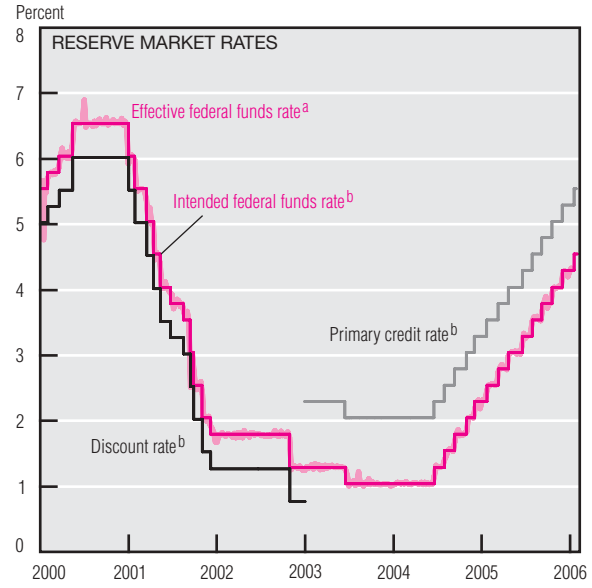
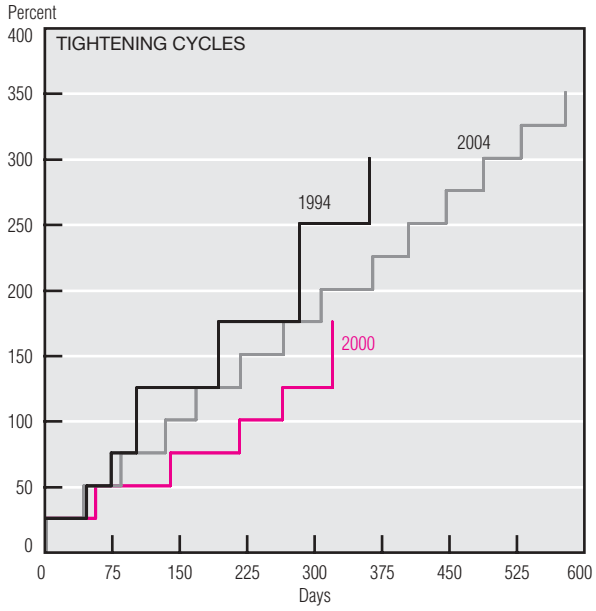
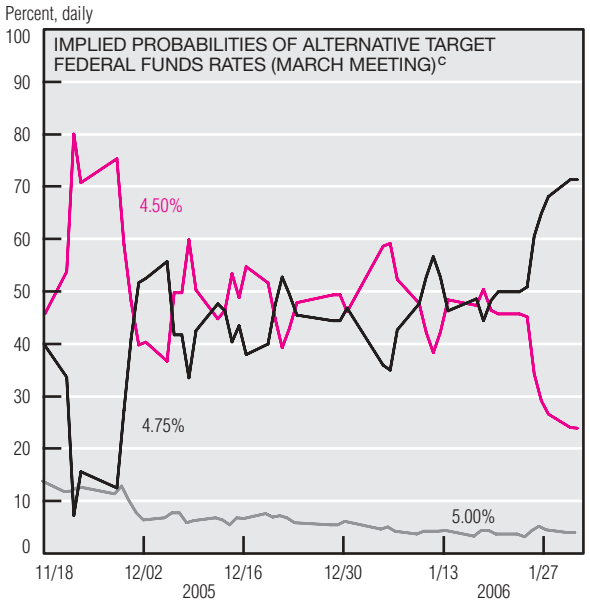
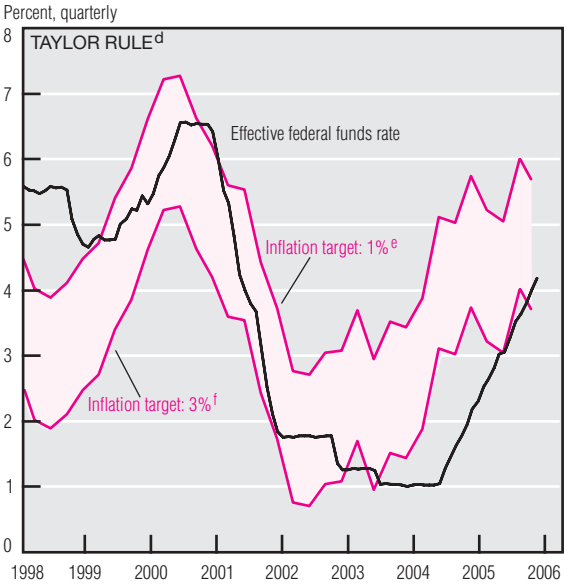
Monetary Policy









a. Weekly average of daily figures.
b. Daily observations.
c. Probabilities are calculated using trading-day closing prices from options on March 2006 federal funds futures that trade on the Chicago Board of Trade.
d. The formula for the Taylor rule is taken from Sharon Kozicki, "How Useful Are Taylor Rules for Monetary Policy?" Federal Reserve Bank of Kansas City, *Economic Review*, 1999 IIQ, volume 84, number 2. The weight on inflation is 1.53 and the weight on the output gap is 0.27. The baseline Taylor rule assumes the inflation target is 1.50% and the real interest rate is 1.75%.
e. This line assumes an interest rate of 2.5% and an inflation target of 1%.
f. This line assumes an interest rate of 1.5% and an inflation target of 3%.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Board of Governors of the Federal Reserve System, "Selected Interest Rates," *Federal Reserve Statistical Releases*, H.15; Chicago Board of Trade; and Bloomberg Financial Information Services.

On January 31, 2006, in its last meeting under Chairman Alan Greenspan, the Federal Open Market Committee raised the target federal funds rate by 25 basis points (bp) to 4.50%. This marks the fourteenth consecutive increase of 25 bp since June 2004; it brings the funds rate up a total of 350 bp from 1.00%, where it stood at the beginning of the period. This cycle of rising rates has now lasted longer and brought a larger total increase than the previous cycles, which began in 1994 and 2000. The increases since 2004 have proceeded at a much more measured pace, however, coming at 25 bp at each FOMC meeting and avoiding the jumps of 50 bp and 75 bp of the previous two cycles.

Market participants see at least a chance that the tightening cycle will end soon: Implied probabilities from options on fed funds futures show a 25% chance that the target will stay at 4.50% in March. However, much of the market sentiment (70%) sees rates rising again to 4.75%.

A proper appreciation of policy requires putting the rate increases into a broader context. One such context is the Taylor rule, which views the fed funds rate as reacting to a weighted average of inflation, target inflation, and economic growth. Despite the steady increases, the funds rate has generally stayed below the level recommended by the Taylor rule, although in recent months it has broken into the lower end of its range.

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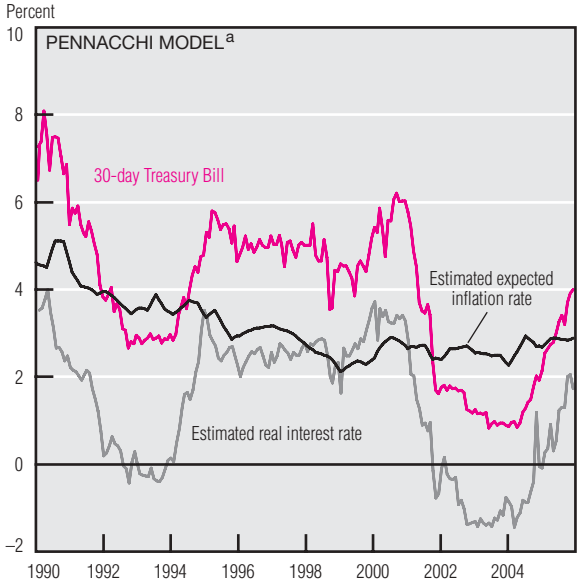
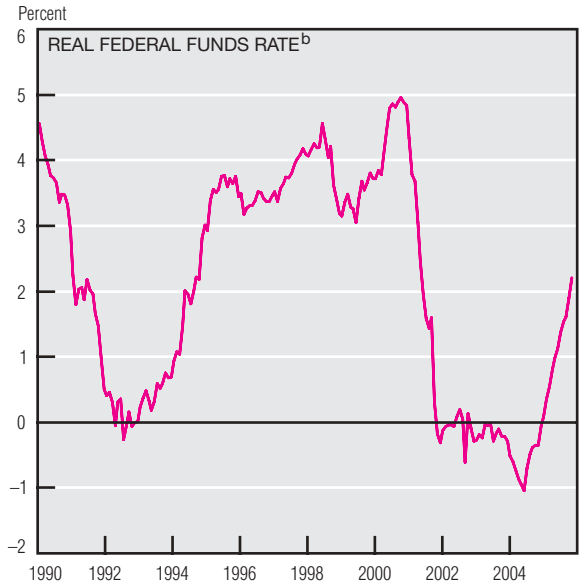
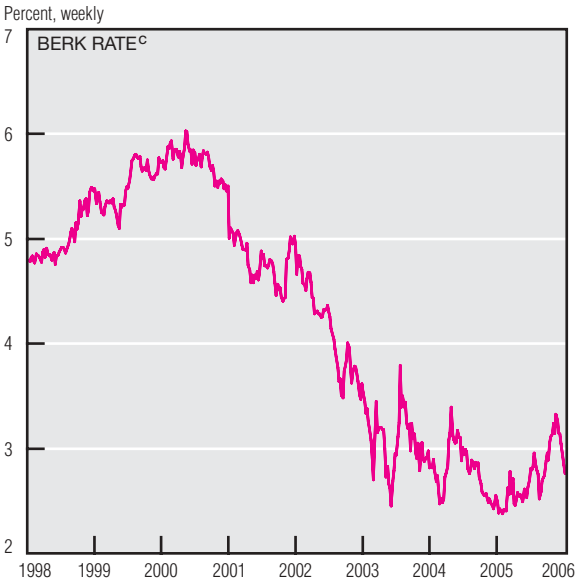
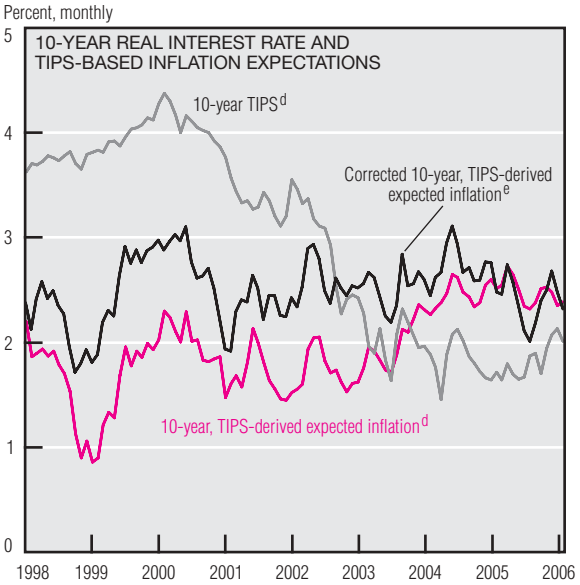
Monetary Policy *(cont.)*









a. The estimated expected inflation rate and the estimated real interest rate are calculated using the Pennacchi model of inflation estimation and the median forecast for the GDP implicit price deflator from the *Survey of Professional Forecasters*. Monthly data are used.
b. Defined as the effective federal funds rate deflated by the core PCE.
c. The Berk rate is calculated as the 30-year Government National Mortgage Association yield plus the 10-year TIPS yield minus the 10-year Treasury yield.
d. Treasury inflation-protected securities.
e. 10-year, TIPS-derived expected inflation adjusted for the liquidity premium on the market for 10-year Treasuries.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Board of Governors of the Federal Reserve System, "Selected Interest Rates," *Federal Reserve Statistical Releases*, H.15; Federal Reserve Bank of Philadelphia; and Bloomberg Financial Information Services.

Another way to gauge policy is to look at real yields, that is, interest rates adjusted for inflation. The effect of the fed funds increases can be seen in the real fed funds rate, which, after remaining negative for several years, moved rapidly upward and now stands above 2%. An alternative measure of the short rate, derived from the Pennacchi model, which statistically adjusts for inflation using survey expectations, showed a similar pattern.

Longer real rates showed a somewhat different pattern. Although they too showed a substantial drop over the 2000–02 period, they have stayed strongly positive and have held relatively steady over the past 18 months of tightening. Even the Berk rate, an alternative measure of the real rate with an adjustment for the firm's ability to delay investment, has show little upward drift. Thus the real yield curve appears relatively flat.

The flip side of looking at real rates is looking at inflation expectations, which can be backed out of comparing the yields on real and nominal bonds. Neither short- nor long-term expectations show major changes. The Pennacchi model puts one-month expected inflation at 2.85%, the same level it held in June 2005 and August 2004, whereas the TIPS spread puts 10-year expected inflation at a 2.37% annual rate.