

Identifying and Comparing Change Points in Stock Market Data

Zhicheng Ji

1 Introductions

Change point analysis has been widely applied to stock market data to detect the occurrence of significant changes in stock prices. Most of the current studies focus on developing rigorous statistical methods to identify change points for an individual stock. However, sometimes one needs to compare change points for multiple stocks to discover whether there is any relationship between the trends of different stocks. An easy-to-use method to identify and compare change points for multiple stocks is lacking. To address this problem, we aim to develop a systematic method to identify change points for multiple stocks. The change points will be listed in a sequential order and a statistical method will be developed to determine whether one change point occurs earlier than the other.

2 Data

Simulated data will be used to test the validity of our methods. The methods will then be applied to a set of real stock market data. The data used in this study is the end of day prices for 30 US stock obtained from Quandl (<https://www.quandl.com/data/EOD?filterSelection=sample&keyword=>).

3 Exploratory Analysis

Prices for four stocks in 2015.

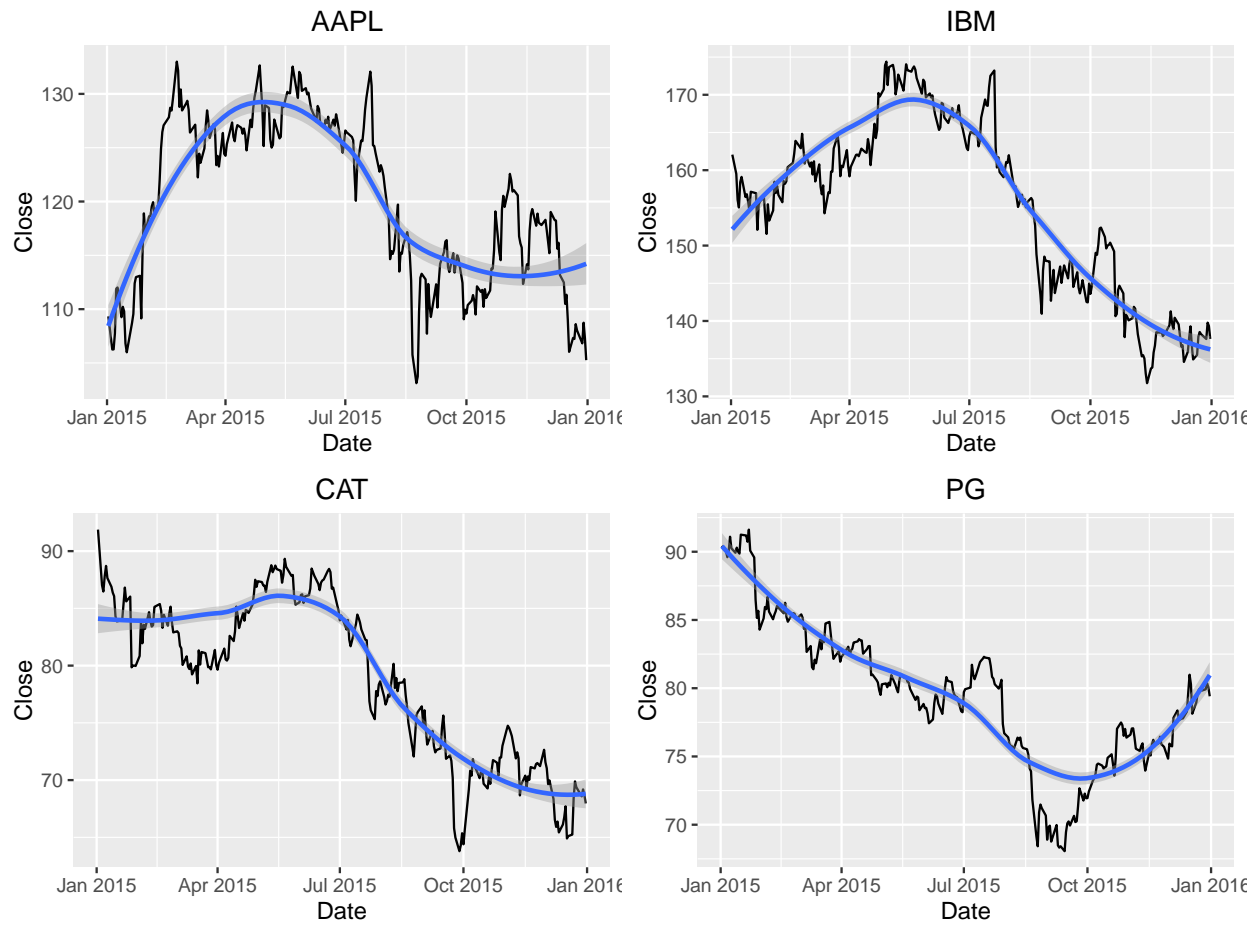


Figure 1: Prices for four stocks in 2015.