Time Series Analysis
Homework # 2

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Due on April 15, 2008

1. For each model below,

   (a) Simulate the series with $n = 200$ (one replication)
   (b) Plot the series
   (c) Identify each series using ACF, PACF, and ESACF
   (d) estimate the model
   (e) perform diagnostic checking
   (f) Forecast 1- to 10- periods ahead

   - $y_t = 0.8y_{t-1} + \epsilon_t$
   - $y_t = 0.6y_{t-1} + 0.16y_{t-2} + \epsilon_t$
   - $y_t = \epsilon_t + 0.8\epsilon_{t-1}$
   - $y_t = \epsilon_t + 0.6\epsilon_{t-1} - 0.16\epsilon_{t-2}$
   - $y_t = 0.8y_{t-1} + \epsilon_t + 0.8\epsilon_{t-1}$
   - $y_t = 0.6y_{t-1} + 0.16y_{t-2} + \epsilon_t + 0.6\epsilon_{t-1} - 0.16\epsilon_{t-2}$
   - $(1 - B)X_t = (1 - .6B)\epsilon_t$
   - $(1 - B)X_t = 5 + (1 - .6B)\epsilon_t$
   - $(1 - 1.9B)(1 - B)X_t = \epsilon_t$

2. TWNstock.dat contains returns for TAIEX, TSMC(2330), UMC(2303), FPG(1301), and ChinaSteel(2002) during the period from 2004/01/03 tp 2007/05/31.
   For each series,

   (a) Plot the series
   (b) Identify each series using ACF, PACF, and ESACF
   (c) estimate the model
   (d) perform diagnostic checking
   (e) Forecast 1- to 10- periods ahead