FUTURES PRICES.

The attached Excel spread-sheet has prices for two long-term futures contracts expiring in December 2001: crude oil and gold.

- A crude oil price index is the price of crude oil on successive days.
- A crude oil futures index is the market's estimate of the price of crude oil at the expiration date of the contract.

The futures contract is an excellent gauge of what investors expect the price to be several years later. The time series on the attached spread-sheet shows expectations from January 1997 through October 2001 for the price of crude oil in December 2001.

- For a regression analysis student project, regress the stock price of an oil firm on the futures price.
- For a time series project, fit the residuals of the regression to an ARIMA process.

Illustration: Regress the share price of Exxon Oil on the crude oil futures price from January 1997 through October 2001. Then fit the residuals (the actual stock price minus the fitted stock price) to an ARIMA process. Consider the various techniques to make the time series stationary. For example, you might take logarithms of the stock price and the futures price before running the regression.

You are not restricted to these two indices. You can get stock prices and futures prices for dozens of commodities. Use the internet search engines (Google, Yahoo, MSN, etc.) to pick a subject that interests you. Don't worry that your chosen topic is not appropriate, or that you are using the wrong futures index for a particular commodity. We judge if you understand the statistics concepts, not if you understand the derivatives markets.