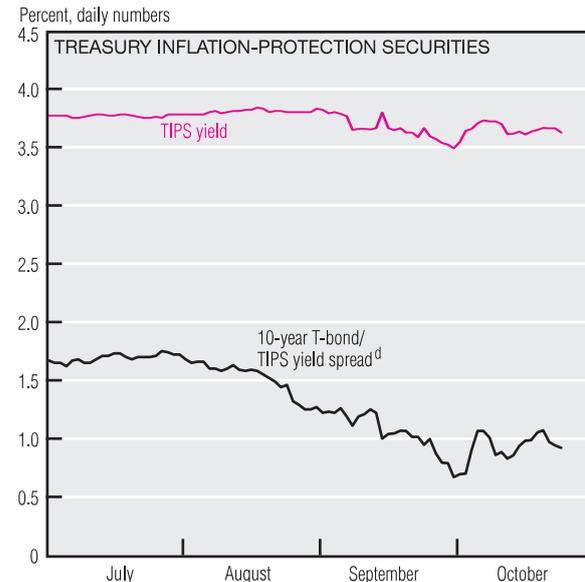
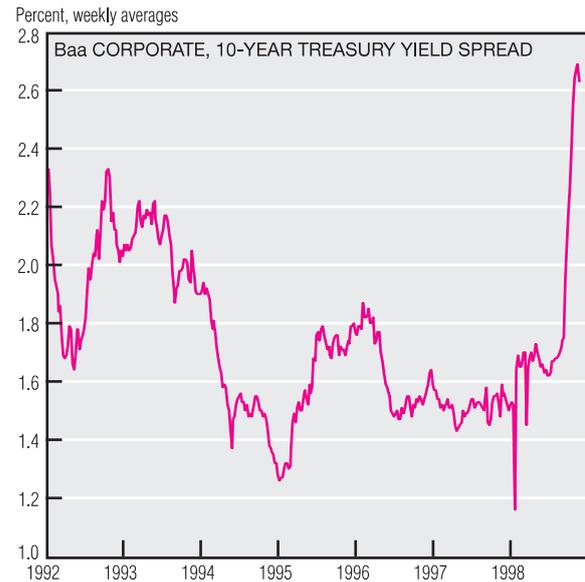
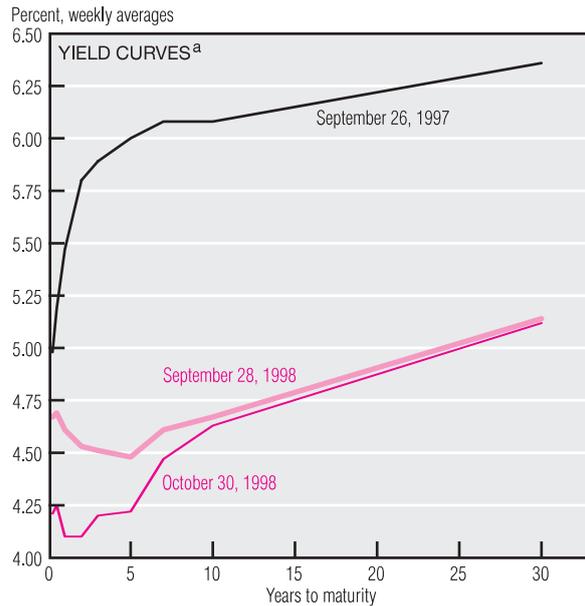


Interest Rates, Spreads, and Volatility



a. All instruments are constant-maturity series.

b. Estimate of the yield on a recently offered, A-rated utility bond with a maturity of 30 years and call protection of five years.

c. Bond Buyer Index, general obligation, 20 years to maturity, mixed quality.

d. 10-year Treasury bond constant-maturity yield minus the yield quote for the TIPS-adjusted series.

SOURCES: Board of Governors of the Federal Reserve System; and Bloomberg information services.

In the bond market, at least, the last few months provide strong reasons for calling 1998 “the year of the spread.” The big news has not been in interest rate movements as such but rather in the breakdown of traditional relationships between bonds of differing maturity, risk, and issuer. Such changes in the spreads between bonds have plagued portfolios across the board and have been blamed for everything from the downfall of hedge funds to lower bank profits.

This is not to imply that movements in the rates themselves were

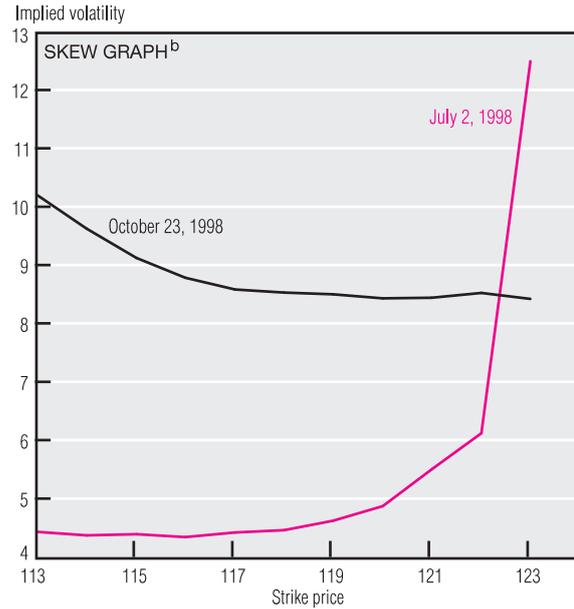
trivial. With the Federal Reserve’s decreasing the Federal funds rate and discount rate on October 15, short rates fell; the yield curve on Treasuries assumed a more normal upward slope, though it remains flatter and less smooth than usual, a point best appreciated by comparing a yield curve from last year. The yield-curve inversion has become more localized at the short end, with the 3-year, 3-month spread at -1 basis point, and the 10-year, 3-month spread moving up from zero to 42 basis points.

Agitation in the financial markets

had two apparent effects, a change in spreads and an increase in volatility. Investors’ oft-noted “flight to quality” was apparent in the sharp increase in the spread between corporate Baa bonds and 10-year Treasuries, and equally so in other markets: The spread between A-rated utilities and 30-year Treasuries more than doubled (from 99 to 200 basis points) from June to September. This meant a flight toward liquidity as well as toward low credit risk. The firmness of yields on the relatively illiquid, but very safe, Treasury

(continued on next page)

Interest Rates, Spreads, and Volatility (cont.)



- a. Underlying instrument is Bloomberg information services' "generic" 10-year note future.
 b. Options contracts on U.S. 10-year note future.
 c. Day-to-day changes in the Treasury rate. Scaling compensates for the propensity of volatility to increase and decrease as rates rise and fall, and for the tendency of this relationship to be nonlinear.
 d. Shaded areas indicate recessions.
 SOURCE: Bloomberg information services.

Inflation Protected Securities led to a reduction in the spread between Treasury bonds and TIPS.

The flight to quality coincided with increased volatility in the financial markets. One way to view this is to look at financial options, which are of two kinds: A *call* gives its holder the right but not the obligation to purchase a particular security at a given price (the *strike price*); a *put* confers the right but not the obligation to sell at the strike price. This structure makes option prices very sensitive to market volatility.

By using standard methods to price options, one can find the market's implied volatility, an estimate of how changeable participants expect prices to be in the future. As such, it is a forward-looking measure and is distinct from the backward-looking, historical volatility computed from actual prices. The jump in volatility since the collapse of the Russian ruble in August is readily apparent, though optimists point to the sharp decrease since mid-October as a positive sign. We can also observe that this pattern holds true for options at many different strike prices.

Statistical measures of volatility are useful, but the human eye is often the best judge of underlying patterns. The right perspective is necessary, however. Because interest rates show larger changes when rates are high, it helps to scale the changes by the level of interest rates. Because rates twice as high show changes that are more than twice as large, it also makes sense to scale in a nonlinear fashion. From this perspective, the recent drop in Treasury rates looks less frightening than it otherwise might.