

## **Prefatory Note**

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SEPTEMBER 14, 2006

# MONETARY POLICY ALTERNATIVES

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

**MONETARY POLICY ALTERNATIVES****Recent Developments**

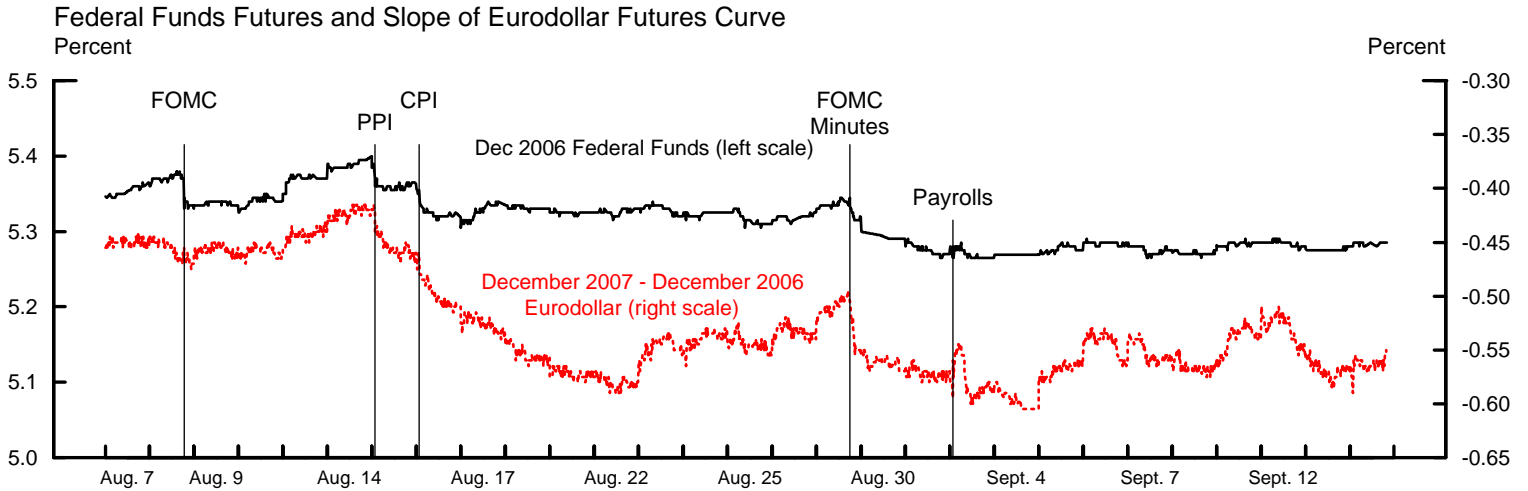
(1) On the eve of the August FOMC meeting, market participants were confident—but not completely certain—that the Committee would leave the funds rate at 5¼ percent. As a result, the announcement of the decision to put policy on hold after seventeen consecutive firmings pulled policy expectations a few basis points lower (Chart 1).<sup>1</sup> Those expectations subsequently fell further in response to softer-than-expected inflation data for July, declines in oil prices, and the minutes of the August FOMC meeting, which were interpreted as underscoring that Committee members generally saw price pressures as likely to abate amid moderating economic growth. Futures quotes indicate that investors generally believe that the target rate will be left unchanged at the September meeting and over the remainder of the year. Further ahead, futures rates now imply about 50 basis points of easing next year and point to a funds rate of about 4½ percent at the end of 2008. Respondents to the Desk's survey of primary dealers also expect policy easing next year, albeit somewhat less than that apparent in futures prices. In addition, the dealers anticipate little change in the wording of the September FOMC statement. Implied volatilities derived from options on Eurodollars futures contracts that expire over the coming two years remain near the low end of their historical ranges.

(2) Yields on two- and five-year nominal Treasury securities fell about 10 basis points over the intermeeting period. By contrast, yields on similarly dated indexed debt rose, leaving near- and intermediate-term TIPS-based inflation compensation

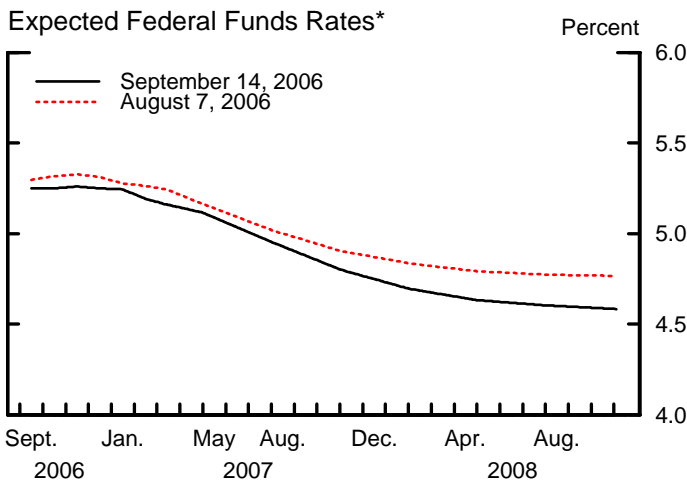
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<sup>1</sup> The effective federal funds rate averaged near its intended level over the intermeeting period. During the period, the Desk purchased \$4 billion of Treasury coupon securities in the market. The volume of outstanding long-term RPs increased by \$1 billion, to \$13 billion.

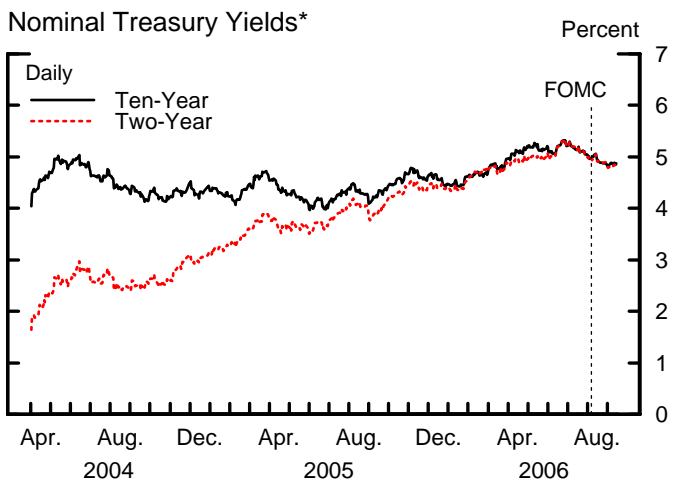
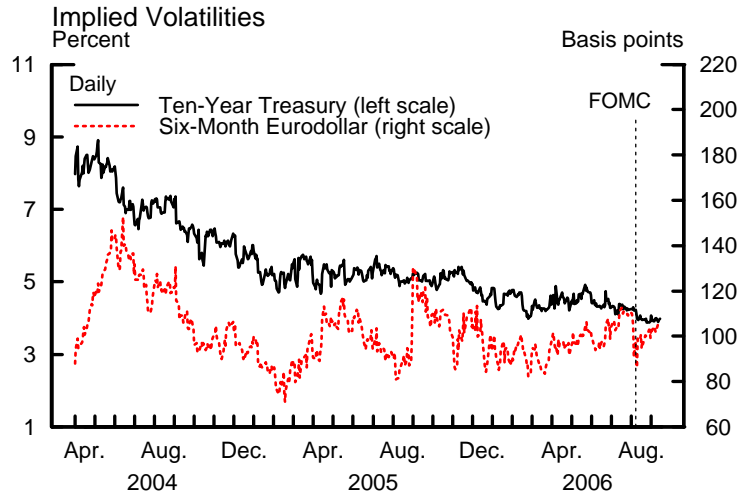
### Chart 1 Interest Rate Developments



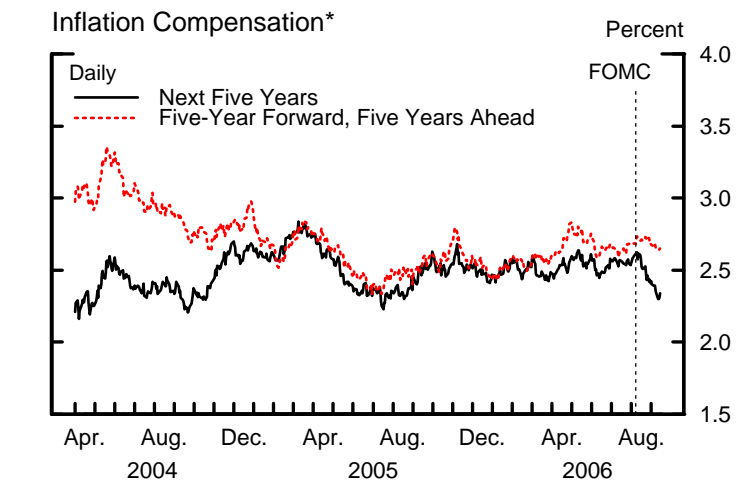
\*5-minute intervals.



\*Estimates from federal funds and Eurodollar futures, with an allowance for term premiums and other adjustments.



\*Par yields from a smoothed nominal off-the-run Treasury yield curve.



\*Estimates based on smoothed nominal and inflation-indexed Treasury yield curves and adjusted for the indexation-lag (carry) effect.

Note: Vertical lines indicate August 7, 2006. Last daily observations are for September 14, 2006.

considerably lower. The appreciable decline in energy prices—spot oil prices fell by \$13 per barrel, on net—and the shortfall of readings on inflation relative to what markets had anticipated apparently led investors to trim their expectations for near-term inflation, which is evident in the pronounced decline in short-run inflation compensation (see the box “Short-run Inflation Compensation”). Further out the yield curve, one-year nominal and real forward rates ending in ten years were down a little, implying only small changes in inflation compensation at that horizon.<sup>2</sup>

(3) Against the backdrop of lower oil prices, broad stock price indexes increased about 3 percent, on net, over the intermeeting period (Chart 2). Implied volatility of the S&P 500 declined, and spreads of yields on investment- and speculative-grade bonds over those on comparable-maturity Treasury securities edged down. Corporate risk spreads are narrow by historical standards, consistent with continued solid credit quality and very low expected defaults for the coming year.

(4) The trade-weighted index of the dollar versus major foreign currencies rose about  $\frac{3}{4}$  percent on net over the intermeeting period, as modest increases against the euro and sterling and a larger advance relative to the yen were partially offset by a small decline vis-à-vis the Canadian dollar (Chart 3).<sup>3</sup> Nominal yields on long-term government securities in industrial countries moved down 10 to 20 basis points over the period, while yields on indexed debt were little changed. As a result, most of the decline in nominal yields was concentrated in the inflation-compensation component, as market participants appear to have revised inflation expectations down in reaction to the recent drop in oil prices. In Japan, softer data on inflation and activity led investors to trim their expectation of policy tightening by the Bank of Japan, and that

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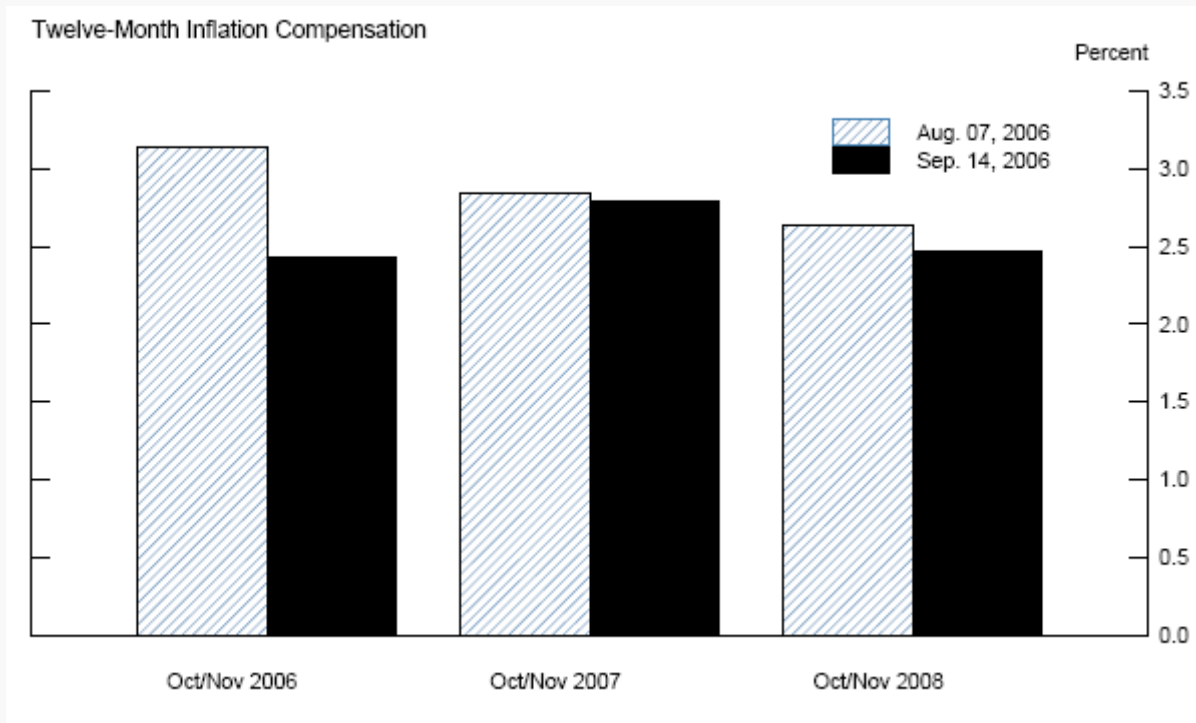
<sup>2</sup> A discussion of the historical relationship between the slope of the yield curve and economic growth can be found in the box at the end of this section.

<sup>3</sup>

### Short-Run Inflation Compensation

The inaugural TIPS issue, which was sold in 1997, will mature in January 2007. The rich schedule of issuance since then provides numerous points along the indexed-debt yield curve at short and intermediate maturities. The amount of interest and principal that will be paid on the TIPS issue maturing in January 2007 will be determined by the average of the CPIs for October and November, making it relatively straightforward to calculate inflation compensation for the twelve months ending that period. More generally, quotes on indexed debt maturing in January in each of the next three years can be matched up with quotes from the nominal yield curve to generate estimates of annual inflation compensation ending in October-November for the next two years as well.

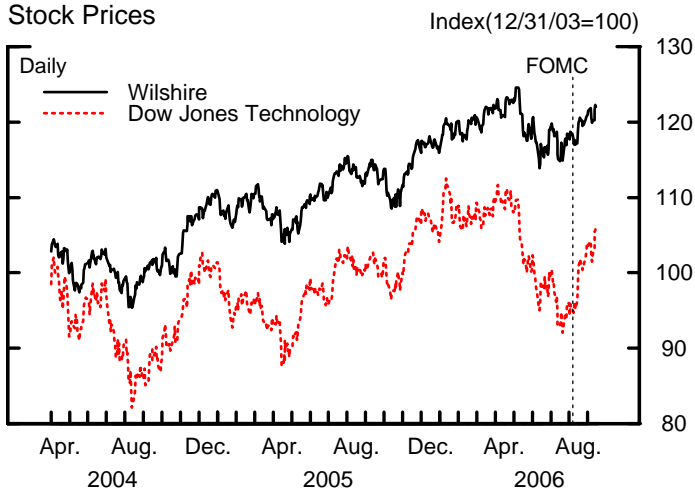
The chart below shows that these measures of short-run inflation compensation shifted lower over the intermeeting period. The implied rate for the one-year period ending this autumn fell about 70 basis points to 2.45 percent,\* and the rates for similar intervals ending in 2007 and 2008 fell 5 and 15 basis points, respectively, to 2.80 and 2.45 percent.



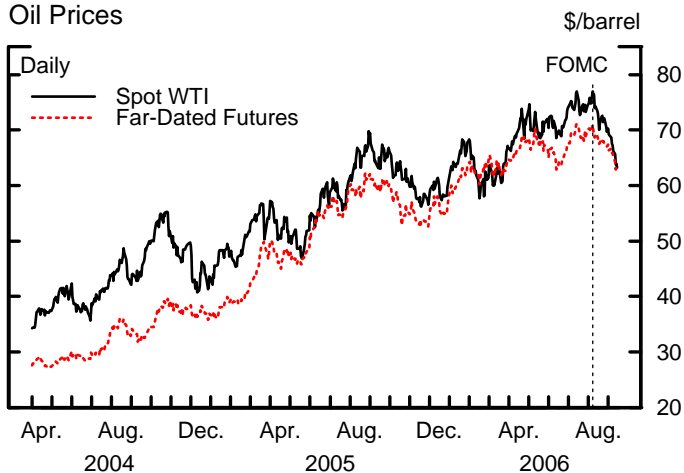
\* CPI up to July 2006 has been published, and as a result, most of the inflation compensation from October-November 2005 to October-November 2006 is already known. According to the methodology employed here, the unknown portion for that period—that is, the implied monthly average seasonally adjusted inflation compensation between July and November 2006—is 0.06 percentage point.

### Chart 2 Asset Market Developments

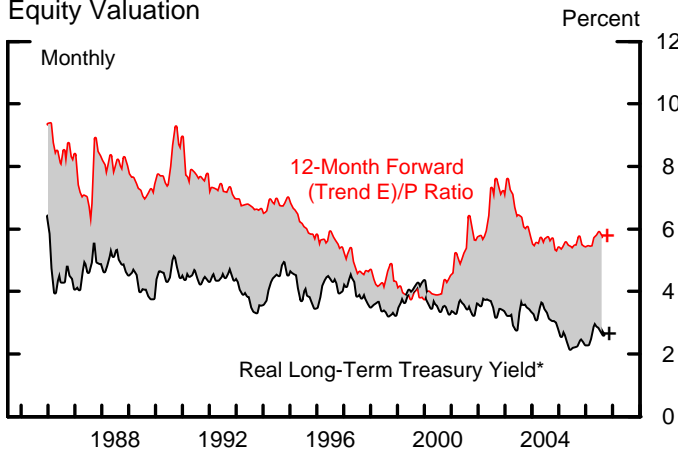
Stock Prices



Oil Prices

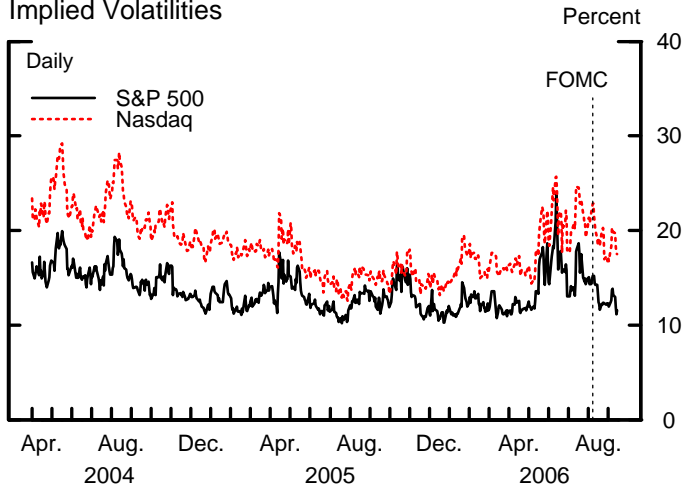


Equity Valuation

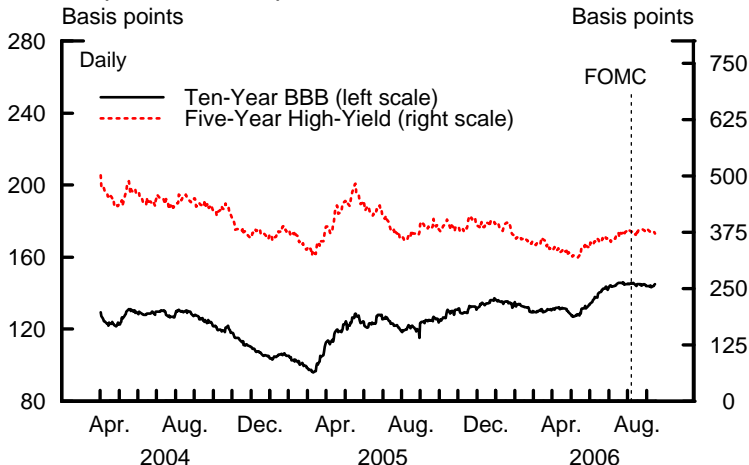


\*Perpetuity Treasury yield minus Philadelphia Fed 10-year expected inflation.  
Note. + Denotes the latest observation using daily interest rates and stock prices and latest earnings data from I/B/E/S.

Implied Volatilities

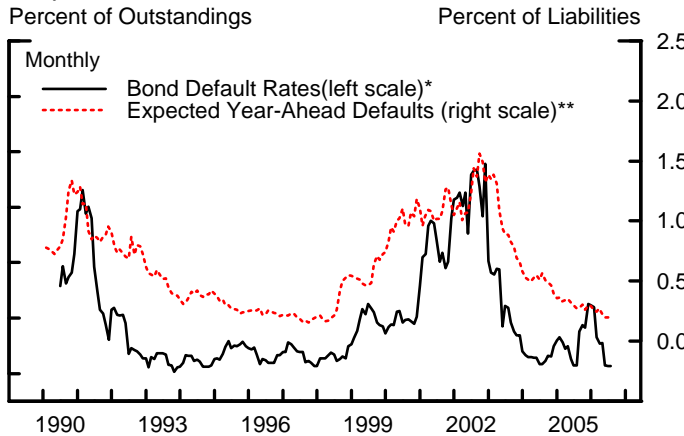


Corporate Bond Spreads\*



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

Corporate Default Rates

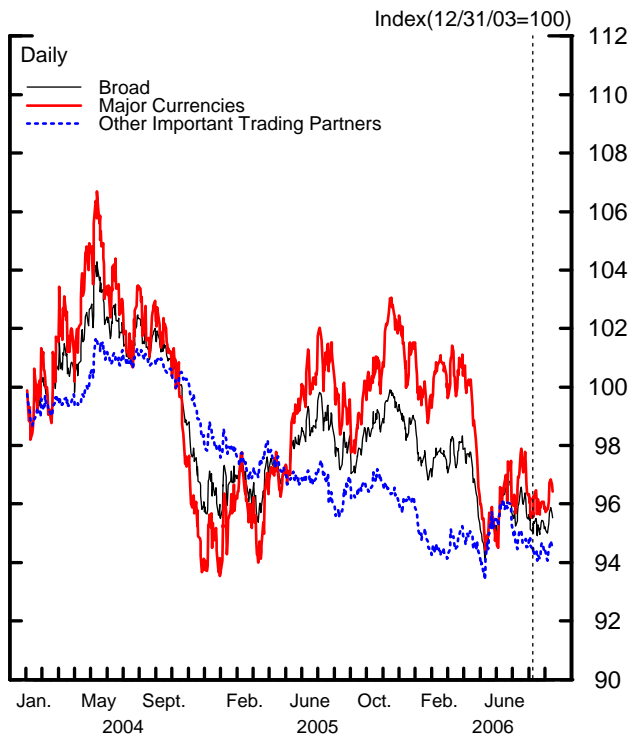


\*6-month moving average, from Moody's Investors Service.  
\*\*Firm-level estimates of default weighted by firm liabilities as a percent of total liabilities, excluding defaulted firms. Source: Moody's KMV.

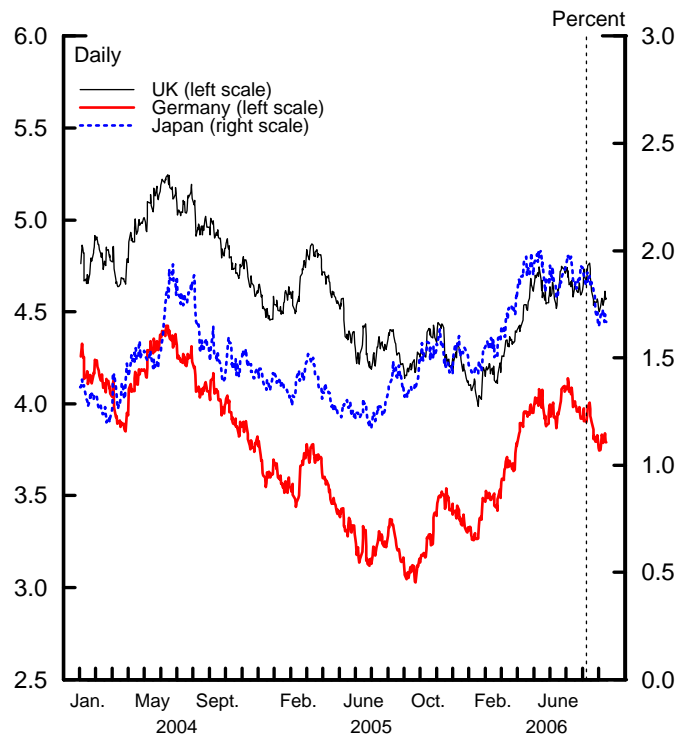
Note: Vertical lines indicate August 7, 2006. Last daily observations are for September 14, 2006.

### Chart 3 International Financial Indicators

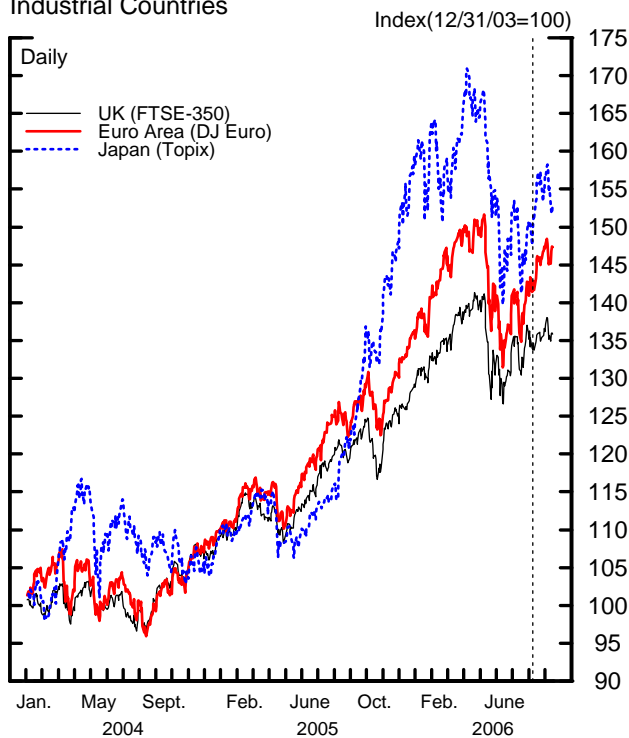
Nominal Trade-Weighted Dollar Indexes



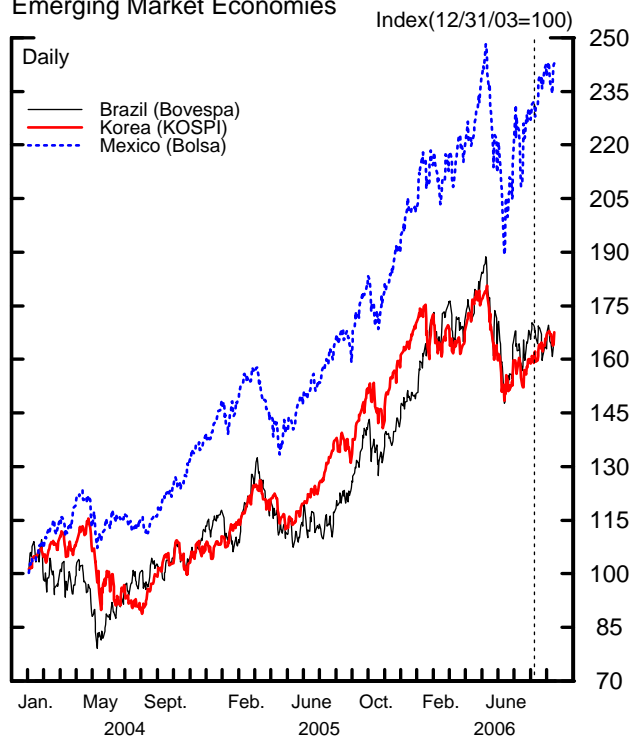
Ten-Year Government Bond Yields (Nominal)



Stock Price Indexes  
Industrial Countries



Stock Price Indexes  
Emerging Market Economies



Note: Vertical lines indicate August 8, 2006. Last daily observations are for September 14, 2006.



weighed on the foreign exchange value of the yen. Stock price indexes in most major industrial countries rose between 1 and 5 percent over the period.

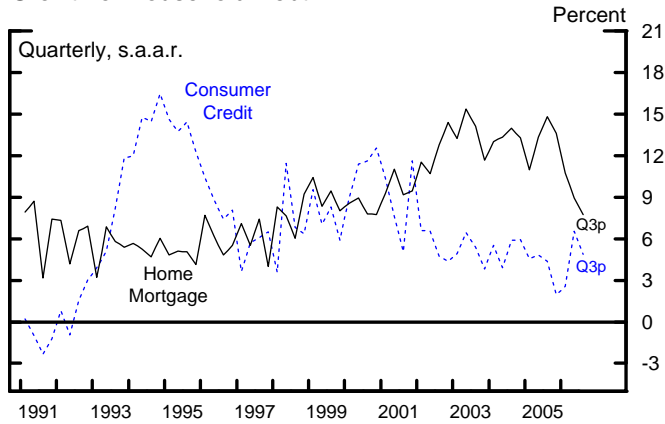
(5) On balance over the intermeeting period, the dollar was about unchanged against an index of currencies of our other important trading partners. The Mexican peso edged down only slightly versus the dollar, despite lingering uncertainty created by the recent presidential election in that country. The Brazilian *real* moved up against the dollar. EMBI+ spreads for both Brazil and Mexico remained near record lows. The heavily managed dollar-renminbi exchange rate moved in a wider daily range over the intermeeting period than earlier this year, and the currency appreciated  $\frac{3}{10}$  percent on net. Some analysts interpreted the larger fluctuations as a possible prelude to greater flexibility of the renminbi. The People's Bank of China increased its benchmark bank lending rate 27 basis points on August 18, pointing to the rapid growth of credit and investment.

(6) Domestic nonfinancial sector debt is estimated to be increasing at a  $6\frac{1}{2}$  percent rate in the current quarter, about the same pace as in the second quarter, as a projected slowing in household borrowing about offsets a more-rapid expansion of federal debt (Chart 4). C&I loans have picked up briskly in recent months, but net corporate bond issuance has slowed. On balance, growth of nonfinancial business sector debt this quarter is expected to remain near its second-quarter pace. Debt of the household sector expanded at a 9 percent annual rate last quarter, slightly slower than in the first quarter, as mortgage borrowing moderated a bit. The limited indicators for the current quarter, including July and August bank credit data, point to some further slowing of household mortgage borrowing, consistent with the cooling in the housing market.

(7) M2 growth, at a 4 percent annual rate, remained slow in August. In recent months, money growth was damped by the moderate expansion in nominal income and the lagged effects of earlier increases in opportunity cost. Liquid deposits, whose

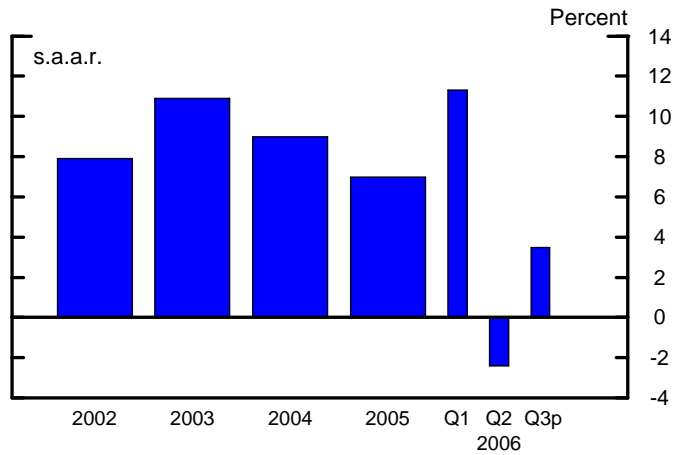
### Chart 4 Debt and Money

Growth of Household Debt



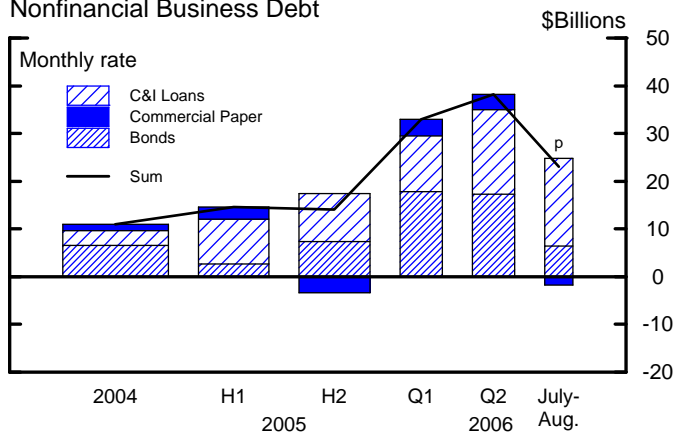
p Projected.

Growth of Federal Debt



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

Changes in Selected Components of Nonfinancial Business Debt



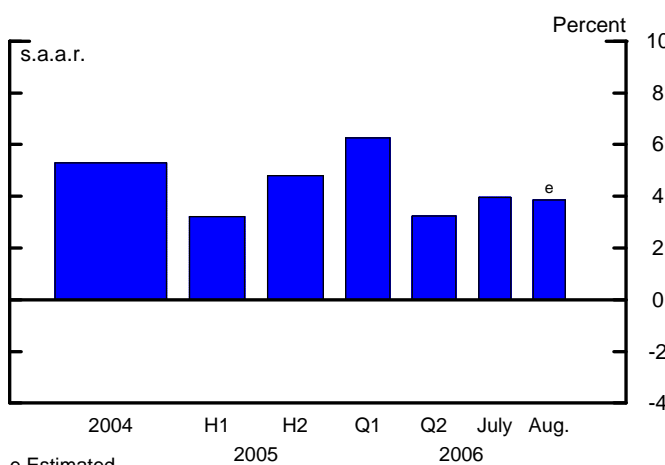
p Preliminary.  
Note. Commercial paper and C&I loans are seasonally adjusted, bonds are not.

Growth of Nonfinancial Debt

		Total	Nonfederal
2004		8.9	8.9
2005	Q1	9.3	8.5
	Q2	8.2	10.0
	Q3	9.7	10.5
	Q4	9.6	10.0
2006	Q1	9.5	9.2
	Q2	6.4	8.3
	Q3 p	6.5	7.4

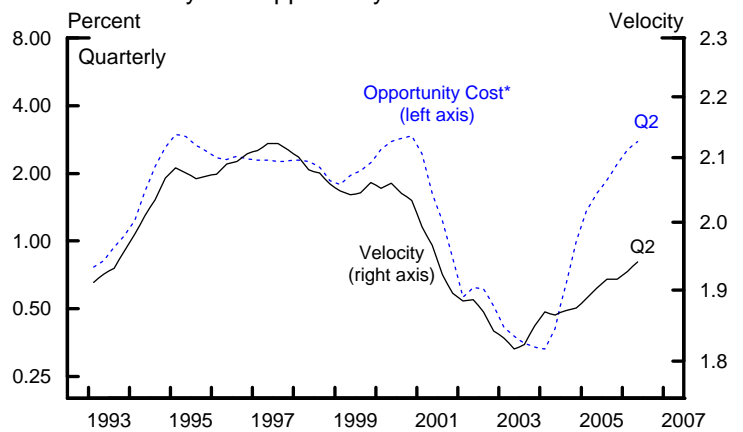
p Projected.

Growth of M2



e Estimated.

M2 Velocity and Opportunity Cost



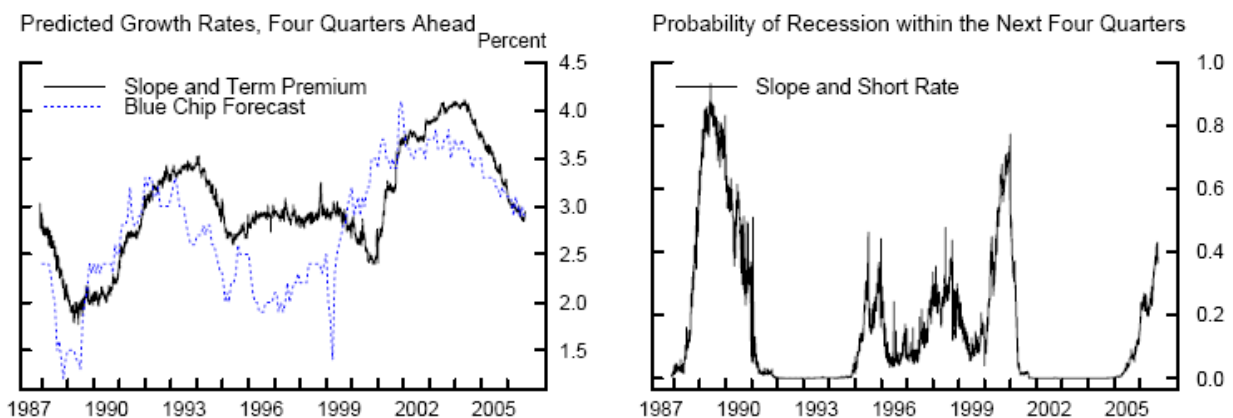
\*Two-quarter moving average.

rates of return tend to lag rising market rates, continued to run off. In contrast, small time deposits and retail money funds, whose rates of return tend to adjust more promptly, increased briskly. The currency component continued to expand at a sluggish rate, apparently due to weak overseas demand for U.S. currency.

### The Term Structure of Interest Rates and Growth Prospects

Various econometric models of future real GDP growth that include the shape of the term structure suggest that the expansion will slow somewhat and that the odds of an outright recession have increased, on net, over the course of this year. For example, a model that includes the slope of the yield curve—as measured by the difference between three-month and ten-year Treasury yields—and an estimate of the term premium, estimated with data over almost the past twenty years, now implies four-quarter-ahead expansion of just below 3 percent. This calculation is little changed since the August FOMC meeting and is broadly comparable to private sector forecasts, such as the Blue Chip consensus. Also, a model using the slope of the yield curve and the short rate suggests that the probability that the economy will be in recession within the next four quarters is about 40 percent. In contrast, respondents to the Blue Chip survey this month reported a 25 percent probability of recession. Notably, however, the point estimates derived from these models are highly sensitive to specification and sample selection, and therefore sizable confidence intervals surround implied growth rates as well as recession odds.

Yield Curve and Real GDP Growth Models: Dec. 1, 1987 -- Sep. 13, 2006



## Economic Outlook

(8) The staff forecast for real GDP growth has been lowered somewhat, owing to the effects of a more abrupt slowing in housing activity and lower growth in potential output. The stimulus imparted by the recent appreciable decline in energy prices and by rallies in some financial markets provides only a partial offset to these effects. Real GDP is anticipated to expand at about a 1<sup>3</sup>/<sub>4</sub> percent annual rate on balance over the remainder of 2006 before accelerating gradually over 2007 and 2008. Resource slack follows the same path as in the August Greenbook, with the unemployment rate edging up to 5<sup>1</sup>/<sub>4</sub> percent by the second half of 2008. The staff forecast assumes that the Committee holds the stance of policy steady through mid-2008 before easing policy slightly. With that policy backdrop, long-term Treasury yields rise marginally from a level that is about 20 basis points lower than anticipated in the August Greenbook, and stock prices increase at about a 6<sup>1</sup>/<sub>2</sub> percent annual rate from a starting point that is 2 percent higher than in the last forecast. The foreign exchange value of the dollar depreciates gradually as in previous forecasts, but along a track that is 1 percent above that in August. As suggested by futures quotes, oil prices are forecast to rebound somewhat from their recent declines but to run considerably below the path in the previous forecast. The flattening out of energy prices and other commodity prices helps to nudge core PCE inflation down from about 2<sup>1</sup>/<sub>2</sub> percent at an annual rate in the second half of 2006 to about 2 percent by the end of the forecast period. Product and labor market slack also exert a small downward influence on the inflation outlook by 2008. Overall PCE inflation runs at 2<sup>1</sup>/<sub>2</sub> percent in 2007 and 2 percent in 2008.

## Policy Alternatives

(9) This Bluebook presents three formal policy alternatives for the Committee's consideration, summarized by the draft statements in Table 1. Under Alternatives A

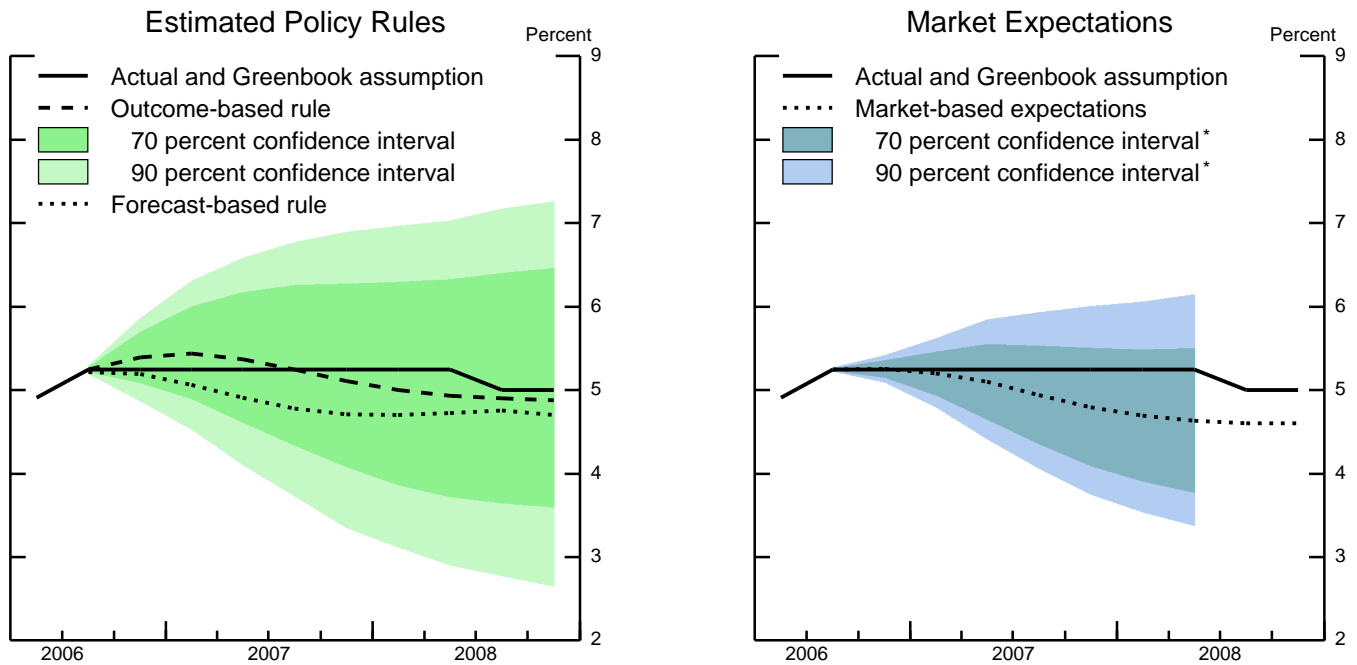
Table 1: Alternative Language for the September FOMC Announcement				
	August FOMC	Alternative A	Alternative B	Alternative C
<b>Policy Decision</b>	1. The Federal Open Market Committee decided today to keep its target for the federal funds rate at 5¼ percent.	The Federal Open Market Committee decided today to keep its target for the federal funds rate at 5¼ percent.	The Federal Open Market Committee decided today to keep its target for the federal funds rate at 5¼ percent.	The Federal Open Market Committee decided today to <b>raise</b> its target for the federal funds rate by 25 basis points to <b>5½</b> percent.
<b>Rationale</b>	2. Economic growth has moderated from its quite strong pace earlier this year, partly reflecting a gradual cooling of the housing market and the lagged effects of increases in interest rates and energy prices.	The moderation in economic growth <b>appears to be continuing, in part</b> reflecting a cooling of the housing market.	The moderation in economic growth <b>appears to be continuing, in part</b> reflecting a cooling of the housing market.	Economic growth has moderated from its quite strong pace earlier this year, partly reflecting a cooling of the housing market.
	3. Readings on core inflation have been elevated in recent months, and the high levels of resource utilization and of the prices of energy and other commodities have the potential to sustain inflation pressures. However, inflation pressures seem likely to moderate over time, reflecting contained inflation expectations and the cumulative effects of monetary policy actions and other factors restraining aggregate demand.	<b>Although core inflation remains elevated, recent readings have been slightly more favorable. While some inflation pressures persist, they</b> seem likely to moderate over time, reflecting <b>reduced impetus from energy prices</b> , contained inflation expectations, and the cumulative effects of monetary policy actions and other factors restraining aggregate demand.	Readings on core inflation have been elevated <b>on balance</b> , and the high levels of resource utilization and of the prices of energy and other commodities have the potential to sustain inflation pressures. However, inflation pressures seem likely to moderate over time, reflecting <b>reduced impetus from energy prices</b> , contained inflation expectations, and the cumulative effects of monetary policy actions and other factors restraining aggregate demand.	Readings on core inflation have been elevated <b>on balance</b> , and the high levels of resource utilization and of the prices of energy and other commodities have the potential to sustain inflation pressures. <b>In these circumstances, the Committee believed that an additional firming of policy was appropriate to foster a decline in inflation.</b>
<b>Assessment of Risk</b>	4. Nonetheless, the Committee judges that some inflation risks remain. The extent and timing of any additional firming that may be needed to address these risks will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.	<b>In recent weeks, the upside risks to inflation appear to have diminished somewhat and downside risks to growth have become more significant. In these circumstances, future policy adjustments</b> will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.	[Unchanged]	[Unchanged]

and B, the Committee would again leave the stance of monetary policy unchanged at this meeting; Alternative A would suggest that the Committee now sees the risks to growth and inflation as balanced, while Alternative B would repeat the indication from August that the Committee is concerned predominantly with inflation risks. Under Alternative C, the Committee would firm policy 25 basis points and, as in Alternative B, would highlight upside inflation risks. A few key data releases are scheduled between the publication of this document and the Committee's meeting, including consumer prices for August on Friday and housing starts on Tuesday, so the wording of the rationale portions of the various draft statements should be viewed as more tentative than usual.

(10) The Committee might want to keep the federal funds rate unchanged at 5¼ percent if it finds the staff forecast to be both plausible and acceptable. While the relatively slow pace of growth and the gradual decline in core inflation from an elevated level in that projection might have little appeal individually, policymakers may feel that circumstances are such that this combination of outcomes is likely the best that can be attained, particularly in light of the downward revision to longer-term growth prospects. Holding the funds rate steady at this meeting would be generally consistent with the Committee's past behavior as captured in the estimated policy rules shown in Chart 5, as well as with most of the simple policy rules shown in Chart 6. Even if members harbored some reservations about the Greenbook outlook, policy inaction might be favored as balancing the risks of, on the one hand, a more precipitous downturn in housing and, on the other, some uptick in inflation pressures.

(11) If the Committee deemed it appropriate to keep the funds rate unchanged at this meeting, its key remaining policy decision would seem to be its assessment of the risks to the economic outlook and the associated implications for future action. **Alternative B** in Table 1 is designed to signal that policy remains more likely to tighten than ease by repeating the sentiment of the August statement. Such a position

**Chart 5**  
Information from Estimated Policy Rules and Financial Markets



	2006		2007				2008			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Estimated Policy Rules</b>										
Outcome-based policy rule	5.2	5.4	5.4	5.4	5.2	5.1	5.0	4.9	4.9	4.9
70 percent confidence interval										
Lower bound	5.2	5.1	4.9	4.6	4.3	4.1	3.9	3.7	3.6	3.6
Upper bound	5.3	5.7	6.0	6.2	6.3	6.3	6.3	6.3	6.4	6.5
90 percent confidence interval										
Lower bound	5.2	4.9	4.5	4.1	3.7	3.3	3.1	2.9	2.8	2.6
Upper bound	5.3	5.9	6.3	6.6	6.8	6.9	7.0	7.0	7.2	7.3
Forecast-based policy rule	5.2	5.2	5.1	4.9	4.8	4.7	4.7	4.7	4.8	4.7
<b>Market Expectations</b>										
Expected funds rate path	5.2	5.3	5.2	5.1	4.9	4.8	4.7	4.6	4.6	4.6
70 percent confidence interval										
Lower bound	5.2	5.2	4.9	4.6	4.4	4.1	3.9	3.8	NA*	NA*
Upper bound	5.3	5.4	5.5	5.5	5.5	5.5	5.5	5.5	NA*	NA*
90 percent confidence interval										
Lower bound	5.2	5.1	4.8	4.4	4.1	3.7	3.5	3.4	NA*	NA*
Upper bound	5.3	5.4	5.6	5.8	5.9	6.0	6.1	6.1	NA*	NA*
<b>Memo</b>										
Greenbook assumption	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.0	5.0

\* The confidence intervals for market expectations are not available after 2008Q2 since there are no options traded beyond that horizon.





## Policy Rule Charts: Explanatory Notes

For the rules described below,  $i_t$  denotes the federal funds rate for quarter  $t$ , while the explanatory variables include the staff’s estimate of trailing four-quarter core PCE inflation ( $\pi_t$ ), its forecasts of inflation two and three quarters ahead ( $\pi_{t+2|t}$  and  $\pi_{t+3|t}$ ), its assessment of the current output gap ( $y_t - y_t^*$ ), its one-quarter-ahead forecast of the output gap ( $y_{t+1|t} - y_{t+1}^*$ ), its three-quarter-ahead forecast of annual average GDP growth relative to potential ( $\Delta^4 y_{t+3|t} - \Delta^4 y_{t+3}^*$ ), and the assumed value of policymakers’ long-run inflation objective ( $\pi^*$ ).

Rule prescriptions are computed using dynamic simulations of the FRB/US model, implemented as though the rule is followed starting at this FOMC meeting. This quarter’s prescription is a weighted average of the actual value of the federal funds rate thus far this quarter and the value obtained from the FRB/US model simulations using the timing of this meeting within the quarter to determine the weights. Except for backward-looking rules, it should be noted that prescriptions near the end of the Greenbook horizon also depend on extended baselines.

**Estimated Rules:** Estimation is performed using real-time data over the sample 1988:1-2005:4, and the specifications are chosen according to the Bayesian information criterion. Each rule incorporates a 75 basis point shift in the intercept, specified as a sequence of 25 basis point increments that occurred during the first three quarters of 1998. Confidence intervals, shown only for the outcome-based rule, are based on stochastic simulations of the FRB/US model. The following table indicates the specification of each rule used for dynamic simulations and its root mean squared error over the sample 1993:1-2005:4.

<b>Outcome-based rule</b>	$i_t = 1.17i_{t-1} - 0.37i_{t-2} + 0.20 [1.04 + 1.76 \pi_t + 3.32(y_t - y_t^*) - 2.37(y_{t-1} - y_{t-1}^*)]$	.17
<b>Forecast-based rule</b>	$i_t = 1.16i_{t-1} - 0.36i_{t-2} + 0.20 [0.89 + 1.74 \pi_{t+2 t} + 2.32(y_{t+1 t} - y_{t+1}^*) - 1.40(y_{t-1} - y_{t-1}^*)]$	.16

**Market Expectations:** The expected funds rate path is based on quotes from fed funds and Eurodollar futures, and the confidence intervals are obtained from options on those futures.

**Simple Rules:** The following table indicates the specification of each rule.

<b>Taylor (1993) rule</b>	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(y_t - y_t^*)$
<b>Taylor (1999) rule</b>	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
<b>Taylor (1999) rule with higher <math>r^*</math></b>	$i_t = 2.75 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
<b>First-difference rule</b>	$i_t = i_{t-1} + 0.5(\pi_{t+3 t} - \pi^*) + 0.5(\Delta^4 y_{t+3 t} - \Delta^4 y_{t+3}^*)$

might be viewed as appropriate by the Committee if it saw high energy and other commodity prices and high levels of resource utilization as implying that the upside risks to inflation remain substantial. Moreover, recent data on labor compensation and productivity, while not fully congruent with other indicators of labor costs, may also be seen as pointing to potentially substantial inflation risks, as in the “greater wage pressure” scenario presented in the Greenbook.

(12) The rationale wording for Alternative B could note that the moderation in economic growth appears to be continuing. In view of recent information on the residential construction sector, it could indicate that the housing market is cooling, rather than referring to a “gradual” cooling as in the August statement. The paragraph on inflation could be generally similar to the one in the previous statement. However, to acknowledge that the most recent data on core inflation were lower than those in preceding months—but not to be seen as overly optimistic in that regard—the statement could indicate that core inflation readings have been elevated “on balance” over recent months. The Committee might also wish to explain more explicitly its expectation that inflation pressures seem likely to moderate over time by citing a reduced impetus from energy prices.

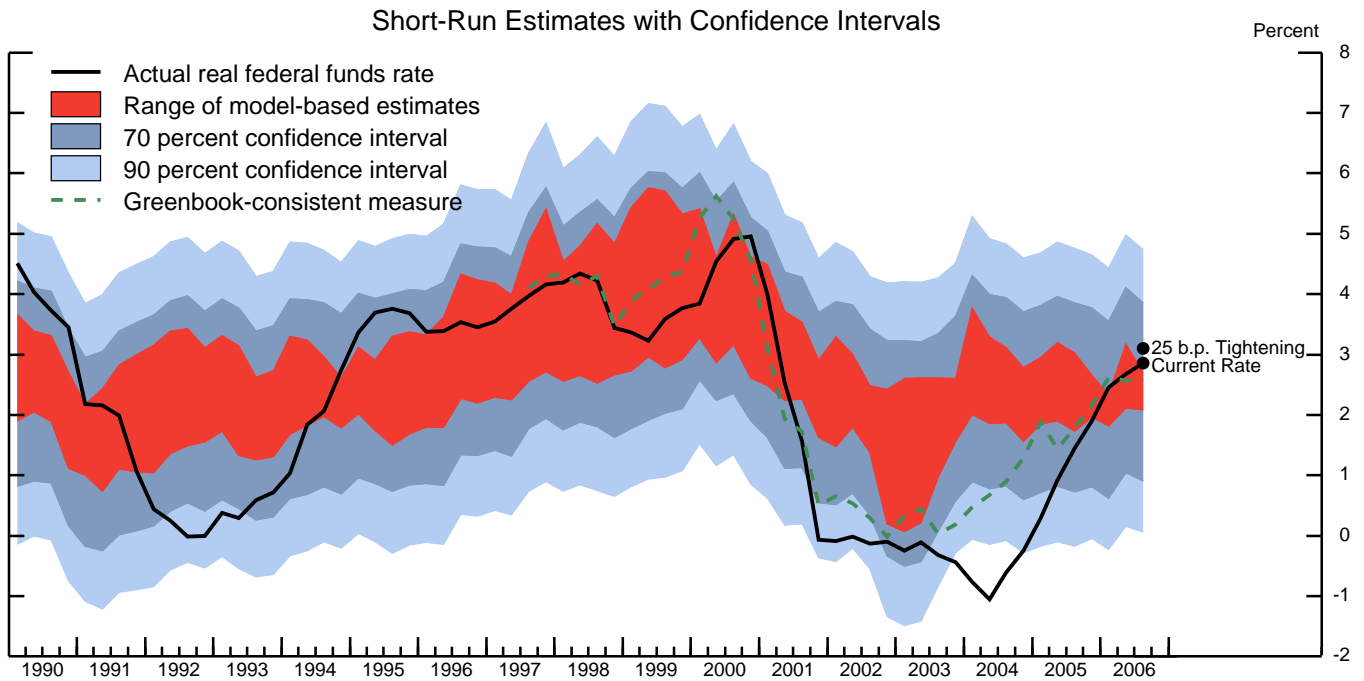
(13) Money market options indicate that investors are quite sure that the Committee will keep the federal funds rate at 5¼ percent at this meeting. In addition, the Desk’s survey of primary dealers indicates an anticipation that the statement released after this meeting will about replicate the August announcement, apart from some updating of the characterization of the economy and inflation. Accordingly, the market reaction to this alternative should be quite limited.

(14) Judging from current financial quotes, market participants do not view maintaining the federal funds rate at 5¼ percent for some time as an approach the FOMC would select to balance competing macroeconomic risks. Even though the Committee identified upside risks as its predominant concern in the August

statement, money market futures prices suggest the anticipation of 1/2 percentage point of policy easing next year, an expectation that imparts financial stimulus to the extent that it has been incorporated in other asset values. If that stimulus is seen as excessive, the Committee could use the statement as a means to make plainer its assessment that the policy rate is more likely to rise than to fall. In particular, the Committee could strike the reassuring phrase “on balance” about recent inflation readings in row 2 of Alternative B and add an explicit characterization of the odds of future action in row 4. For example, after explaining that inflation risks remain, the Committee could add that “. . . policy is more likely to firm than ease going forward.”

(15) In contrast, with overall economic activity apparently decelerating further in the current quarter, inflation data for July more favorable than in preceding months, and energy and other commodity prices down notably in recent weeks, the Committee may now view the upside risks to inflation as having diminished somewhat and as roughly balanced by the downside risks to economic activity. If so, the Committee may be attracted to **Alternative A**, under which the stance of policy would be maintained at this meeting and the statement would no longer suggest a predilection to firm policy going forward. While moderate economic growth may be viewed as the modal outcome under an unchanged federal funds rate, the downside risks to growth may seem considerable in light of the most recent data pointing to a more pronounced slowing in housing activity, a possibility that is illustrated by the “housing slump” scenario in the Greenbook. Moreover, the Committee may see the recent decline in the prices of oil and other commodities as potentially signaling a slowdown in global economic growth. In any case, with the real federal funds rate at the upper end of the range of model-based estimates of its equilibrium (Chart 7), policy may now be in a stance that is consistent with below-potential economic growth going forward, so that resource pressures are likely to diminish some. And, if the Committee believes that energy prices probably will not return to their higher levels of

### Chart 7 Equilibrium Real Federal Funds Rate



### Short-Run and Medium-Run Measures

	Current Estimate	<i>Previous Bluebook</i>
<b>Short-Run Measures</b>		
Single-equation model	2.4	2.4
Small structural model	2.1	2.1
Large model (FRB/US)	2.7	3.1
Confidence intervals for three model-based estimates		
70 percent confidence interval	0.9 - 3.9	
90 percent confidence interval	0.1 - 4.7	
Greenbook-consistent measure	2.6	2.7
<b>Medium-Run Measures</b>		
Single-equation model	2.2	2.2
Small structural model	2.2	2.2
Confidence intervals for two model-based estimates		
70 percent confidence interval	1.3 - 3.1	
90 percent confidence interval	0.7 - 3.7	
TIPS-based factor model	2.1	2.1
<b>Memo</b>		
Actual real federal funds rate	2.85	2.78

Notes: Confidence intervals 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-based measure and the actual real funds rate are the values published in the previous Bluebook. The differential between the current and previous Bluebook values of the FRB/US estimate mainly reflects the recent reestimation of the model equations.

### 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. For the first three measures listed below, the short-run equilibrium rate is defined as the rate that would close the output gap in twelve quarters given the corresponding model’s projection of the economy. For the first two measures, the medium-run concept is the value of the real federal 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 keeps them equal thereafter. The TIPS-based factor model measure provides an estimate of market expectations for the real federal funds rate seven years ahead. The actual real federal funds rate is constructed as the difference between the nominal rate and realized inflation, where the nominal rate is measured as the quarterly average of the observed federal funds rate, and realized inflation is given by the log difference between the staff’s estimate of the core PCE price index and its lagged value four quarters earlier. For the current quarter, the nominal rate is specified as the target federal funds rate on the Bluebook publication date.

Measure	Description
<b>Single-equation Model</b>	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.
<b>Small Structural Model</b>	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.
<b>Large Model (FRB/US)</b>	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.
<b>Greenbook-consistent</b>	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.
<b>TIPS-based Factor Model</b>	Yields on TIPS (Treasury Inflation-Protected Securities) reflect investors’ expectations of the future path of real interest rates, but also include term and liquidity premiums. The TIPS-based measure of the equilibrium real rate is constructed using the seven-year-ahead instantaneous real forward rate derived from TIPS yields as of the Bluebook publication date. This forward rate is adjusted to remove estimates of the term and liquidity premiums based on a three-factor arbitrage-free term-structure model applied to TIPS yields, nominal yields, and inflation. Because TIPS indexation is based on the total CPI, this measure is also adjusted for the medium-term difference—projected at 40 basis points—between total CPI inflation and core PCE inflation.

earlier this year, it may view inflation pressures as likely to ebb slowly, such as in the Greenbook forecast. If so, the Committee may not see particularly high odds that policy will need to be tightened further.

(16) The rationale for Alternative A could be similar to that for Alternative B, except that the Committee may wish to note explicitly that recent inflation readings have been slightly more favorable than those of previous months. In the risk assessment, the Committee would mention downside risks to growth and indicate that future policy adjustments, implicitly in either direction, will depend on the implications of incoming data for the outlook.

(17) While market participants expect no policy action at this meeting, they do not appear to anticipate a policy statement that identifies downside risks to growth and that no longer hints at a possible need for additional firming. Market participants could read such a statement simply as a step in the transition to the policy easing that is already foreseen; in this case, there would probably be only moderate effects on other market prices. But market participants might instead extrapolate from this statement, inferring that the Committee was more likely to ease rates before long. In this latter case, the downward tilt to the market's expected path for policy could steepen somewhat, and shorter-term Treasury yields could decline a little. The value of the dollar on foreign exchange markets would likely edge lower, and stock prices would rally. The implications for long-term yields could depend in part on what investors read into the announcement about the Committee's longer-term inflation intentions.

(18) If the FOMC expected stronger growth or higher inflation than the staff, or if it saw the Greenbook forecast as credible but was unhappy with the forecast path for inflation, it might wish to take another firming step at this meeting, as in **Alternative C**. The Committee's concerns about the inflation outlook may have been exacerbated by recent compensation and productivity data. Moreover, in the

staff projection, core PCE inflation is projected to remain a bit above 2 percent until late 2008—an outcome that would mark five consecutive years of elevated core inflation relative to the objectives cited by a number of members of the Committee. Overall inflation likewise is forecast to remain relatively high until 2008. Given this forecast, members may believe that acceptable progress toward price stability will likely involve a somewhat firmer stance of monetary policy over coming quarters than assumed by the staff. Even if the Committee found the rate of decline in inflation forecast in the Greenbook to be generally acceptable, it might wish to firm policy another step at this meeting to provide more assurance that inflation was headed down.

(19) An announcement associated with Alternative C could, as in the August statement, indicate that growth “has moderated” and, as in the other alternatives, drop the word “gradual” in characterizing the cooling of the housing market. The first sentence in the inflation paragraph could also be similar to the one in the August statement, but it might include the phrase “on balance” to acknowledge implicitly the lower inflation figures published for July. Rather than repeat the expectation that inflation pressures would moderate, the Committee could state that it took the firming action to foster a decline in inflation. The Committee might also want to indicate that, despite the firming step, it continued to be concerned with inflation risks, as it was in August, and again reference the possibility of additional firming. If, by contrast, the Committee saw such a step as a final “insurance” move against inflation, the risk assessment section could take a neutral position and simply indicate that future policy adjustments will depend on the evolution of the economic outlook, thereby suggesting that the Committee no longer had a predisposition to firm policy.

(20) The tightening of policy and the statement shown under Alternative C of Table 1 would come as a considerable surprise to market participants. Investors would likely conclude that at least one more policy firming action was in store after

the action at this meeting. Nominal money market rates and shorter-term coupon yields would rise sharply. Real rates further out the curve could also increase, but nominal long-term yields could decline if market participants concluded that the FOMC was seeking a steeper decline and had a lower ultimate objective for inflation than they had previously perceived. With real rates higher, the foreign exchange value of the dollar would likely rise, and equity prices would probably decline. However, if the Committee instead opted to remove the reference to future firming and to suggest that it saw the risks as balanced after the move, these market responses would likely be muted considerably.

### **Money and Debt Forecasts**

(21) Under the Greenbook forecast, M2 growth is projected to average about 2½ percent at an annual rate over the remainder of 2006, restrained by damped expansion of nominal income and the lagged effects of past policy tightening on opportunity costs. The velocity of M2 is forecast to rise 1½ percent over 2006, after increasing at an average annual rate of 1¾ percent in the previous two years. Over 2007 and 2008, however, M2 accelerates gradually to about a 5 percent annual growth rate, about in line with nominal income, as opportunity costs level out and then decline slightly in response to the cessation of policy tightening.

(22) Household debt is expected to slow noticeably over the next several quarters. The rate of expansion of home mortgage debt declines considerably, reflecting lower residential investment and sharply decelerating home prices. The growth rate of business debt is also projected to decline a little, mainly as a result of much slower commercial mortgage borrowing compared with its torrid pace of recent years. Federal sector debt is forecast to expand at a bit more than a 6 percent annual rate on average over the forecast period. All told, the growth of domestic



Table 2  
M2 Growth Under Alternative Policy Paths

	No Change	25 bp Tightening	Greenbook Forecast*	
<b>Monthly Growth Rates</b>				
Aug-05	5.7	5.7	5.7	
Sep-05	5.6	5.6	5.6	
Oct-05	5.3	5.3	5.3	
Nov-05	3.5	3.5	3.5	
Dec-05	5.0	5.0	5.0	
Jan-06	11.0	11.0	11.0	
Feb-06	3.4	3.4	3.4	
Mar-06	2.7	2.7	2.7	
Apr-06	4.0	4.0	4.0	
May-06	1.2	1.2	1.2	
Jun-06	5.9	5.9	5.9	
Jul-06	4.0	4.0	4.0	
Aug-06	3.9	3.9	3.9	
Sep-06	3.6	2.7	3.6	
Oct-06	2.2	1.0	2.2	
Nov-06	2.0	0.5	2.0	
Dec-06	2.0	0.5	2.0	
<b>Quarterly Growth Rates</b>				
2005 Q3	4.5	4.5	4.5	
2005 Q4	5.0	5.0	5.0	
2006 Q1	6.3	6.3	6.3	
2006 Q2	3.2	3.2	3.2	
2006 Q3	4.0	3.9	4.0	
2006 Q4	2.6	1.5	2.6	
<b>Annual Growth Rates</b>				
2005	4.0	4.0	4.0	
2006	4.1	3.8	4.1	
2007	4.4	3.9	4.4	
2008	5.1	5.1	5.0	
<b>Growth From To</b>				
Aug-06	Dec-06	2.5	1.2	2.5
Sep-06	Dec-06	2.1	0.7	2.1
2005 Q4	2006 Q2	4.8	4.8	4.8
2005 Q4	2006 Q3	4.6	4.5	4.6
2005 Q4	Aug-06	4.6	4.6	4.6
2005 Q4	Sep-06	4.5	4.4	4.5

\* This forecast is consistent with nominal GDP and interest rates in the Greenbook forecast.

nonfinancial sector debt is expected to drop from a  $6\frac{3}{4}$  percent pace in the second half of this year to  $6\frac{1}{2}$  percent in 2007 and 6 percent in 2008.

## Directive and Balance of Risks Statement

(23) 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 \_\_\_\_\_ 5¼ percent.

### *Risk Assessments*

- A. In recent weeks, the upside risks to inflation appear to have diminished somewhat and downside risks to growth have become more significant. In these circumstances, future policy adjustments will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.
- B. Nonetheless, the Committee judges that some inflation risks remain. The extent and timing of any additional firming that may be needed to address these risks will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.
- C. Nonetheless, the Committee judges that some inflation risks remain. The extent and timing of any additional firming that may be needed to address these risks will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.

**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
05 -- High	4.30	4.01	4.08	4.37	4.49	4.30	4.52	4.59	4.79	5.04	2.11	2.22	6.48	5.24	6.37	5.22
05 -- Low	2.19	1.86	2.31	2.63	2.50	2.24	3.11	3.58	3.97	4.28	0.98	1.50	5.64	4.72	5.53	4.10
06 -- High	5.31	5.20	5.13	5.33	5.50	5.30	5.32	5.20	5.32	5.45	2.60	2.68	6.94	5.31	6.80	5.83
06 -- Low	4.22	3.91	4.17	4.37	4.50	4.22	4.34	4.28	4.42	4.59	1.82	1.94	6.17	4.88	6.10	5.15
Monthly																
Sep 05	3.62	3.21	3.50	3.80	3.87	3.64	3.96	4.01	4.28	4.55	1.40	1.70	6.03	4.94	5.77	4.51
Oct 05	3.78	3.49	3.79	4.13	4.13	3.84	4.31	4.34	4.56	4.77	1.69	1.94	6.30	5.13	6.07	4.86
Nov 05	4.00	3.91	3.97	4.30	4.31	4.01	4.44	4.46	4.66	4.85	1.96	2.09	6.39	5.22	6.33	5.14
Dec 05	4.16	3.67	3.98	4.33	4.45	4.23	4.43	4.39	4.57	4.76	2.07	2.15	6.32	5.18	6.27	5.17
Jan 06	4.29	4.10	4.34	4.47	4.56	4.36	4.42	4.35	4.50	4.67	1.92	2.03	6.24	5.11	6.15	5.17
Feb 06	4.49	4.38	4.54	4.69	4.72	4.47	4.69	4.60	4.66	4.75	1.97	2.06	6.27	5.12	6.25	5.34
Mar 06	4.59	4.55	4.63	4.79	4.88	4.61	4.77	4.72	4.82	4.93	2.08	2.21	6.41	5.10	6.32	5.42
Apr 06	4.79	4.60	4.72	4.90	5.03	4.80	4.92	4.90	5.07	5.24	2.25	2.41	6.68	5.19	6.51	5.62
May 06	4.94	4.69	4.84	5.01	5.15	4.95	5.00	4.98	5.19	5.36	2.26	2.45	6.75	5.24	6.60	5.63
Jun 06	4.99	4.71	4.92	5.18	5.35	5.12	5.15	5.04	5.18	5.30	2.41	2.54	6.78	5.24	6.68	5.71
Jul 06	5.24	4.89	5.08	5.27	5.46	5.24	5.15	5.02	5.15	5.26	2.43	2.52	6.76	5.21	6.76	5.79
Aug 06	5.25	5.17	5.09	5.17	5.38	5.22	4.93	4.79	4.94	5.09	2.24	2.32	6.59	4.98	6.52	5.64
Weekly																
Jul 14 06	5.25	4.87	5.06	5.29	5.48	5.22	5.18	5.05	5.16	5.26	2.44	2.54	6.76	5.21	6.74	5.75
Jul 21 06	5.25	4.89	5.10	5.28	5.48	5.23	5.14	5.01	5.13	5.24	2.42	2.51	6.75	5.19	6.80	5.80
Jul 28 06	5.24	4.98	5.10	5.22	5.45	5.25	5.09	4.97	5.10	5.23	2.39	2.47	6.72	5.13	6.72	5.78
Aug 4 06	5.27	5.15	5.10	5.18	5.43	5.26	4.98	4.86	5.01	5.15	2.29	2.39	6.65	5.06	6.63	5.69
Aug 11 06	5.25	5.16	5.08	5.17	5.38	5.21	4.96	4.84	5.00	5.15	2.21	2.32	6.65	5.02	6.55	5.69
Aug 18 06	5.23	5.16	5.10	5.19	5.37	5.22	4.95	4.81	4.97	5.12	2.24	2.33	6.61	4.97	6.52	5.65
Aug 25 06	5.25	5.17	5.10	5.17	5.36	5.21	4.89	4.73	4.88	5.04	2.23	2.27	6.53	4.93	6.48	5.60
Sep 1 06	5.26	5.15	5.06	5.14	5.35	5.20	4.84	4.70	4.85	4.99	2.27	2.29	6.50	4.91	6.44	5.59
Sep 8 06	5.24	4.89	4.97	5.12	5.34	5.21	4.82	4.71	4.88	5.02	2.33	2.36	6.52	4.88	6.47	5.63
Sep 15 06	--	4.79	4.93	5.11	5.35	5.21	4.84	4.70	4.86	5.00	2.39	2.40	--	--	6.43	5.60
Daily																
Aug 29 06	5.23	5.19	5.07	5.16	5.36	5.21	4.88	4.73	4.87	5.01	2.28	2.31	6.53	--	--	--
Aug 30 06	5.25	5.17	5.05	5.14	5.35	5.19	4.85	4.70	4.85	4.99	2.28	2.30	6.50	--	--	--
Aug 31 06	5.31	5.12	5.05	5.11	5.35	5.21	4.81	4.67	4.82	4.96	2.24	2.27	6.47	--	--	--
Sep 1 06	5.25	5.08	5.02	5.10	5.34	5.20	4.78	4.66	4.82	4.96	2.26	2.28	6.46	--	--	--
Sep 4 06	5.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sep 5 06	5.26	4.96	5.00	5.13	5.34	--	4.82	4.70	4.87	5.02	2.31	2.34	6.51	--	--	--
Sep 6 06	5.21	4.88	4.97	5.12	5.35	5.23	4.83	4.72	4.89	5.03	2.32	2.36	6.53	--	--	--
Sep 7 06	5.23	4.88	4.97	5.13	5.35	5.19	4.84	4.71	4.88	5.02	2.35	2.37	6.52	--	--	--
Sep 8 06	5.23	4.83	4.92	5.10	5.33	5.22	4.81	4.69	4.86	5.00	2.35	2.37	6.50	--	--	--
Sep 11 06	5.24	4.84	4.94	5.13	5.34	5.20	4.85	4.72	4.89	5.03	2.41	2.42	6.52	--	--	--
Sep 12 06	5.21	4.75	4.91	5.12	5.35	5.19	4.83	4.69	4.86	4.99	2.39	2.39	6.48	--	--	--
Sep 13 06	5.26	4.77	4.92	5.08	5.34	5.23	4.82	4.68	4.84	4.98	2.37	2.37	6.47	--	--	--
Sep 14 06	5.26 <sup>p</sup>	4.80	4.95	5.11	5.35	--	4.85	4.72	4.87	5.01	2.37	2.38	--	--	--	--

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

Appendix Table 2  
**Money Aggregates**  
 Seasonally Adjusted

Period	M1	M2	Nontransactions Components in M2
	1	2	3
<u>Annual growth rates (%):</u>			
Annually (Q4 to Q4)			
2003	7.4	5.5	5.0
2004	5.4	5.3	5.3
2005	0.3	4.0	5.1
Quarterly (average)			
2005-Q3	0.8	4.5	5.5
Q4	-0.3	5.0	6.4
2006-Q1	2.4	6.3	7.3
Q2	1.1	3.2	3.8
Monthly			
2005-Aug.	6.7	5.7	5.5
Sep.	-3.0	5.6	7.9
Oct.	0.3	5.3	6.7
Nov.	0.6	3.5	4.3
Dec.	-5.7	5.0	7.8
2006-Jan.	11.8	11.0	10.8
Feb.	-5.5	3.4	5.7
Mar.	7.8	2.7	1.4
Apr.	4.9	4.0	3.8
May	2.6	1.2	0.8
June	-20.5	5.9	12.7
July	2.2	4.0	4.4
Aug. p	-3.1	3.9	5.6
<u>Levels (\$billions):</u>			
Monthly			
2006-Apr.	1390.6	6789.8	5399.2
May	1393.6	6796.4	5402.8
June	1369.8	6829.8	5460.0
July	1372.3	6852.3	5480.0
Aug. p	1368.8	6874.3	5505.5
Weekly			
2006-Aug. 7	1358.3	6849.1	5490.8
14	1347.0	6848.1	5501.1
21	1367.6	6882.8	5515.2
28p	1377.5	6876.4	5498.9
Sep. 4p	1386.7	6899.7	5513.0

p preliminary

**Appendix Table 3**  
**Changes in System Holdings of Securities <sup>1</sup>**  
**(Millions of dollars, not seasonally adjusted)**

September 14, 2006

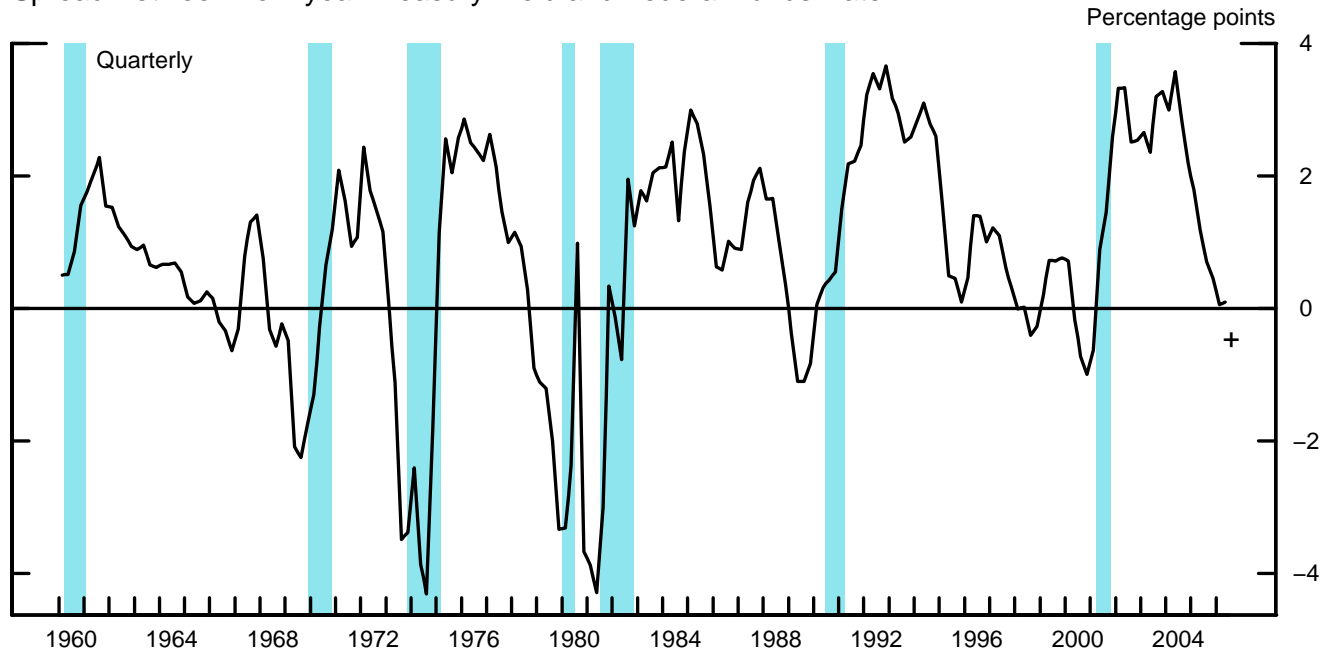
	Treasury Bills			Treasury Coupons						Federal Agency Redemptions (-)	Net change total outright holdings <sup>4</sup>	Net RPs <sup>5</sup>		
	Net Purchases <sup>2</sup>	Redemptions (-)	Net Change	Net Purchases <sup>3</sup>				Redemptions (-)	Net Change			Short-Term <sup>6</sup>	Long-Term <sup>7</sup>	Net Change
				< 1	1-5	5-10	Over 10							
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
2005	8,300	---	8,300	2,894	11,309	3,626	2,007	2,795	17,041	---	25,341	-2,415	-192	-2,607
2005 QII	2,010	---	2,010	---	3,495	1,708	1,015	1,305	4,914	---	6,923	1,082	1,361	2,443
QIII	4,743	---	4,743	1,298	5,025	1,118	90	757	6,774	---	11,517	964	1,538	2,502
QIV	1,512	---	1,512	1,596	2,789	800	902	189	5,897	---	7,410	-1,202	-1,293	-2,496
2006 QI	4,099	---	4,099	1,200	7,443	1,704	1,219	1,321	10,245	---	14,345	793	1,839	2,631
QII	---	---	---	1,375	6,063	1,181	---	1,217	7,402	---	7,402	-627	-4,413	-5,040
2006 Jan	1,563	---	1,563	---	2,809	1,505	205	1,321	3,198	---	4,761	252	-1,355	-1,103
Feb	1,308	---	1,308	1,200	2,498	25	924	---	4,647	---	5,955	-396	-3,672	-4,068
Mar	1,228	---	1,228	---	2,136	174	90	---	2,400	---	3,628	393	-232	162
Apr	---	---	---	---	1,096	---	---	---	1,096	---	1,096	626	-3,995	-3,368
May	---	---	---	1,375	2,317	101	---	1,217	2,576	---	2,576	-756	2,511	1,755
Jun	---	---	---	---	2,650	1,080	---	---	3,730	---	3,730	-2,633	-2,077	-4,710
Jul	1,649	---	1,649	---	549	---	---	3,931	-3,382	---	-1,733	-909	110	-800
Aug	---	---	---	415	1,454	---	---	---	1,869	---	1,869	-231	548	318
2006 Jun 21	---	---	---	---	---	---	---	---	---	---	---	-2,352	-1,000	-3,352
Jun 28	---	---	---	---	---	---	---	---	---	---	---	2,334	-3,000	-666
Jul 5	---	---	---	---	---	---	---	---	---	---	---	3,395	5,000	8,395
Jul 12	---	---	---	---	---	---	---	---	---	---	---	-6,958	---	-6,958
Jul 19	1,649	---	1,649	---	549	---	---	3,931	-3,382	---	-1,733	6,023	-4,000	2,023
Jul 26	---	---	---	---	---	---	---	---	---	---	---	-6,472	3,000	-3,472
Aug 2	---	---	---	---	---	---	---	---	---	---	---	5,587	---	5,587
Aug 9	---	---	---	---	---	---	---	---	---	---	---	-3,477	-3,000	-6,477
Aug 16	---	---	---	---	---	---	---	---	---	---	---	3,052	1,000	4,052
Aug 23	---	---	---	---	---	---	---	---	---	---	---	-5,503	5,000	-503
Aug 30	---	---	---	415	1,454	---	---	---	1,869	---	1,869	4,592	---	4,592
Sep 6	---	---	---	---	---	---	---	---	---	---	---	2,681	-2,000	681
Sep 13	---	---	---	---	1,320	548	228	---	2,096	---	2,096	-6,144	-2,000	-8,144
2006 Sep 14	---	---	---	---	---	---	---	---	---	---	---	7,582	-1,000	6,582
Intermeeting Period														
Aug 8-Sep 14	---	---	---	415	2,774	548	228	---	3,965	---	3,965	1,855	1,000	2,855
Memo: LEVEL (bil. \$)														
Sep 14			277.0	135.4	214.6	60.3	81.5		491.8	---	768.9	-17.3	13.0	-4.3

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.

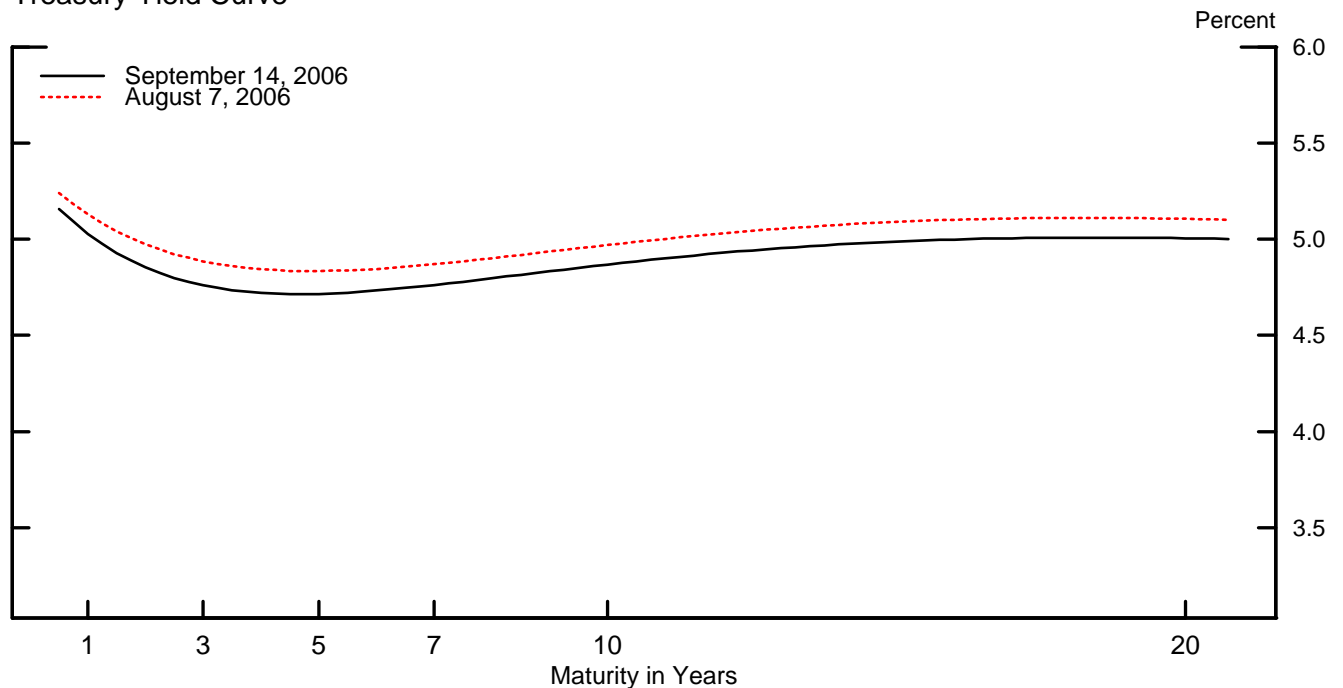
# Treasury Yield Curve

### Spread Between Ten-year Treasury Yield and Federal Funds Rate



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

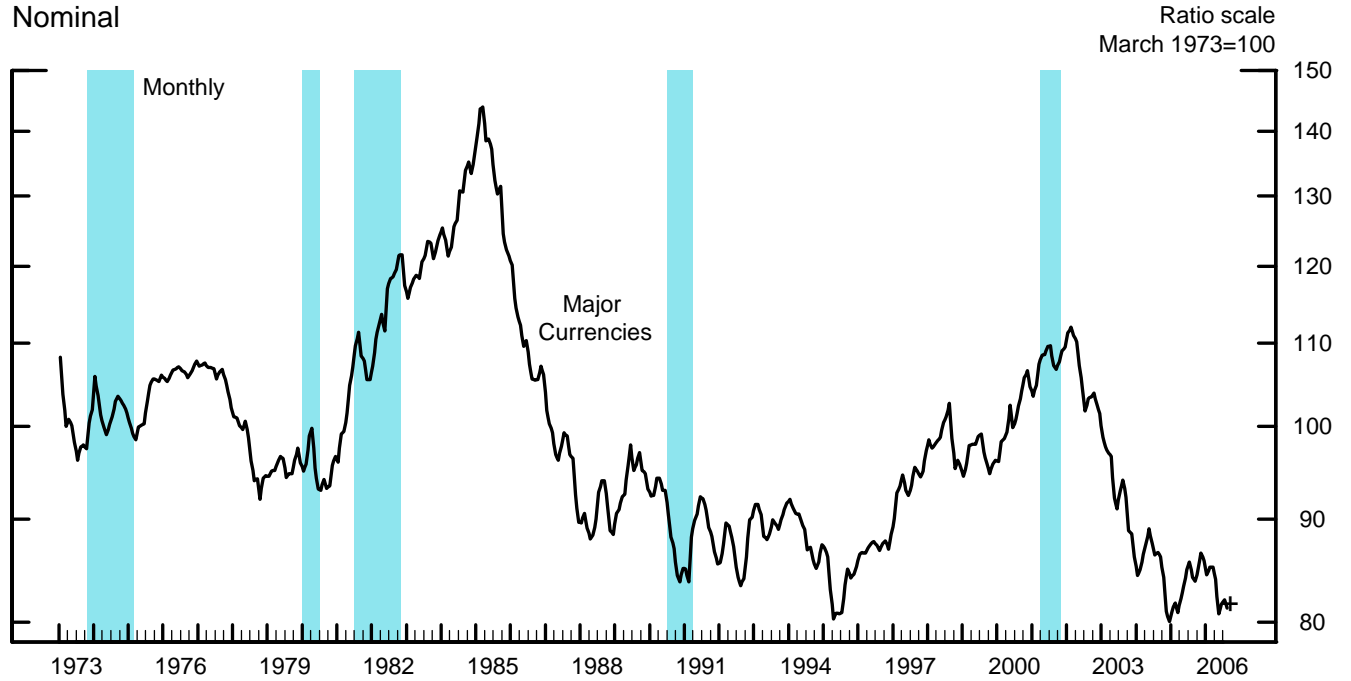
### Treasury Yield Curve\*



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

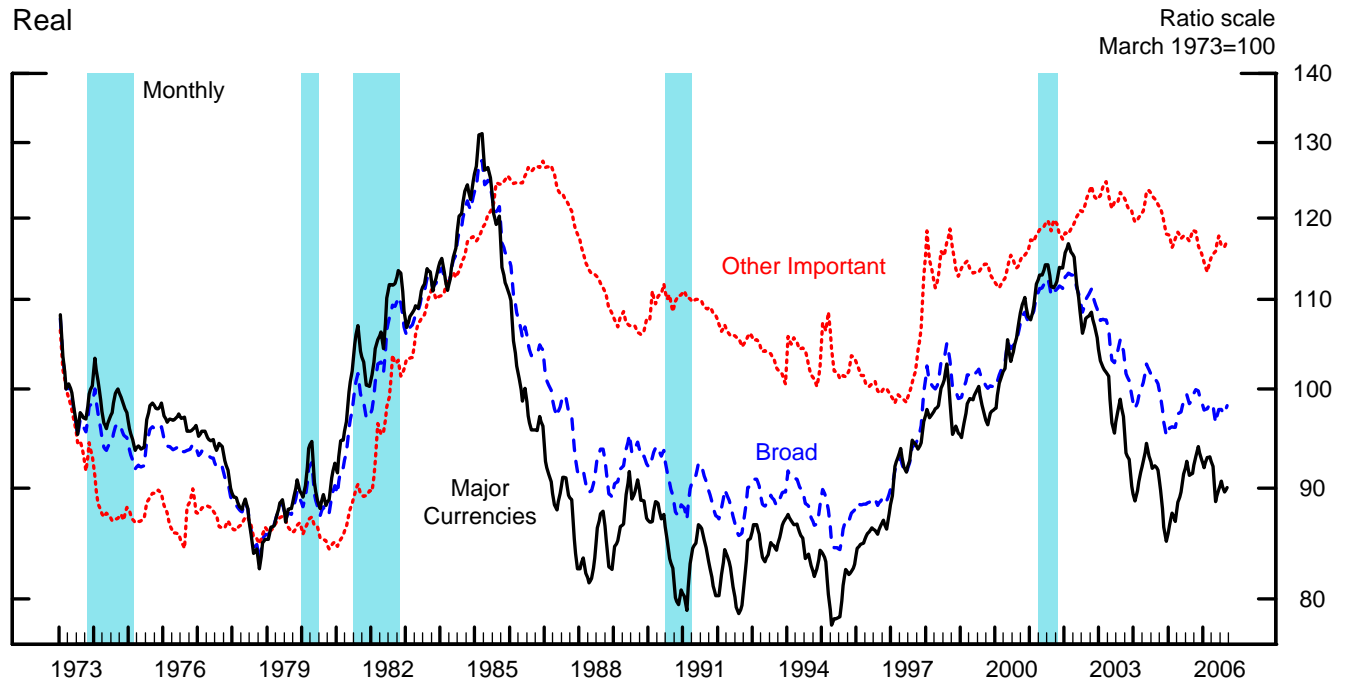
# Dollar Exchange Rate Indexes

Nominal



+ Denotes most recent weekly value.

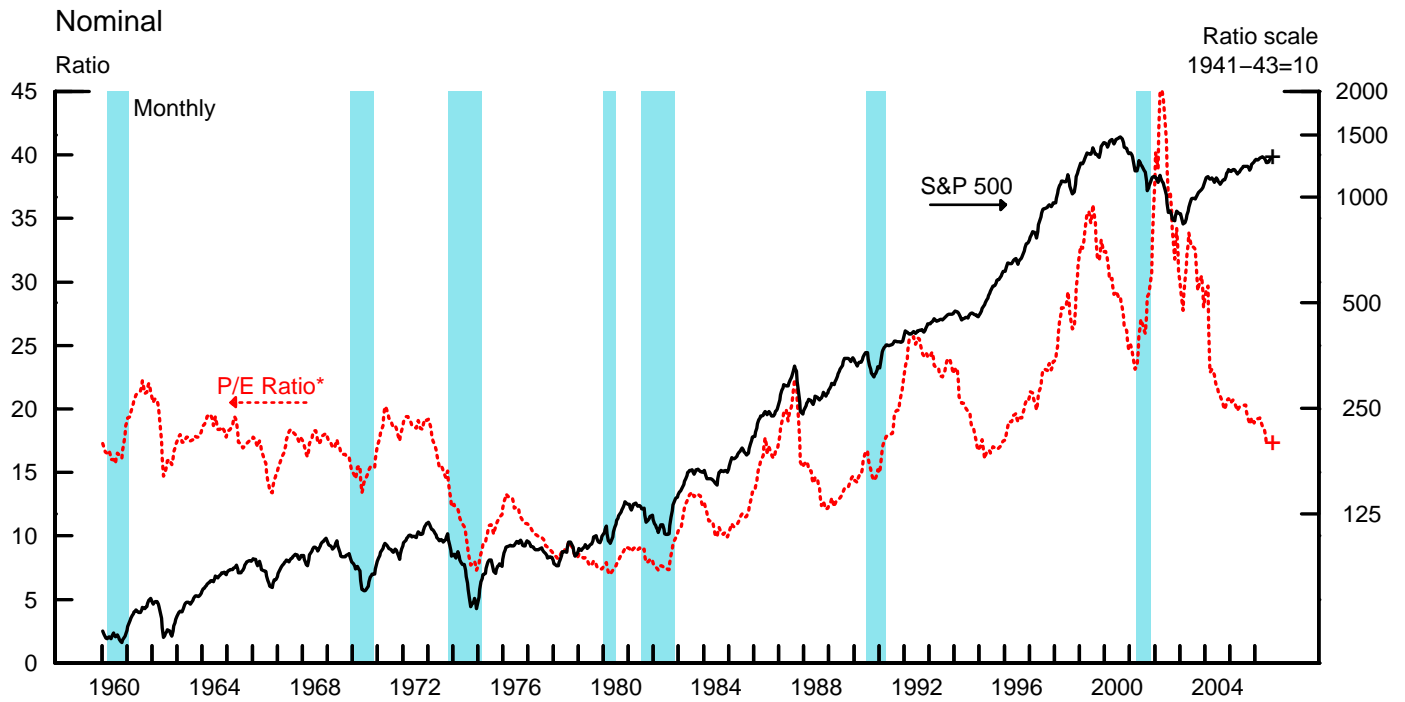
Real



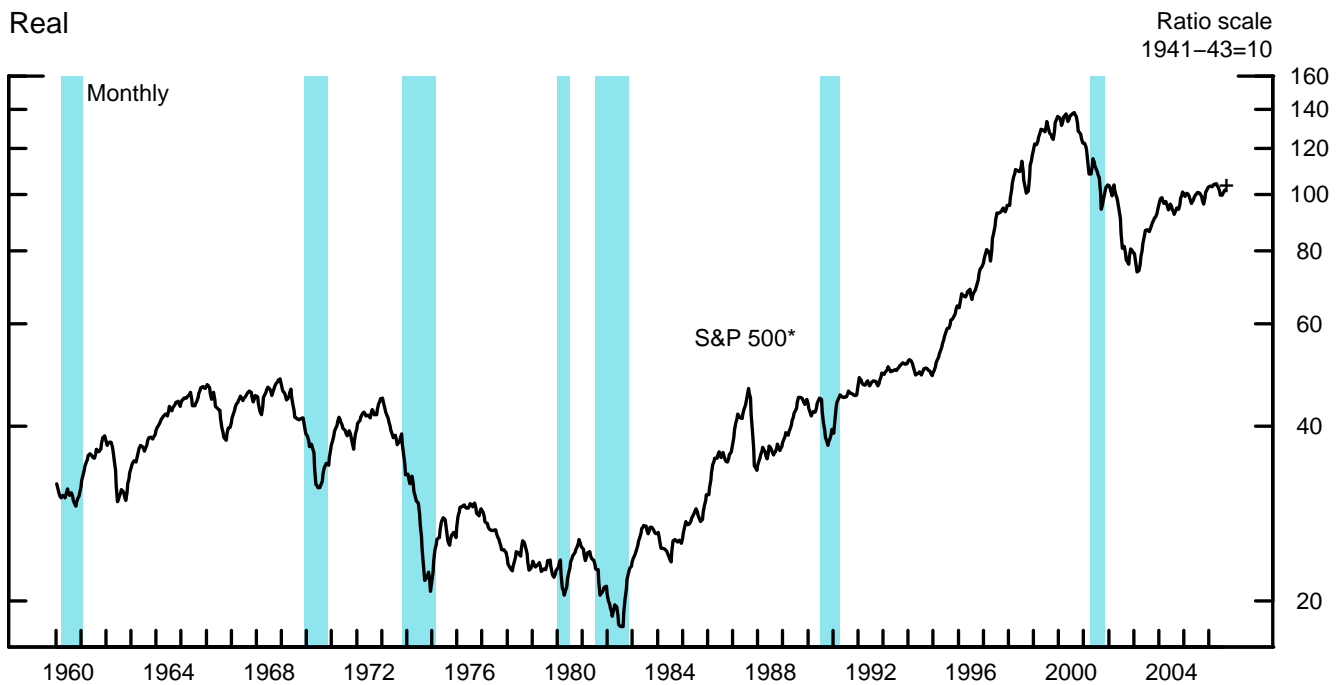
Note. The major currencies index is the trade-weighted average of currencies of the euro area, Canada, Japan, the U.K., Switzerland, Australia, and Sweden. The other important trading partners index is the trade-weighted average of currencies of 19 other important trading partners. The Broad index is 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



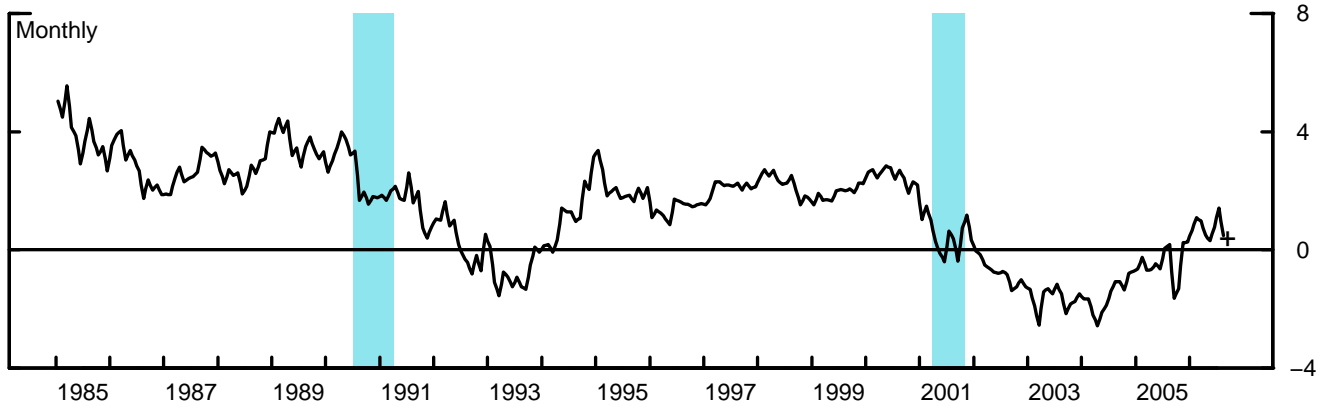
\* Based on trailing four-quarter earnings.  
+ Denotes most recent weekly value.



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

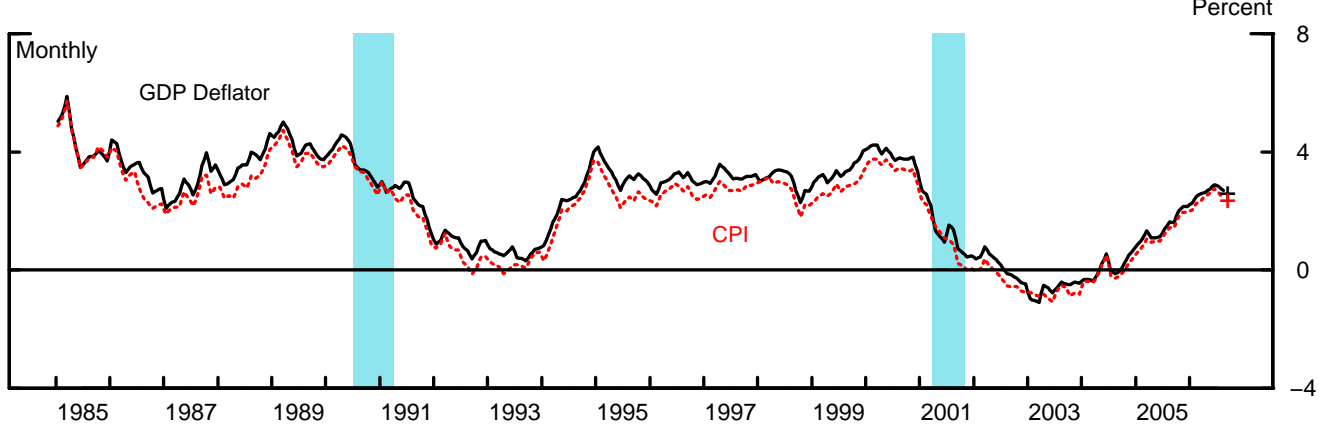
# One-Year Real Interest Rates

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



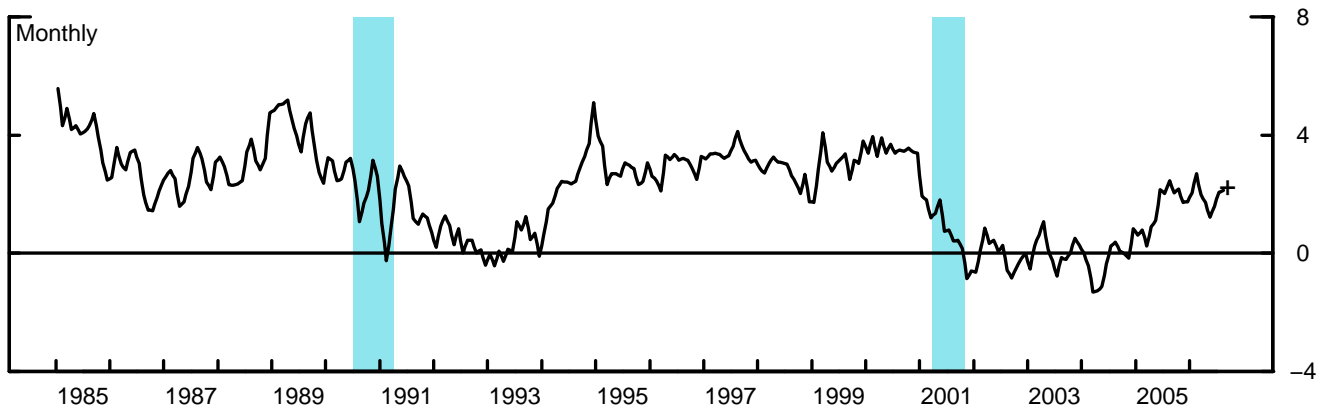
\* Mean value of respondents.

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.

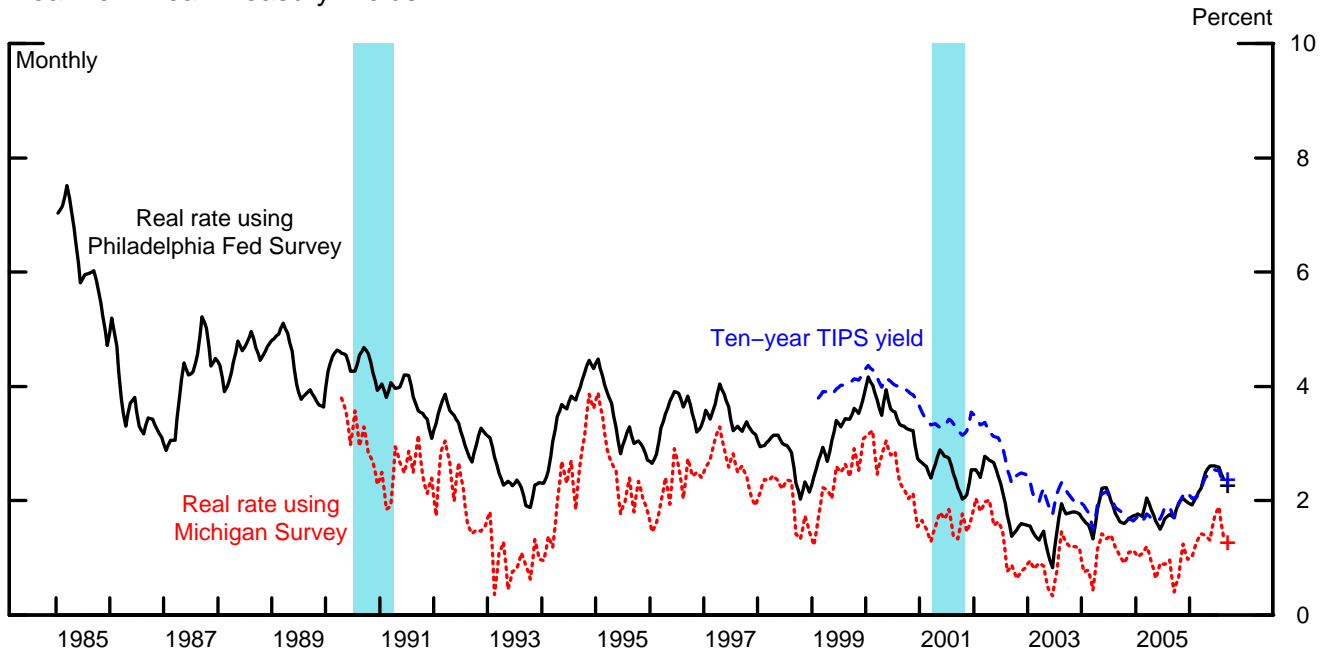
One-Year Treasury Constant Maturity Yield Less Change in the Core CPI from Three Months Prior



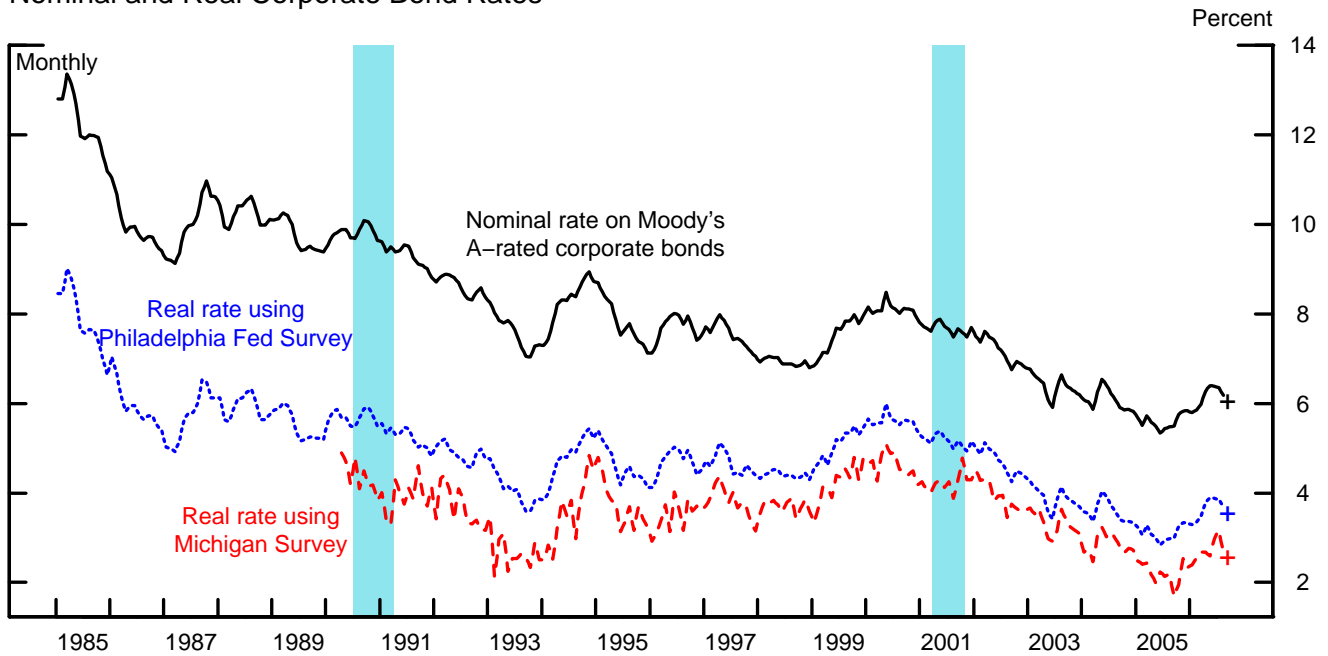
+ Denotes most recent weekly Treasury constant maturity yield less most recent inflation expectation.  
Note. Blue shaded regions denote NBER-dated recessions.

# Long-Term Real Interest Rates\*

## Real Ten-Year Treasury Yields



## Nominal and Real Corporate Bond Rates



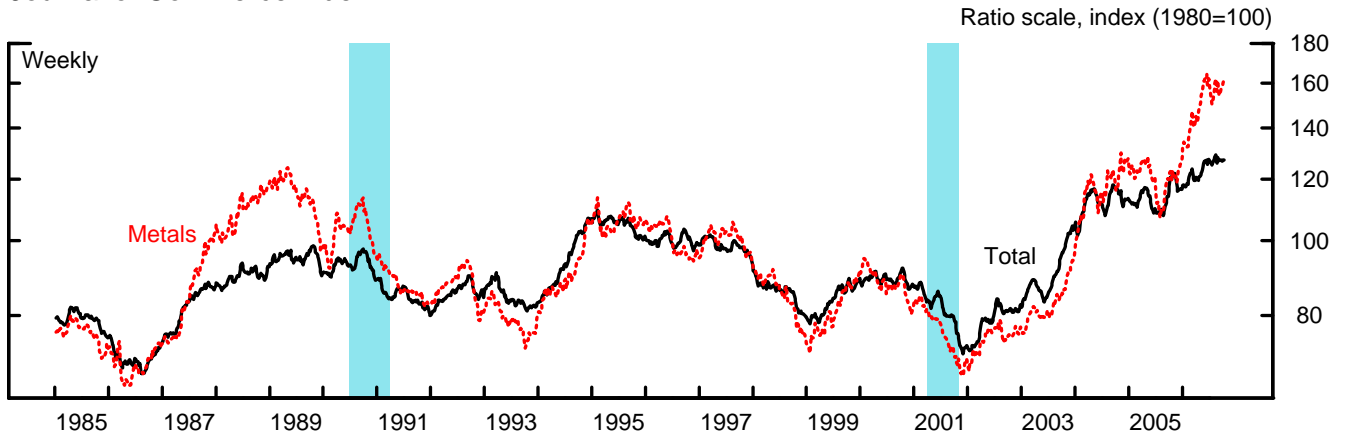
\* For real rates, measures using the Philadelphia Fed Survey employ the ten-year inflation expectations from the Blue Chip Survey until April 1991 and the Philadelphia Federal Reserve Bank Survey of Professional Forecasters thereafter (median value of respondents). Measures using the Michigan Survey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

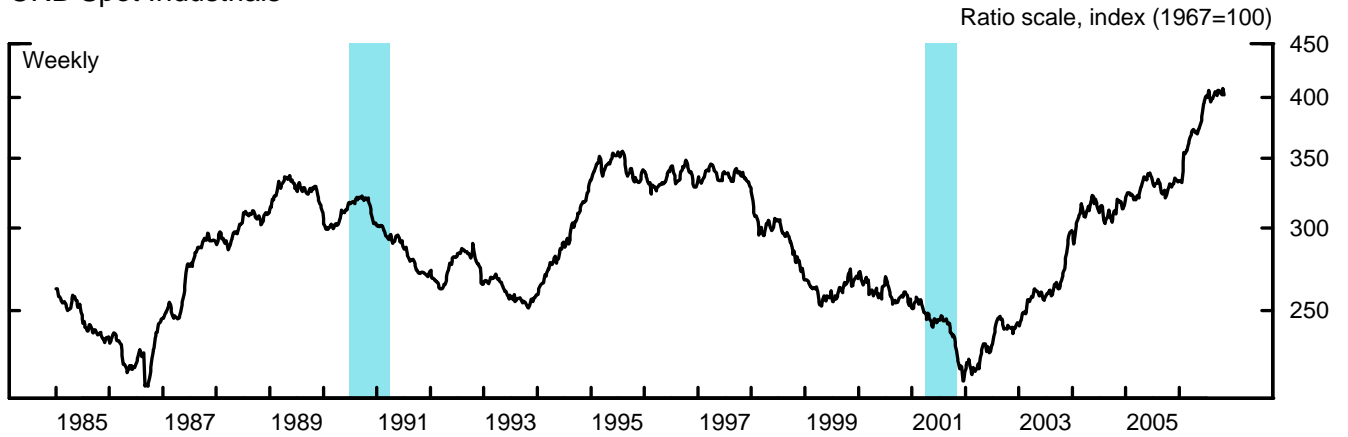
Note. Blue shaded regions denote NBER-dated recessions.

# Commodity Price Measures

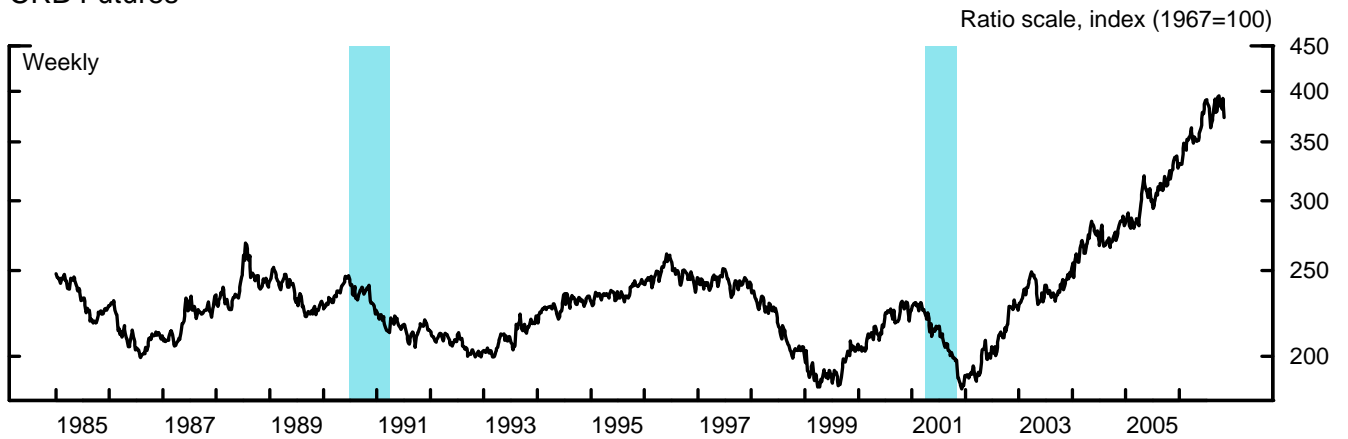
### Journal of Commerce Index



### CRB Spot Industrials



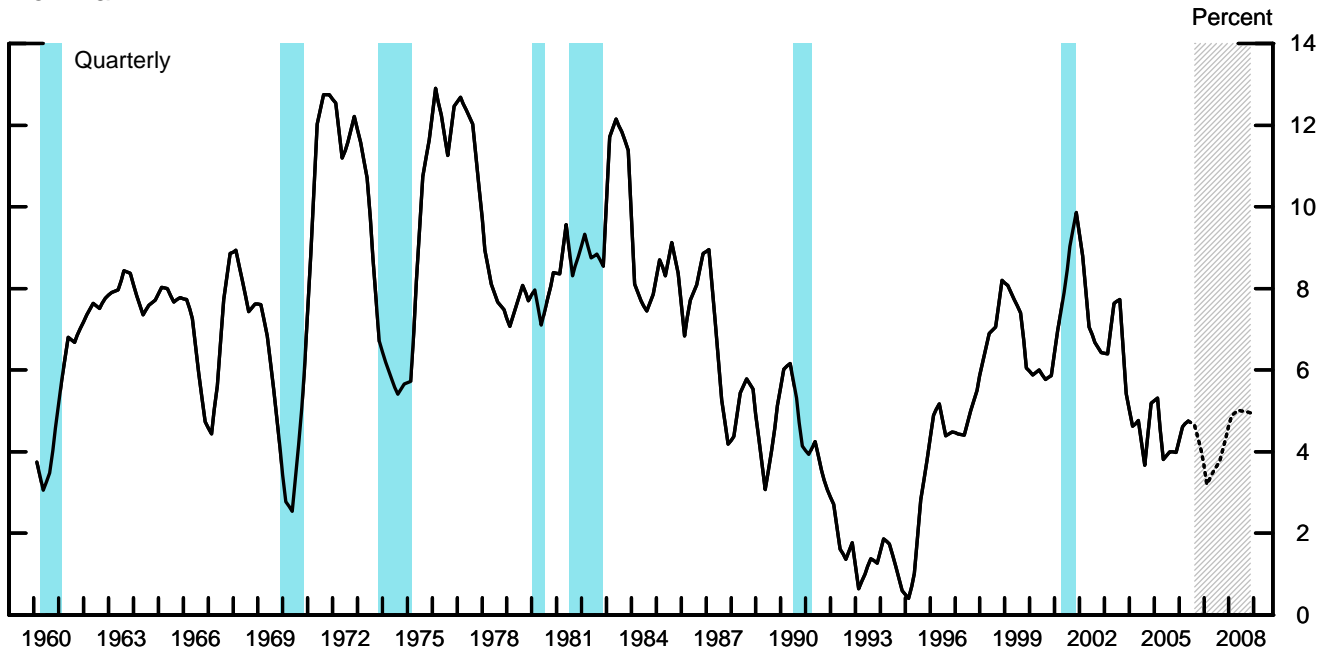
### CRB Futures



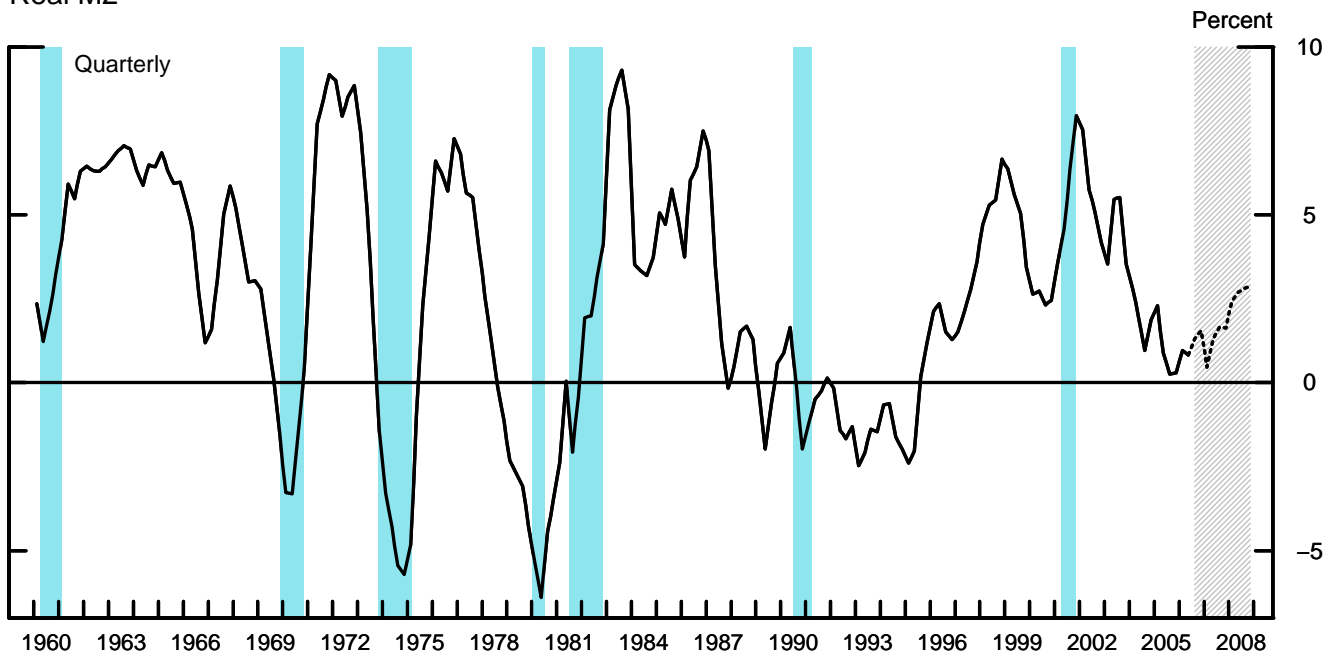
Note. Blue shaded regions denote NBER-dated recessions.

# Growth of M2

## Nominal M2

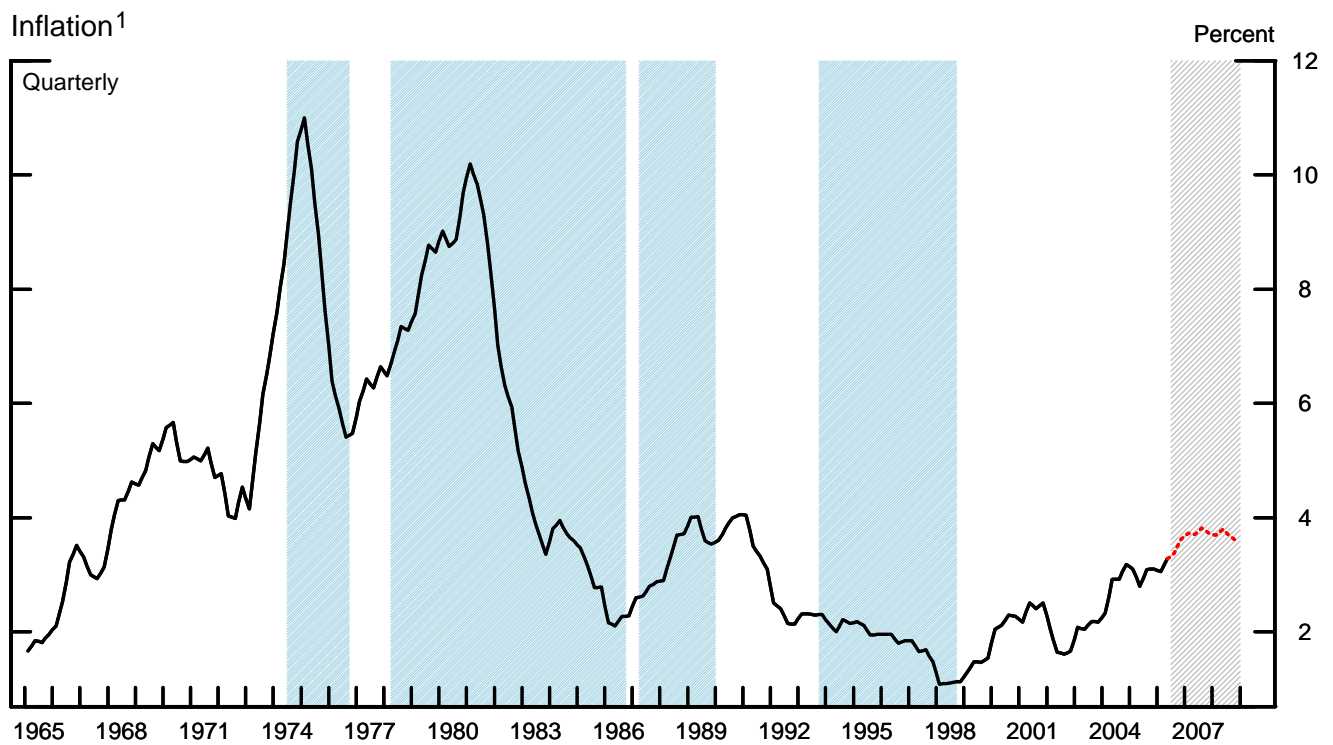
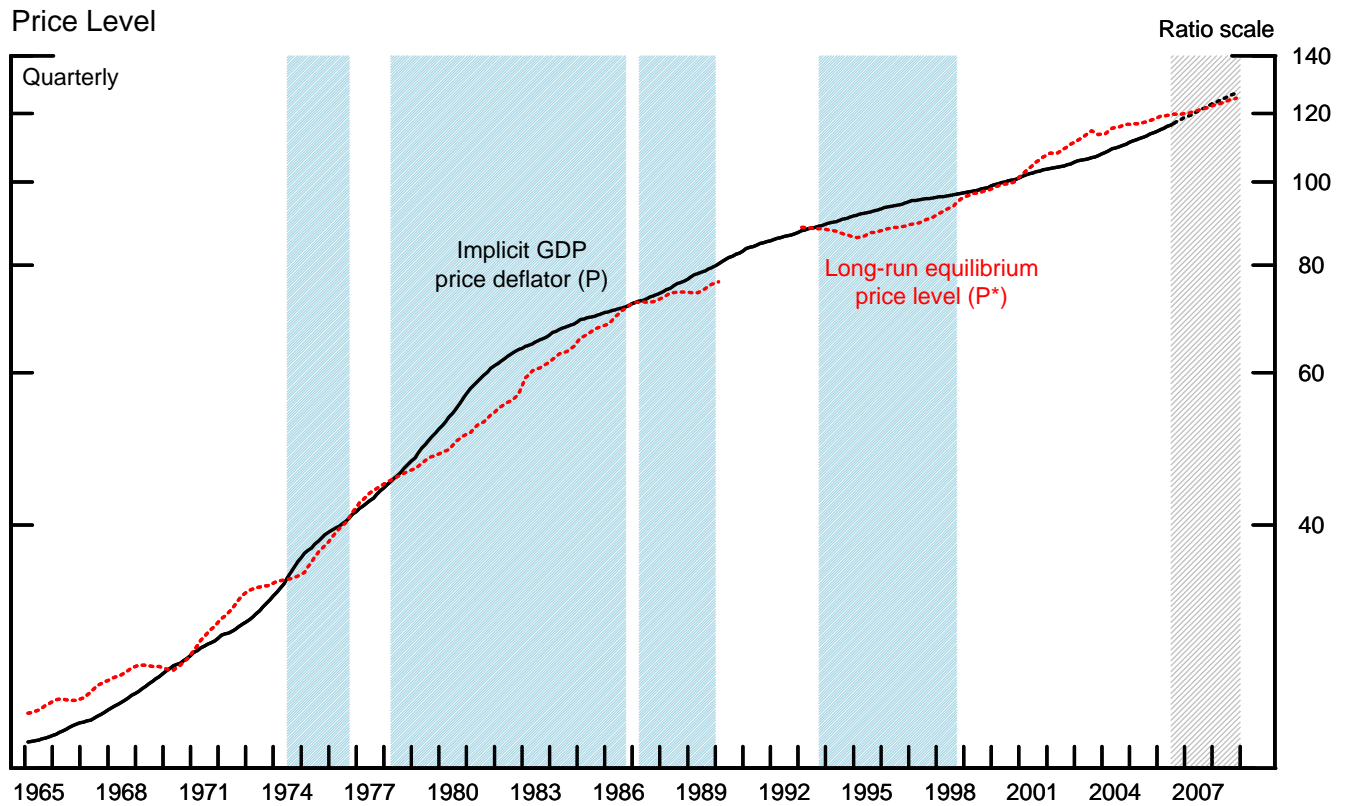


## Real M2



Note. Four-quarter moving average. Blue shaded regions denote NBER-dated recessions. Gray areas denote projection period. Real M2 is deflated by CPI.

### Inflation Indicator Based on M2



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

Note:  $P^*$  is defined to equal  $M2$  times  $V^*$  divided by potential GDP.  $V^*$ , or long-run velocity, is estimated using average velocity over the 1959:Q1-to-1989:Q4 period and then, after a break, over the interval from 1993:Q1 to the present. For the forecast period,  $P^*$  is based on the staff M2 forecast and  $P$  is simulated using a short-run dynamic model relating  $P$  to  $P^*$ . Blue areas indicate periods in which  $P^*$  is notably less than  $P$ . Gray areas denote the projection period.