Problem Set 6

Mason Ross Hayes

March 2020

1 Visualizing Cryptocurrency Returns with ggplot2

- I found years of price data for crypocurrencies of my choosing
- I used the riingo package in R, which calls the Tiingo API
- To manipulate all this data, I also used the following packages
    - tidyquant
    - riingo
    - ggthemes
    - lubridate
    - tidyverse
- Cleaning the data involved the following steps:
    1. Import the data using the riingo package
    2. Group the cryptocurrency data by ticker
    3. Transmute the data calculate the daily returns of each ticker
    4. Select only the ticker, date, and the daily returns
    5. Format it such that the returns for each ticker are in their own column
- Visualizing the data was straightforward once the data was cleaned:
    1. Use ggplot2 to create simple histograms of the daily returns
    2. Using the stock price data instead of the stock return data to do the following:
    3. Use tidyquant to add SMA function surrounded by Bollinger Bands
- I produced 3 graphics to (1) show the change in price and volatility, (2) show returns by day and (3) to show a histogram of those returns

SMA + BBands

Daily Returns

Daily Returns of Equal Weight Portfolio From October 2018 - Present