaded regions denote NBER−dated recessions.

Growth of Real M2 and M3

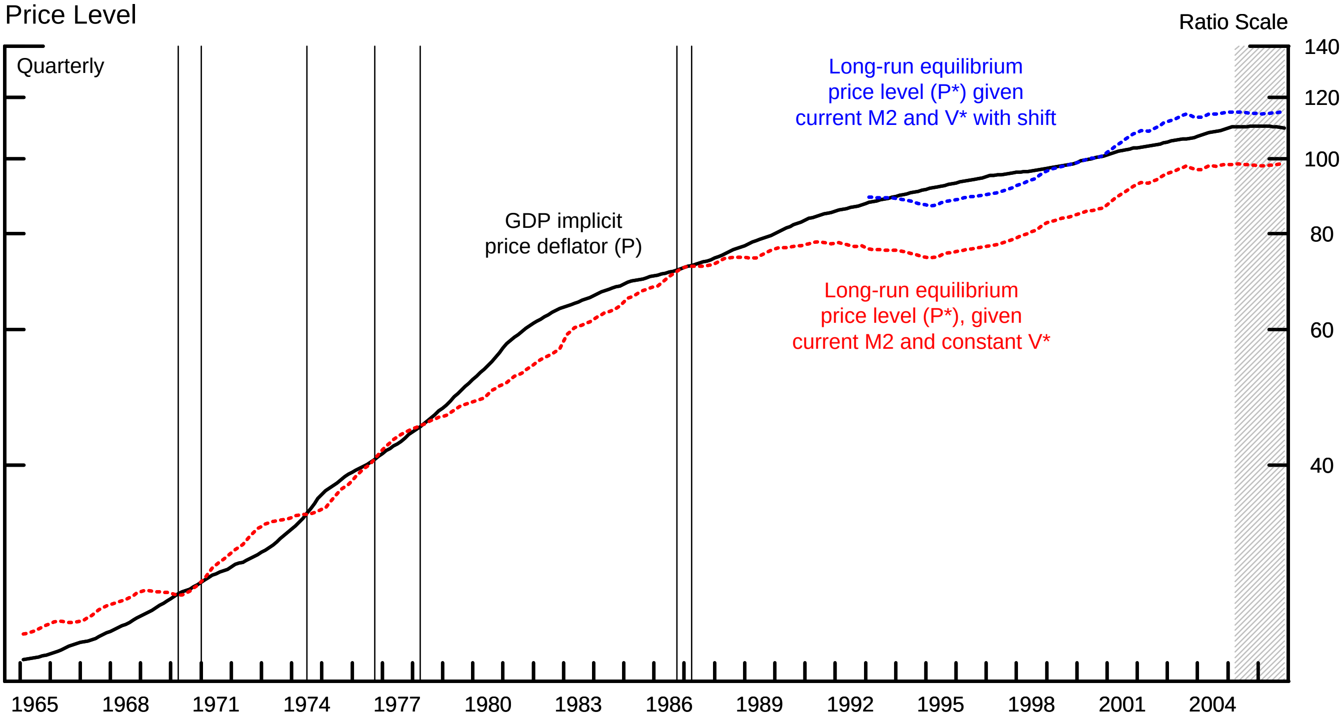


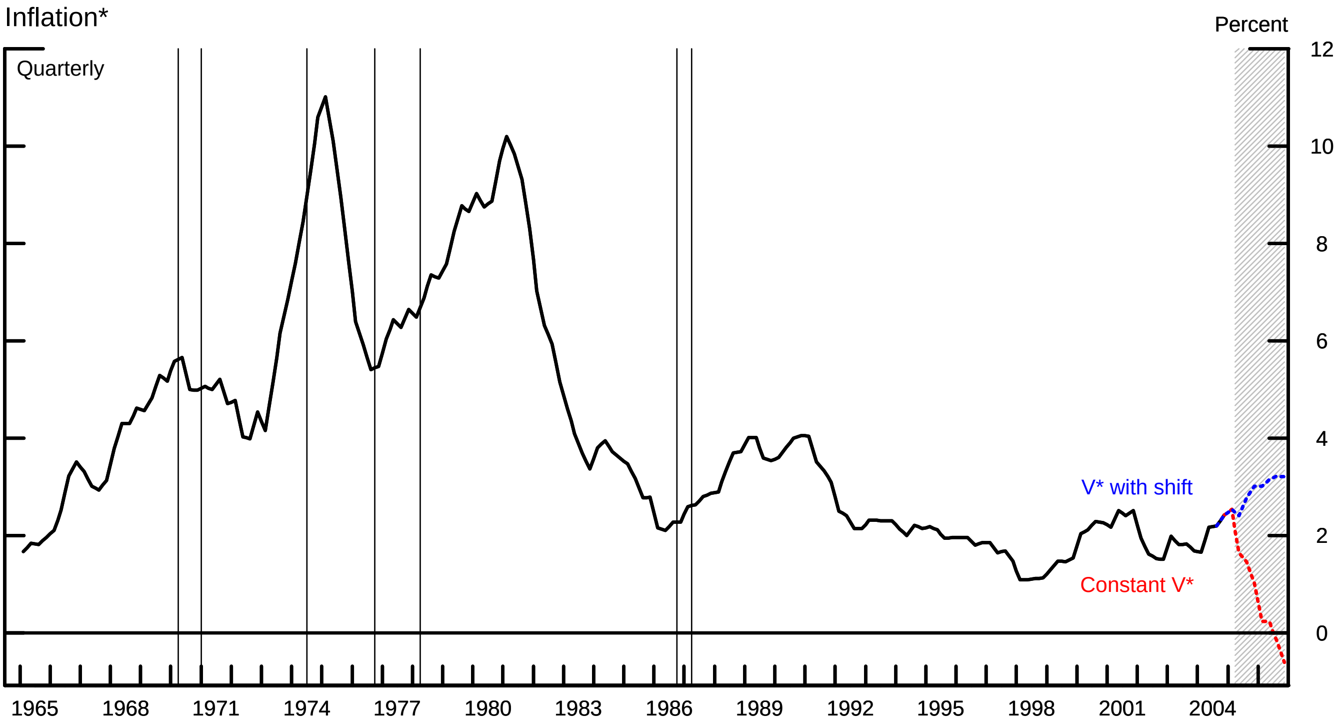


Note. Four−quarter moving average deflated by the CPI. Blue shaded regions denote NBER−dated recessions.
Dashed areas denote projection period.

Appendix Chart 8

Inflation Indicator Based on M2 and Two Estimates of V*





* Change in GDP implicit price deflator over the previous four quarters.

Note. P* is defined to equal M2 times V* divided by potential GDP. Long-run velocity (V*) is estimated from 1959:Q1 to 1989:Q4. V* after 1992 is estimated from 1993:Q1 to present. For the forecast period, P* is based on staff M2 forecast and P is simulated using a short-run dynamic model relating P to P*. Vertical lines mark crossing of P and P*. Dashed areas denote projection period.

Appendix Table 1

Selected Interest Rates
(Percent)

	Short-term						Long-term									
	Federal funds	Treasury bills secondary market			CDs secondary market	Comm. paper	Off-the-run Treasury yields				Indexed yields		Moody's Baa	Municipal Bond Buyer	Conventional home mortgages primary market	
		4-week	3-month	6-month	3-month	1-month	2-year	5-year	10-year	20-year	5-year	10-year			Fixed-rate	ARM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
04 -- High	2.34	2.08	2.28	2.63	2.51	2.29	3.13	4.10	5.03	5.64	1.57	2.28	6.90	5.45	6.34	4.27
-- Low	0.92	0.73	0.87	0.96	1.04	0.97	1.49	2.65	3.84	4.68	0.40	1.38	6.00	4.73	5.38	3.36
05 -- High	2.96	2.76	2.94	3.19	3.16	2.99	3.92	4.32	4.73	5.04	1.45	1.91	6.22	5.04	6.04	4.33
-- Low	2.19	1.86	2.31	2.63	2.50	2.24	3.11	3.58	4.07	4.47	0.98	1.50	5.64	4.79	5.57	4.10
Monthly																
Apr 04	1.00	0.90	0.96	1.11	1.08	1.00	2.09	3.38	4.50	5.22	1.06	1.92	6.46	5.13	5.83	3.65
May 04	1.00	0.90	1.04	1.33	1.20	1.00	2.56	3.86	4.88	5.51	1.37	2.13	6.75	5.39	6.27	3.88
Jun 04	1.03	1.04	1.29	1.64	1.46	1.13	2.78	3.93	4.88	5.49	1.43	2.16	6.78	5.40	6.29	4.10
Jul 04	1.26	1.18	1.35	1.69	1.57	1.29	2.64	3.70	4.64	5.29	1.32	2.04	6.62	5.29	6.06	4.11
Aug 04	1.43	1.37	1.51	1.76	1.68	1.48	2.50	3.49	4.43	5.12	1.15	1.88	6.46	5.18	5.87	4.06
Sep 04	1.61	1.54	1.68	1.91	1.86	1.67	2.51	3.35	4.26	4.96	1.12	1.82	6.27	5.04	5.75	3.99
Oct 04	1.76	1.62	1.79	2.05	2.04	1.79	2.57	3.35	4.24	4.92	1.00	1.76	6.21	4.99	5.72	4.02
Nov 04	1.93	1.91	2.11	2.33	2.26	2.01	2.86	3.52	4.32	4.95	0.93	1.68	6.20	5.06	5.73	4.15
Dec 04	2.16	1.95	2.23	2.50	2.45	2.22	3.02	3.59	4.34	4.94	0.97	1.65	6.15	5.03	5.75	4.18
Jan 05	2.28	2.02	2.38	2.68	2.61	2.33	3.23	3.70	4.32	4.82	1.15	1.72	6.02	4.92	5.71	4.12
Feb 05	2.50	2.36	2.59	2.85	2.77	2.49	3.39	3.76	4.25	4.65	1.10	1.63	5.82	4.87	5.63	4.16
Mar 05	2.63	2.64	2.80	3.09	2.97	2.67	3.74	4.15	4.59	4.92	1.27	1.77	6.06	5.01	5.93	4.23
Weekly																
Feb 25 05	2.53	2.47	2.70	2.94	2.83	2.50	3.50	3.89	4.37	4.77	1.09	1.66	5.91	4.93	5.69	4.16
Mar 4 05	2.50	2.53	2.76	3.00	2.89	2.58	3.59	3.99	4.46	4.82	1.15	1.68	5.95	4.96	5.79	4.14
Mar 11 05	2.50	2.59	2.76	3.04	2.93	2.61	3.67	4.10	4.53	4.87	1.21	1.72	5.97	5.02	5.85	4.24
Mar 18 05	2.60	2.67	2.80	3.10	2.99	2.68	3.75	4.17	4.61	4.94	1.28	1.77	6.05	4.99	5.95	4.20
Mar 25 05	2.73	2.72	2.86	3.15	3.02	2.74	3.85	4.26	4.68	5.00	1.36	1.85	6.17	5.04	6.01	4.24
Apr 1 05	2.81	2.67	2.82	3.15	3.05	2.74	3.86	4.23	4.64	4.96	1.36	1.84	6.17	5.03	6.04	4.33
Apr 8 05	2.77	2.61	2.79	3.13	3.06	2.74	3.76	4.12	4.56	4.90	1.29	1.80	6.13	5.02	5.93	4.23
Apr 15 05	2.77	2.61	2.78	3.15	3.08	2.81	3.68	4.01	4.46	4.82	1.26	1.73	6.08	4.98	5.91	4.30
Apr 22 05	2.77	2.64	2.90	3.13	3.10	2.89	3.59	3.89	4.34	4.72	1.13	1.62	6.01	4.89	5.80	4.26
Apr 29 05	--	2.64	2.91	3.17	3.14	2.91	3.64	3.91	4.32	4.67	1.16	1.64	--	--	5.78	4.21
Daily																
Apr 12 05	2.77	2.62	2.77	3.16	3.08	2.80	3.73	4.04	4.46	4.81	1.25	1.73	6.04	--	--	--
Apr 13 05	2.76	2.62	2.78	3.15	3.08	2.81	3.69	4.02	4.47	4.83	1.28	1.73	6.07	--	--	--
Apr 14 05	2.79	2.62	2.78	3.14	3.09	2.82	3.64	3.98	4.45	4.84	1.24	1.71	6.12	--	--	--
Apr 15 05	2.82	2.62	2.79	3.12	3.08	2.82	3.58	3.89	4.37	4.77	1.20	1.66	6.05	--	--	--
Apr 18 05	2.75	2.64	2.91	3.15	3.07	2.89	3.58	3.89	4.35	4.74	1.17	1.64	6.02	--	--	--
Apr 19 05	2.74	2.73	2.91	3.13	3.10	2.82	3.52	3.84	4.30	4.68	1.12	1.61	5.97	--	--	--
Apr 20 05	2.74	2.64	2.87	3.11	3.10	2.99	3.54	3.85	4.31	4.70	1.10	1.59	6.00	--	--	--
Apr 21 05	2.75	2.58	2.88	3.13	3.11	2.84	3.66	3.96	4.40	4.76	1.16	1.64	6.05	--	--	--
Apr 22 05	2.74	2.62	2.93	3.14	3.12	2.89	3.63	3.92	4.34	4.71	1.11	1.60	6.00	--	--	--
Apr 25 05	2.82	2.64	2.94	3.19	3.13	2.90	3.65	3.93	4.33	4.69	1.13	1.63	5.97	--	--	--
Apr 26 05	2.78	2.70	2.92	3.18	3.13	2.92	3.68	3.95	4.36	4.70	1.17	1.65	5.98	--	--	--
Apr 27 05	2.63	2.64	2.89	3.17	3.14	2.92	3.64	3.91	4.32	4.68	1.17	1.65	5.97	--	--	--
Apr 28 05	2.89 p	2.59	2.88	3.15	3.16	--	3.59	3.84	4.25	4.63	1.09	1.57	--	--	--	--

NOTE: Weekly data for columns 1 through 13 are week-ending averages. Columns 2 through 4 are on a coupon equivalent basis. Data in column 6 are interpolated from data on certain commercial paper trades settled by the Depository Trust Company. Column 14 is the Bond Buyer revenue index, which is a 1-day quote for Thursday. 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

MFMA

Appendix Table 2
Money Aggregates
Seasonally Adjusted

Period	M1	M2	nontransactions components in M2	nontransactions components in M3 only	M3
	1	2	3	4	5
Annual growth rates (%):					
Annually (Q4 to Q4)					
2002	3.3	6.8	7.7	5.9	6.5
2003	7.1	5.5	5.0	3.6	4.9
2004	5.4	5.2	5.2	7.1	5.8
Quarterly (average)					
2004-Q2	6.0	7.8	8.3	12.7	9.4
Q3	3.6	3.5	3.5	5.8	4.3
Q4	5.5	5.7	5.7	-0.4	3.7
2005-Q1	0.5	3.6	4.4	5.7	4.2
Monthly					
2004-Apr.	0.4	7.4	9.3	11.7	8.8
May	3.5	11.3	13.4	12.6	11.7
June	6.2	2.3	1.3	11.4	5.3
July	-6.5	0.4	2.3	0.8	0.5
Aug.	16.0	4.0	0.8	4.6	4.2
Sep.	4.1	6.7	7.4	5.3	6.2
Oct.	0.0	5.0	6.4	-7.2	1.1
Nov.	13.3	7.0	5.2	-3.0	3.8
Dec.	-1.3	4.5	6.1	9.0	5.9
2005-Jan.	-8.4	2.5	5.5	10.6	5.1
Feb.	6.5	2.6	1.6	1.8	2.3
Mar.	6.1	3.6	2.9	0.4	2.6
Apr. e	-13.9	2.0	6.3	17.1	6.9
Levels ($billions):					
Monthly					
2004-Nov.	1368.8	6404.5	5035.7	3002.4	9407.0
Dec.	1367.3	6428.4	5061.1	3025.0	9453.4
2005-Jan.	1357.7	6441.9	5084.1	3051.7	9493.6
Feb.	1365.0	6455.7	5090.7	3056.4	9512.1
Mar.	1371.9	6474.9	5102.9	3057.5	9532.4
Weekly					
2005-Mar. 7	1348.5	6450.5	5102.0	3063.1	9513.5
14	1350.1	6446.0	5095.9	3057.3	9503.3
21	1377.4	6478.0	5100.5	3045.5	9523.4
28	1393.0	6501.8	5108.9	3059.1	9560.9
Apr. 4	1370.4	6464.8	5094.4	3079.9	9544.7
11p	1341.3	6456.8	5115.4	3086.9	9543.6
18p	1351.5	6487.1	5135.6	3110.1	9597.2

p preliminary
e estimated

Appendix Table 3
Changes in System Holdings of Securities [1]
(Millions of dollars, not seasonally adjusted)

April 28, 2005

	Treasury Bills			Treasury Coupons						Federal	Net change	Net RPs [5]		
	Net Purchases [2]	Redemptions (-)	Net Change	Net Purchases [3] < 1	1-5	5-10	Over 10	Redemptions (-)	Net Change	Agency Redemptions (-)	total outright holdings [4]	Short-Term [6]	Long-Term [7]	Net Change
2002	21,421	---	21,421	12,720	12,748	5,074	2,280	---	32,822	---	54,242	-5,366	517	-4,850
2003	18,150	---	18,150	6,565	7,814	4,107	220	---	18,706	10	36,846	2,223	1,036	3,259
2004	18,138	---	18,138	7,994	17,249	5,763	1,364	---	32,370	---	50,507	-2,522	-331	-2,853
2004 QI	1,707	---	1,707	1,311	2,848	1,251	275	---	5,685	---	7,391	-772	-3,515	-4,286
QII	7,756	---	7,756	1,693	2,543	988	84	---	5,307	---	13,063	1,133	418	1,550
QIII	4,508	---	4,508	1,898	4,406	1,507	434	---	8,244	---	12,753	-1,787	782	-1,005
QIV	4,167	---	4,167	3,092	7,453	2,018	571	---	13,134	---	17,301	-5,956	1,728	-4,227
2005 QI	35	---	35	---	---	---	---	544	-544	---	-509	1,653	-3,454	-1,801
2004 Aug	83	---	83	---	428	568	---	---	996	---	1,078	-750	-1,323	-2,072
Sep	3,473	---	3,473	---	899	695	405	---	1,999	---	5,473	-3,176	7,895	4,718
Oct	500	---	500	1,593	2,765	1,225	400	---	5,984	---	6,484	-2,121	-4,443	-6,564
Nov	3,155	---	3,155	---	2,284	453	86	---	2,822	---	5,977	-1,416	1,543	127
Dec	512	---	512	1,499	2,404	340	85	---	4,328	---	4,840	-1,492	812	-680
2005 Jan	---	---	---	---	---	---	---	---	---	---	---	1,100	-3,387	-2,287
Feb	35	---	35	---	---	---	---	333	-333	---	-298	2,163	-2,187	-24
Mar	---	---	---	---	---	---	---	211	-211	---	-211	1,746	896	2,642
2005 Feb 2	35	---	35	---	---	---	---	---	---	---	35	6,077	-1,000	5,077
Feb 9	---	---	---	---	---	---	---	---	---	---	---	-4,989	-5,000	-9,989
Feb 16	---	---	---	---	---	---	---	---	---	---	---	2,356	5,000	7,356
Feb 23	---	---	---	---	---	---	---	---	---	---	---	1,223	2,000	3,223
Mar 2	---	---	---	---	---	---	---	333	-333	---	-333	5,074	-3,000	2,074
Mar 9	---	---	---	---	---	---	---	---	---	---	---	-6,920	---	-6,920
Mar 16	---	---	---	---	---	---	---	---	---	---	---	4,480	3,000	7,480
Mar 23	---	---	---	---	---	---	---	---	---	---	---	-1,825	-1,000	-2,825
Mar 30	---	---	---	---	---	---	---	---	---	---	---	3,047	-3,000	47
Apr 6	---	---	---	---	---	---	---	211	-211	---	-211	-936	3,000	2,064
Apr 13	---	---	---	---	---	---	---	---	---	---	---	-1,558	-1,000	-2,558
Apr 20	---	---	---	---	---	---	---	---	---	---	---	2,225	2,000	4,225
Apr 27	---	---	---	---	1,200	---	---	---	1,200	---	1,200	-2,868	1,000	-1,868
2005 Apr 28	---	---	---	---	---	470	230	---	700	---	700	-389	-2,000	-2,389
Intermeeting Period														
Mar 22-Apr 28	---	---	---	---	1,200	470	230	211	1,689	---	1,689	1,563	---	1,563
Memo: LEVEL (bil. $)														
Apr 28			263.0	114.6	214.1	50.4	77.2		456.3	---	719.3	-13.7	17.0	3.3

1. Change from end-of-period to end-of-period. Excludes changes in compensation for the effects of inflation on the principal of inflation-indexed securities.
2. Outright purchases less outright sales (in market and with foreign accounts).
3. Outright purchases less outright sales (in market and with foreign accounts). Includes short-term notes acquired in exchange for maturing bills. Excludes maturity shifts and rollovers of maturing issues, except the rollover of inflation compensation.
4. Includes redemptions (-) of Treasury and agency securities.
5. RPs outstanding less reverse RPs.
6. Original maturity of 13 days or less.
7. Original maturity of 14 to 90 days.

MRA:BEW