<u>Stock Market Simulation</u>

An Interactive Qualifying Project Report: Submitted to the Faculty of

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Abstract

In this Interactive Qualifying Project (IQP), the group conducted stock market simulations over a five-week period, using two different trading strategies, position trading and swing trading, as well as a buy and hold strategy that was used as a control for comparison. Each member researched different trading strategies and companies with stock available to trade on the market and worked together to choose which companies were used throughout the simulation. Each member, using their selected trading strategy, invested $100,000 in the companies previously selected. The returns of the three trading strategies were: position trading: -3.31%, swing trading: -7.21%, and the buy and hold method: -11.36%. The broad market (measured by S & P 500) had a 6.26% decline. Experiences learned in the project will be very valuable for future investments.

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Chapter 1: Introduction

1.1 - Goals

We have three main goals that we are attempting to achieve in this stock market simulation IQP. The first of which is to learn about the various trading and investment strategies that are used in the Market today. We have a compact knowledge of simple trading strategies used in the market today, but through this IQP we are hoping to understand these strategies more deeply, as well as develop an understanding of the more complex trading and investment strategies that are used by brokerages and private investors today.

Our second is to develop an understanding of the "rules" of the stock market and how it works. It is obvious that stocks are traded between millions of people every day, but some form of regulation must take place to govern this trading and make it fair for all parties. As a group, we would like to investigate and gain experience with these "rules" so that in this IQP and in the future, we are able to make trades and investments in the stock market without violating any of these regulations.

Finally, and most importantly, it is our goal to learn a real-life valuable skill through this IQP. In many classes, it is often difficult to find a real-life connection with the material taught in lectures. But through this IQP there are many skills that we can use in the future to not only better our understanding of the U.S. market, but also gain financial independence and create wealth that may benefit us later in life.

1.2 - Methods

The medium through which we will complete our stock market simulation is a "Virtual Stock Exchange" via MarketWatch. This virtual stock exchange will mimic the market exactly,

and allow us to trade stocks, without having to use real money, a brokerage or deal with other financial issues. Each "player" will start with $100,000 to invest through whichever strategies they please. This game will remain active from May 22nd until July 22nd, but investments and trades will only be made during a five-week period starting on June 6th.

1.3 - General Plans

The general plan for this IQP can be easily broken down into three sections, research, trading and implementation of research, and an overall analysis and conclusion based on our selected trading strategies compared to themselves as well as a control (buy and hold method). The research to be completed will encompass various trading methods and strategies used on the market today and in the past, but we will also research various companies that are likely to grow during the period we are investing throughout. Through this research, we will determine which strategies are best, as well as which companies are most likely to succeed in today's market.

Once the research period has been completed, we will then begin the trading period, during which we will implement what was learned through our research. This period will last five weeks and involve a "Virtual Stock Exchange" via MarketWatch. Through this virtual exchange each group member will be "given" $100,000 to apply the trading strategy they believe is most likely to "succeed", in other words, gain the highest return on investment. However, an account that will simply buy stocks at the beginning and hold them until the end will also be involved. This will not be controlled by either group member after the start of the investment period and will be used as a basis for comparison.

After the five-week trading period has concluded, we will begin our analysis of each trading strategy. The trading strategies selected by each group member will be compared to each other, as well as to the "control" to analyze how successful each method gained wealth based on

the initial investment. This section will provide an analysis of the data we will collect through the trading period and a conclusion to sum up our findings based on this analysis.

1.4 - Background Information

Back in the 12th century the concept of a "stock market" came about as a result of debt holders trying to manage their assets. These dept holders would come together and meet to discuss how they could move monetary assets around in order to more effectively collect depts. As time moved on these meetings would become more and more formalized as many more individuals participated in them. The idea really took off in the newly independent region of what is now called the Netherlands. Dutch society was one of the first republics in Europe and as such the culture was ripe for more revolutionary ideas about how money should play a role in society. In 16th century Dutch society your social status was heavily tied to your wealth, not your family lineage as was the case in the rest of Europe. Many Dutch citizens wanted to participate in the larger global trade but were unable to due to the immense cost. It was around this time that the world's first joint-stock company was formed called the Dutch East India Company which finally allowed the everyday blue-collar worker to invest in the global market and to hopefully increase their wealth in the process. The success of the Dutch East India Company led to the creation of the Amsterdam Market which would be the first recognizable stock exchange to our modern counterparts. Many other markets sprung up after that including the London Stock Exchange and eventually, about 200 years later, the New York Stock Exchange [2].

The New York Stock Exchange was founded in 1792 after the Buttonwood Agreement was signed by 24 New York brokers. The main stocks traded were War bonds from the Revolutionary War and shares of First Bank of the United States. Differing slightly from the Amsterdam Market's early days, the New York Exchange sold mostly shares in banks instead of large overseas

companies. The Civil War was a great factor in the expansion of Securities trading in the New York Stock Exchange as well as the invention of the telegraph which greatly expanded individuals' ability to trade from afar. As many people know, the Exchange had some of its darkest times in the early 20th century, the greatest of which was the Black Thursday crash of October 24, 1929. This event is usually blamed for the start of the great depression, however while it was certainly a factor it was far from the only reason why the nation fell into such dark times. It had such a devastating effect on the general population because many people had been investing and participating in the market prior to the collapse and this meant the damage was spread across the nation.

More recently the COVID-19 pandemic has caused the biggest drop ever seen in the market. In the span of a month the DOW lost over 10,000 points in March of 2020. However, the market did make a significant recovery and continued to rise until the recent events in the past few months such as the War in Ukraine, which caused it to decline steadily again. In this research paper we will be trading in this volatile market, and we will look for lessons from the past in order to make more informed and hopefully profitable decisions.

List of Common Terminology

- **Bear Market-** When the market seems bleak, and prices are falling continuously.

- **Bull Market-** When there is lots of optimism about the market and the prices are on the rise.

- **Liquidity-** The ease with which it is to buy and sell a particular stock.

- **Trading Volume-** Related to liquidity as it is the number of shares being traded at a given time.

- **Outstanding Shares-** The total number of shares a company has to offer the market.

- **IPO-** Initial Public Offering is the process by which a company goes public on the market.

- **Hedge Funds-** A form of investment in which several investors utilize high risk methods of trading in order to hopefully acquire large capital gains.

- **Mutual Funds-** A pool of investors' money used to trade financial assets.

- **Dividend-** When a company pays some of its earnings to its investors.

- **Stock Portfolio-** An investor's collection of all his or her stocks and financial assets.

- **Margin-** When an individual or collective borrows money in order to trade shares. (High Risk)

Chapter 2: Investment Strategies

2.1 - Buy and Hold

The simplest trading strategy that any potential investor can use is the Buy and Hold method. The name says it all. This method of trading utilizes the assumption that the market will continue to grow and that the economy will do well on its own. The individual simply invests in a stock, at what is hopefully a low price, and then waits for an extended period until the price increases enough to make significant money. This method works well in industries that are known for continued growth and that are usually very stable. One common industry that suits these requirements is the mining industry. Since humanity continues to grow as a species, we constantly need more resources to fuel our economies. Someone must extract these resources and that is the job of the mining industry.

We are including this strategy in our analysis because we wanted to have a control variable to compare our results to. Each of us will attempt to acquire more money than this method through the course of this analysis. If this method prevails then it would have been better if each of us left our assets in the market instead of trading them. It is unlikely that this method will be successful over the course of this IQP because the market is not very stable and is generally on a downward slope, meaning assets that are sitting in the market are losing their value such as 401k's.

2.2 - Position Trading

Position trading is similar to the buy and hold method mentioned above, however instead of holding on to assists for an extended amount of time they are traded based on current trends. Position traders use past data and charts to try and predict the current market setting using data analysis. Position trading is all about timing and predictive trading and is often used by more

experienced traders. This trading strategy may last anywhere from a few days to months depending on the specific stock being assessed and the predictions of the position trader.

I selected this strategy because it involved more data and trend analysis, and my strengths lie in using excel. I also have a minor passion for data science and enjoy the prospect of trying to use mathematics to make some profits. This method may not be as successful as the swing trading strategy for the current state of the market. This is because my method is all about predicting what will come next to make profit, however the current market is very volatile and thus unpredictable.

2.3 - Swing Trading

Swing Trading is a strategy in which the trader holds the stock for a certain period, typically one day to a week, to make gains from the changes or "swings" in market value. In this trading strategy, one can make a profit or gain through two options; either by buying and waiting for growth or short selling. Swing trading can range in complexity from research based "guesses" on stock price movements to using mathematical based "rules" to form a trading algorithm, which will signal the trader to buy or sell. This strategy is a form of active trading and is much more involved than a strategy such as buy and hold [4].

This strategy was picked because of its potential in bear markets, such as the one present today. Swing trading relies on movement between stock prices and can benefit from market volatility. Bear markets are very volatile and therefore stock prices are constantly moving, which presents many opportunities for a trader using this strategy to act. Swing trading was chosen for this very reason, just last week (5/20) the stock market hit a bear market, as the S&P 500 was down 20% from its peak in November. There is high potential for success using the swing trading method during the market of today [5].

Chapter 3: Company Selection

3.1 General Electric (GE)

General Electric is a multinational American corporation founded in 1892 by Thomas Edison, J.P. Morgan, Elihu Thomson, Charles A. Coffin, and Edwin J. Houston. It was one of the original 12 companies featured on the Dow Jones Industrial Average in 1896. Although its roots started in the electric business the corporation today has many sectors including power, renewable energy, locomotives, aviation, and digital industry. The company had a revenue of about $74 billion in 2021 and its combined assets clock in at over $198 billion. The company is a true representation of the heights a corporation can achieve in a free market world, which unfortunately is not represented in its stock price as shown by Figure 3.1. The current CEO is H. Lawrence Culp Jr. who oversees the many subsidiary companies that fall under the overall GE conglomerate. Currently GE employs over 168,000 people worldwide of which 55,000 are in the United States.

Figure 3.1: GE stock price chart over the past five years.

GE has seen a significant decline from the stocks' glory days in the early 2000s. It has remained stagnant for the past few years despite the pandemic and current world events. This stock was chosen for this research assessment because of its relative stability compared to some of our other choices. It is also an industry that both of us understand as we both work for aerospace companies and GE has a significant aerospace sector with GE aviation. We also both enjoy keeping up with the tech industry and GE is certainly a respectable player in that regard.

3.2 BAE Systems (BAESY)

BAE Systems is a British multinational arms, aerospace, and security company headquartered in London, England. It is a relatively new company, founded only 22 years ago in 1999. Its young age did not deter it from becoming one of the most prominent weapons and arms manufactures in the world and its technology can be found in many nations' military assets. The United States DOD employs BAE for many of its electronic warfare needs and it is the main provider of electronic warfare for the new F-35 multirole fighter. Due to the sensitive nature of their work BAE systems has a subsidiary company called BAE Systems Inc. which is based in the US and does not share information with its parent company. Last year BAE systems had a total revenue of 19.52 billion pounds while its total assets number over 27 billion pounds. BAE employs over 35,000 people worldwide with a substantial majority of those being in the United States. The company has shown continued growth over the past five years, which is reflected by its stock price, seen in Figure 3.2 below.
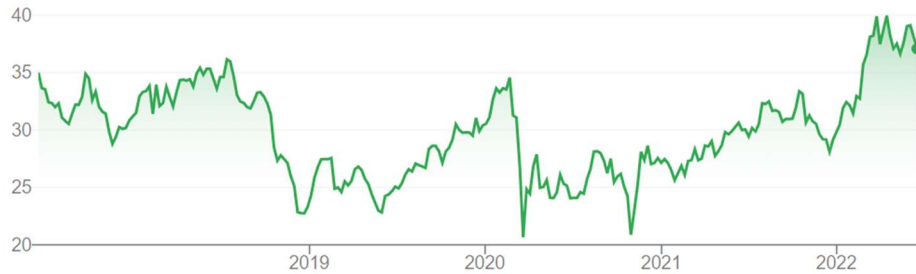
Figure 3.2: BAESY stock price chart over the past five years.

BAE systems' stock fluctuates much more than GE did in the past 5 years as seen in the Figure above. The company was chosen because it is directly related to the field of aerospace engineering and both of us are currently aerospace majors here at WPI. We wanted to invest in industries that we know and that we can understand to a better degree. This stock should complement both investment methods we choose to use because of its fluctuating but predictable nature. It is our hope that with our love of aerospace engineering we will be able to make some money in our simulation while also enjoying keeping up with the company we're investing in.

3.3 Raytheon (RTX)

Raytheon Technologies is an American multinational aerospace and defense conglomerate base out of Waltham Massachusetts. Raytheon is one of the largest Aerospace, intelligence service providers, and defense manufacturers in the world and has grown to requisition smaller companies that perform similar functions such as Collins Aerospace and Pratt and Whitney. This company

researches, develops, and manufactures advanced products for aerospace and defense applications. The company has many sources of revenue, buts its main source is from defense contracts through the U.S. Government. The company currently employs a total of 174,000 people and had a net income of $3.86 billion in 2021. Regarding the company's stock, Raytheon, like most having suffered from the pandemic, has bounced back very quickly, and continues to grow even through the present day, reference the Figure 3.3 below [6].

Figure 3.3: RTX stock price chart over the past five years.

Raytheon was selected as a company to use in this simulation because of its relevance to real life, as well as its connection to one of the authors. I work for Collins Aerospace, a company owned by Ratheon Technologies. As a worker under the RTX umbrella I know firsthand that this company has lots of potential in its workforce and many opportunities for growth in its future. Raytheon Technologies first started as its own company but has grown to requisition companies like Pratt and Whitney, as well as Collins Aerospace. It is the company's ability to grow and adapt to current situations that is the main reason for its selection. Additional reasoning behind its

selection is the company's products offered to the U.S. government. Raytheon is also a defense contractor and supplies defense related items such as missiles, explosives and other equipment used by soldiers in the field. Given present conditions in regions such as Ukraine, we deem this Company to have high potential for growth.

3.4 S&P 500 (VSPGX)

The S&P 500 or Standard and Poor's 500 is a stock index which tracks the performance of about 500 companies listed in the United States. It is often used to assess the performance of the market and make overall predictions about the state of the economy at any given time. Its assets total around 5.4 trillion dollars and it is amongst the most followed equity indexes in the world. Its history dates to the early 20th century, when, in 1926 the 90-stock index was computed daily for investors to get a slice of the 90 biggest public companies of the day. Figure 3.4 shows the price of this index stock over the past 5 years.

Market Summary > S&P 500

3,749.63

+1,316.48 (54.11%) ↑ past 5 years

Jun 13, 5:41 PM EDT • Disclaimer

| 1D | 5D | 1M | 6M | YTD | 1Y | 5Y | Max |

| Open | 3,838.15 | Low | 3,734.30 | 52-wk high | 4,818.62 |
| High | 3,838.15 | Prev close | 3,900.86 | 52-wk low | 3,734.30 |
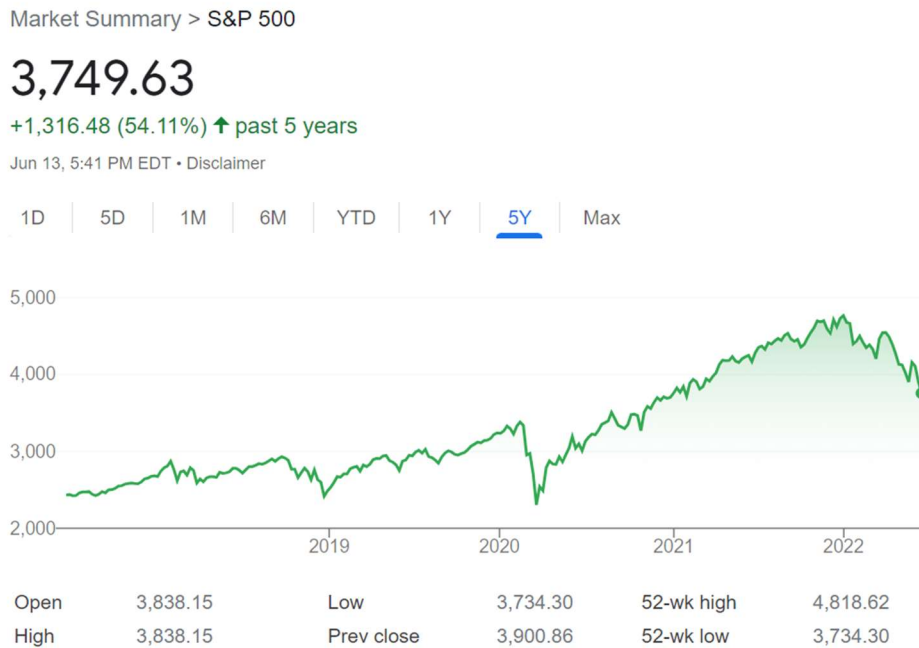
Figure 3.4: S&P 500 stock price chart over the past 5 years.

The S&P 500 index took a significant hit in March of 2020 when the pandemic began. However, it has made a significant recovery since then and the price has increased at a higher rate than before the pandemic. In the past year it has begun a steady decline as the long-term effects of the pandemic finally hit. We chose to use the S&P 500 in our stock portfolio because we wanted to include an index stock. Since we will be using a significant sum of money, we will be able to acquire some full shares of this index if desired. Putting this stock in our portfolio allows us to invest in all sectors of the economy thus allowing us to hedge our bets on the economy.

3.5 Trip Advisor (TRIP)

Tripadvisor is an online travel company that utilizes a website and mobile app with user-generated content and allows for comparison shopping on its website. It offers online transportation booking, lodging, travel experiences, restaurants, and hotel booking. Tripadvisor is a one stop shop for all things travel. The company was founded in 2000 and currently employs just under 3000 people. Tripadvisor was impacted hard by the pandemic in 2020 and its revenue dropped 61% in 2020 to $604 million. The company's stock has shown large fluctuations in the past five years, and most obvious is the impact of COVID 19, which can be seen in Figure 3.5 below [8].

Figure 3.5: Tripadvisor stock price chart over the past 5 years.

Tripadvisor stock has not been very stable, even before the COVID19 pandemic and that is the exact reason this company has been selected for use in this stock market simulation. Swing trading often relies on companies with stock prices that are volatile to make profits and achieve success. As one can see from the Figure above, even during "normal times" Tripadvisor stock varies drastically, because of its reliance on vacation seasons and the willingness of people to travel, but also to use its online platform. Tripadvisor relies on so many varied factors that are constantly changing, therefore its stock value is constantly changing. Constantly varying stock price is ideal for swing trading, which is why this company was chosen.

3.6 Microsoft (MSFT)

Microsoft is one of the most well-known companies in the world, as its products reach a vast majority of the population. It was founded in Albuquerque, New Mexico in 1975 by Bill Gates and Paul Allen. These men would create a company that revolutionized the computer and brought in a new age of widespread technology use by the world's population. Microsoft's main exports

are computer software, personal computers and consumer electronics. Last year the company had a total revenue of 161 billion dollars, which is impressive as it is one of the few companies on this list that increased revenue from 2020. The company's assets total a whopping 333 billion dollars which makes it the biggest company featured in our portfolio by far. Microsoft employs over 181,000 people worldwide of which 60% are in the US. Figure 3.6 below shows the price of Microsoft stock over the past half decade.

Market Summary > Microsoft Corporation

242.26 USD

+172.26 (246.09%) ↑ past 5 years

Closed: Jun 13, 7:59 PM EDT • Disclaimer
After hours 243.66 +1.40 (0.58%)

| 1D | 5D | 1M | 6M | YTD | 1Y | 5Y | Max |

Open	245.11	Mkt cap	1.81T
High	249.02	P/E ratio	25.28
Low	241.53	Div yield	1.02%

CDP score	A
52-wk high	349.67
52-wk low	241.53
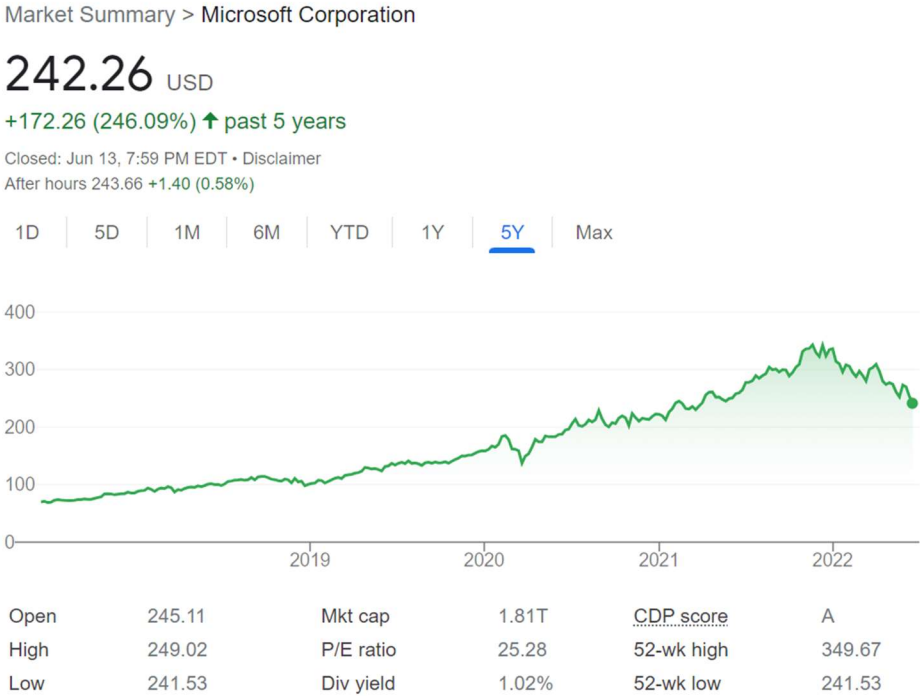
Figure 3.6: Microsoft stock price over the past five years.

Microsoft stock has seen a rare decline in the past year compared to the past 5 years. Like many companies it took a hit in March of 2020 during the beginning of the pandemic. It did make a substantial comeback in the two years during the pandemic. However, it is clear that the stock price is on the decline ever since the start of 2022. We wanted to include this stock in our portfolio because we wanted to include a big corporation that had a lot of influence in the world market.

Microsoft is big enough to influence world stock prices on its own especially in the European and American markets.

3.7 BHP Group Ltd (BHP)

BHP or the Broken Hill Proprietary company is an Australian based mining company that specializes in iron ore extraction however it also has copper ore, nickel, and potash divisions. Its roots date back to the 1900s when tin deposits were found by a Dutch party on Billiton Island in the then Dutch East Indies. The company was founded in order to extract this resource; however, it eventually grew to be a prominent player in the south pacific mining industry. The company is traded on the New York Stock Exhange despite being headquartered in Australia. The company employs over 72,000 people worldwide and is a major player in the iron and copper industry. Figure 3.7 below provides some information on the stock's price over the past 5 years.
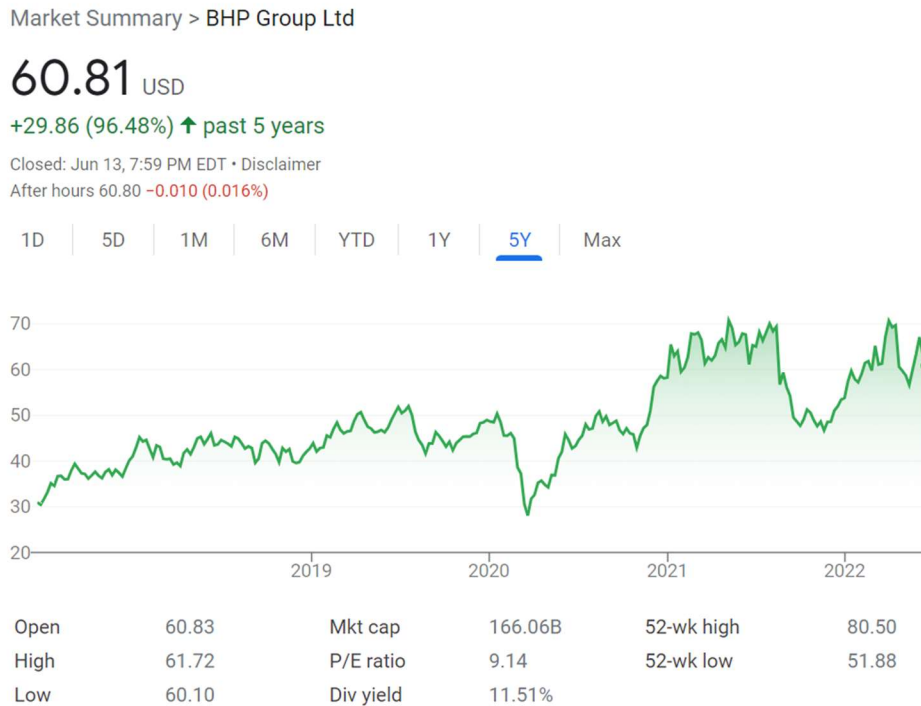
Figure 3.7: BHP stock price over the past five years.

BHP stock is an interesting one when compared to the other companies in our portfolio. It has had significant periods of decline and growth in the past 5 years making it a viable candidate for swing trading. It also has potential in the position trading as the mining industry is usually seen as a stable and ever-increasing market that can be predicted relatively easily. The hope is that both methods can benefit from including this stock in our overall portfolio. The price is currently increasing at a relatively fast rate which could be valuable in our first few weeks of trading. We wanted to include a company in an industry that is usually known for stable growth over time such as mining and we wanted to diversify our portfolio by getting away from the tech industry.

3.8 Chevron (CVX)

Chevron is an American energy corporation based out of San Ramon California and is active in more than 180 countries across the world. The company partakes in every aspect of the oil and gas industry from exploring different hydrocarbons, to refining, marketing and producing them for commercial use in power generation, producing 791,000 barrels of oil in the United States per day. Chevron also sells lubricants and additives in addition to its fuels and petrochemicals. One notable piece of information is the companies' controversies from its activities in the Lago Agrio oil field. This controversy involves the illegal dumping of 18 billion tons of toxic waste and 17 million gallons of petroleum in Ecuador. The controversy comes from false accusations from chevron against Steven Donziger, the lawyer of the Ecuadorian people against Chevron and Texaco, stating that Steven attempted to bribe the court to win. Despite this controversy, the company's stock price has soared, especially in the past few months as oil and gas prices have skyrocketed across the U.S., reference Figure 3.8 below [14].

Figure 3.8: Chevron stock price over the past five years.

As a large oil and gas producer and given the current need for non-renewable energy across the United States, Chevron is a notable company for investment opportunities. While a few companies in this IQP have been selected because of their likelihood to benefit from one trading method or the other, Chevron has the potential to work in the favor of either strategy. Oil and gas prices do not show an indication of slowing down in increment, indicating that the stock may continue to grow, which may benefit position trading and the buy and hold method. But as a company with many controversies, this also shows the potential for the company's stock price to drop and rise at any moment. This stock has the potential to be used to the benefit of all trading methods.

3.9 Pfizer (PFE)

Pfizer is an American pharmaceutical and biotechnology corporation based out of New York City. It was created in 1849 by Charles Pfizer and Charles Erhart, two immigrants from

Germany. Pfizer researches, develops, and manufactures medicines and vaccines for various medical needs and currently produces many "big name" drugs that generate more than one billion U.S. dollars in revenue each year. The company is truly multinational, with its main profits coming from the United States, but with other sources of revenue from countries like China, Japan, and countless others. The company, with its announcement of one of the first COVID19 vaccines in 2020, has seen rising stock prices ever since, gaining roughly 70% since the onset of the pandemic, as seen by Figure 3.9 below [12].
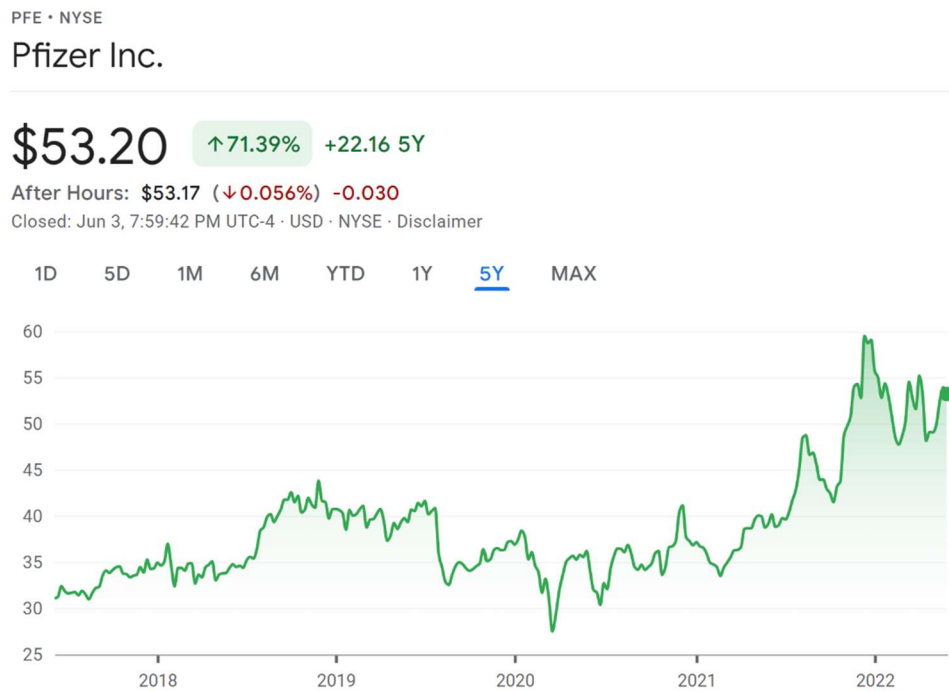
Figure 3.9: Pfizer stock price chart over the past five years

Pfizer's recent fame in the vaccine industry is one of the main reasons for its selection for this IQP. As seen in Figure 3.9 above, the stock price has gained a lot of value since the start of the pandemic, but as is the nature of pharmaceutical companies, the stock price has constantly fluctuated throughout the past two years. Some of these fluctuations are small and others being much larger. Such as in the past 5 days, the stock price's high of $54.19 and the low of $51.17, a

change of just over $3, which can be utilized to make large profits when investing large amounts of cash. Like for other companies selected in this simulation, this one is perfect for swing trading because of its frequent and drastic changes in stock prices.

3.10 Delta Air Lines (DAL)

Delta Airlines is one of the most prominent airlines in the United States. Delta is headquartered in Atlanta, Georgia and is one of the oldest airlines in operation, having begun June 17, 1929. The airline operates over 5400 flights every day and has flights to over 325 destinations, reaching six different continents. Delta Airlines or "Delta" has over 750 aircraft in its fleet, most of which coming from Airbus and Boeing. Passengers have various seat selections ranging from basic economy to Delta One, which offers lie flat seating for passengers. Like all other companies, Delta stock has fluctuated with the pandemic, but the company has yet to recover to its height in 2020, reference Figure 3.10 below [10].
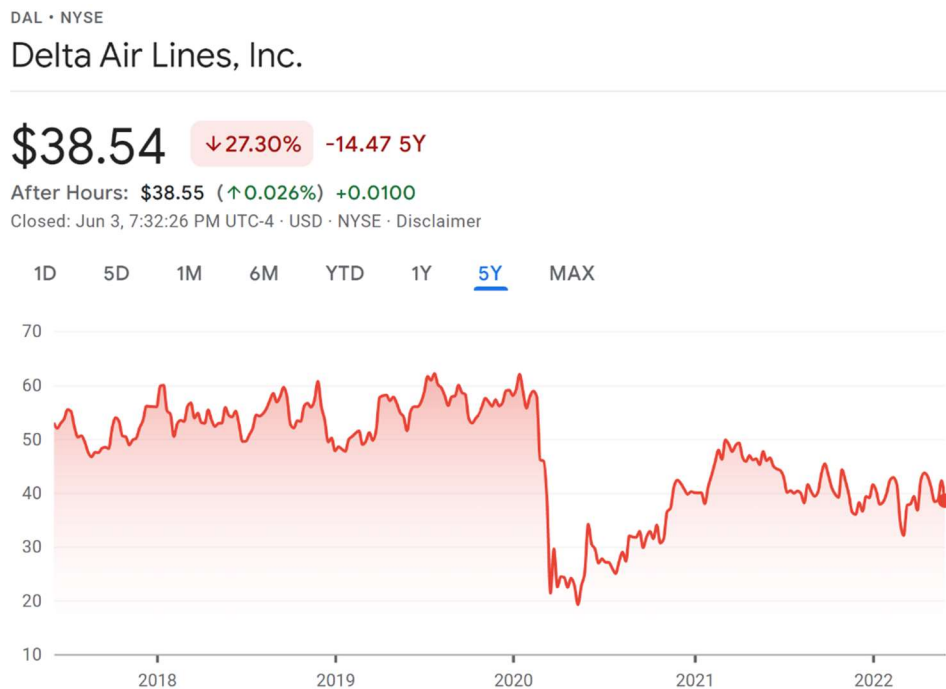
Figure 3.10: Delta Airlines stock price chart over the past five years.

Following the group's passion for aerospace engineering, Delta Airlines was selected because it is in fact an airline company; To coin the phrase, invest in what you know. Both authors are aerospace engineering majors, the air industry piques our interest and is something easy for all members to understand. But this is not the only reason for the company's selection. As seen from Figure 10 above, the stock price of this airline is constantly changing which, as previously stated, is ideal for the swing trading strategy. It is thought that the volatility of this stock will allow for greater success using the swing trading method. Day to day or week to week changes in stock price will be easy to manipulate via swing trading.

Chapter 4: Position Trading

4.1 Week 1

4.1.1 Week 1 Preparation

In order to prepare myself for the first week of trading with the stock market simulation I decided to create a spreadsheet to help me analyze the market and keep track of my earnings. The platform I chose for analysis was google sheets instead of Excel because of my experience using google sheets in my position as an officer in my fraternity. Google sheets also has a convenient built-in formula called "googlefinance" that pulls market data from google servers which can be delayed up to 20min however that is not very relevant to me as I will not be day trading. I set up the sheet to allow me to see stock price graphs for the ten companies we have selected side by side over whatever period I choose. This helps me greatly in analyzing and comparing market trends of all the available companies in our study. Google finance also allows me to pull data such as trading volume and beta values for any of the companies we have selected for this study.

I started my analysis by looking at each of the ten companies' market volatility using their respective beta values. From my research on the subject, I found that the beta value is a measure of how volatile a stock is compared to the current overall market volatility. A beta value of one represents the volatility of the market, therefore, any value greater than one represents a more volatile stock and similarly any value less than one represents a less volatile stock. Volatility does not imply that a stock is good or bad, it simply lets an investor know a little more about the current behavior of a given stock. Since position trading is more of a long-term trading method, I decided to view fewer volatile stocks as slightly better because it means my predictions may be more accurate due to the lack of aggressive changes. As such 74% of my shares traded were with

companies that had less than 1.00 beta value like BHP, Pfizer, and BAE systems as seen in the Figure below.

Table 4.1.1-1: Table used to keep track of company information

Company	Ticker	Current Price	Closing Yest.	Diff	Delay	Shares	Beta Value	Volume (%)
General Electric	GE	$ 71.23	$ 74.78	$ (3.55)	0	1.10E+09	1.01	0.87%
BAE Systems	BAESY	$ 38.10	$ 38.69	$ (0.59)	15	7.89E+08	0.99	0.00%
Raytheon	RTX	$ 95.49	$ 97.38	$ (1.89)	0	1.49E+09	1.34	0.38%
S&P 500	VSPGX	$ 506.37	$ 506.37	$ -	NA	NA	NA	NA
Trip Advisor	TRIP	$ 22.11	$ 23.33	$ (1.22)	0	NA	1.36	NA
Microsoft	MSFT	$ 252.99	$ 264.79	$ (11.80)	0	7.48E+09	0.94	0.00%
BHP Group Ltd	BHP	$ 63.48	$ 65.28	$ (1.80)	0	2.53E+09	0.88	0.13%
Chevron	CVX	$ 175.40	$ 177.52	$ (2.12)	0	1.96E+09	1.09	0.49%
Pfizer	PFE	$ 49.97	$ 51.78	$ (1.81)	0	5.61E+09	0.76	0.42%
Delta Air Lines	DAL	$ 35.12	$ 36.75	$ (1.63)	0	6.41E+08	1.05	3.03%

Aside from the beta value I also created a section of the spreadsheet to analyze stock price for any given timeframe as seen in Figure 4.1.1-2. I tried to look at past trends with the lower beta value companies to buy the right shares at the right time. Looking at the charts from the past 250 days I noticed that BAE, Raytheon, and the BHP group were all on the up and I wanted to jump in on this success. Bringing it back to the 30-day mark and these three companies were still outperforming the rest of the options, I decided to invest more heavily in them. I decided to buy 450 shares of BAE, 300 shares of BHP and 250 shares of Raytheon at the market opening price on Wednesday. Besides these companies I also decided to invest in Pfizer and General Electric. I chose these options because I noticed that they were currently in a low however looking at their historic records they had been in situations like this before and they eventually resulted in an increase in stock price that would be advantageous. Finally, I just put a few shares in the VSPGX stock just simply betting on the market recovering in the next few weeks.
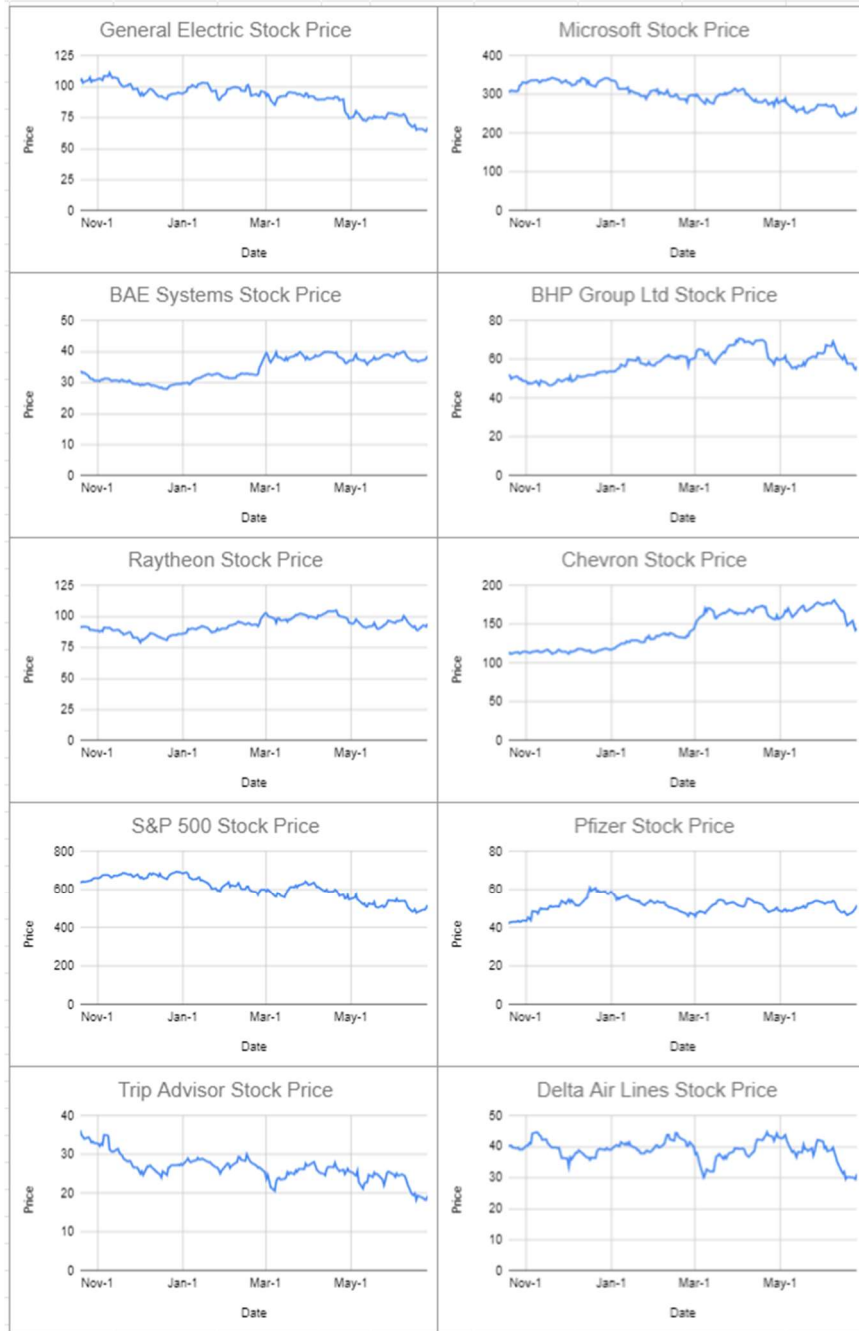
Figure 4.1.1-2: Stock price charts for the ten companies chosen over the past 250 days

4.1.2 Week 1 Results

The results of this first week of trading were less than ideal. It turns out that each one of the companies experienced a loss in stock price over the past week. My overall gains were –5.00% with a loss of about $5,000 in total across my various investments. My greatest losses came with

my investments in Pfizer and BHP, which saw about 7% loss from my initial investment. This was one of the more surprising results from this first week as I had not predicted that these companies would have the greatest losses. Overall, I have lost more money than my counterpart in swing trading but that is due to the volume of trades each of us conducted because there was no opportunity for either of us to gain anything with the companies we had chosen prior to the start of the simulation. Below in Figure 4.1.2-1 is the breakdown of my portfolio over the past week in which one can see the losses were across the board.

Table 4.1.2-1: Week 1 Transaction Record

Position Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/22							$ 100,000.00	
6/7/22	PFE	Buy	$ 54.06	300	$ 16,218.00		$ 83,782.00	
6/7/22	BHP	Buy	$ 67.76	300	$ 20,328.00		$ 63,454.00	
6/7/22	VSPGX	Buy	$ 539.76	4	$ 2,159.04		$ 61,294.96	
6/7/22	RTX	Buy	$ 99.51	250	$ 24,877.50		$ 36,417.46	
6/7/22	BAESY	Buy	$ 39.70	450	$ 17,865.00		$ 18,552.46	
6/7/22	GE	Buy	$ 77.02	100	$ 7,702.00		$ 10,850.46	

4.1.3 Week 1 Analysis

While the outcomes of week one could certainly have been better, I am not too concerned with the current layout of my assets. I believe that since all 10 companies experienced a downturn this past week it may just be an indicator of an overall market shift and not something that individually affects each of the companies that I have chosen to invest in. Looking forward I will be keeping a close eye on the prices daily in order to ensure that this overall market trend does not continue. Since Nick and I have decided not to trade shorts or dividend stocks it will be very hard to make any money in a market this is just headed downward for the next few weeks. Due to the relatively short period of time for trading in this IQP it may be more advantageous to simply hold on to more money in order to come out on top if the market continues to head down. I am looking

forward to researching more in-depth position trading techniques in order to reassess my assets in

the coming weeks.

4.2 Week 2

4.2.1 Week 2 Preparation

The preparation for Week 2 was very different from that of the previous week. With the market preforming poorly in all sectors I decided to hold all my assets that I had bought in week 1 of the study. Position trading is a long-term trading strategy that is less concerned with short-term market trends. Although the market is currently experiencing one of the worst downturns since the 1990's, I believe the companies I chose to invest in will continue their steady increase once this current unstable market runs its course. The Federal Reserve increased interest rates by 0.75 percentage points on June 15th in response to the plunge in stock prices. As of writing this it is not yet known whether this measure will be effective in lessening or even stopping the current market downturn.

I choose to remain optimistic about the stock portfolio I currently have laid out for myself. 42% of the money I invested is in Raytheon and BHP stocks which have shown periods of decline and subsequent increases in the past year as seen in Figures 4.2.1-1 and 4.2.1-2 respectively. The BHP group especially follows this trend which is due to what I presume is changing demand for the various metals and ores they extract and process. I suspect Raytheon will be seeing an increase in government business as they are one of the leading manufactures of arms to the US military. The war in Ukraine is continuing to rage on and the US is supplying the Ukrainians with many weapon systems including many Raytheon products such as the stinger MANPADS system which the US military only has limited supplies of. Raytheon stock jumped by a whopping 11% in the week following the Russian invasion of Ukraine as the world prepared for a returned United States military industrial complex. The UN security council now believes that the war in Ukraine will probably be a long and drawn-out war which means the US and its allies are going to need to

provide a lot of support to Ukraine. I will be keeping a very close eye on BAE systems and Raytheon over the next few weeks for any potential signs of share price increase due to the ongoing need for their technologies.

Figure 4.2.1-1: Raytheon (RTX) stock price over the last year
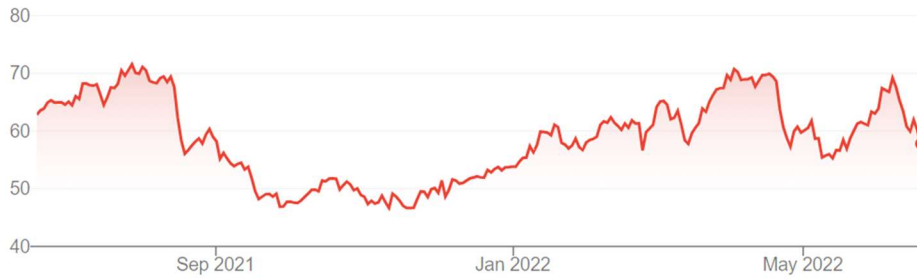
Figure 4.2.1-2: BHP Group Ltd (BHP) stock price over the last year

4.2.2 Week 2 Results

Similar to last week, my overall gains were in fact losses and that is mainly due to the continued decline in the value of market share across all industries. When Nick and I sat down and decided what companies we were going to trade, we tried to pick companies that were in different business sectors so that if one sector was doing particularly bad, we could rely on the others. However, since we started trading in our simulation, the entire market has been tanking, which neglects our attempt to diversify our portfolios. As stated above, in terms of trading there were no transactions this week as I decided to hold all my assets in their current state to stay true to my earlier predictions. For consistency Table 4.2.2-1 is provided below to show the transaction record for Week 2, however it has not changed from the previous week.

Table 4.2.2-1: Week 2 Transaction Record

Position Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/22	▾	▾					$ 100,000.00	
6/7/22	PFE ▾	Buy ▾	$ 54.06	300	$ 16,218.00		$ 83,782.00	
6/7/22	BHP ▾	Buy ▾	$ 67.76	300	$ 20,328.00		$ 63,454.00	
6/7/22	VSPGX ▾	Buy ▾	$ 539.76	4	$ 2,159.04		$ 61,294.96	
6/7/22	RTX ▾	Buy ▾	$ 99.51	250	$ 24,877.50		$ 36,417.46	
6/7/22	BAESY ▾	Buy ▾	$ 39.70	450	$ 17,865.00		$ 18,552.46	
6/7/22	GE ▾	Buy ▾	$ 77.02	100	$ 7,702.00		$ 10,850.46	

4.2.3 Week 2 Analysis

This stock market simulation is proving to be harder than expected. We have been thrown quite the curveball in terms of market stability and it has affected both Nick and I. Getting into trading stocks is hard enough challenge as it is, but when the economy is tanking significantly, and everyone is trying to avoid a recession it becomes infinitely harder. In the coming week I am considering selling some of my Pfizer stock in favor of keeping some more liquid assets around for any potential signs of share price increase amongst the other companies. Although Pfizer has been recently approved for selling their COVID vaccine to children I just don't see their shares increasing in value by that much and are in a significant decline currently due to the market falling. In terms of my portfolio, the Pfizer stock has lost almost 14% of its original value which ranks in amongst one of my worst performers. I'm hoping to see some more market stabilization this week from the increase in the Fed interest rates that occurred last week. If the downward decline does not begin to level out, I may have to liquidate more assets in order to prevent exponentially increasing losses.

4.3 Week 3

4.3.1 Week 3 Preparation

Unlike the previous week, there was some light trading of assets in my portfolio this week. With the market beginning a small recovery period I spent time keeping my eye on how each of the ten companies were making their individual recoveries in comparison to one another. Since all of them were collectively in a downturn the last two weeks, which followed overall market trends, I figured they may all begin to improve collectively as well. What I wanted to do was try and isolate which companies were improving at a better rate than the others so that I may shift my assets around to focus on the more successful stocks.

To this end, after a mid-week review of all stocks, I noticed that the price of Pfizer stocks was making a sharper increase than the others. This could be due to several factors, one of which is probably the recent approval from the FDA allowing Pfizer to administer their vaccines to children as stated in the previous section. At this same time, I noticed that BHP group was performing worse than the others regarding its recovery. Figure 4.3.1-1 shows the comparison of the two companies' stock prices over the past 100 days, where Pfizer was making a better comeback.

Based on this information I decided to trade 100 of my BHP group shares for 100 Pfizer ones on Thursday morning at the market opening prices. It is my hope that this shift in assets will result in a better overall outcome when it comes to final portfolio figures at the end of this research period. I remained steadfast in the "bounce back" theory for the rest of my assets based on their performances from last week and I was hoping to see some evidence supporting this theory.
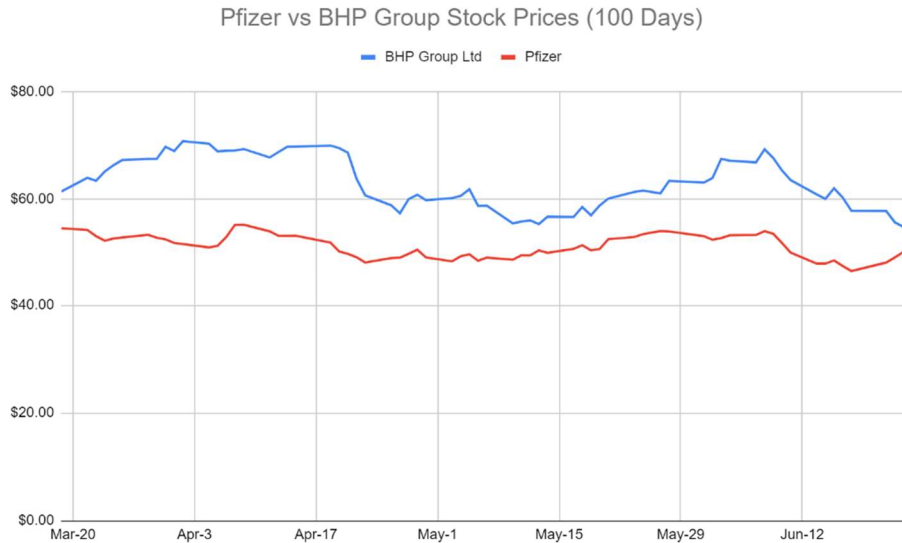
Figure 4.3.1-1: BHP vs Pfizer Stock Prices over 100 Days

4.3.2 Week 3 Results

Week 3 closed out with a much better performance when compared to previous weeks. The "bounce back" theory I used to support my holding of assets really paid off with BAE and Raytheon which saw enough positive returns over the week to almost break them out of the loss percentages. Since I ended up trading away some of my BHP stocks, I had the first official loss on my transaction sheet where I lost $1,258.00 due to the value of the stock decreasing. Without the constant buying and selling of stocks seen with the swing trading technique it is sometimes harder to show the specific profit and loss margins that occurred over the past week.

Regarding the Pfizer and BHP trading it seems like it was a very profitable decision. Pfizer had only a 1.71% loss on Friday which makes it the closest stock to breaking even out of all my portfolio. This loss was nearly 6% in the previous week, which shows that this stock is rapidly making a comeback and could start seeing profit soon. BHP continues to be my worst stock by far, as it closed the week with an overall loss of 16.88%. Table 4.3.2-1 below shows the transaction

history for all the trades leading up to this week. The profit loss of BHP stock can be seen as the first transaction of the 23rd of June.

Table 4.3.2-1: Week 3 Transaction Record

Position Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/22							$ 100,000.00	
6/7/22	PFE	Buy	$ 54.06	300	$ 16,218.00		$ 83,782.00	
6/7/22	BHP	Buy	$ 67.76	300	$ 20,328.00		$ 63,454.00	
6/7/22	VSPGX	Buy	$ 539.76	4	$ 2,159.04		$ 61,294.96	
6/7/22	RTX	Buy	$ 99.51	250	$ 24,877.50		$ 36,417.46	
6/7/22	BAESY	Buy	$ 39.70	450	$ 17,865.00		$ 18,552.46	
6/7/22	GE	Buy	$ 77.02	100	$ 7,702.00		$ 10,850.46	
6/23/22	BHP	Sell	$ 55.18	100	$ 5,518.00	$ (1,258.00)	$ 5,332.46	$ (1,258.00)
6/23/22	PFE	Buy	$ 47.77	100	$ 4,777.00		$ 555.46	

4.3.3 Week 3 Analysis

I am very pleased with the outcome of week 3 of this study. The market had finally begun to recover a bit since it crashed in week 1 and that hopefully bodes well for the rest of the study. I remain cautiously optimistic about the market because there is no way to tell if this recovery will be a short temporary one or a real long-term solution to the state of the US economy. With the world falling more and more into a state of disarray I will be closely following any news that may have major consequences on any of the markets that we have open to us in this study. Looking forward to next week I am considering liquidating all my BHP stocks because it simply continues to tank even when the other companies have been recovering. Since the United States is going through some server social unrest, I believe that BAE stock will be more reliable and constant because it is traded on the London Stock Exchange, and it is a British company therefore less involved with US politics.

4.4 Week 4

4.4.1 Week 4 Preparation

For the 4th week of this stock market trading simulation, I tried to leverage some of the companies that were out preforming their counterparts in this fragile market recovery period. BAE systems began to make significant market gains over the past week as seen in figure 4.4.1-1 below. It has completely recovered from the market downturn that plagued the nation over the last month and has even gained some value. This makes it a strong outlier when it comes to the 10 companies we have chosen for our research because none of the others have come anywhere close to recovering from the recent market downturn. This strong recovery could be due to a multitude of factors however I believe the most prominent of which is the continued war in Ukraine and the increase in demand for military hardware. Countries like Germany, Greece, and Denmark have all been spending money on new and improved military hardware. Most importantly for BAE these nations have begun ordering more F-35 Lightnings from the US of which BAE systems makes most of the electronic warfare for. [30]

GE stock continued to disappoint me throughout the week as it remained stagnant. My initial hopes that the company would get out of this three-month steady downturn it has been experiencing have not come to fruition. As seen in figure 4.4.1-2 the GE stock continues its downward descent without any signs of recovering within the next two weeks of this study. In order to cut losses and reinvest my money into other assets I sold all 100 of my remaining GE stock and funneled the money into BAE.

This week I diversified my trading portfolio with a new stock. During my analysis for this week I noticed that Chevron had an increase in trading volume compared to some of the other companies. Like everyone else, Chevron took a big hit when the market crashed earlier this month

and its price was not nearly as close to recovering as BAE. However, the fact that people were trading it and that it also seemed to be making a mild recovery when I purchased it were the main reasons why I bought 100 shares on Thursday morning. Last, but certainly not least, Pfizer is making a similar recovery to BAE in the sense that they were beating the market. However, I sadly bought most of Pfizer stock at $54.06 right before the crash so I'm hoping that I can just make a little profit off them before this simulation ends.

Market Summary > BAE Systems PLC - ADR

40.60 USD

+1.70 (4.37%) ↑ past month

Closed: Jun 30, 4:12 PM EDT · Disclaimer
After hours 40.60 0.00 (0.00%)

| 1D | 5D | 1M | 6M | YTD | 1Y | 5Y | Max |
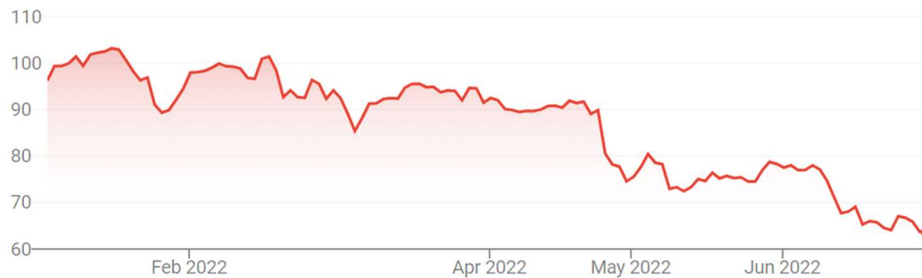
Open	40.43	Mkt cap	26.14B GBP	CDP score	B
High	40.76	P/E ratio	-	52-wk high	41.05
Low	40.35	Div yield	-	52-wk low	27.93

Figure 4.4.1-1: BAE Stock Price over the last month

Figure 4.4.1-2: GE Year to date stock price

4.4.2 Week 4 Results

The fourth week of trading was by far the most successful in terms of profit. For the past three weeks trading has been a game of trying to minimize losses instead of making profits. However, this week saw some major market growth in some of the companies listed in our study and I was able to capitalize on these gains to inch myself closer to making overall profits. Last week I closed out on Sunday June 23rd with a 6.84% loss on my overall investments. This week that number is up to 5.49% loss which is a 1.35% increase over the week. While on the surface that is not a phenomenal increase, but it is significant because most of my available capital is invested in the market and this shift towards making profit could start netting me a lot more money.

I closed the week out with 500 shares of BAE systems which saw a 1.33% increase on Friday July 1st making it my most profitable asset so far. Chevron stock closed out on Friday with a 1.38% increase which I'm hoping will continue to be a profitable stock. As seen in figure 4.4.2-

1 I'm really hoping to see Pfizer stock surpass its premarket crash price because as of the end of this week I still hold 400 shares in the company. The transaction history showing all the trades made this week along with all previous weeks can be seen in table 4.4.2-1.
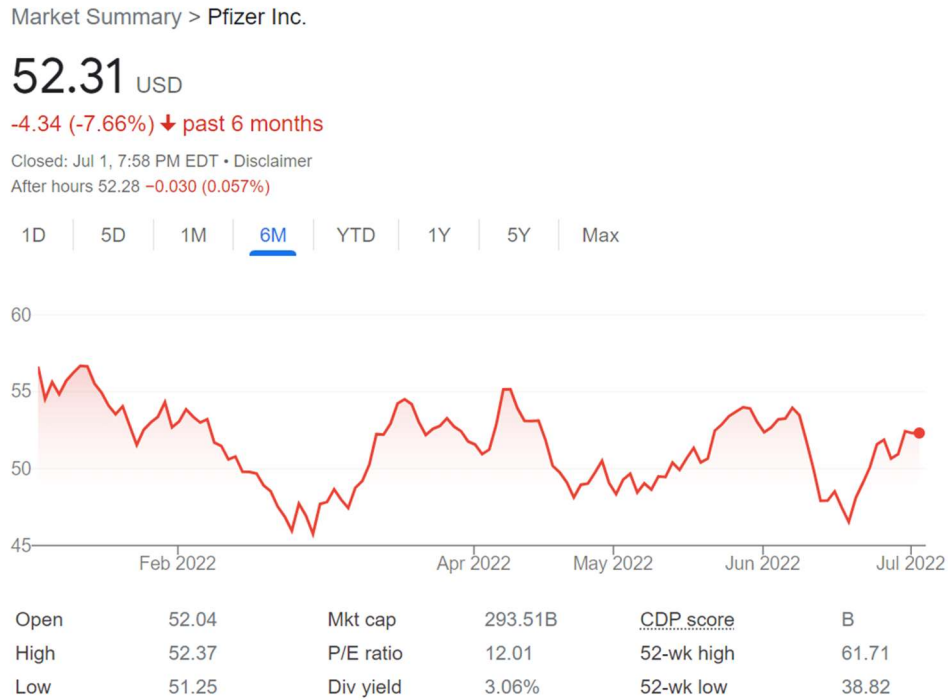
Figure 4.4.2-1: Pfizer stock price over last 6 months

Table 4.4.2-1: Week 4 Transaction Record

Position Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/22							$ 100,000.00	$ -
6/7/22	PFE	Buy	$ 54.06	300	$ 16,218.00		$ 83,782.00	$ -
6/7/22	BHP	Buy	$ 67.76	300	$ 20,328.00		$ 63,454.00	$ -
6/7/22	VSPGX	Buy	$ 539.76	4	$ 2,159.04		$ 61,294.96	$ -
6/7/22	RTX	Buy	$ 99.51	250	$ 24,877.50		$ 36,417.46	$ -
6/7/22	BAESY	Buy	$ 39.70	450	$ 17,865.00		$ 18,552.46	$ -
6/7/22	GE	Buy	$ 77.02	100	$ 7,702.00		$ 10,850.46	$ -
6/23/22	BHP	Sell	$ 55.18	100	$ 5,518.00	$ (1,258.00)	$ 16,368.46	$ (1,258.00)
6/23/22	PFE	Buy	$ 47.77	100	$ 4,777.00		$ 11,591.46	$ -
6/30/22	GE	Sell	$ 62.55	100	$ 6,255.00	$ (1,447.00)	$ 17,846.46	$ (2,705.00)
6/30/22	BAESY	Buy	$ 40.43	50	$ 2,021.50		$ 15,824.96	$ -
6/30/22	CVX	Buy	$ 144.55	100	$ 14,455.00		$ 1,369.96	$ -

4.4.3 Week 4 Analysis

The success of this week gives me hope that I could potentially make real profit before the end of the study next week. Given the poor financial situation plaguing the market during this whole simulation it would be a great success to make even a little profit trading. As it stands, I am down $5,486.72 from my initial investment of $100,000 which on the grand scheme of things is not that bad. Almost all my initial cash is invested in the market right now, so my success is heavily dependent on how well the next week goes. Going into the final week of the study I will be on the lookout for any potential stocks that are underperforming, and I will most likely liquidate those assets to prevent any more loss. BHP is the company most likely to be liquidated because my initial investment has lost 20% of its value in that company. I was thinking that their stock would make a good recovery after everyone crashed but as one can see from figure 4.4.3-1 it is just on a constant downward spiral. Looking forward to seeing some profits from Pfizer in the next week which will hopefully offset some of the losses.
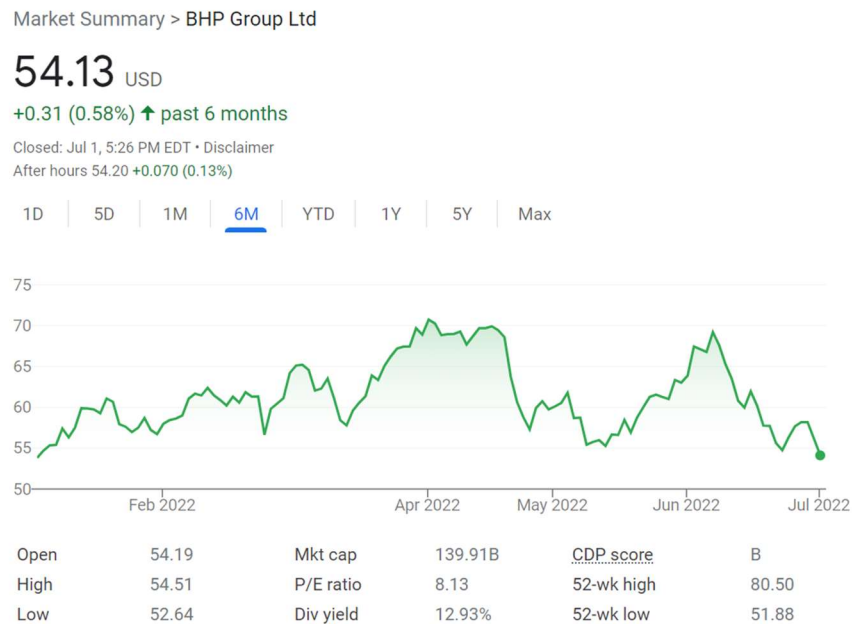
Figure 4.4.3-1: BHP Group stock price over last 6 months

4.5 Week 5

4.5.1 Week 5 Preparation

For the final week of this study, I only traded one of my assets on Wednesday the 6th which was the rest of my BHP stock. When I assessed the stock mid-week, I continued to note the stagnation in price with no sign of recovering by the end of the week. For this reason, I finally decided to cut my losses and sell the last 200 shares I had of the company in the hopes that I would not lose as much money as I would have if I sold them later in the week. It was disappointing to see this company perform so poorly over the course of this study. My initial reason for buying 300 shares back in week 1 was because the mining industry is usually a stable industry. However, it was clear that the repercussions of the US market downturn coupled with rising world Tension and COVID kickback made the industry much less stable than I suspected which led to BHP stock becoming my worst performer.

Since this was the last week of the study I kept the rest of my assets in the market until Friday to stick with the position trading long term mentality. There were not any crazy market fluctuations this week that resulted in any of my stocks becoming signifyingly valuable. I noticed that BAE began to level out from its previous high early last week which sadly meant that it probably will not result in the higher profit that I was hoping for. Raytheon continued to disappoint me as the week went on and I considered selling it on Wednesday along with BHP stock. However, I remained optimistic about the outlook of the RTX stock given that the world is still in need of military hardware with the ongoing war in Ukraine.

4.5.2 Week 5 Results

The results from the final week of this simulation were disappointing but not unexpected. In total I lost $7,201.92 out of the $100,000 we started with which lands me at $92,798.08 as my

final liquid asset count. BHP was the main contributor to this loss, which can be clearly seen in table 4.5.2-1. BHP made up about 50% of the total losses and that was mostly due to the volume I traded during the first week of the study. Selling 100 shares on the 23rd of June did help soften the blow a little bit but the overall loss was still substantial. Surprisingly, Pfizer was the only one of my stocks to make some money over the entire simulation. In the end it netted me $297.00 which in the grand scheme of things is not that much. I am particularly disappointed in the performance of my BAE stock. I had specifically shifted more of my assets towards BAE because it was outperforming the rest, however in the end it ended up costing me $346.50. The second biggest loss of the study was my RTX stock which lost me a total of $1,112.50 over the past 5 weeks. I was hoping that they would have a recovery like BAE due to both companies being military contractors and that industry is ramping up. This sadly never came to fruition and thus the stock never recovered like BAE and resulted in a net loss.

Table 4.5.2-1: Week 5 Transaction Record

Position Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/22							$ 100,000.00	$ -
6/7/22	PFE	Buy	$ 54.06	300	$ 16,218.00		$ 83,782.00	$ -
6/7/22	BHP	Buy	$ 67.76	300	$ 20,328.00		$ 63,454.00	$ -
6/7/22	VSPGX	Buy	$ 539.76	4	$ 2,159.04		$ 61,294.96	$ -
6/7/22	RTX	Buy	$ 99.51	250	$ 24,877.50		$ 36,417.46	$ -
6/7/22	BAESY	Buy	$ 39.70	450	$ 17,865.00		$ 18,552.46	$ -
6/7/22	GE	Buy	$ 77.02	100	$ 7,702.00		$ 10,850.46	$ -
6/23/22	BHP	Sell	$ 55.18	100	$ 5,518.00	$ (1,258.00)	$ 16,368.46	$ (1,258.00)
6/23/22	PFE	Buy	$ 47.77	100	$ 4,777.00		$ 11,591.46	$ -
6/30/22	GE	Sell	$ 62.89	100	$ 6,289.00	$ (1,413.00)	$ 17,880.46	$ (2,671.00)
6/30/22	BAESY	Buy	$ 40.43	50	$ 2,021.50		$ 15,858.96	$ -
6/30/22	CVX	Buy	$ 144.52	100	$ 14,452.00		$ 1,406.96	$ -
7/6/22	BHP	Sell	$ 52.13	200	$ 10,426.00	$ (3,126.00)	$ 11,832.96	$ (5,797.00)
7/8/22	CVX	Sell	$ 142.90	100	$ 14,290.00	$ (162.00)	$ 26,122.96	$ (5,959.00)
7/8/22	BAESY	Sell	$ 39.08	500	$ 19,540.00	$ (346.50)	$ 45,662.96	$ (6,305.50)
7/8/22	PFE	Sell	$ 53.23	400	$ 21,292.00	$ 297.00	$ 66,954.96	$ (6,008.50)
7/8/22	RTX	Sell	$ 95.06	250	$ 23,765.00	$ (1,112.50)	$ 90,719.96	$ (7,121.00)
7/8/22	VSPGX	Sell	$ 519.53	4	$ 2,078.12	$ (80.92)	$ 92,798.08	$ (7,201.92)

4.5.3 Week 5 Analysis

In the grand scheme of things, a net loss of only about 7% over the past few weeks is not that bad given the overall state of the markets and the world itself for that matter. Many people's retirement and long-term stocks took a big hit over the course of this study due to the instability of the market. The country is still looking down the barrel of another major recession as interest rates continue to increase and some investors lose confidence in the market. The methodology of position trading assumes that the market can be reasonably predicted based on past behaviors and market statistics. This assumption falls apart when the market is changing very rapidly and unpredictably as it has been in the past 5 weeks. Conventionally more stable industries like mining and index funds are suddenly unstable in a bear market like this one and that really hurts the people who try to trade stocks based on statistics and graphs. As a mild upside I did outperform the Buy and Hold control method which lost a total of $11,361.04 during the simulation.

Chapter 5: Swing Trading

5.1 Week 1

5.1.1 Week 1 Preparation

In preparation for the investing portion of this simulation I completed some basic research based on market news and heavily utilized the market watch website and the indicators listed under the analyst tab. The indicators that were most heavily relied on when creating an investment plan were the buy, hold, and sell sections. The theory behind this being that market watch has invested the resources and additional research needed to predict how the stock price of each company will change.

The first company chosen, based on quick news headlines, is General Electric or GE. The headline that made this stock a possibility to invest in was that the stock was both rising on Monday and outperforming the market on Tuesday. Meaning that this stock was growing fast and likely to attract other investors. After looking deeper into the market watch website towards the analyst tab. As can be seen by Figure 5.1.1-1 below, the buy indicator was listed as a 12 and the sell indicator was listed as a 0. This was taken as a strong indicator to invest in the stock, as the outlook for the stock price pointed towards an increase. As can be seen in Figure 5.1.1-1, the stock price target for the low projection was $80, while the stock price sat at $78, which was even further justification to invest in the stock [17].

STOCK PRICE TARGETS

High	$120.00
Median	$107.00
Low	$80.00
Average	$103.00
Current Price	$78.00

FY 2022 EPS ESTIMATE TRENDS

Current	$2.87

ANALYST RATINGS

	3M AGO	1M AGO	CURRENT
Buy	12	12	12
Overweight	3	3	3
Hold	9	7	8
Underweight	0	0	0
Sell	0	0	0
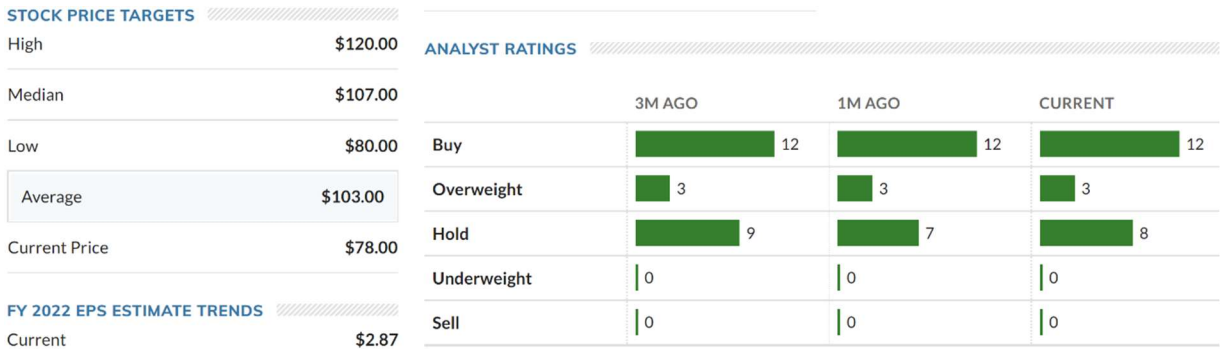
Figure 5.1.1-1: Market analyst indicators from the Market Watch website for GE stock.

The second company selected for used during the first week of trading is BAE Systems. Like the selection process for GE, some quick news headlines were utilized to decide on further investigation. After further investigation, by use of the analyst tab on MarketWatch, the analyst suggestion stated that this was a six on buy, an eight on hold and zero on sell. This can be seen in Figure 5.1.1-2 below. The Average stock price projection was $41.57, while the current price was $40.07 [18]. Both pieces of information, coupled with knowledge of BAE Systems products and the current world climate, were taken as an indication to invest in the stock.

STOCK PRICE TARGETS

High	$44.58
Median	$42.28
Low	$36.49
Average	$41.57
Current Price	$40.07

FY 2022 EPS ESTIMATE TRENDS

Current	$2.59

ANALYST RATINGS

	3M AGO	1M AGO	CURRENT
Buy	6	6	5
Overweight	2	2	2
Hold	9	8	9
Underweight	1	1	0
Sell	1	0	0

Figure 5.1.1-2: Market analysis indicators for BAE Systems from the Market Watch website.

The final company picked for this week's trading is Delta Airlines. The first indication that pointed toward an investment opportunity is the obvious increase in travel that comes from the summer. Many people travel during this time and one of the most popular ways to do so is through

air travel. One of the most popular airlines and one I know to have a great reputation being Delta. This intuition led to a quick search on the analyst tab of MarketWatch, which showed some great signs for the growth of Delta stock. This tab showed a buy rating of 16 and hold of just 3. It also stated the current price of 39.74 and the Average price predicted to be $54, the low being $45 [19]. With all stock price predictions being higher than that of the current price, it is obvious to invest in Delta stock. Please reference Figure 5.1.1-3.

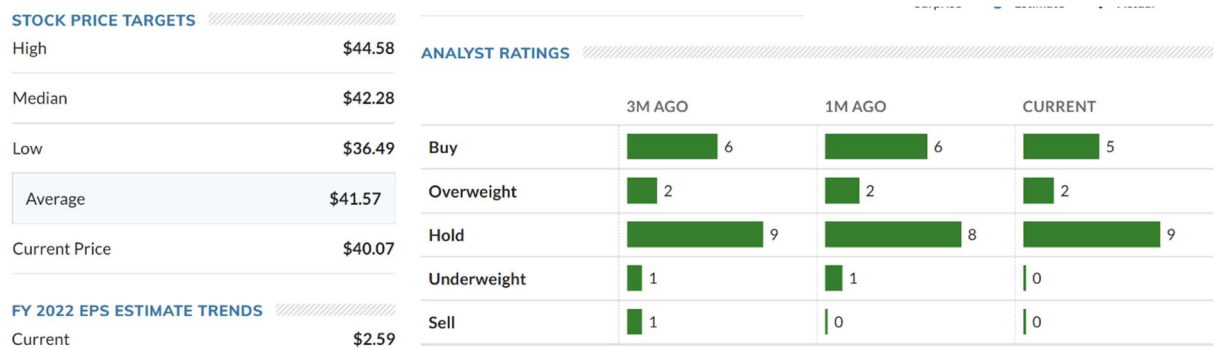| STOCK PRICE TARGETS	
High	$70.00
Median	$54.00
Low	$45.00
Average	$54.84
Current Price	$39.74

FY 2022 EPS ESTIMATE TRENDS	
Current	$2.86

ANALYST RATINGS	3M AGO	1M AGO	CURRENT
Buy	17	N/A	16
Overweight	2	N/A	3
Hold	5	N/A	3
Underweight	0	N/A	0
Sell	0	N/A	0
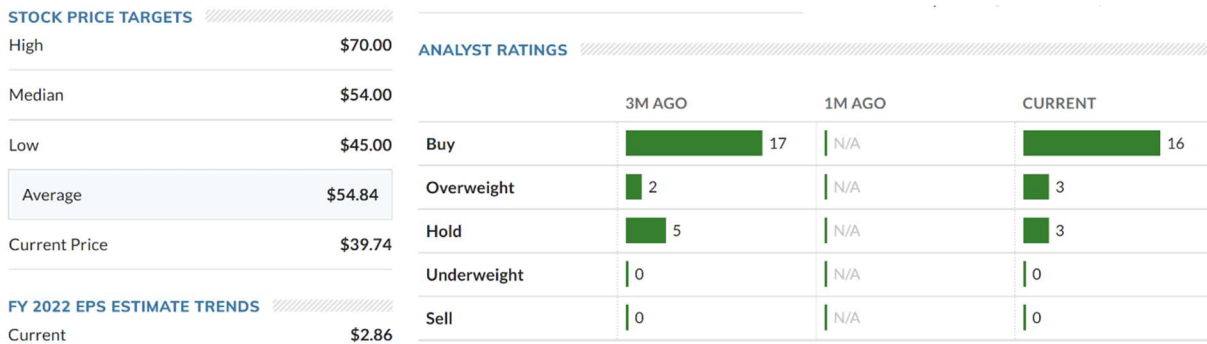
Figure 5.1.1-3: Market analysis indicators for Delta Airlines from the Market Watch website.

Based on the research completed at the beginning of the week. A basic investing strategy was used to perform the swing trading method. Now that three stocks showed promise of gaining value, the next question would be how much to invest in each stock. Given that this is the first week of investing, it was decided to keep value amounts relatively low, to ensure that funds would be available for all weeks of the simulation in case of a worst-case scenario. Thirty thousand dollars was used to invest in total between the three stocks. Again, following a more careful investing method, the thirty thousand dollars was split evenly between the three stocks, meaning that roughly $10,000 was invested in each GE, BAE Systems, and Delta. Market news and stock prices would then be monitored to observe when the stock price would gain value, based on the purchase price, so that it could then be sold to cash in on profit.

5.1.2 Week 1 Results

The results from swing trading this week were not as promising as first expected. Unfortunately, the strategy used this week did not yield gains in stock value or portfolio value and despite promising research, all stocks lost value, leading to a net negative gain in of the overall portfolio. As can be seen from Table 5.1.2-1 an overall deficit of $3,688.8 was the outcome of this week's swing trading. BAE systems decreased in value by $2137.20, Delta decreased by $886.60, and GE decreased the most by $665. A result that was anything but what was indicated by the research completed at the beginning of the week. Thankfully, because of the cautious investment plan used during this week as described above, the overall value of the portfolio decreased by only $3688.80, meaning that there are plenty of funds left over to use throughout the rest of this simulation.

Table 5.1.2-1: Week 1 Transaction Record

Swing Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/2022							$ 100,000.00	$ -
6/7/2022	GE	Buy	$ 77.02	260	$ 20,025.20		$ 79,974.80	$ -
6/7/2022	BAESY	Buy	$ 39.70	250	$ 9,925.00		$ 70,049.80	$ -
6/7/2022	DAL	Buy	$ 38.84	130	$ 5,049.20		$ 65,000.60	$ -
6/15/2022	GE	Sell	$ 68.80	260	$ 17,888.00	$ (2,137.20)	$ 82,888.60	$ (2,137.20)
6/15/2022	BAESY	Sell	$ 37.04	250	$ 9,260.00	$ (665.00)	$ 92,148.60	$ (2,802.20)
6/15/2022	DAL	Sell	$ 32.02	130	$ 4,162.60	$ (886.60)	$ 96,311.20	$ (3,688.80)

5.1.3 Week 1 Analysis

While there may be multiple reasons for this week's overall decrease in portfolio value, my main assumption is the quality of research completed at the beginning of the week coupled with constant decreases in the market across the board. This week heavily relied on the analysis provided by the MarketWatch website to make predictions for how stocks would perform. All indicators on this website showed that the stocks would only increase in value, where in fact the

opposite occurred, and all decreased in value. This is an indicator that the research completed was not thorough enough to make accurate predictions. Perhaps the best place to make corrections on this strategy is to consult more sources before making predictions and an investing strategy for the week. Because swing trading is so reliant on market news and getting a full story of what actions the company of interest is taking, more sources need to be consulted in order to have an accurate idea of how these companies' stocks will react.

Unfortunately for this week, money was lost throughout the entirety of the week, when this could have been halted. These stocks decreased in value each day that the market was open, and they were left in the portfolio, in hopes that the stock value would turn positive at some point. In the coming weeks, more research needs to be completed at the start of the week and companies need to monitor more closely throughout the week to avoid losing more money because of a "hope" that the stock price will turn back into the positive.

5.2 Week 2

5.2.1 Week 2 Preparation

In preparation for this week, I completed some research on more general market news, as all stocks decreased in value this previous week. After some quick searches, the federal reserve announced that it would be deciding on how much of a rate increase it would implement. This is likely what caused the consistent decrease in value of many stocks since the start of this simulation. The Fed was considering a larger than expected interest rate increase of .75 percentage points to combat inflation and the market did not react to this news well. This was a clear indication to wait, until a decision was made by the Fed on Wednesday afternoon, to make a decision / investing plan for the next few days [21].

The Fed finally came to a decision Wednesday 6/15/2022 afternoon and in-fact announced that it would be raising interest rates by 75 percentage points, the largest increase since 1994. The goal behind this being to slow the economy down and in turn bring down inflation. Federal Reserve Chairman Jerome Powell stated that they were trying to avoid a recession, but that it was becoming increasingly difficult to achieve a "soft landing" for the economy. Despite a larger increase than expected, the market rallied, with the S&P 500 ending at an increase of 1.5% on the day. This improvement leads me to believe that there are still great opportunities to turn a profit through swing trading [22].

Looking through some headlines for the 10 stocks we have chosen to invest in, one headline from Pfizer stood out, stating that an FDA panel would take place on Wednesday 6/15 to review Pfizer's three shot vaccine and whether this was safe for children under the age of 5 years old. After some further searching, the panel had completed its discussion on Wednesday at 5pm, in

which all panelists voted for their support of the three-step vaccine for its use in children under the age of 5 years old [23].

This information, while not as prominent as the original announcement of the COVID19 vaccine, is still a great success for Pfizer, this now means that the company will be able to sell and distribute vaccines to many more of those in need and parents can now protect their children from COVID19. This news is likely to have a positive reaction on the stock price and therefore I am choosing to invest $20,000, an increase from last week, in hopes of achieving higher gains and making up for last week's loss of profit.

The final company selected for trading this week is Delta, despite a downturn since the last investment, there is a good sign that Delta will rebound from its current price. In March 22, Delta dropped to a low of $31.11, but rebounded to a high of $39.30 just three weeks later, this recent drop to $32.33 on 6/15 has similarities to the one in March, plus the fact that Delta has normally held a stock price of $40. An article from yahoo finance also takes a dive into the financials of Delta and shows that the company has large amounts of cash, more than enough to cover its debt and Delta also expects its total revenue in June to match what it had seen back in 2019 [24, 25].

For these reasons, I am deciding to invest in Delta stock once again. This stock price has hit a dip and it is likely to rebound very soon, so it is a great time to take advantage of this. Like the previous decision to invest in Pfizer stock, I will invest $20,000 into Delta stock, but this I plan to hold longer than previously, if predictions are correct, it may take a few weeks for this stock to rebound back to its roughly $40 mark, so this investment may not be sold for some time.

5.2.2 Week 2 Results

The results from swing trading this week unfortunately followed a similar pattern to last week. Promising signs were shown in the beginning that there would be market growth because of the positive reaction despite the FED's interest rate increase of .75%. Unfortunately, this week a decrease in stock prices was seen by Pfizer despite its recent announcement and Delta saw a decrease in stock price as well. At the close of the market, Delta has decreased from its purchase price of $30.67 per share to $30.26 per share and Pfizer has decreased from its purchase price of $47.79 per share to $46.53 per share. Table 5.2.2-1 shows the purchase of these two stocks on 6/15/22, but they have not yet been sold so no profit or loss can be accounted for.

Table 5.2.2-1: Week 2 Transaction Record

Swing Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/2022							$ 100,000.00	$ -
6/7/2022	GE	Buy	$ 77.02	260	$ 20,025.20		$ 79,974.80	$ -
6/7/2022	BAESY	Buy	$ 39.70	250	$ 9,925.00		$ 70,049.80	$ -
6/7/2022	DAL	Buy	$ 38.84	130	$ 5,049.20		$ 65,000.60	$ -
6/15/2022	GE	Sell	$ 68.80	260	$ 17,888.00	$ (2,137.20)	$ 82,888.60	$ (2,137.20)
6/15/2022	BAESY	Sell	$ 37.04	250	$ 9,260.00	$ (665.00)	$ 92,148.60	$ (2,802.20)
6/15/2022	DAL	Sell	$ 32.02	130	$ 4,162.60	$ (886.60)	$ 96,311.20	$ (3,688.80)
6/15/2022	PFE	Buy	$ 47.79	412	$ 19,689.48		$ 76,621.72	$ -
6/15/2022	DAL	Buy	$ 30.67	626	$ 19,199.42		$ 57,422.30	$ -

5.2.3 Week 2 Analysis

While gains were still not seen this week, some promising signs can still be found in the results of the week. One of the most promising signs comes from the Delta Stock price. Since its purchase at $30.67 on 6/15/22 the stock price hit a low of $28.83 on Friday 6/17, but it still rebounded to $30.26 at the close of the market same day. This pattern shows that this stock price has dipped and is finally on a recovery. For the purposes of this trading strategy, this stock price will hopefully continue this track and eventually turn profitable. For this reason, I still have not sold these shares.

Pfizer stocks did not react at all in the way predicted. It was assumed that good news from the company, such as the FDA rating the Pfizer COVID19 vaccine safe for children under 5 years old, would only raise the price of the company stock, but unfortunately, the opposite has occurred. Stock prices have dropped more than a dollar from what they were purchased at, and an upwards trend unfortunately cannot be seen since the stock's purchase on 6/15 until the close of the market on 6/17. Even larger factors, like the constant decrease in the market, have had a larger effect on this company's stock price than its own achievements.

Moving forward news for the stock market will need to be considered just as heavily as news and achievements of each individual company. As seen this week, even though a company has accomplished something great, it still may be negatively impacted by the market, which needs to be factored into future investment strategies.

5.3 Week 3

5.3.1 Week 3 Preparation

Similar to last week, in the beginning, I have completed some preliminary research based on the market to judge how I will make trades for this week. I found that despite drops last week, the market bounced back on Tuesday 6/21, with the Dow jumping roughly 641 points and the S&P climbing 2.45 percent, the best day the market has seen in weeks. However, these almost immediate gains may be an indicator for caution rather than one for promise of even further gains in the future [26].

Sam Stovall, the chief investment strategist at CFRA Research, warns that this rebound may just be a bounce that may not last. This is advice that I believe to be true for the current situation. Stovall warns that this bounce is likely not the bottom of the market and these quick gains may be short-lived. With the current state of the market and how volatile every stock seems to be, this prediction appears to be accurate. I find it unlikely that this is "the bottom of the dip" and things will be on the up from here, given the volatility of the market and all the warnings of the U.S. entering a recession [26].

Given the information and prediction of the market in general, I will take this as advice in cashing out on the profits that I have been able to see through the Pfizer stock price. The stock rose to a high of $48.43 to open on Tuesday and seeing how this stock has reacted very similarly to the market, it is likely to drop once again this week. The Pfizer stock price has experienced growth, because of the market increase in my opinion. Since I am predicting the market to drop again, I believe that the Pfizer stock price will drop with it as well. Therefore, I will be selling all stocks of Pfizer, because the current stock price is higher than what it was purchased at, the first increase that has been seen in this entire simulation.

I will, however, invest some money in TRIP advisor stock this week because it has hit a new low at the close of the market on Tuesday 6/21. Trip Advisor has seen decreases since the start of the pandemic and has always been a volatile company, and today (6/21) the company has hit a new low of $18.75. This company, which is used frequently during summer months for travel, simply has not experienced the same bounce that the rest of the market has because it tends to be a more volatile company. Investors have pulled their money aside and not invested in Trip Advisor yet because of the constant decreases in the market. Once investors see a brief uptick in stock prices, they will allocate some funds to TripAdvisor noticing that the company has hit a low. For this reason, I will invest $10,000 into TRIP, under the impression that it has not yet experienced the brief market bounce back [27].

As with last week's results, I have decided to hold onto Delta stock waiting for the stock price to return to what it has commonly held at. For this week, the same holds true, I will wait to see further increases in Delta stock price before deciding to trade these shares.

5.3.2 Week 3 Results

The results from this week were mixed, with some unfortunately not turning out as expected. To start with is the idea to sell Pfizer stock. This move may have been premature, as the stock price of Pfizer continued to climb the day after I decided to sell. This stock was sold at the beginning of the day, when the stock price hit its low for the day of $47.77, a lower value than what was expected. At the close of the market on Tuesday, I saw the stock price of Pfizer of $48.11 and decided to sell all shares of this stock. However, the stock price dropped after the close of the market to $47.77, where it opened on Wednesday, and in this case, the price the stock was sold for. This mistake ended up creating a loss of $8.24 instead of a profit.

However, with some unfortunate decisions, other decisions, such as the one to buy both Tripadvisor and delta stock, worked out very well. As seen in figure 5.3.2-1 my total portfolio value has increased. Delta stock price has increased 1.66% since its original purchase and Tripadvisor has seen even larger gains of 4.43% since its purchase. However, I have yet to sell these shares, so no profit has been made and a record in the transaction table could not be recorded. The screenshot of this portfolio seen in Figure 5.3.2-1 is from the close of the market on Friday 6/24/2022.

Table 5.3.2-1: Week 3 Transaction Record

Swing Trading								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/2022							$ 100,000.00	$ -
6/7/2022	GE	Buy	$ 77.02	260	$ 20,025.20		$ 79,974.80	$ -
6/7/2022	BAESY	Buy	$ 39.70	250	$ 9,925.00		$ 70,049.80	$ -
6/7/2022	DAL	Buy	$ 38.84	130	$ 5,049.20		$ 65,000.60	$ -
6/15/2022	GE	Sell	$ 68.80	260	$ 17,888.00	$ (2,137.20)	$ 82,888.60	$ (2,137.20)
6/15/2022	BAESY	Sell	$ 37.04	250	$ 9,260.00	$ (665.00)	$ 92,148.60	$ (2,802.20)
6/15/2022	DAL	Sell	$ 32.02	130	$ 4,162.60	$ (886.60)	$ 96,311.20	$ (3,688.80)
6/15/2022	PFE	Buy	$ 47.79	412	$ 19,689.48		$ 76,621.72	$ -
6/15/2022	DAL	Buy	$ 30.67	626	$ 19,199.42		$ 57,422.30	$ -
6/21/2022	TRIP	Buy	$ 18.50	532	$ 9,842.00		$ 47,580.30	$ -
6/21/2022	PFE	Sell	$ 47.77	412	$ 19,681.24	$ (8.24)	$ 67,261.54	$ (3,697.04)

SYMBOL Shares	% HOLDINGS Type	PRICE Chg/Chg %	VALUE Gain/Loss
DAL 626 Shares	66% Buy	$31.18 1.62 5.48%	$19,518.68 $319.26 1.66%
TRIP 532 Shares	34% Buy	$19.32 1.02 5.57%	$10,278.24 $436.24 4.43%

Figure 5.3.2-1: Swing trading portfolio value at the close of the market on Friday 6/24/2022

5.3.3 Week 3 Analysis

As mentioned above, the results from this week were mixed and the best showcase of the negative results is the loss generated from selling all shares of Pfizer stock. Through this

experience, I have realized that a stock price can still move, even after the close of the market and that it is not a good idea to set up an auto sell at the opening of the market for two reasons. The first being that the stock price may have lost value from what it closed at and the second being that selling in the morning forces you to look at how the stock reacts overnight as well as to the opening of the market. Looking at the stock price's reaction would give more information about what time is best to sell the stock, information that is vital for swing trading. Moving forward, I will be sure to sell stocks during the trading day, rather than at night and have them auto buy or sell at the opening of the market.

With this negative outcome, there were a few things to learn with the positives from this week as well. As stated earlier, with trip advisor stock. This simply needed to wait for the market to bounce back and that has held true, with higher gains in market prices this week, Tripadvisor has also seen a gain in price. As it sits in the portfolio now, the stock price has increased 5.57%, a gain that has not been seen all simulation and this is something I will sell depending on the opening of the market this upcoming week (6/27-7/1) and next week's preparation. The Delta stock currently within my portfolio will also follow a similar strategy, this stock has gained 1.66% of value since its purchase and it still needs longer to return to previous levels. Making sure to gauge the market when considering individual investments this week has shown to pay off very well and is a strategy I will continue to use in the coming weeks.

5.4 Week 4

5.4.1 Week 4 Preparation

In preparation for this week, I started as usual by researching how the market has reacted as a whole and found some not so good news, but news that was expected. The large increase in market value seen both last week and early this week was simply a bounce, and the market has started to fall back down again. This Tuesday 6/28/2022 the DOW Jones Industrial Average fell 1.56% or 491.27 points and the S&P 500 dropped 2.01% as well [29].

These drops, while significant, are still likely not to be the last that we will see in the coming week and perhaps future weeks as well. It seems that the market is reacting in a similar fashion to how the Fed is trying to prevent a recession, if we aren't in the middle of one already. Currently the Fed is trying to make as soft of a "landing" as possible in hopes to avoid a recession and to make a more gradual change so that businesses and consumers do not act irresponsibly. However, with this strategy, the market will continue in decline, if the same news is given by the Fed week after week.

As investors continue to watch the Fed "chase" inflation with hopes of mitigating it, this action simultaneously shows investors that worse is still to come, and that an increase in the market is not likely. Investors in turn will withhold cash from investing in the market and further draw out this decline and brief positive reactions, followed by more decline. Jim Coulter, the founding partner and executive chairman of TPC states that the Fed simply needs to rip the band aid off, and while this will cause a sharp decline in markets, it will get to the bottom much faster and that is when it will turn and look forward [28].

Since the news of even further market decline likely in the future, I am deciding to sell 400 shares of Tripadvisor stock, because this company has fluctuated the most with fluctuations in the market. The value of this stock will likely decrease with the market, and it needs to be sold while a profit can still be generated. However, since this stock seems to fluctuate exactly with the market, I am holding on to a few shares so that if the market does see a spike, I can capitalize on it.

With the currently owned shares of Delta stock, I continue to plan on holding these shares following the same rationale as the previous week. While the value of this stock has frequently reacted in a similar fashion to the market, I still believe that the value will return to heightened levels. One promising sign is that since its purchase, the stock almost immediately decreased in value from $30.67 to almost $28, but it has since recovered and currently sits at $30.36. Because of this increase, I am hopeful that the stock price will continue to grow slowly, and I will therefore hold on to these shares.

5.4.2 Week 4 Results

The results from this week have seen improvements from earlier weeks of this simulation. Infact, the first profit has been captured this week, with the sale of 400 shares of trip advisor stock. This week, just before the market began to trend down, I was able to sell 400 of the 532 shares of Tripadvisor stock for $18.73 compared to its purchase price of $18.50. The increase in $0.23 per share ended up resulting in a net profit of $92, the first positive transaction that has been seen throughout the entire simulation. Please see Table 5.4.2-1 below for details on this transaction

While this first positive transaction can be seen as one of the first successes of this simulation, the rest of the portfolio has not performed so well. Delta stock unfortunately has not seen the gains that trip advisor has seen. It still has continued to sit lower than hoped and at the close of the market on Friday 7/1/2022, the stock price was $29.56, which can be seen by Figure

5.4.2-1. The remaining shares of Tripadvisor unfortunately saw a drop in value as well, meaning that more potential profit was lost. This stock price closed at $18.47 at the close of the market on Friday 7/1/2022, as shown by Figure 5.4.2-1.

Table 5.4.2-1: Week 4 Transaction Record

Swing Trading									
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit	
6/5/2022							$ 100,000.00	$ -	
6/7/2022	GE	Buy	$ 77.02	260	$ 20,025.20		$ 79,974.80	$ -	
6/7/2022	BAESY	Buy	$ 39.70	250	$ 9,925.00		$ 70,049.80	$ -	
6/7/2022	DAL	Buy	$ 38.84	130	$ 5,049.20		$ 65,000.60	$ -	
6/15/2022	GE	Sell	$ 68.80	260	$ 17,888.00	$ (2,137.20)	$ 82,888.60	$ (2,137.20)	
6/15/2022	BAESY	Sell	$ 37.04	250	$ 9,260.00	$ (665.00)	$ 92,148.60	$ (2,802.20)	
6/15/2022	DAL	Sell	$ 32.02	130	$ 4,162.60	$ (886.60)	$ 96,311.20	$ (3,688.80)	
6/15/2022	PFE	Buy	$ 47.79	412	$ 19,689.48		$ 76,621.72	$ -	
6/15/2022	DAL	Buy	$ 30.67	626	$ 19,199.42		$ 57,422.30	$ -	
6/21/2022	TRIP	Buy	$ 18.50	532	$ 9,842.00		$ 47,580.30	$ -	
6/21/2022	PFE	Sell	$ 47.77	412	$ 19,681.24	$ (8.24)	$ 67,261.54	$ (3,697.04)	
6/28/2022	TRIP	Sell	$ 18.73	400	$ 7,492.00	$ 92.00	$ 74,753.54	$ (3,605.04)	

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SYMBOL Shares	% HOLDINGS Type	PRICE Chg/Chg %	VALUE Gain/Loss
DAL 626 Shares	88% Buy	$29.56 0.59 2.04%	$18,504.56 -$694.86 -3.62%
TRIP 132 Shares	12% Buy	$18.47 0.67 3.76%	$2,438.04 -$3.96 -0.16%

Figure 5.4.2-1: Week 4 portfolio at the close of the market 7/1/2022

5.4.3 Week 4 Analysis

There are a few things that can be learned from this week, but one of the most important is something that has already been learned in previous weeks. The fact that many stocks will perform in a similar fashion to the market. This is obvious with TripAdvisor, the stock price of this company fluctuates almost identically with the market and by reading market news, one can time

the right and wrong times to buy this stock. As the market experienced growth on Tuesday, so did the value of TripAdvisor stock and when the market outlook was poor, it signaled the time to sell shares of this stock, which in this case generated the first profit of swing trading during this simulation.

And the final thing that can be learned from this week is to follow the general principle of swing trading, which is to sell shares once a profit can be made. As seen from the shares of Delta stock that I have carried over the past few weeks, this stock has not seen a large rise in price, as I had hoped for, and going forward this is a principle that needs to be adhered to more strictly. So once I see the stock price of Tripadvisor or Delta surpass its original purchase price I will sell these shares to finally generate a profit.

5.5 Week 5

5.5.1 Week 5 Preparation

In preparation for the final week of trading, I began by researching general market news, just as what has been shown to be successful in the past few weeks of trading. Market news this week unfortunately did not show any sort of boom in the market or any indication that stock prices may soar unexpectedly. The news this week was rather bare in comparison to previous weeks. The FED's meeting minutes from July showed no change in plan and they continue to predict a .75 percentage point increase in interest rates. A path forward that they previously announced, and the market has yet to show a large reaction to this.

The S&P 500 did show slight gains following this news, by increasing by roughly .4%, while the DOW Industrial Average gained roughly .2%, more than 69 points [31]. While these gains are low, they do show that the market is moving in the right direction at least, which means that individual stocks may react in a similar fashion. Any increase in index funds, even small ones, could mean gains from individual stocks, so the time is right to invest.

After doing some research on different individual stocks, it was hard to find good news from many of them. However, after more digging, I did find some promising news on Raytheon Technologies Stock. This company has found further opportunities to generate revenue through signing more contracts both with the U.S. government and other independent organizations. After looking through analyst calculations for this stock, I found that this stock has a heavy buy indication on multiple websites and has a strong buy indication coming from CNBC analysts [16]. Because of this strong indicator and the fact that this is the last week of the investment simulation, I have decided to invest a large amount of my portfolio in Raytheon stock in hopes to turn a profit

and make up for the losses seen in the beginning of the simulation. I will buy 1000 shares of RTX stock to start the final week of this simulation.

Regarding the end of this week, I will sell my entire portfolio before the close of the market on Friday 7/8/2022 without regard to the gain or loss, because the simulation will come to an end at the close of the market.

5.5.2 Week 5 Results

The Results of this week were the best of the simulation so far. This week saw the biggest profit overall since the start of the simulation. To start, the decision to invest a large sum into Raytheon Technologies paid off, because of a slight increase in stock price, $.76, but many stocks, the total profit from selling all shares was $760, the largest profit made from a single trade all simulation.

The second stock that I sold in this last week was the remaining shares of trip advisor, and these stocks were able to generate a profit as well. It was a small profit of just $7.92, but nonetheless a positive gain, something that has been hard to find this simulation. Lastly, the decision to hold on to Delta stock did not pay off as I had hoped, the stock price still has not rebounded to the level that I was previously expecting and may not be seen for a long time. The remaining Delta stocks in my portfolio were sold at $.75 less than what they were purchased for, which unfortunately led to a loss of $469.50. These results can be seen in table 5.5.2-1 below.

Table 5.5.2-1: Week 5 Transaction Record

	Swing Trading							
Date	Symbol	Buy/Sell	Price	Shares	Net Cost	Profit/Loss	Total Cash	Total Profit
6/5/2022							$ 100,000.00	$ -
6/7/2022	GE	Buy	$ 77.02	260	$ 20,025.20		$ 79,974.80	$ -
6/7/2022	BAESY	Buy	$ 39.70	250	$ 9,925.00		$ 70,049.80	$ -
6/7/2022	DAL	Buy	$ 38.84	130	$ 5,049.20		$ 65,000.60	$ -
6/15/2022	GE	Sell	$ 68.80	260	$ 17,888.00	$ (2,137.20)	$ 82,888.60	$ (2,137.20)
6/15/2022	BAESY	Sell	$ 37.04	250	$ 9,260.00	$ (665.00)	$ 92,148.60	$ (2,802.20)
6/15/2022	DAL	Sell	$ 32.02	130	$ 4,162.60	$ (886.60)	$ 96,311.20	$ (3,688.80)
6/15/2022	PFE	Buy	$ 47.79	412	$ 19,689.48		$ 76,621.72	$ -
6/15/2022	DAL	Buy	$ 30.67	626	$ 19,199.42		$ 57,422.30	$ -
6/21/2022	TRIP	Buy	$ 18.50	532	$ 9,842.00		$ 47,580.30	$ -
6/21/2022	PFE	Sell	$ 47.77	412	$ 19,681.24	$ (8.24)	$ 67,261.54	$ (3,697.04)
6/28/2022	TRIP	Sell	$ 18.73	400	$ 7,492.00	$ 92.00	$ 74,753.54	$ (3,605.04)
7/6/2022	RTX	Buy	$ 94.67	1000	$ 94,670.00		$ (19,916.46)	$ -
7/8/2022	DAL	Sell	$ 29.92	626	$ 18,729.92	$ (469.50)	$ (1,186.54)	$ (4,074.54)
7/8/2022	TRIP	Sell	$ 18.56	132	$ 2,449.92	$ 7.92	$ 1,263.38	$ (4,066.62)
7/8/2022	RTX	Sell	$ 95.43	1000	$ 95,430.00	$ 760.00	$ 96,693.38	$ (3,306.62)

5.5.3 Week 5 Analysis

The results from this last week of trading have reinforced the lessons learned from previous weeks. As learned previously, considering the reaction of the market would signal if trading would also be successful, and this week has shown this strategy to be true. After completing some initial research and then continuing to research a company further allowed me to first, know that it was the right time to invest, and second find the right company to invest in to make a profit off the increasing stock price. Following the lessons that I've previously learned in this simulation, allowed me to generate the biggest profit off one stock for the whole simulation, $760.

The second thing that can be learned from this last week of trading is to remember to stick to the swing trading strategy. This means that stocks should be bought and sold rather quickly, based off shifts in the market and not based on previous stock prices or a prediction that the stock price will rise over the long term. I learned through the investment in Delta stock that I should have sold these shares once I saw a profit or when the stock price returned to a similar

value to which I purchased it for. With this stock, I waited too long to attempt to turn a profit, when I could have sold these shares and used those funds to make further investments in more promising stocks.

Chapter 6: Conclusion

6.1 Results

6.1.1 Position Trading

The overall results of the position trading method were less than optimal. At the end of the 5-week trading period it finished second overall, which makes it better than the Buy and hold strategy but still worse than swing trading. There are a multitude of reasons why the position trading method did not fare as well as swing trading in this simulation. For starters, position trading is a long-term trading strategy the focuses on predicting market changes based on previous data of stock prices, beta values, etc. Since the simulation only lasted for 5 weeks this can hardly be considered a long-term trading period and thus the full potential of position trading cannot be realized. The goal of the method is to hold on to a stock for many weeks or even months at a time in order to maximize the initial investment, but this simply cannot be achieved in such a short trading period.

Another factor that affected the overall performance of the position trading method was the instability of the market over the 5-week trading period. Position trading assumes that the market can be relatively predictable, and that one can use previous data on certain stocks in order to try and predict how they will evolve. However, in a bear market scenario stock prices are much more likely to fluctuate and differ from their previous tracks, which makes it increasingly difficult to predict their future values. This was the scenario in which this stock simulation occurred and thus the effectiveness of position trading was hindered.

In the end, the position trading method lost $7,201.92 over the entire period of the simulation which equates to a 7.2% loss overall. In the context of the market during this period the

7% loss is not the worst possible outcome. According to some estimates Americans lost almost 3 trillion dollars in retirement investments this year, which is staggering. Making any sort of profit from the market in its current state over a 5-week period could only be achieved using tactical day trading in order to maximize some of the periods of growth seen in the 10 companies.

6.1.2 Swing trading

The results from position trading during this simulation were poor at first but improved once the kinks and general method were straightened out. At first swing trading saw many losses, which unfortunately continued until about halfway through the simulation. Due to investments made within the first week, swing trading saw an overall portfolio decrease of $3688.80. While the reasons behind this are numerous, nevertheless, swing trading got off to a poor start. However, this strategy did make its first profit in the fourth week of trading. While small, swing trading was able to generate a profit of $92 and in the last week, profits were even larger. The last week of trading saw two profits being generated, the first of $7.92 and the second of $760, which is the largest profit generated by one trade throughout the entire simulation. Despite these profits, this strategy still saw losses and most prominently the loss experienced in the first week of trading. Overall, the swing trading strategy finished with a total loss of $3,306.62.

6.1.3 Buy and Hold

Throughout the course of this simulation there was a control group running in the background. In the first week of the study, we created a buy and hold trading bot that would simply hold on to the stocks we gave it for the entire length of the trading period. We spent roughly $10,000 on each of the 10 companies in order to evenly distribute the shares amongst all the potential companies. In the end this bot lost $11,361.04 in total which means it lost about 11% of

its starting cash. The worst performing stocks in its portfolio were BHP, Chevron, Delta Airlines, and Trip Advisor which each lost about 25% of their initial value over the course of the simulation.

The buy and hold bot was created in order to have a baseline control group portfolio to compare our own methods too. This strategy is widely used amongst those who trade stocks or have assets in the stock market. It is very popular and usually much safer than other methods because it is usually a safe bet to assume that the economy will continue to grow over time in a fully developed industrial nation like the United States. The biggest losses one can receive from using this method occur when the economy as a whole is in a downturn and which means that no matter what sector you may have invested in you will most likely still lose money. This was very much the case for this trading period and the effects of the overall market downturn can be seen with the large losses in the buy and hold bot.

Based on the information gathered over this period we can say that in a bear market scenario it is more advantageous to be trading and shifting your assets around instead of keeping them in whatever industry they were originally in. It is possible that their original industry could be successful over time however one should be vigilant in this kind of market and should take opportunities when they arise. This line of thought is supported by the relative success of the other two methods when compared to the buy and hold method. In a more stable market, the buy and hold method could have been a much more successful trading strategy, however that was not the hand we were dealt for this simulation.

6.1.4 Statement on the Market

As is easily visible, the results from each strategy used during this simulation were much different than originally expected. Each strategy saw an overall loss after the 5-week investment period, leading to a decrease in portfolio value. However, these results can be further explained

once one understands the state of the market during the investment period. Some of the top headlines during this time were skyrocketing inflation, constant talks of a recession and increasing rates initiated by the Fed. During the early summer of 2022, inflation rates rose to 8.6%, almost three times the normal rate of 3% [33]. To Counteract this increase, the Fed raised interest rates by .75 percentage points and plans to continue doing so throughout the year [22]. This action directly causes the economy to slow down and for stock prices to decrease. For both reasons, talks of a recession have been consistent throughout the summer. With this economic climate, stock prices were almost always on the decrease.

Because of the reasons listed above, stock prices almost constantly dropped and in the first few weeks of this simulation a bear market was reached. On June thirteenth, the second week of this simulation, the S&P 500 fell 20% reaching an official bear market [32]. Unfortunately, for us this meant that stock prices have been on the decline since the beginning of our investment period, meaning that it would be incredibly difficult to make profitable investments when the market was in such a rapid downturn. For this reason, we found that investments made at the beginning of this simulation were largely unprofitable and saw many losses. [35]

6.2 Strengths and Weaknesses

6.2.1 Position Trading

The main strength of position trading is the fact that it is usually very effective in a stable market scenario. The stock market is often in a relatively stable state in terms of market prices and lacks significant daily fluctuations. This in turn usually means that methods like position trading and the buy and hold method are fairly effective in the long run. If one can properly and accurately analyze the market and find the optimal time to buy into a stock, then it can be assumed that that asset will at least make the individual some money in the long run. This is especially true in more stable industries such as mining however is not as effective in industries such as travel or tech. In a good stable market, the only thing a position trader must consider is when is the ideal time to buy into a stock so it will net them the most income in the timeframe they laid out.

The weaknesses of this method were readily apparent in this study, and it was an ideal time to really see some of the downside of this conventionally stable method. When the market is very volatile and unpredictable it is hard for a position trader to determine when the best time to buy into a new stock is because previous data does not help predict outcomes. To rectify some of these problems a position trader can go back and look at similar market situations such as the stock market crash of 1929 in order to try and increase the accuracy of their models. Throughout this simulation it was increasingly difficult to make any good predictions about where the market was going based on its previous performance. This was most evident in week 5 of the study where the market severely underperformed the predictions made in the previous week resulting in another loss. This was a common theme throughout the study as past indicators failed time and time again to predict any successful outcomes.

6.2.2 Swing Trading

At the beginning of this simulation, we briefly discussed each strategy and the strengths and weaknesses of each one. For swing trading, as we found in our research, one of its main strengths is its potential during a bear market. Typically, because of the constant movement of stock prices during a bear, it is easier to take advantage of the shifts in stock prices to generate profits, which is the definition of swing trading. However, during this simulation we found that this strength is true, but it is more effective just after a bear market has occurred. In other words, when the bear market has almost ended, and stock prices are starting to rise again. This can be easily shown by the swing trading results throughout the simulation. At first many losses were taken by this strategy because the stock market had just begun a bear market. Infact, no profits were made within the first three weeks. But once the market started to move away from this period, profits improved, with profits beginning in week four and increasing in week five. Because of constant changing of stock prices just after a bear market, swing trading is very successful during that period.

While swing trading does have its advantages when a market has just begun to recover, it also has its drawbacks for when the market is declining. In the first three weeks of this simulation, the market was on a decline and hit an official bear market, during this period it was difficult to make investments that would turn out profitable. It appears each stock price would continue to fall with the market average despite good or bad news from the respective company. While the market was declining and reaching an official bear market, this trading strategy lost a total of $3697.04. As can be seen from the preparation for each of these three trading weeks, there were strong indicators to invest in a few choice stocks, but despite this news, the decline in the market had a much more dramatic effect on individual stock prices and caused individual stock price to

continuously drop. Therefore, one of the key weaknesses of this strategy, seen during this simulation, is the continued decline in the market.

6.2.3 Buy and Hold

Similar to the position trading method, the buy and hold method severely underperformed throughout the course of this study. The buy and hold strengths lie in the longevity of the assets one holds. It's a very hands-off approach to trading that is very successful in the long run if you put your money in the right places. The theory is that the market will continue to improve gradually over time and you, as the shareholder, can benefit from that improvement by keeping some assets in constantly growing industries. 5-weeks is simply not enough time for a true buy and hold strategy to flourish. It takes years for some well-invested stocks to make a good profit with the buy and hold strategy because one would want to put money in very safe stocks.

However, when the market is in a significant downturn there is no such thing as a "safe stock" to invest in and thus the downfall of the buy and hold method is revealed. Buy and hold is one of the worst methods in a bear market scenario such as the one we are dealing with currently. Anyone who started investing in this market and is going for a buy and hold strategy could see great profit from their investments in the far future, when the market hopefully improves because they bought their stocks when the market was falling. One simply cannot expect this method to work on such a short time scale, especially when the overall trend of the market is down the entire time. Therefore, it is not surprising that this method performed the worst out of the 3 that were used for this simulation. The time scale is simply too short to see any sort of significant profits using this method.

6.3 Lessons Learned

6.3.1 Position trading

Looking back at the lessons learned throughout this study, there is a time and a place for specific trading methods. I believe that it is unwise to rely solely on one type of trading methodology for the entirety of one's trading experience. In this bear market the swing trading method was clearly superior. Its advantages complimented the market brilliantly by focusing the investors' attention on what was actively happening in the world and trying to use that to their advantage. It is a labor-intensive strategy which involves lots of daily research and a general understanding of how news can affect the market. However, I believe that position trading and the buy and hold method still have their place in the grand scheme of market investment strategies. When the market is stable, and everything is on an upward trend then these methods really shine. The more hands-off approach allows good investors to put their money in the market and be relatively assured that it will grow over time. These methods can be supplemented by methods such as swing trading in a "normal" market scenario allowing the investor to steadily make income while also playing around with some more risky investments. However, at the end of the day no one really knows exactly what will happen to the market on a given day and I think it's important to realize before anyone considers investing in the stock market.

6.3.2 Swing Trading

There were many things that could be learned from this simulation about swing trading, but some of the most important were completing research on stock company news and researching the state of the market. These two tasks consistently showed that the more effort that was put into research meant that there was higher potential for profits. At the beginning of the simulation only one source was consulted to determine whether to invest in three different stocks, this decision led

to the largest portfolio loss of the entire simulation. However, later in the simulation, once adequate research was conducted on both stock companies, as well as market averages, stocks began to be sold at higher prices than what they were purchased for, finally generating profits. Completing sufficient research on market averages and stock companies is a necessity for swing trading to be successful.

6.3.3 Overall Learning

Our main goal during this simulation was to become more familiar with the stock market and learn the "rules" that govern how stocks are traded. During this five-week period we can confidently say that we have learned the effort and commitment that one needs to be successful with one's investments. For swing trading, it became obvious that the less research completed at the beginning of the week, the higher the potential to lose money from the portfolio. This research couldn't just be a quick google search, it needed to cover multiple news sources, and consider how the market was acting during that time period. This required a much larger commitment than what was originally given. This lesson showed us that the stock market is not something that can be easily predicted and that one needs to commit fully to research in order to succeed.

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