

## *STOCK PRICES*

Several candidates have asked us to provide sample time series for stock prices and derivative assets. You can get many good time series from the internet. Search for stock prices or futures prices on Google (or another search engine).

We provide a few time series on the attached Excel spread-sheets. You can use these time series for your student project or you can search for similar time series that you can compare to these.

## *NASDAQ AND FTSE*

We show the closing prices of the NASDAQ stock exchange from March 21, 2000, through March 10, 2006. The 1,501 observations can be fit an ARIMA process.

The first two years are the bursting of the dot.com bubble, when NASDAQ lost four fifths of its value. Subsequent years show high volatility.

You may decide that different years follow different processes. You can analyze how to make the NASDAQ time series stationary. Use differences and/or logarithms. You may find that the ARIMA process depends on the period you choose.

A stock index is often said to be a random walk. You can test that hypothesis as you fit ARIMA processes. You can compare the NASDAQ time series to stock prices on more established stock exchanges, such as the New York Stock Exchange or the Financial Time Stock Exchange (FTSE). We show the FTSE closing prices for part of this period (February 26, 2002, to February 10, 2006). Test if NASDAQ and the FTSE have similar ARIMA processes.

## *FIVE COUNTRY INDICES*

The other attached spread-sheet shows five country indices.

The TSE 300 index was a stock market index that tracked the prices of 300 highly influential stocks which were traded on the Toronto Stock Exchange.

The S&P 500 is an index containing the stocks of 500 Large-Cap corporations, most of which are American. All of the stocks in the index are those of large publicly held companies and trade on the two largest US stock markets, the New York Stock Exchange and Nasdaq

The FTSE 100 Index is a share index of the 100 most highly capitalised companies listed on the London Stock Exchange.

The CAC 40 [Cotation Assistée en Continu (Continuous Assisted Quotation)] is a French

stock market index: a capitalization-weighted measure of the 40 most significant values among the 100 highest market caps on the Paris Bourse.

The NIKKEI 225 Stock Average is a measure of share values on the Tokyo Stock Exchange. It is the simple average of the price of its 225 components.

You can test if the same ARIMA process fits the five indices, or if different ARIMA processes must be used. You can deflate each index by the inflation rate or the risk-free interest rate in that country and see if the deflated indices follow the same process.