

# Stock Prices Change

Yiran Qin

```
# import libraries  
library(dplyr)
```

```
##  
## Attaching package: 'dplyr'  
  
## The following objects are masked from 'package:stats':  
##  
##   filter, lag  
  
## The following objects are masked from 'package:base':  
##  
##   intersect, setdiff, setequal, union
```

```
library(readxl)  
library(ggplot2)  
library(quantmod)
```

```
## Loading required package: xts  
  
## Loading required package: zoo  
  
##  
## Attaching package: 'zoo'  
  
## The following objects are masked from 'package:base':  
##  
##   as.Date, as.Date.numeric  
  
##  
## Attaching package: 'xts'  
  
## The following objects are masked from 'package:dplyr':  
##  
##   first, last  
  
## Loading required package: TTR  
  
## Registered S3 method overwritten by 'quantmod':  
##   method      from  
##   as.zoo.data.frame zoo
```

```
## Version 0.4-0 included new data defaults. See ?getSymbols.
```

```
library(timetk)
library(timeDate)
library(tinytex)
```

```
# import Amazon and Boeing datasets
```

```
AMZN <- read.csv("C:\\Users\\Ran Q\\Desktop\\Harvard Research\\AMZN Prices.csv", header = TRUE)
BA <- read.csv("C:\\Users\\Ran Q\\Desktop\\Harvard Research\\BA Prices.csv", header = TRUE)
```

```
head(AMZN)
```

```
##           Date    Open    High    Low   Close Adj.Close  Volume
## 1 2020-01-06 1860.00 1903.69 1860.00 1902.88   1902.88 4061800
## 2 2020-01-07 1904.50 1913.89 1892.04 1906.86   1906.86 4044900
## 3 2020-01-08 1898.04 1911.00 1886.44 1891.97   1891.97 3508000
## 4 2020-01-09 1909.89 1917.82 1895.80 1901.05   1901.05 3167300
## 5 2020-01-10 1905.37 1906.94 1880.00 1883.16   1883.16 2853700
## 6 2020-01-13 1891.31 1898.00 1880.80 1891.30   1891.30 2780800
```

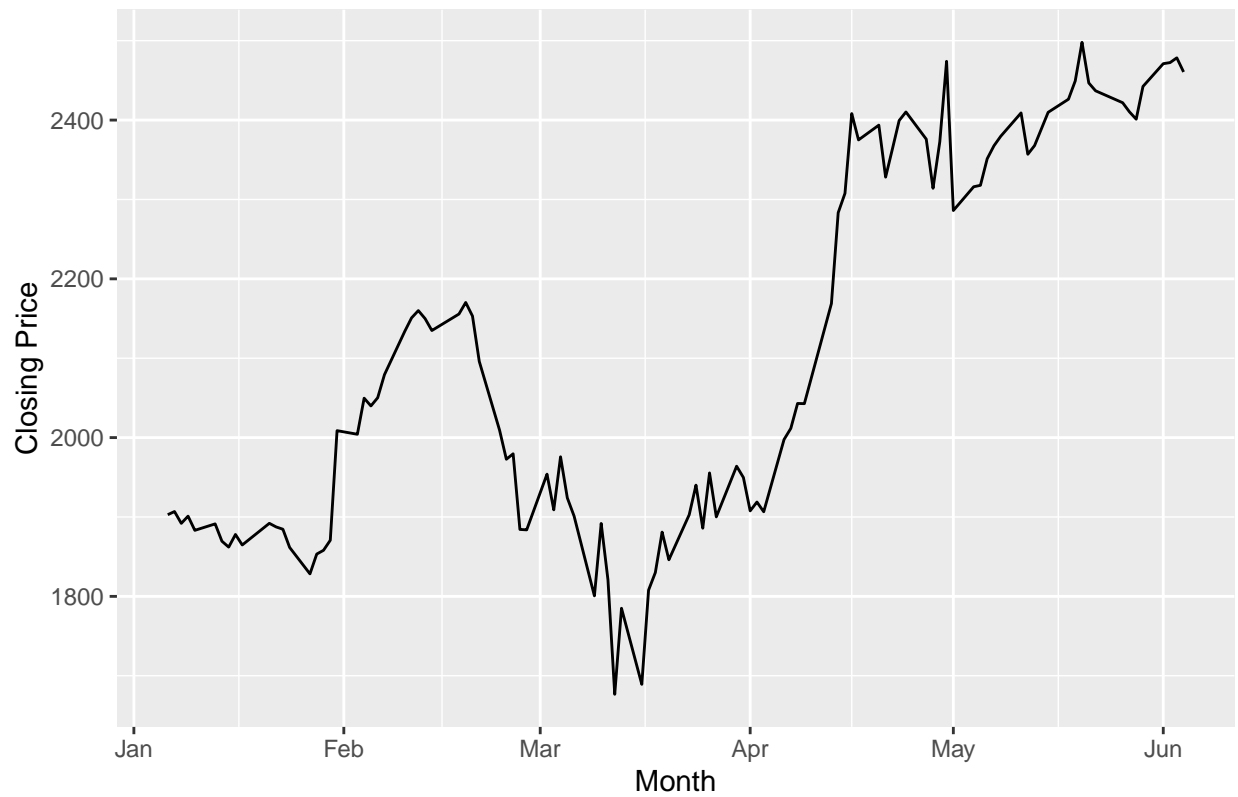
```
head(BA)
```

```
##           Date    Open    High    Low   Close Adj.Close  Volume
## 1 2020-01-06 329.30 334.86 327.88 333.74   331.7661 5355000
## 2 2020-01-07 334.26 344.19 330.71 337.28   335.2852 9898600
## 3 2020-01-08 332.40 334.03 329.60 331.37   329.4101 8239200
## 4 2020-01-09 334.95 341.73 332.05 336.34   334.3507 8175600
## 5 2020-01-10 335.56 337.70 329.45 329.92   327.9687 7161700
## 6 2020-01-13 332.40 334.10 330.08 330.22   328.2669 5648500
```

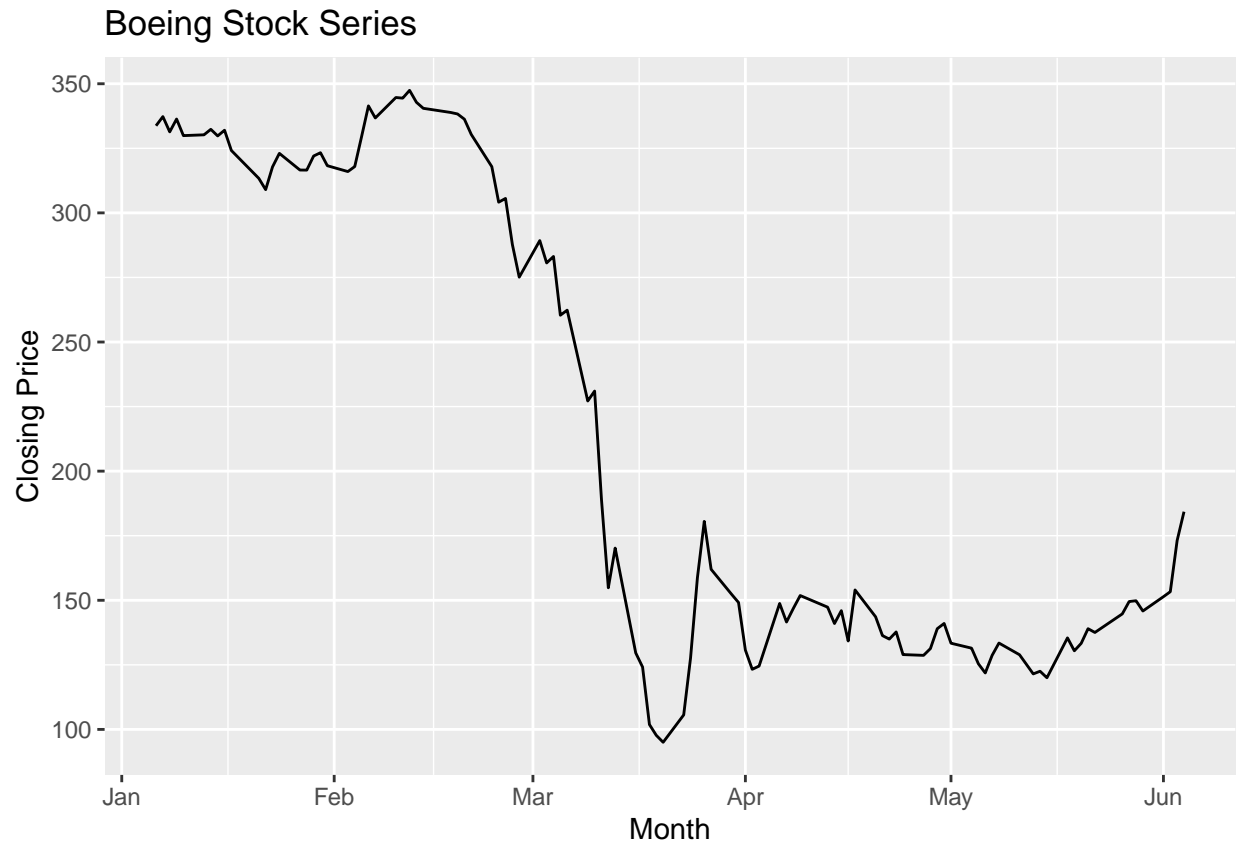
```
AMZN[,1] <- as.Date(AMZN[,1])
```

```
AMZN %>%
  ggplot(aes(x = Date, y = Close)) +
  geom_line() +
  labs(title = "Amazon Stock Series", y = "Closing Price", x = "Month")
```

Amazon Stock Series



```
BA[,1] <- as.Date(BA[,1])
BA %>%
  ggplot(aes(x = Date, y = Close)) +
  geom_line() +
  labs(title = "Boeing Stock Series", y = "Closing Price", x = "Month")
```



```
tinytex::install_tinytex()
```

```
## Warning: Detected an existing tlmgr at C:
## \Users\RANQ~1\AppData\Roaming\TinyTeX\bin\win32\tmlgr.bat. It seems TeX Live has
## been installed (check tinytex::tinytex_root()). You are recommended to uninstall
## it, although TinyTeX should work well alongside another LaTeX distribution if a
## LaTeX document is compiled through tinytex::latexmk().
```

```
## Starting to install TinyTeX to C:\Users\Ran Q\AppData\Roaming\TinyTeX. It will take a few minutes.
```

```
## Next you may see two error dialog boxes about the missing luatex.dll, and an error message like "Use
```

```
## Please quit and reopen your R session and IDE (if you are using one, such as RStudio or Emacs) and c
```