

S&P 500 Stock Data Analysis

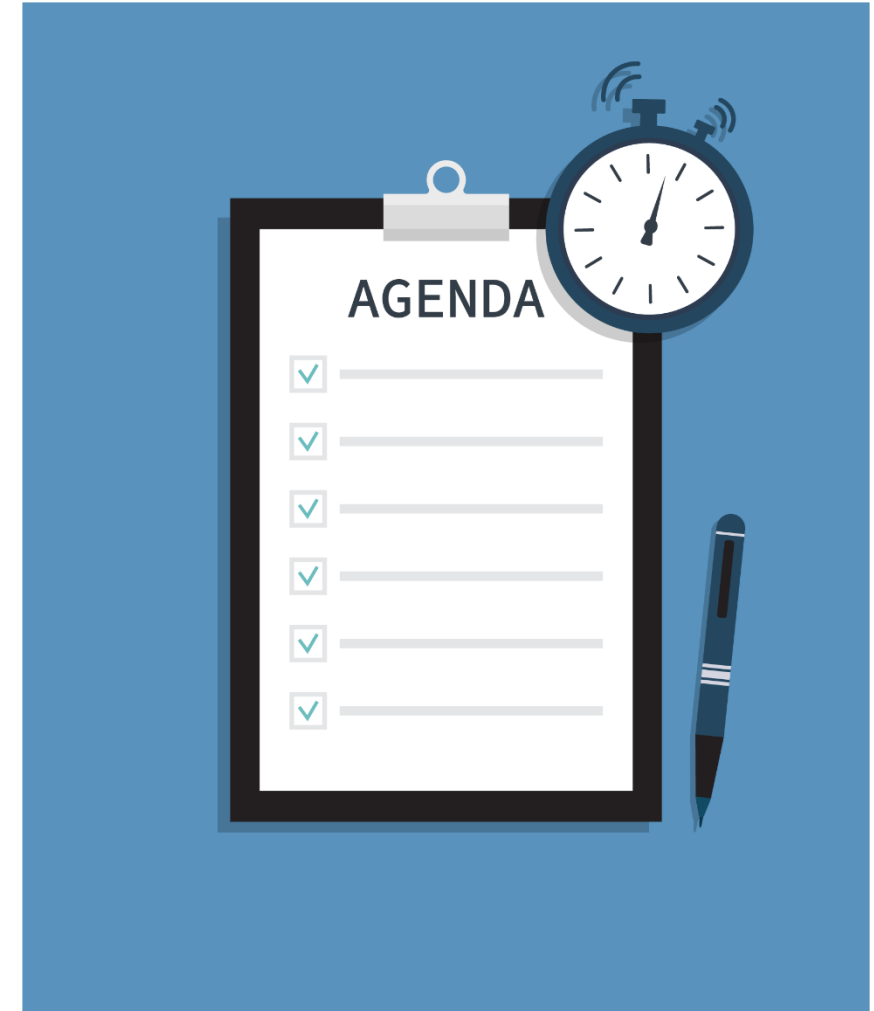
(2013-2018 Historical Stock Data)



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Agenda

- Assumptions
- Objective
- Stock analysis methodologies
- Analysis outcome and findings
- Recommendations
- Future work



Assumptions

- S&P 500 Stock Data
- Data Period: 2013-2018
- Data Source: <https://www.kaggle.com/camnugent/sandp500>
- Financial Analysis Tools: Microsoft Excel
- Stock Analysis Papers:
 - <https://www.investopedia.com/technical-analysis-4689657>
 - <https://www.fool.com/investing/how-to-invest/stocks/how-to-research-stocks/>
 - <https://towardsdatascience.com/statistical-analysis-of-a-stock-price-e6d6f84ac2cd>



Objectives

Objectives

A close-up photograph of a right hand holding a red marker. The hand is positioned to underline the word 'Objectives' which is written in a large, black, sans-serif font. A thick red line is drawn beneath the word, starting from the left and extending to the right, ending just before the hand. The background is a plain, light-colored surface.

- Have there any spikes or specific events happened in any stocks?
- If yes, do they really matter for our decision on our company's portfolio?
- Which stocks seem to be more attractive for our investment?
- Which stocks should we be in our portfolio to minimize our risk?

To have a reliable answer to the above questions, we have chose S&P 500 stock data for the past five years.

Stock Analysis Methodologies

- Fundamental Analysis
 - Based on valuation metrics and other information
 - For long-term investment opportunities
- Technical Analysis
 - Based on the stock price history
 - For short-term investment opportunities

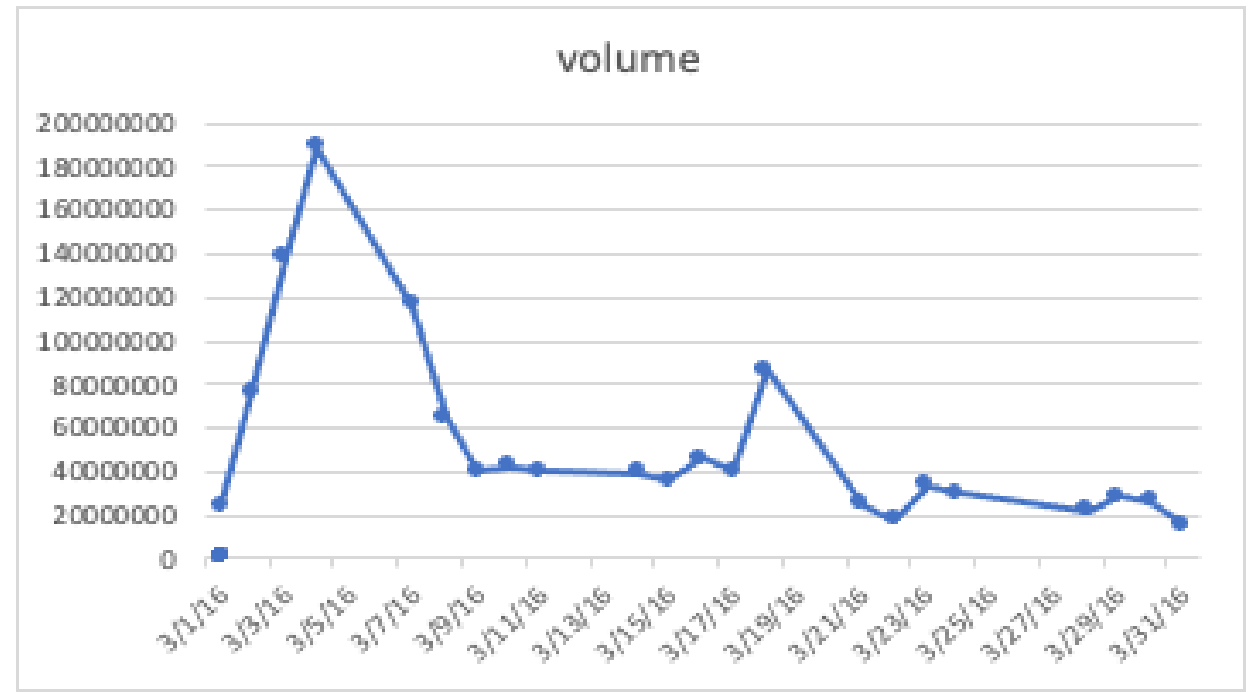


This Report findings and recommendations are based on Technical Analysis methodology

Chesapeake Energy Corporation.

- High increase in the CHK opening and closing price on March 2, 2016
- Finding: Aubrey McClendon, former chief executive of Chesapeake Energy, was indicted on march 1st after a federal investigation into price-fixing, bid-rigging and other anticompetitive conduct in the oil and natural gas industry.

CHESAPEAKE
ENERGY

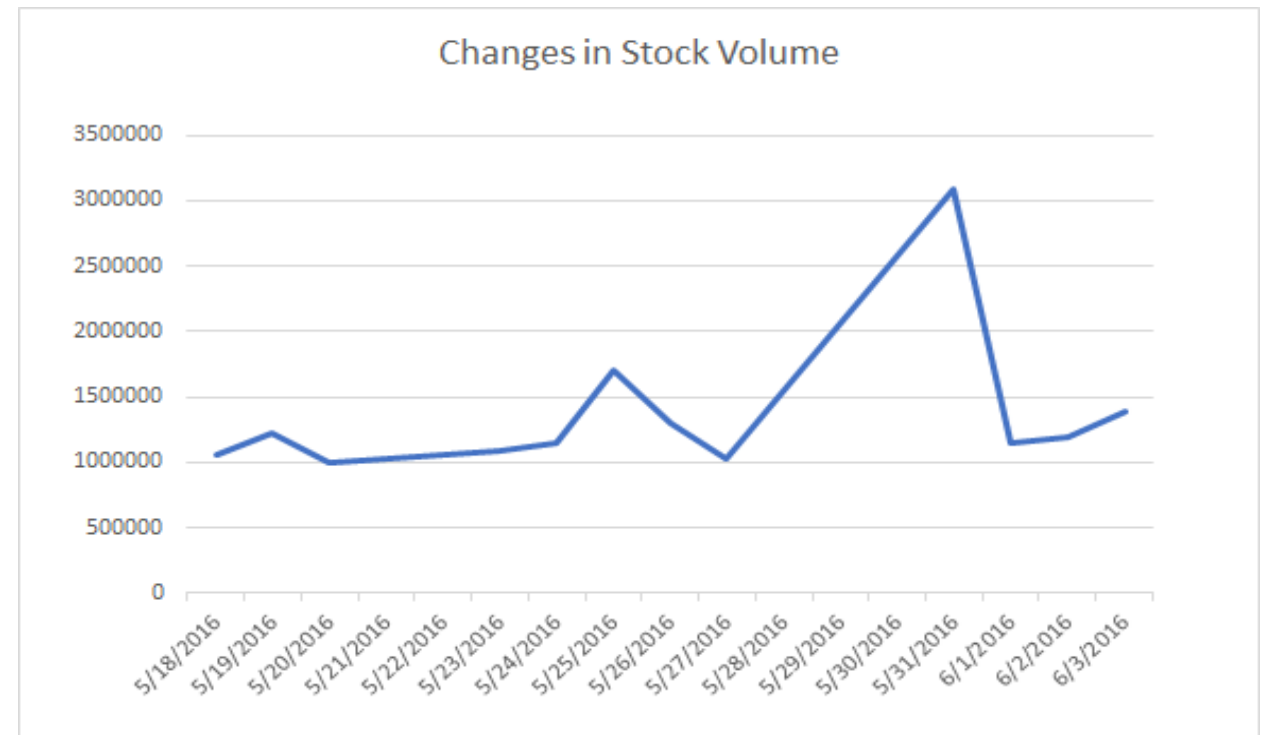


Alliant Energy Corporation Two-for-one stock Split

- High decrease in opening price and closing price of the LNY stock on May 19, 2016
- Finding: the company's board of directors declared a two-for-one stock split

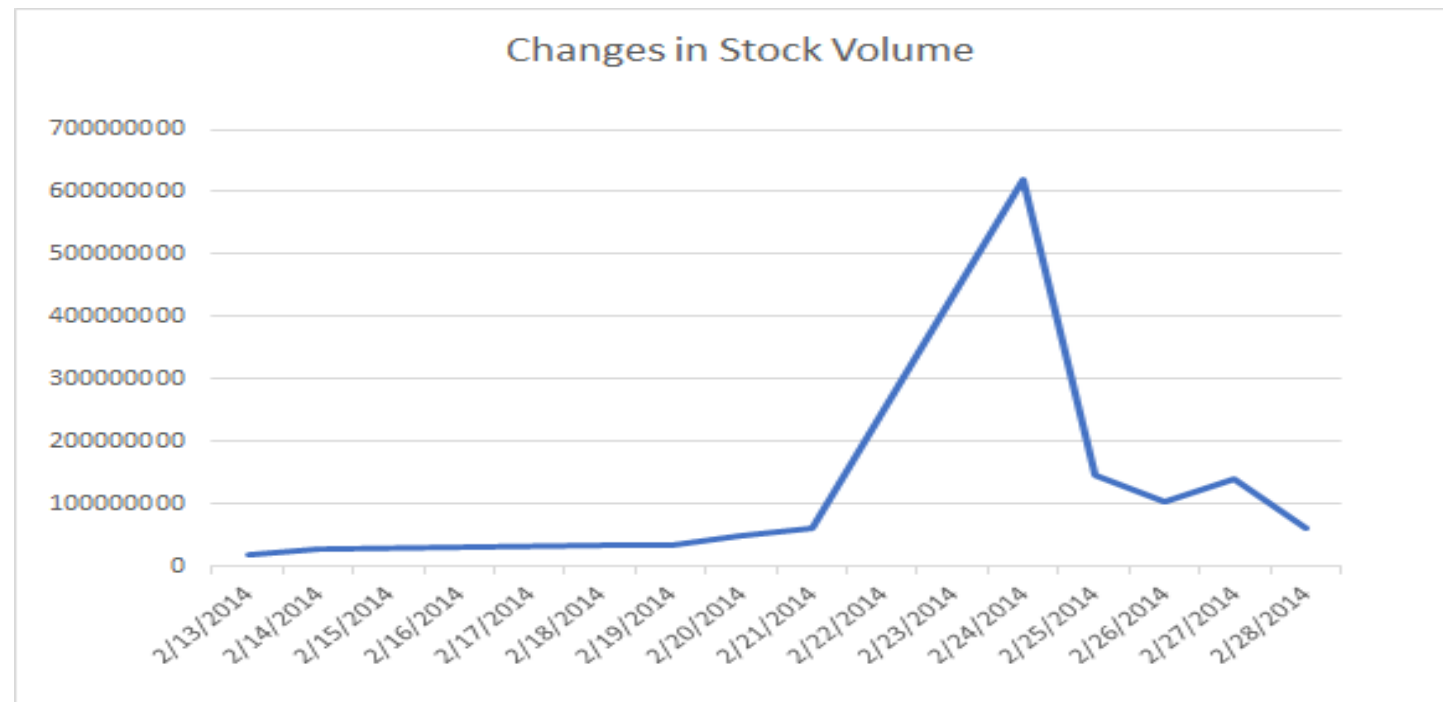


<https://alliantenergy.gcs-web.com/static-files/2436d22a-ac9c-48ca-bb06-0ad9cd4afecd>



VODAFONE Group Plc.

- The VZ had the greatest trading volume on Feb 24, 2014
- Finding: Verizon Communications Inc. announced that it had completed its acquisition of Vodafone Group Plc's 45 percent indirect interest in Verizon Wireless in a transaction valued at approximately \$130 billion. Which led to an increase in their stock value.

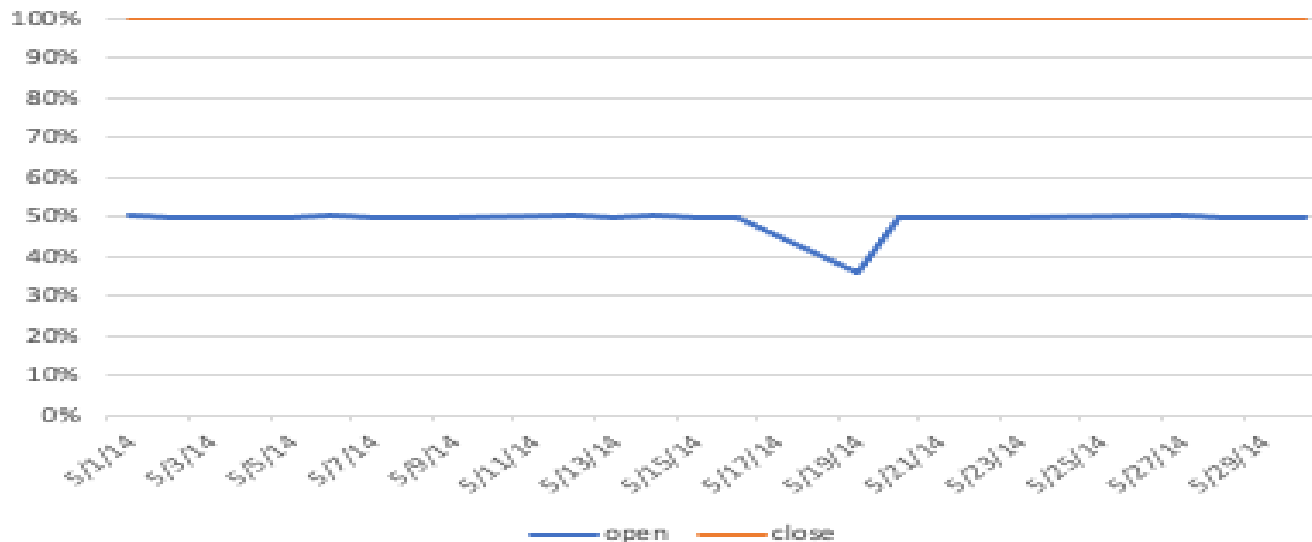


Church & Dwight Co.

- High decrease in the CHD closing and opening price on May 16, 2014 and May 19, 2014 (during the weekend)
- Finding: one of the main shareholder (Dwight) passed away
- But, the price adjusted itself in the next business day



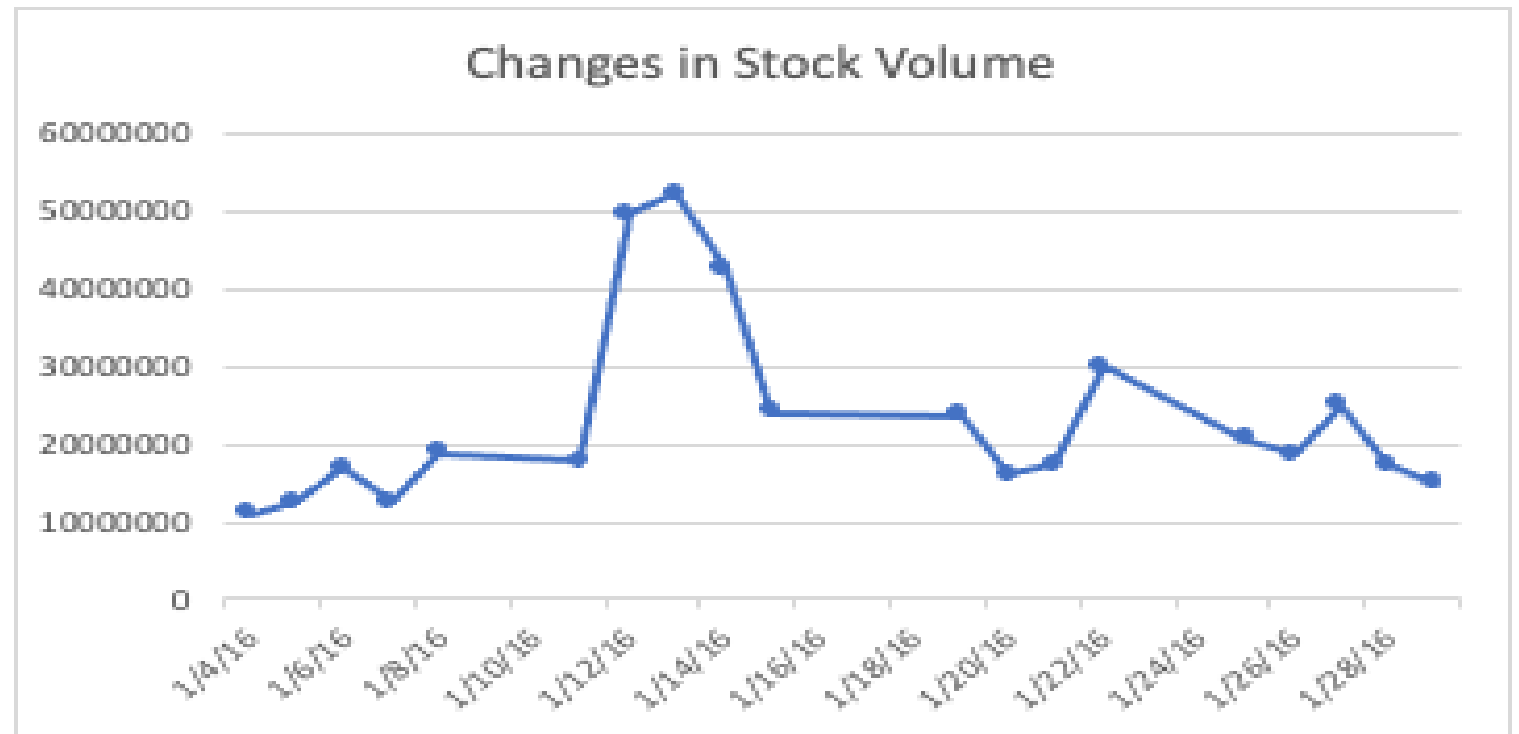
Changes in Stock Volume



5/16/2014	33.72			
5/19/2014	18.77	33.9	33.64	33.87
		33.95	33.7	33.9

Williams Cos.

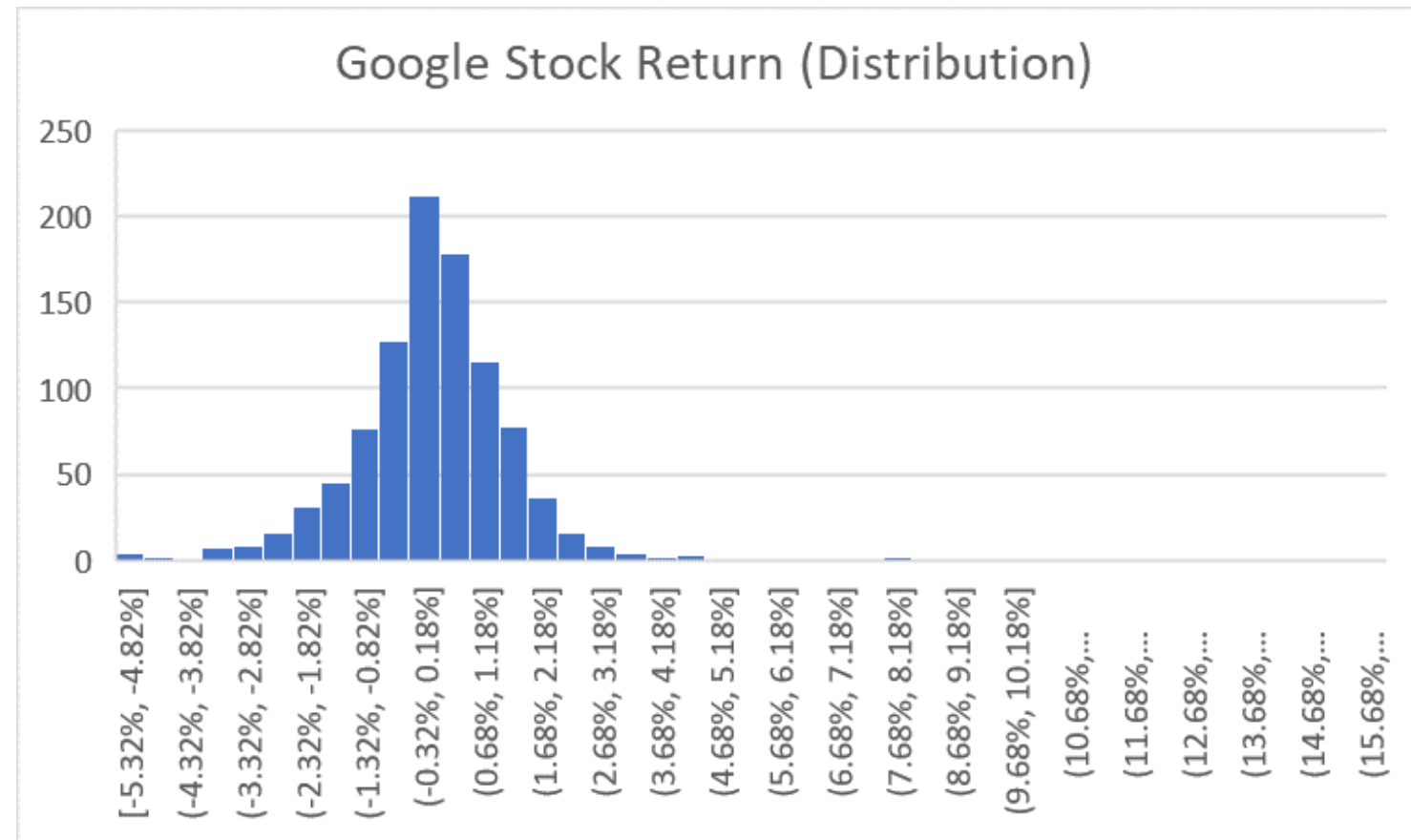
- High increase in the WMB opening and closing price on Jan 14, 2016
- Finding: WMB had a merger agreement with Energy Transfer Equity (ETE) that was terminated due to “failure of conditions under the merger agreement”.
- Purchase not recommended



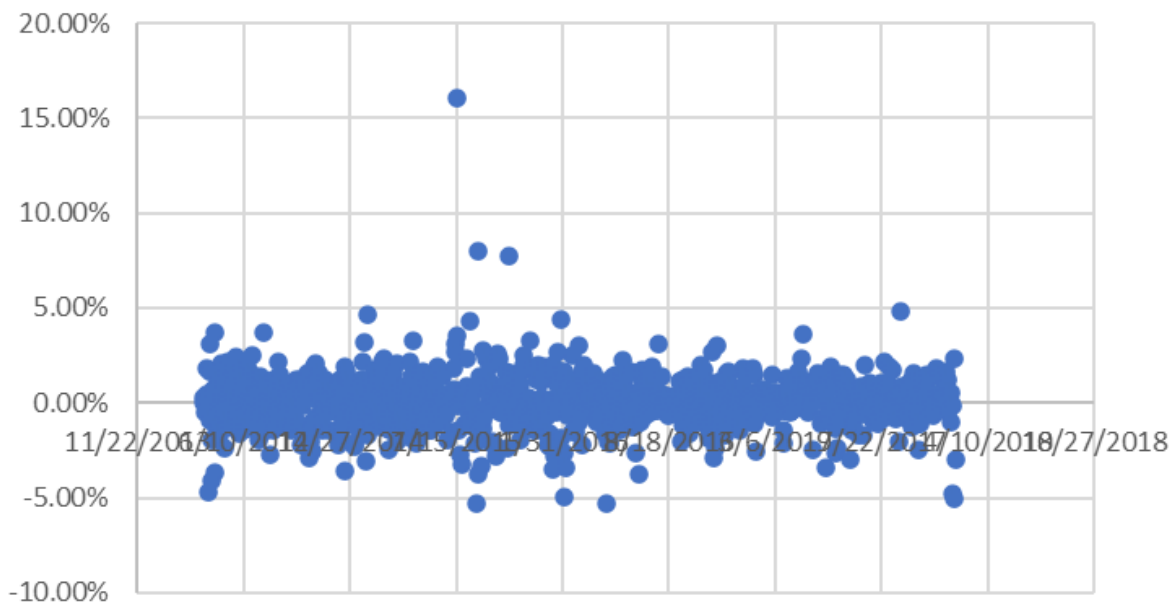
Google Stock Analysis



Stock Name	Google (Without Voting Right)	
Statistical Variables	Closed Price	Return
Mean	725.40	0.07%
Standard Deviation	166.42	1.41%
Skewness	0.55	155.00%
Minimum	492.55	-5.32%
First Quartile	564.79	-0.57%
Median	720.64	0.05%
Third Quartile	823.33	0.77%
Maximum	1,175.84	16.05%
IQR	258.55	1.34%
Outlier Range (Low)	176.97	-2.59%
Outlier Range (High)	1,211.15	2.79%
Mode	554.90	0.04%
$\mu - \sigma$ (68%)	-	-1.33%
$\mu + \sigma$ (68%)	-	1.48%
$\mu - 2\sigma$ (95%)	-	-2.74%
$\mu + 2\sigma$ (95%)	-	2.89%



Google Stock Return



Stock Soared 21.8% on July 17, 2015
The new CFO proposed traditional
business strategy keeping experimental
projects at 10% budget.

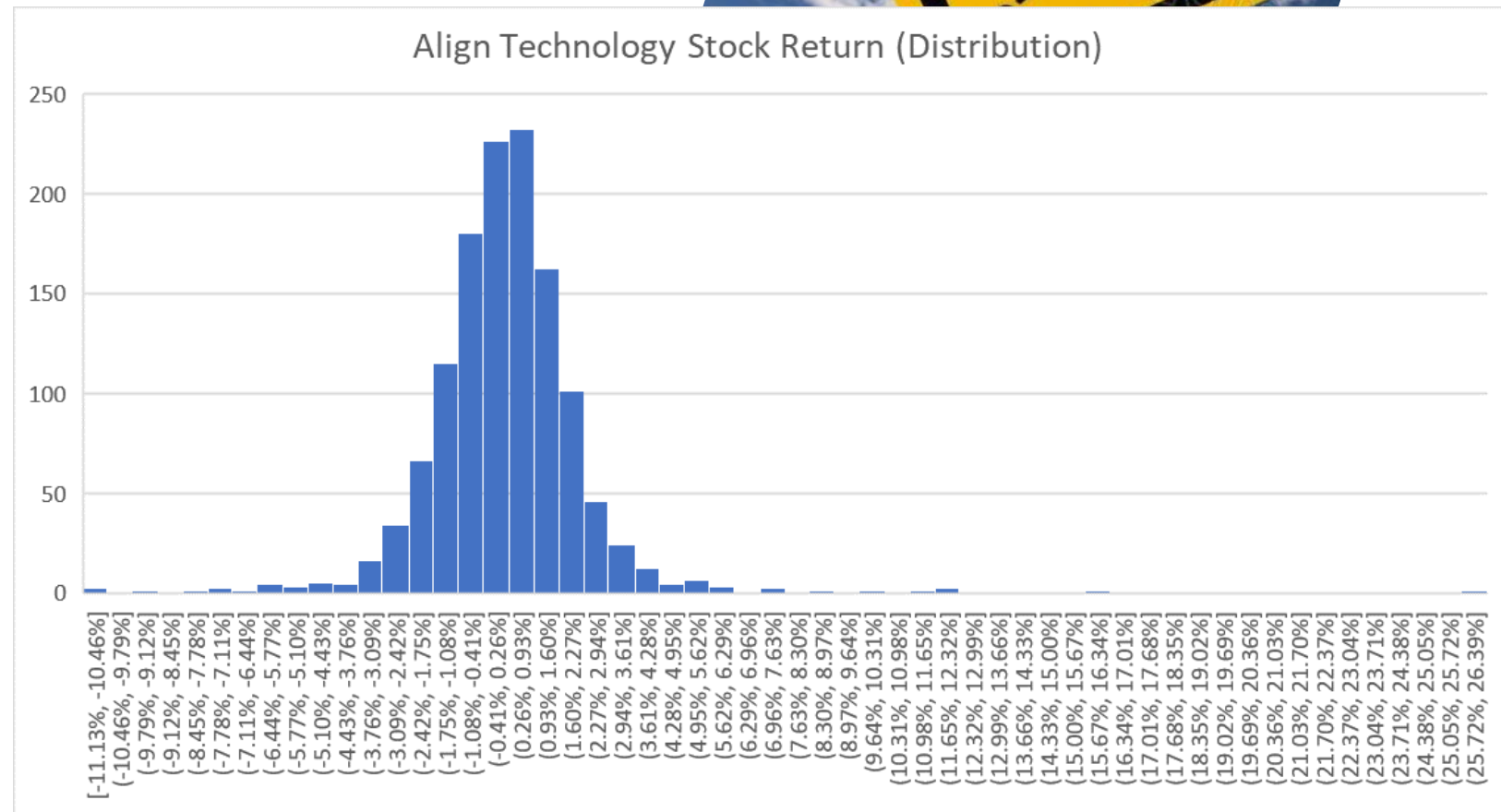
Google Stock Price



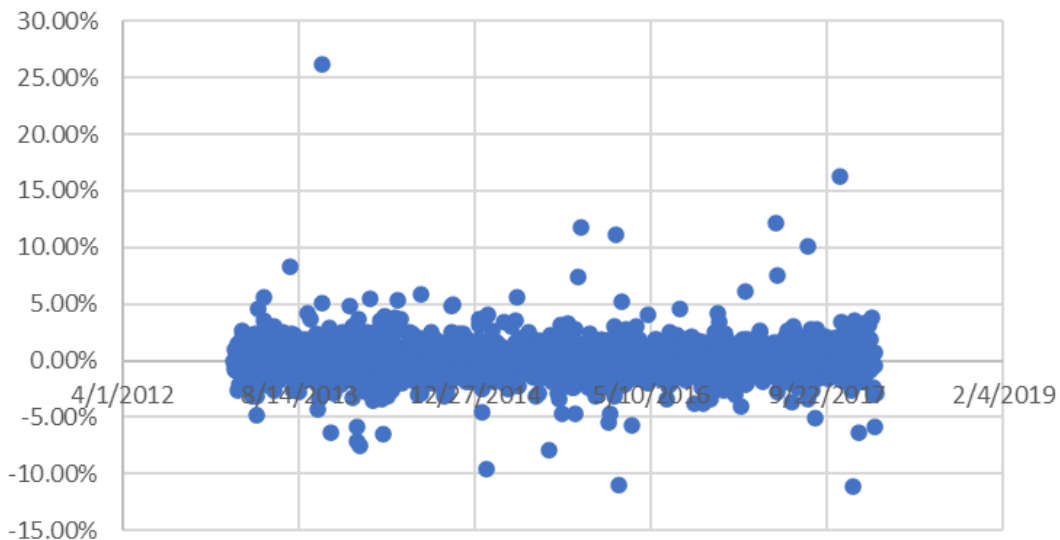
Align Technology Stock Analysis



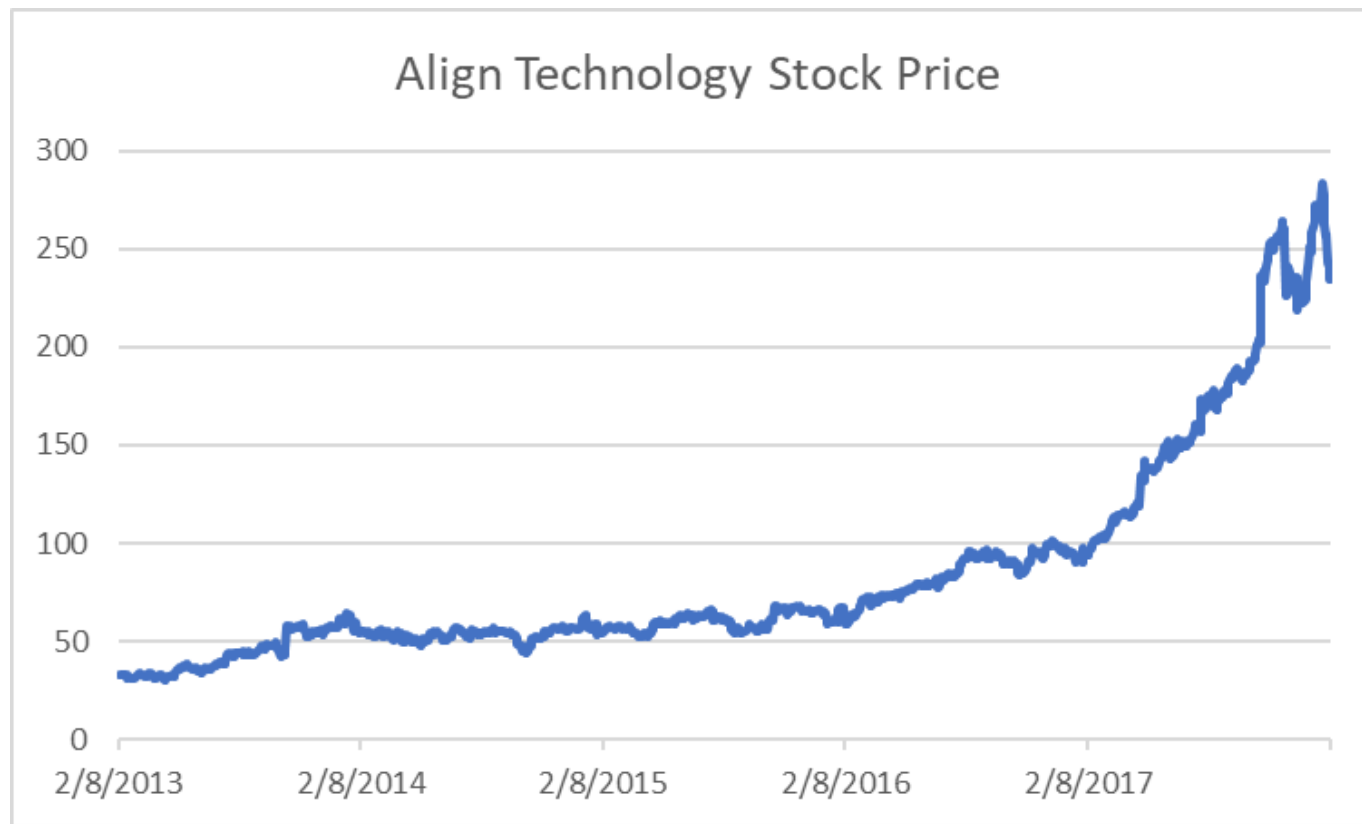
Stock Name	Align Technology	
Statistical Variables	Closed Price	Return
Mean	83.66	0.18%
Standard Deviation	53.71	2.07%
Skewness	1.88	201.43%
Minimum	30.13	-11.13%
First Quartile	53.95	-0.81%
Median	60.88	0.15%
Third Quartile	93.76	1.11%
Maximum	283.97	26.24%
IQR	39.81	1.93%
Outlier Range (Low)	(5.76)	-3.70%
Outlier Range (High)	153.46	4.00%
Mode	55.13	0.04%
$\mu - \sigma$ (68%)	-	-1.89%
$\mu + \sigma$ (68%)	-	2.25%
$\mu - 2\sigma$ (95%)	-	-3.96%
$\mu + 2\sigma$ (95%)	-	4.32%



Align Technology Stock Return



Align Technology Stock Price



This company owns Invisalign, shipments of Invisalign increased by 15 percent while the gross margin increased by 250 points giving investors confidence on its competitive position in the market.