

Analyzing Stock Market Trends Using MATLAB for Investment Recommendations

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Abstract

The goal of the project was to create a MATLAB script file that would be capable of examining stock market data so that the best stock to invest in could be determined. After being provided with raw data of various companies' stock price data in an excel sheet, data analysis and plotting was conducted on MATLAB that helped identify the best and worst stocks to invest in. The analysis included finding values such as the minimum, maximum, mean, median, and standard deviation values of the stock price over a 4 year period. Once the plots were created and poorly producing stocks were ruled out, the statistical tool primarily referenced to find the best performer was standard deviation. The results from the data showed that Dominos was the best individual stock to invest in out of the 22 companies compared. Then, with the goal of determining the most stable stock, the most risky stock, and the best category of stocks to invest in, it was determined that Ford had the most stable stock, Chipotle had the riskiest stock, and that Beverage and Fast Food were the two best categories to invest in. As for the best categories to invest in, the beverage sector appeared to offer slow returns on investments, while the fast food sector appeared to yield mostly quick, positive returns.

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1 Introduction

The stock market data analysis was conducted in order to identify some of the best and worst stocks from a list of 22 companies. This work was necessary as it provided essential information for potential investors to make wise financial decisions regarding their investments in the stock market. This project primarily benefited investors looking to make a return on their investment.

1.1 Problem Statement

The problem faced in this project was to identify the best and worst investments that could be made among several companies using previous stock market data. The challenge faced was to produce a MATLAB script file that would compute statistical markers such as the minimum, maximum, mean, median, and standard deviation, and then plot graphs for the stock prices for a list of companies. Overarching issues included understanding what made an ideal stock, along with recommending the best industry to invest in.

There were several major objectives that were accomplished by conducting this research. The first objective was to conduct sufficient background research to better understand the stock market and various stock related softwares. The next objective was to develop an efficient MATLAB script file that would compute a range of statistical markers for stock prices over a 4-year period. The third objective was to analyze the values in the tables and plots to identify the most stable and riskiest stocks to invest in. Lastly, the best industry to invest in also had to be determined.

1.2 Background

1.2.1 History of the Stock Market

Stock markets are some of the most important parts of today's global economy. The earliest example of an organized market was found in the Roman Republic in the second century BC. "Three essential prerequisites for a viable market had come to exist in Rome: free transferable capital, readily available credit, and a willingness to take risks" (Smith 10). This concept of an organized market took a step further in 1602, when the Dutch East India Company officially became the world's first publicly traded company, releasing shares on the Amsterdam Stock Exchange. Investors were entitled to a fixed percentage of East India Company's profits (Hur 1). Due to a lack of regulation, however, companies stopped paying their investors, forcing the government of England to ban the issuing of shares until 1825. Regardless of the ban, the need for an organized marketplace for stock traders led to the creation of the London Stock Exchange in 1801 (Bramble 2).

In 1917, the New York Stock Exchange (NYSE) was set up on Wall Street, surpassing Philadelphia as the financial center of the United States ("New York Stock Exchange"). Additionally, in 1971, the NASDAQ stock exchange was created, performing all trades electronically (Hur 1). Today, almost every major country has a stock market of its own.

1.2.2 Historical Trends of the Stock Market

There have been several major crashes throughout history due to speculative economic bubbles. The first of these was the stock market crash of 1929, during which the Dow Jones Industrial Average lost 50 percent of its value, heralding the Great Depression (Hur 1). It took 25 years for the stock market to recover from that crash (Chang 1). Other major stock market

crashes throughout history included the Stock Market Crash of 1929-1932, Black Monday of 1987, the Dot-com Bubble of 2000, and the Stock Market Crash of 2008.

The Dot-com bubble burst after the commercialization of the internet caused technological companies to soar in market value. Investors rapidly invested in such companies, hoping to reap huge returns by investing in the “next big thing.” By 2001, several major tech companies had tanked, leading investors to lose millions of dollars (Town 3). More recently, in 2008, the real estate market collapsed due to the subprime mortgage crisis, causing the Dow Jones Average to fall almost 34 percent (Rauchway 1). The effects of these major stock market crashes on the Dow Jones Industrial Average can be seen in Figure 1 below.



Figure 1: The Dow Jones Industrial Average through major market crashes (Haggith)

1.2.3 U.S. Stock Market Indexes

In order to analyze trends in the stock market, various indexes were used to evaluate how the market was performing. In the United States, the S&P 500, Dow Jones Industrial Average, and NASDAQ composite were the most frequently used indexes (Smith 311). These tools were used by investors to describe the market and compare different returns on certain investments.

The Standard and Poor's 500 Index, representing over 80 percent of the US Stock Market's value, included the top 500 companies in the United States and accurately indicated movement in the US market. The Dow Jones Industrial Average, on the other hand, represented a price weighted index that showed variations in investors' expectations (Banton).

1.2.4 The Basics of Investing in the Stock Market

When looking to earn more than the standard interest rates that banks offer, the stock market is one of the few opportunities that can yield more profits than banks do. The stock market is comprised of millions of large companies that are available for consumers to purchase and profit from. Though historically, the stock market has provided around +10 percent annual returns (U.S. Securities and Exchange Commission), millions of Americans lost thousands of dollars in the stock market daily bases. According to the U.S. Securities and Exchange Commission, one of the main ways that investors could avoid losing large sums of money is by diversifying their investment portfolio (U.S. Securities and Exchange Commission). In other words, instead of investing in just one large company, the SEC recommended that the consumer invest in a handful of companies that are in different sectors of the business market. Once the

investor buys stocks in a company, the cost per share of the company can rise or fall due to quarterly earnings reports, employment shifts, or their products' success. For example, just this past year, the Boeing company experienced serious losses when two of their 737 max planes crashed due to a computer error (Federal Aviation Administration). Because of this incident, investors lost millions of dollars after its stock price plummeted (Yahoo Finance).

Another way that investors can turn a profit is by recognizing that a stock has fallen well below its actual value, investing in the company, and waiting for the stock price to rise again. Investors can spot this by watching the stock prices of multiple companies and comparing them to that company's 52-week low price. If the stock price is low over the past year and the company hasn't had any recent tragic events (product failures, poor earnings, etc.), then the consumer can likely turn a profit by investing in that company. However, recognizing these lows and investing at the right time can be tedious. However, due to advanced computer softwares and prediction modeling softwares, monitoring the price of multiple companies for investing is now easier than ever (U.S. Securities and Exchange Commission).

1.2.5 Stock Market Prediction Modeling

Investors uphold several philosophies when it comes to analyzing stock market trends and drawing future predictions. First, they take into account the current and potential future prices of the company. In addition, they consider how the stock has performed in the past and from that they can determine whether or not they want to invest (Yates 1). There are also two more numerical focused mentalities upheld by investors. The first mentality, the fundamental approach, looks at “earnings, ratios, and management effectiveness,” while the technical approach looks at the relevance of timing and has a tendency to “utilize charts and modeling

techniques to identify trends in price and volume” (Schumaker 2). Some researchers use online softwares as an ideal resource for determining ideal market prediction strategies. Additionally, there are experts that work on developing algorithms that could potentially work in the near future as a prediction resource (Kimoto 1). Software programs like MATLAB can be used to model large quantities of statistical data into plotted Figures that rough estimates can then be drawn from (Danielsson 5).

In order to keep track of stock prices in a fast-paced market, several softwares and applications are used to monitor the performance of companies through charts and watchlists. Some of the most popular stock market softwares include eSignal, MetaStock, TradingView, and NinjaTrader (Sykes).

1.2.6 Stock Analysis Methods

Standard deviation is defined as “a parameter that indicates the way in which a probability function or a probability density function is centered around its mean” (Merriam-Webster 1). Since the standard deviation shows how a function is centered around its average, it is a crucial element to understand in assessing stock market data. The American Finance Association explains that standard deviations can be used as a tool to measure stock performance (Latané 369). In other words, standard deviation essentially measures risk. An academic from Cornell University alludes to this on a risk and return essay (Tsiang 749). As the standard deviation increases, the risk increases; therefore, if a company's stock price had a high standard deviation, it could possibly be a poor stock to invest in.

Apart from standard deviation, the rate of fluctuations or jumps in prices of stock should also be monitored. Regardless of if they’re going up or down, investors want to invest in stock

that will rise with minimal jumps, and to remain as consistent as possible. Researchers analyzed the impact that marketing had on different products as well as the impact that publicity can have on a company. It is not wise to invest in stock that is overly dependent on the state of the company's publicity. Popular products that are perceived as trends should be avoided by investors because people will eventually lose interest. Products that are constantly in demand regardless of the marketing strategies put in place are better to invest in. (Schumaker 1)

2 Methods and Materials

2.1 MATLAB Script File

Initially, the stock market data was stored in a Microsoft Excel file. This data was first imported to MATLAB by using the `xlsread` command. The data for the 22 different companies was split into sets to easily compare the data in sizable clusters. Figure 2 below shows the use of the `xlsread` and `plot` functions.

```
%Pair 3 Data
CheeseFactory_Data = xlsread('Project 1 Stock Data Spring 2020','Cheesecake Factory','A1:F1259');
CheeseFactory_Days = CheeseFactory_Data(:,1);
CheeseFactory_Open_Price = CheeseFactory_Data(:,2);
CheeseFactory_Close_Price = CheeseFactory_Data(:,5);

TexasRoad_Data = xlsread('Project 1 Stock Data Spring 2020','Texas Roadhouse','A1:F1260');
TexasRoad_Days = TexasRoad_Data(:,1);
TexasRoad_Open_Price = TexasRoad_Data(:,2);
TexasRoad_Close_Price = TexasRoad_Data(:,5);

figure(3)
plot([CheeseFactory_Days,CheeseFactory_Open_Price,'-r',CheeseFactory_Days,CheeseFactory_Close_Price,'-c',...
      TexasRoad_Days,TexasRoad_Open_Price,'-y',TexasRoad_Days,TexasRoad_Close_Price,'-r'])
xlabel('Time Period (Days)')
ylabel('Price (USD - $)')
title('Cheesecake Factory vs. Texas Roadhouse stock price')
legend(['Cheesecake Factory Open Price','Cheesecake Factory Close Price', 'Texas Roadhouse Open Price', 'Texas Roadhouse Close Price'])
axis([0 1260 0 100])
```

Figure 2: Sample Portion of MATLAB Script File

After correctly importing the data and creating the necessary arrays, four fully formatted graphs were plotted to visualize each company's data. Each graph was made using the daily

opening and closing values for each company over the four year interval. Using a combination of `fprintf` and the `tables` command, two tables were created to highlight significant data points used to draw comparisons between the different companies. The first table included the maximum open, high, and low values for each company along with the days that those values occurred on. The second table included the maximum, minimum, median, average, and standard deviation of each company's closing values. Figure 3 below shows how the following statistical markers were computed on MATLAB.

```
%Pair 2 Data Analysis
CrackerBMaxClose = max(CrackerB_Data(:,2));
CrackerBMinClose = min(CrackerB_Data(:,2));
CrackerBMedClose = median(CrackerB_Data(:,2));
CrackerBMeanClose = mean(CrackerB_Data(:,2));
CrackerBStDevClose = std(CrackerB_Data(:,2));

GenMotorsMaxClose = max(GenMotors_Data(:,2));
GenMotorsMinClose = min(GenMotors_Data(:,2));
GenMotorsMedClose = median(GenMotors_Data(:,2));
GenMotorsMeanClose = mean(GenMotors_Data(:,2));
GenMotorsStDevClose = std(GenMotors_Data(:,2));
```

Figure 3: Sample Portion of MATLAB Data Analysis for Table 2

After running the respective program, further data analysis was conducted in sets in order to identify some of the best and worst performing stocks to invest in.

2.2 Data Analysis

Various methods of comparing and analyzing the increase between the different stock prices was determined. Primarily, the plot, standard deviation values, and the percent increase formula, as shown below, were used to determine the best companies to invest in.

$$\% \text{ Difference} = ((\text{final close price} \times 100) \div (\text{initial close price})) \quad (\text{Equation 1})$$

Once the plot for the different companies was generated, companies that had declining stock prices over the time period were eliminated. However, if a company had an upward sloping plot, then its average standard deviation value was used to indicate how much the close price fluctuated from the average close price. For the companies with positive sloping graphs, a greater average standard deviation value reflected that that company had rapid growth over the given time period. However, a high standard deviation value did not always reflect a good investment; therefore, it was important to notice the general trend of the graph, in terms of fluctuations in price, before determining the best stock to invest in. Companies with a positive slope yet low standard deviations were determined to be stable investments.

Moreover, companies with a high standard deviation were further analyzed by determining their percent increase in closing stock price. Companies with the highest percent increase were considered to be the best investments. Once the best stock was determined out of the 22 different companies, a plot was generated that pictured that individual company's close value over a four year period. It was also essential to compare the other recommended stocks

determine the most stable and the riskiest stock to invest in. This decision-making can be further seen in Figure 4 below.

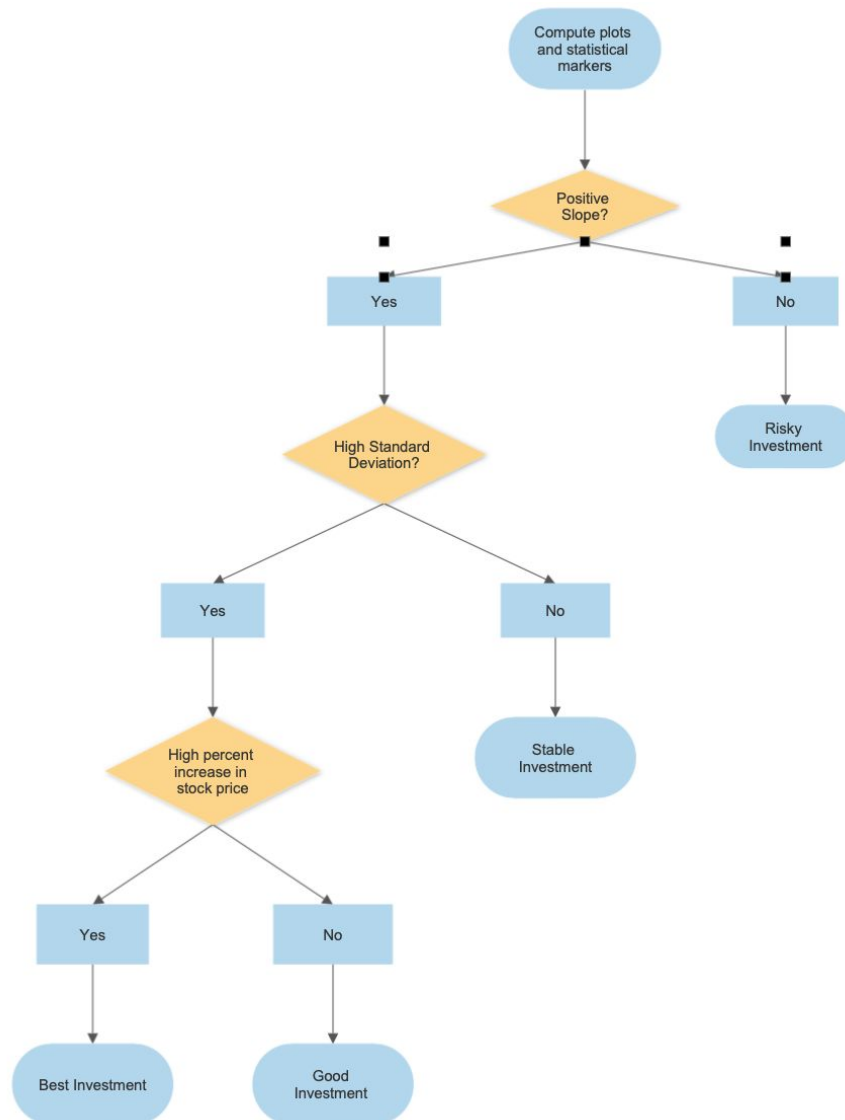


Figure 4: The Decision Making Process as a Flowchart

Additionally, companies had to be divided into categories in order to determine the best industry to invest in. The categories included: apparel, dining, fast food, automobiles, and beverages.

3 Results

3.1 Stock Set One Results

As shown in Table 1, Dominos had a minimum close price of \$61.16, a standard deviation value of \$59.13, and a maximum close price of \$292.39. On the other hand, Tesla had a minimum close price of \$120.50, a standard deviation value of \$58.26, and a maximum close price of \$385.00. Ford had a low standard deviation value of \$2.11, a minimum close of \$9.45, and a maximum close of \$17.84.

Table 1: Dominos, Ford vs. Tesla Company Comparison

	Standard Deviation Close	Minimum Close	Maximum Close
Tesla	\$58.26	\$120.50	\$385.00
Dominos	\$59.13	\$61.16	\$292.39
Ford	\$2.11	\$9.45	\$17.84

3.2 Stock Set Two Results

As shown in Table 2, McDonalds had a minimum close price of \$88.46, maximum close of \$178.36, and a standard deviation close value of \$26.51. Meanwhile, FIAT Chrysler had a standard deviation of only \$5.03, a minimum of \$4.74, and a maximum value of only \$24.81.

Table 2: McDonalds vs. FIAT Chrysler Company Comparison

	Standard Deviation Close	Minimum Close	Maximum Close
McDonalds	\$26.51	\$88.46	\$178.36
FIAT Chrysler	\$5.03	\$4.74	\$24.81

3.3 Stock Set Three Results

As shown in Table 3, McDonalds had a minimum close price of \$88.46, maximum close of \$178.36, and a standard deviation close value of \$26.51. Wendys, on the other hand, had a minimum close price of \$3.08, maximum close of \$7.56, and a standard deviation close value of \$18.43.

Table 3: McDonalds vs. Wendy's Company Comparison

	Standard Deviation Close	Minimum Close	Maximum Close
McDonalds	\$26.51	\$88.46	\$178.36

Wendys	\$3.08	\$7.56	\$18.43
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3.4 Stock Set Four Results

As shown in Table 4, Dr. Pepper had a minimum close price of \$43.31, a standard deviation value of \$19.70, and a maximum close price of \$126.58. Cracker Barrel had a minimum close price of \$94.34, a standard deviation value of \$23.70, and a maximum close price of \$178.69. Additionally, General Motors had a minimum close price of \$27.23, a standard deviation value of \$3.79, and a maximum close price of \$45.91.

Table 4: Dr. Pepper, Cracker Barrel vs. General Motors Company Comparison

	Standard Deviation Close	Minimum Close	Maximum Close
Dr. Pepper	\$19.70	\$43.31	\$126.58
Cracker Barrel	\$23.70	\$94.34	\$178.69
General Motors	\$3.79	\$27.23	\$45.91

3.5 Percent Difference Results

After using Equation 1, the following companies were determined to have some of the most and least significant increases in their stock price over the last few years.

Table 5: Comparison of Percent Difference in stock price of selected companies

Company Name	Initial Close	Final Close	Percent Difference Close
General Motors	\$34.99	\$36.91	+105.5%
Dominos	\$62.57	\$287.37	+459.3%
Chipotle	\$400.08	\$520.71	+130.2%
Dr. Pepper	\$45.24	\$123.66	+273.3%
Red Robin	\$68.06	\$40.20	-59.1%

A list of all companies, sorted by industry, along with their minimum close, maximum close, and standard deviation close were produced in Appendix A. Additionally, Appendix B included tables, sorted by industry and the percent difference in stock price for each company.

3.6 Dominos Closing Stock Price

As seen in Figure 5, Dominos' stock price over the past four years had experienced a rapid positive growth, which was shown by the positive slope and its high standard deviation value of \$59.13. Additionally, the company even had a high positive percent difference in stock price.

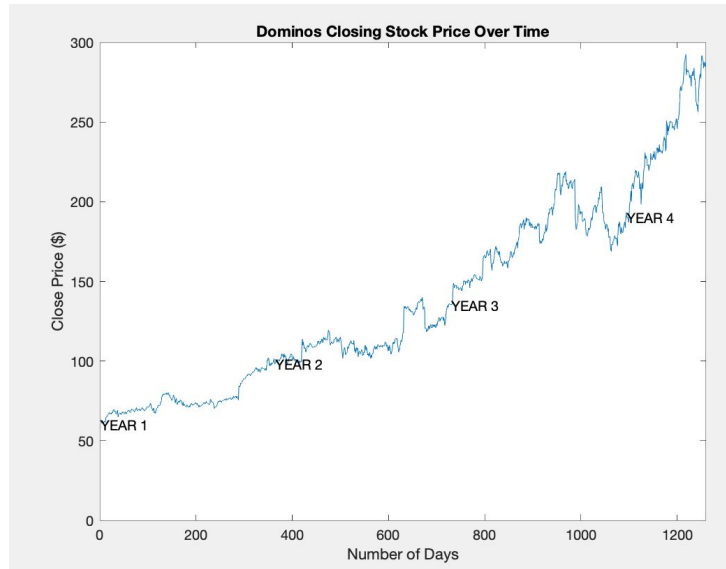


Figure 5: Dominos Closing Stock Price Over Time

4 Discussion

4.1 The Best Overall Stock to Invest In

During the first part of the project, the five best stocks to invest in were Dr. Pepper, Cracker Barrel, McDonalds, Tesla, and Dominos. These companies were decided upon based on their high standard deviations and upward sloping trends.

From the five best companies to invest in, the best was selected by comparing the percent difference and the standard deviation of the close values. Based on the data and the standard deviation values, Dominos was selected as the best company to invest in due to its steep upward trend in stock price over time. Additionally, 459.3 percent increase in stock price further solidified the decision. With fast food consumption on the rise, especially in food deserts

throughout the United States, Dominos, with its “30 minutes of free” pizza delivery guarantee, would continue to increase sales, reflecting in an increasing stock price.

4.2 The Most Stable and Riskiest Stocks to Invest In

The statistical markers of the stock price for the 22 companies was effectively computed using MATLAB. Since General Motors had the lowest standard deviation of \$2.11, it was found that the stock was least likely to fluctuate. In other words, it was the most stable stock in terms of price because its average distance from the mean was the lowest. In contrast, the riskiest stock to invest in was Chipotle because it had the highest standard deviation of \$127.99. Although it did end up with a 130.2 percent increase in stock price, it was very unpredictable due to the constant price fluctuations as observed in its graph (see Appendix 7.1.3). These fluctuations in price were primarily due to controversies regarding the hygiene standards of the food chain.

4.3 The Two Best Industries To Invest In

Once the most stable and risky stocks were identified, all of the data was sorted into five industries: automobile, apparel, fast food, dining, and beverages. Two of the industries were selected as great potential investment opportunities, depending on the type of the investment being considered by the investor. If the investor was looking to make a quick return on their investment, then the fast food industry would be their best option because the industry as a whole had high standard deviation values and upward stock price trends (as seen in Appendix 7.1.3). On the other hand, if the potential investor was conservative and willing to wait a relatively large period of time for a smaller, less risky return, then the beverage sector would be the best option (see Appendix 7.1.5). This is due to its relatively low standard deviation values, coupled with

high percent increases in stock price. With the global population rapidly rising and Americans consuming more and more processed food, both the fast food and beverage industries are likely to continue showing an upward trend in stock prices.

4.4 Other Factors to Consider

The stock analysis using MATLAB was beneficial to public health, safety, and welfare because it provided a means through which investors could make smart financial decisions. These decisions were important because they provided Americans with a stable income, allowing many to continue their philanthropic works that have positive effects on society. In addition, the financial recommendations discussed in this report have certainly enhanced the economic lives of consumers by increasing their net worth. When there's an increase in net worth of the average American investing in the stock market, society would flourish. This would in turn enhance the economy as a whole because people would have a higher spending power due to their recent investment returns. Moreover, since investments can be made overseas using market exchanges like NASDAQ, the global economy and the lives of investors all over the world would be positively affected. As for the environment, this analysis helps spur investments among environmentally-friendly companies. This is because investments are often made in favor of companies that care about the environment. With this MATLAB analysis, these companies would often be emphasized to invest in, thus benefiting the environment.

5 Conclusion

In conclusion, Dominos proved to be the most resilient stock to invest in due to its constantly increasing stock price over the last four years. In addition, General Motors was most

likely to remain stable due to its low standard deviation value. On the other hand, Chipotle proved to be the riskiest investment because of its sharp downward trends and high standard deviation value. The best industries for investment, as mentioned above, would depend on the desire of the investor to stay in the stock market for a long term or for quick returns. The best industries for a stable investment would be the beverage industry since it has an average standard deviation of \$10.42. On the other hand, the fast food industries would be ideal for short term investments where one could make fast cash by investing in companies like McDonalds or Dominos.

5.1 Recommendations for Future Work

There are several methods that can be used to analyze trends in the stock market. Particularly, more emphasis should be given on understanding the demand and supply mechanisms of the economy to better understand the trends seen in the stock prices of the above mentioned companies. Instead of using primitive statistical methods of minimum, maximum, and standard deviation values, more advanced analysis methods such as determining the Price-to-Earnings (P/E) Ratio or even the PEG ratio could be used. These ratios are primarily determined by dividing out the stock's market value per share by its earnings per share. Additionally, future analysis should incorporate confounding variables such as inflation and interest rates during the specified time periods as well.

To create a superior way of analyzing stock market trends and to produce statistically significant results, a diverse range of companies should be evaluated. Other industries such as banking, utilities, healthcare, and technology should also be incorporated in the evaluations.

Investors may also find it more wise to investigate and invest in multiple industries in order to diversify their investment portfolio. Standardization of all stock prices, along with adequate sample sizes must also be ensured to allow for visible trends in data sets. While keeping all of the above factors in mind to produce statistically significant results, parameters measured to evaluate stock performance, such as dividends per share, company balance sheets, cash flow statements, and loans should also be considered for a better analysis.

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7 Appendix

7.1 Appendix A - Company Statistics by Industry

Table 6: The Automobile Industry Statistics

	Standard Deviation Close	Minimum Close	Maximum Close
Ford	\$2.11	\$9.45	\$17.84
General Motors	\$ 3.79	\$27.23	45.91
FIAT	\$5.03	\$4.74	\$24.81
Tesla	\$58.26	\$120.50	\$385.00

Table 7: The Apparel Industry Statistics

	Standard Deviation Close	Minimum Close	Maximum Close
Nike	\$10.71	\$31.41	\$82.95
Under Armour	\$10.49	\$11.61	\$52.05
Lululemon	\$18.45	\$37.25	\$136.67

Table 8: The Fast Food Industry Statistics

	Standard Deviation Close	Minimum Close	Maximum Close
Sonic	\$4.40	\$15.75	\$36.87
Dominos	\$59.13	\$61.16	\$292.39
Wendy's	\$3.08	\$7.56	\$18.43
Dunkin Donuts	\$7.25	\$37.73	\$73.00
McDonalds	\$26.51	\$88.46	\$178.36
Papa Johns	\$14.14	\$33.74	\$89.55
Chipotle	\$127.99	\$251.33	\$757.77

Table 9: The Dining Industry Statistics

	Standard Deviation Close	Minimum Close	Maximum Close
Cracker Barrel	\$23.70	\$94.34	\$178.69
Cheesecake Factory	\$5.32	\$38.45	\$65.87
Texas Roadhouse	\$11.49	\$23.12	\$70.18

Red Robin	\$12.02	\$36.20	\$93.68
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Table 10: The Beverage Industry Statistics

	Standard Deviation Close	Minimum Close	Maximum Close
Starbucks	\$8.73	\$34.37	\$64.57
CocaCola	\$2.36	\$37.05	\$48.53
PepsiCo	\$10.87	\$77.10	\$121.76
Dr. Pepper	\$19.70	\$43.31	\$126.58

7.2 Appendix B - Percent Difference in Stock Price

Table 11: The Automobile Industry Percent Difference

	Initial Close	Final Close	Percent Difference Close
Ford	\$16.41	\$9.86	-60.1%
General Motors	\$34.99	\$36.91	+105.5%
FIAT	\$5.39	\$16.56	+307.23
Tesla	\$157.10	\$321.90	+204.9%

Table 12: The Apparel Industry Percent Difference

	Initial Close	Final Close	Percent Difference Close
Nike	\$32.43	\$82.95	+155.8%
Under Armour	\$18.05	\$21.65	+119.9%
Lululemon	\$70.96	\$135.61	+191.1%

Table 13: The Fast Food Industry Percent Difference

	Initial Close	Final Close	Percent Difference Close
Sonic	\$16.06	\$34.53	+215.0%
Dominos	\$62.57	\$287.37	+459.3%
Wendy's	\$7.92	\$18.19	+229.7%
Dunkin Donuts	\$43.23	\$71.69	+165.8%
McDonalds	\$94.84	\$159.38	+168.1%
Papa Johns	\$35.62	\$42.92	+120.5%
Chipotle	\$400.08	\$520.71	+130.2%

Table 14: The Dining Industry Percent Difference

	Initial Close	Final Close	Percent Difference Close
Cracker Barrel	\$101.09	\$152.56	+150.9%
Cheesecake Factory	\$43.55	\$52.51	+120.6%
Texas Roadhouse	\$25.43	\$67.08	+263.8%

Red Robin	\$68.06	\$40.20	-59.1%
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Table 15: The Beverage Industry Percent Difference

	Initial Close	Final Close	Percent Difference Close
Starbucks	\$35.95	\$54.00	+150.2%
CocaCola	\$46.22	\$38.31	+120.6%
PepsiCo	\$79.25	\$113.72	+143.5%
Dr. Pepper	\$45.24	\$123.66	+273.3%