



Analysis of Stock Prices in Tiffany & Co

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Abstract:

Jewelry is an adornment such as bracelet, ring or necklace made of precious metals and set with gems. One of the most famous Jewelry store is Tiffany & Co. in America. The stock of jewelry prices vary from time to time.

In this paper, the stock prices of Tiffany & Co over 231 days are given. These stock price of the Tiffany & Co company are given in terms of Open, High, Low, Closing, Volume, and Adj.Close prices for a given time period. (almost 231 days)

Keyword: stock; mean; histogram, jewelry; standard deviation; date, open; price



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1. Description of the Data Set

- Date: The stock prices of the Tiffany & Co company are given from June 3, 2013 to May 1, 2014
- According to tradewave, Open Stock price is the initial price on the beginning of trade on a particular day.
- The highest price is the highest amount attained by the stock on a particular day
- Similarly, the lowest quoted stock price of the company over a particular day is denoted by Low
- The closing quoted price of the corresponding stock on a particular day is denoted by Close
- The total amount of all traded stocks is denoted by Volume
- By analyzing the historical returns, the closing prices are adjusted accordingly and the changed prices are denoted by Adjusted closing price.

2. Data Analysis

2.1. Measures of Central Tendency

Table 1: Measures of Central Tendency

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
Open Price	71.60	78.58	81.51	83.13	88.22	94.88
High Price	72.24	79.23	82.53	83.83	89.08	94.88
Low Price	70.70	78.11	80.78	82.40	87.64	93.50
Close Price	71.31	78.55	81.60	83.10	88.20	93.81
Volume Price	288100	730400	981300	1102504	1252200	5554200
Adj.Close Price	70.48	77.66	80.79	82.54	87.93	93.46

- The five number summary along with mean stock prices are given in the above table.
- The minimum prices of all stocks are concentrated within a range of 70.48 to 72.24 except for volume price.
- In all prices, observe that mean is less than median indicating that all stocks are right-skewed.

2.2. Measures of Variability

Table 2: Measures of Variability

	Range	Standard Deviation	Variance
Open Price	23.28	5.910976	34.93964
High Price	22.64	5.960204	35.52403
Low Price	22.8	5.879802	34.57207
Close Price	22.5	5.91755	35.01739
Volume Price	5266100	614263	3.77319e+11
Adj.Close Price	22.98	6.146434	37.77865

- The standard deviation of volume price is high compared to all other stocks.
- Among the other stocks, the standard deviation is high for Adjusted closed stock price and the standard deviation is least for low stock price.



2.3. Plots

2.3.1. Histograms

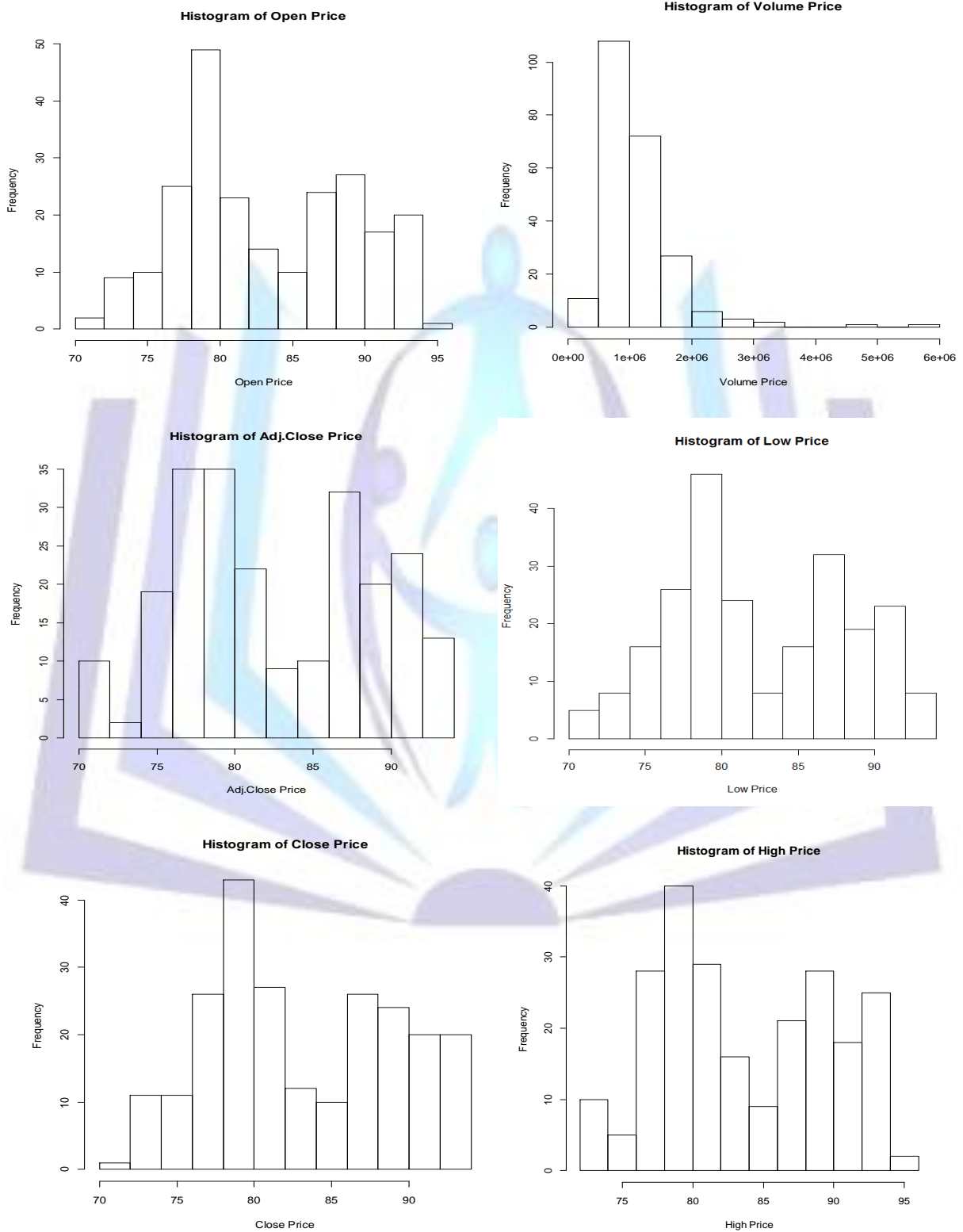


Figure 1: Histogram



- The histogram of open price is drawn and shown above. The lowest open stock price 71.60 and the highest stock price is 94.88. This histogram shows a single mode. Also, the data is distributed towards the right side. Therefore, it can be concluded that the open stock price data is right-skewed.
- The histogram of volume price is shown above. The volume price has the highest frequency over a range of 625,000 and 825,000. As the data seem to be spread towards the right side, the distribution of volume price is said to be right-skewed.
- The histogram of low price indicates that there exists a single high value and the data is distributed towards the right-side.
- The adjusted close price of the stock has no sudden fluctuations.

2.3.2. Time Series Plots

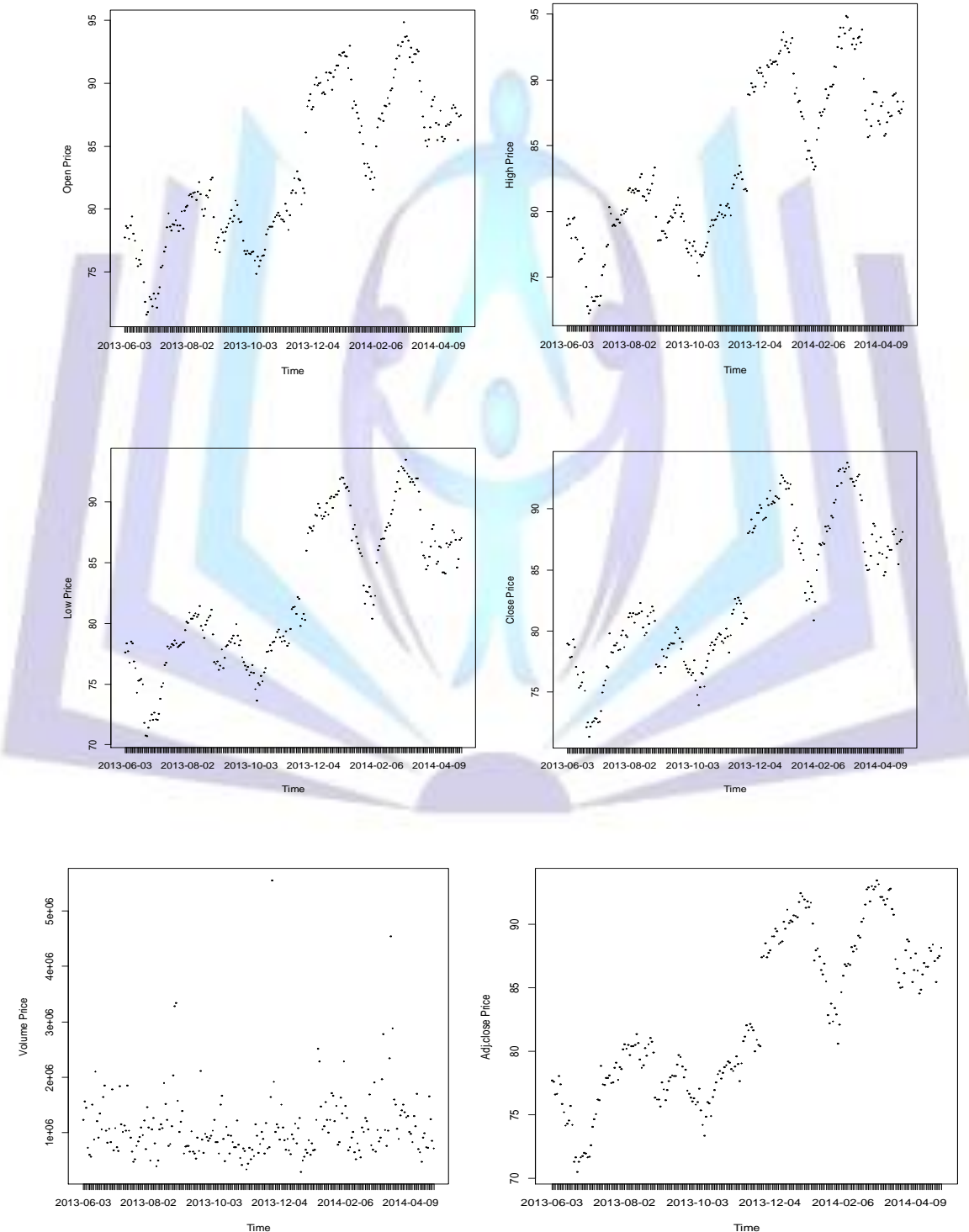


Figure 2: Time Series Plots

The time series plot of all stock prices showed the same trend over the time interval. Except volume price which has shown the constant trend, remaining all stock prices have shown increasing trend. All stocks have shown the similar nature over the time interval.

2.3.3. Box Plots

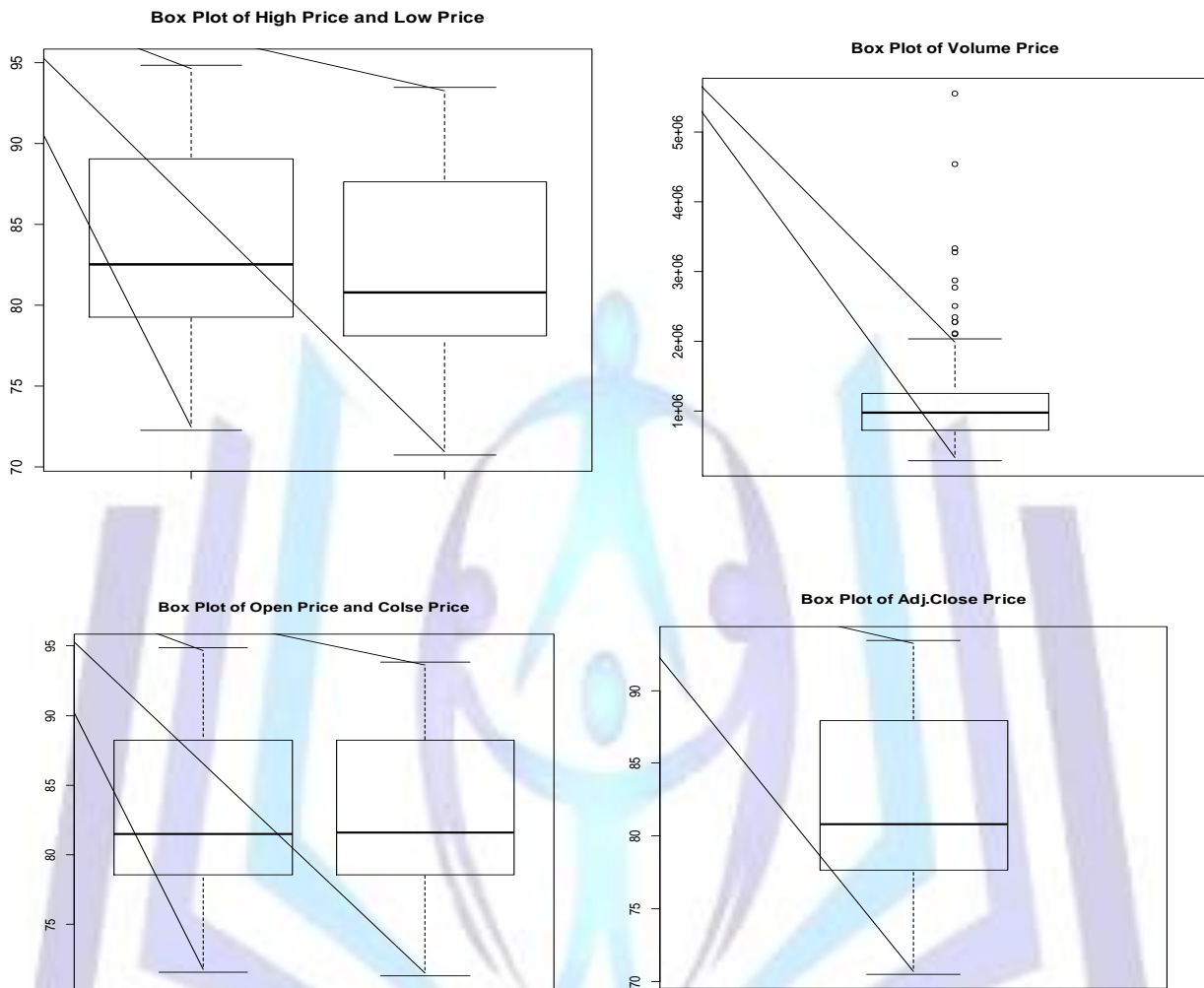


Figure 3: Box Plot

- In both box plots of High Price and Low Price, it can be observed that the area above center line (median) is higher than compared to the area below the median. This indicates that the high and low prices are right skewed. Also, the maximum value, median and lowest values of low price of stock are lower than that of High price.
- The box plot of volume price indicates that the median is approximately equally distributed between first and third quartile. But there seems to be outlier towards the upper side of the plot which also indicates that the volume price data is also right-skewed.
- Comparing the box plots of open and close prices, observe that the minimum and median values for both prices are same. The maximum value of open price is higher than that of close price.
- Clearly, the box-plot of adjusted close price indicates that the data is right-skewed and there are no indications of any outlier.

2.3.4. Q-Q Plots

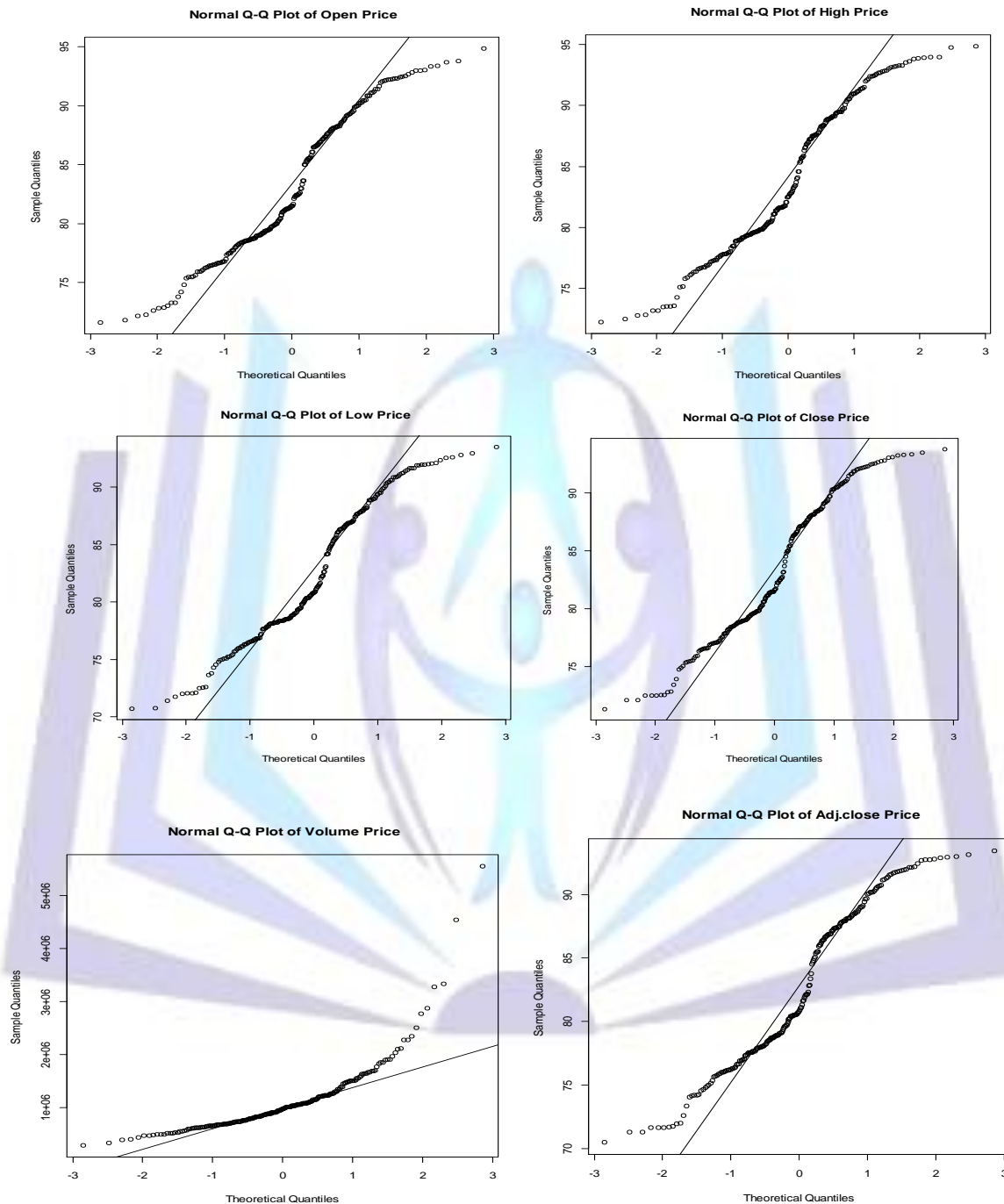


Figure 4: Normal Q–Q plot

- The Q-Q plots of all stocks are similar except for volume price. In Q-Q plots, it can be observed that majority of the points are close to straight line. But for volume price, the Q-Q plot, indicates that majority of the points are away from the straight line.
- All these Q-Q plots indicates that none of the stocks have followed Normal distribution.

3. Methodology

- The five number of summary is used to find the descriptive statistics of all prices.



- The graphical summary is used to identify the nature of the distribution. Particularly, the Q-Q plots are used to check the normality of the stock prices. The comparison of different pair-wise stocks through box plots have indicated the differences or similarities between compared prices.

4. Results

- The maximum open stock prices is 94.88.
- The mean of all prices are greater than median indicating that the distribution of all stock prices are right-skewed.
- The box-plot of volume price indicates that there exists some outliers.
- The time-series plots of all prices have shown increasing trend except for volume price.

5. Conclusion

- Basing on the time-series plots, it can be concluded that all prices are increasing.
- The volume price has constant change over the time period. That is, there are no high fluctuations observed in volume price.
- From the box-plots, histograms and Q-Q plots, it can be observed that there are no outliers in all prices (except for volume price) and all the prices are right-skewed. All the stocks have single peak and none of them following normal distribution.
- As the volume price of the stock have outliers and the data is right-skewed, the volume price also does not follow Normal distribution.

References

Web sites:

Web-2: <https://tradewave.net/help/trading/>, consulted 27 Dec. 2014.

