

Monetary Trends



A Barometer of Financial Market Uncertainty

The financial market disturbance last summer and autumn had numerous symptoms and effects. Stock prices (as measured by the Dow Jones industrial average) fell almost 20 percent between July 17th and the end of August. Prices and issuance of quality commercial paper temporarily dropped. Bonds from emerging markets in Latin America and Asia tumbled in value, and debt rollover temporarily came to a near standstill. A panicky flight to quality led to a large increase in the prices of on-the-run Treasury securities, even relative to previous issues of like Treasury securities. The same shift in investor preferences toward safe assets led to increases in quality spreads among corporate bonds. While each of these facets was important and telling, an indicator based on stock market volatility would perhaps provide a more general barometer of financial market uncertainty. Large quality spreads and flights to quality reflect heightened repayment risks, which are signs of more acute (or idiosyncratic) trouble than increased uncertainty regarding the earnings potential of large corporations as a group.

The implied volatility from options contracts on the Standard and Poor's 100 (S&P 100) index, which includes the country's largest companies, is one barometer of stock market volatility. According to standard options-pricing theory, every determinant of an option's price is observable except the expected volatility of the price of the underlying asset over the option's life. From options prices and the other observable factors, one can infer the market's implied volatility of the price of the underlying asset. Using the trading prices of options on the S&P 100, the Chicago Board Options Exchange (CBOE) estimates the implied volatility corresponding to a

hypothetical at-the-money option with one month to expiration. (An at-the-money option has a strike price equal to the current price of the underlying asset.) The CBOE calls this estimate the volatility index (VIX). VIX is a forecast of how turbulent the S&P 100 index will be in the coming month. When expected volatility rises, put options, which give the holder the right to sell stocks at a prespecified strike price, become more expensive. Thus, when VIX is high, portfolio managers must pay a premium to hedge the values of their investments with options. In other words, the price of portfolio insurance rises.

The accompanying chart shows how VIX reflects financial market uncertainty across time. The stock market crash of October 1987, the Gulf War buildup of 1990-91, the Russian debt default in August 1998, and Brazil's recent currency devaluation in January 1999 all increased expected stock market volatility. The highest volatility in the 1986-98 period occurred right after the October 1987 crash. The chart indicates how infrequently the VIX is more than 50 percent higher than its average level. Thus, the financial market disturbance in autumn 1998 created a very tumultuous degree of uncertainty by historical standards, even if it did not match the titanic event of 1987.

—Michael J. Dueker

