

RV

Collaborative project

4/9/2021

```
library(tidyquant)
```

```
## Loading required package: lubridate
```

```
##
```

```
## Attaching package: 'lubridate'
```

```
## The following objects are masked from 'package:base':
```

```
##
```

```
##     date, intersect, setdiff, union
```

```
## Loading required package: PerformanceAnalytics
```

```
## 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: 'PerformanceAnalytics'
```

```
## The following object is masked from 'package:graphics':
```

```
##
```

```
##     legend
```

```
## Loading required package: quantmod
```

```
## Loading required package: TTR
```

```
## Registered S3 method overwritten by 'quantmod':
```

```
##   method      from
```

```
## as.zoo.data.frame zoo
```

```
## == Need to Learn tidyquant? =====
```

```
## Business Science offers a 1-hour course - Learning Lab #9: Performance Analysis & Portfolio Optimization
```

```
## </> Learn more at: https://university.business-science.io/p/learning-labs-pro </>
```

```
library(tidyverse)
```

```
## -- Attaching packages ----- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.3    v purrr   0.3.4
```

```
## v tibble  3.1.2    v dplyr  1.0.6
```

```
## v tidyr   1.1.3    v stringr 1.4.0
```

```
## v readr 1.4.0 v forcats 0.5.1

## -- Conflicts ----- tidyverse_conflicts() --
## x lubridate::as.difftime() masks base::as.difftime()
## x lubridate::date() masks base::date()
## x dplyr::filter() masks stats::filter()
## x dplyr::first() masks xts::first()
## x lubridate::intersect() masks base::intersect()
## x dplyr::lag() masks stats::lag()
## x dplyr::last() masks xts::last()
## x lubridate::setdiff() masks base::setdiff()
## x lubridate::union() masks base::union()

head(FANG)

## # A tibble: 6 x 8
##   symbol date      open high low close volume adjusted
##   <chr> <date>    <dbl> <dbl> <dbl> <dbl>    <dbl>    <dbl>
## 1 FB    2013-01-02  27.4  28.2  27.4  28    69846400    28
## 2 FB    2013-01-03  27.9  28.5  27.6  27.8   63140600   27.8
## 3 FB    2013-01-04  28.0  28.9  27.8  28.8   72715400   28.8
## 4 FB    2013-01-07  28.7  29.8  28.6  29.4   83781800   29.4
## 5 FB    2013-01-08  29.5  29.6  28.9  29.1   45871300   29.1
## 6 FB    2013-01-09  29.7  30.6  29.5  30.6  104787700   30.6
```

Natalia. Comments by Martín in italics.

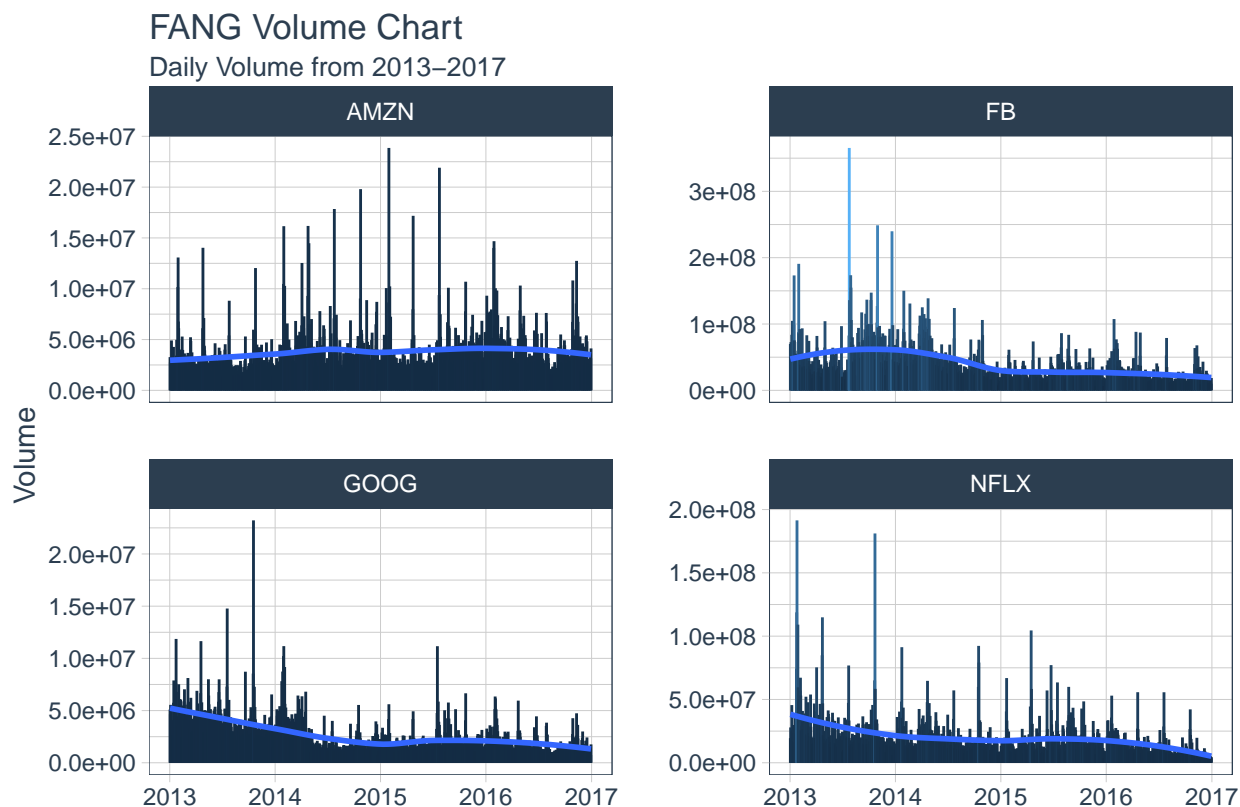
1. *I recommend using the pre-loaded FANG database as it is (with the corresponding length). Here, Natalia downloaded the data and took the first months of the 2021 year. She includes two plots. Are both plots the same? I would recommend adding some comments to understand the plots. Also, remember the objective is to link the volume with the returns as explained in the instructions (readme repo). Martín.*
2. *This is much better Natalia. I understand the value of the trend, it is useful, and it is a good idea to incorporate it. I agree with your contribution. However, the trend in loess reduces some detail which may be important later, when you link volume with stock returns. Ideally, this is where others start contributing to the project.*

FANGs Volume in Recent Years.

Looking at volume patterns over time can help get a sense of the conviction behind rises and falls in specific stocks and entire markets, for that reason it is proposed to analyze the volume charts for each FANG stock, in order to understand its trend and then relate it with the stocks' returns.

```
FANG %>%
ggplot(aes(x = date, y = volume, group = symbol)) +
  geom_segment(aes(xend = date, yend = 0, color = volume)) +
  geom_smooth(method = "loess", se = FALSE) +
  labs(title = "FANG Volume Chart",
       subtitle = "Daily Volume from 2013-2017",
       y = "Volume", x = "") +
  facet_wrap(~ symbol, ncol = 2, scale = "free_y") +
  theme_tq() +
  theme(legend.position = "none")

## `geom_smooth()` using formula 'y ~ x'
```



The chart above shows the daily volumes and their trend line of FANGs stocks in the last few years. The bars represent the number of shares traded daily, and the line represents the trend that the volumes of each share have followed from 2013-2017.

It is clear that to analyze daily volumes, and see their highest and lowest points, it is necessary to have a graph focused on a shorter period of time, in order to obtain more clarity in the data and get more objective interpretations.

Still, trend lines are useful for analyzing data over long periods of time. In the graph, it is observed that FB, NFLX and GOOG stocks' volume has had a negative behavior, meaning that from 2013 to 2017 the average volume of shares decreased. In the case of FB, it is important to highlight that at the beginning it had a positive behavior, but at the end of 2014 it took a downward trend. In contrast, the trend line for AMZN looks stable throughout that period, so we infer that it has maintained a constant average in its volumes.

Now, it is proposed to analyze the a graph that shows the volumes by price