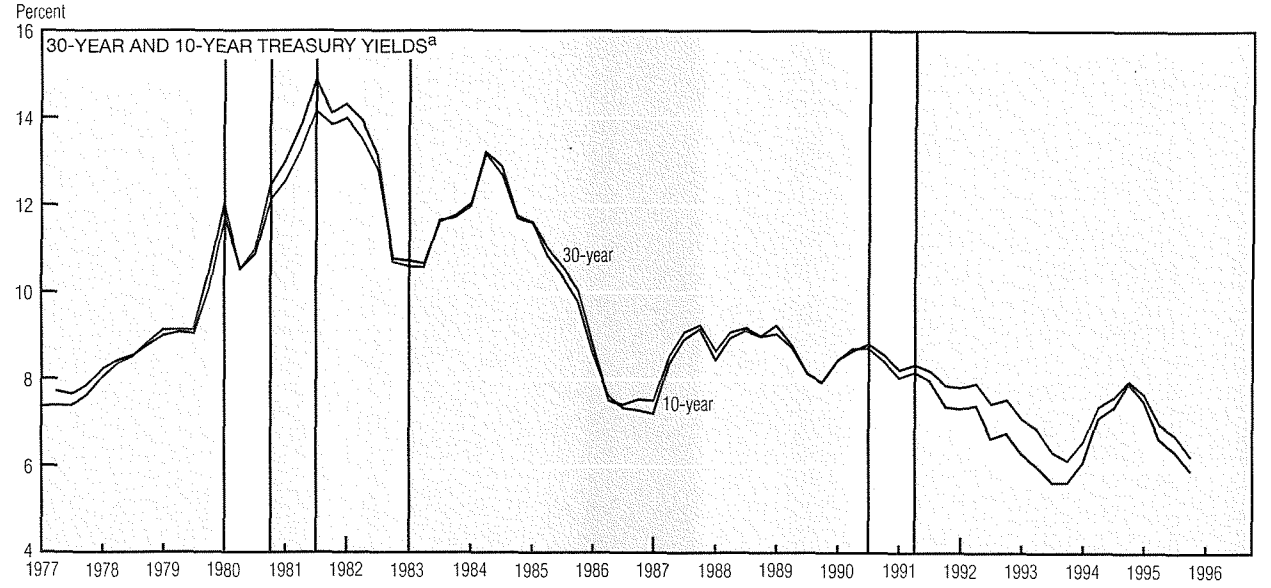
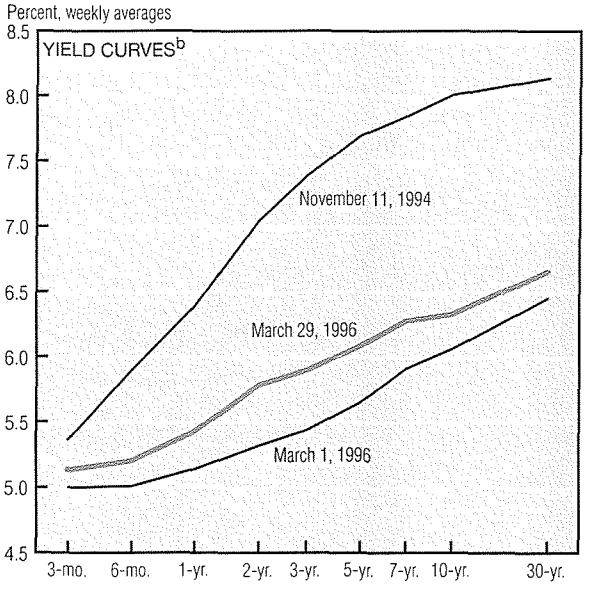
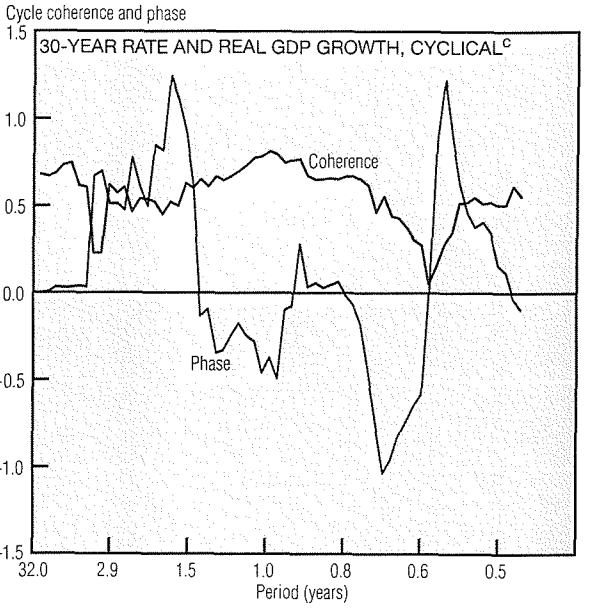
# Interest Rates




a. Shaded bars indicate recessions.
b. Three-month and six-month instruments are quoted from the secondary market on a yield basis; all other instruments are constant-maturity series.
c. Coherence measures the correlation at each frequency; its values range from 0 to 1. Phase measures the leads and lags between cycles. A positive or negative value indicates that interest rates lead or lag real growth, respectively. Larger positive or negative phase values imply longer leads or lags.
SOURCES: Board of Governors of the Federal Reserve System; and U.S. Department of Commerce, Bureau of Economic Analysis.

In recent weeks, the yield curve (particularly the long end) has shifted upward. Good news for the economy is often deemed bad news for long-term bonds, since robust growth leads bond prices to fall and interest rates to rise. Do long-term interest rates show such a cyclical pattern? A look at the relation between 10- and 30-year bonds and recessions since 1977 indicates that interest rates rose prior to each recession and then fell during each downturn. The economy's cyclical peak, which corresponds to the onset of the recession, also coincides with the peak in interest rates. On the other hand, interest rates sometimes increase in a recession, and often rise and fall in a recovery.

A closer look at the cyclical relation between real GDP growth and 30-year interest rates supports this. We can think of interest rates and the real economy as being composed of cycles of many frequencies, from a daily one (because markets close at night) to weekly and seasonal frequencies, to business cycles of three to five years, to longer-term secular variation. The relation between interest rates and real GDP then varies with the period of the cycle.

*Coherence* measures the degree of correlation at each frequency. The lower right chart indicates high coherence (that is, comovement) in the three- to five-year range and in the range around one year. *Phase* measures whether one cycle leads or lags the other. During business cycles, interest rates tend to lead, rising and falling before real growth does.