

# Stock Market Simulation

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This report represents the work of three WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on the web without editorial or peer review.

## **Abstract**

In this project, a 12-week stock market simulation was conducted. Each team member was responsible for \$100,000 to invest with. Three methods—swing trading, position trading, and trend following—were used to achieve maximum profit. Research was conducted to understand the stock market and the trading methods so that the simulation could be performed effectively and accurately. Results were then compared and analyzed to determine the best ways to become successful investors. Simulation results indicated that swing trading portfolio generated a total profit of \$31,227.25, 31% return for the 12-week simulation, while position trading and trend following only saw gains of \$13,700.81 (13.7%) and \$11,380.91 (11.4%), respectively. This project has provided every member with valuable information about the stock market and will certainly be helpful with trading for the foreseeable future.

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# 1. Introduction

In this chapter, we will briefly discuss the goal of this project, the history of the stock market, and some fundamental stock market topics and terms that will be crucial knowledge for achieving our goal.

## 1.1 Goals of the IQP

Our main goal is to develop necessary skills that will help us to understand the stock market and become profitable investors. We hope to accomplish this through a well-conducted simulation that will occur after thorough studying of the stock market. We will spend 12 weeks with this simulation, using \$100,000 for each team member. At the end of it, we hope that the analysis of our results and our comparisons of different trading methods will help us to achieve our goal.

## 1.2 Stock Market History

The stock market has undergone many changes to reach its current, modernized form, so as one would expect, it was built on foundations that were far more simplistic. The idea of the stock market stems from the principle of trading, or in more broad terms, simply moving money from place to place. This means that its evolution can be seen starting as early as the 1100s. During this time, foreign exchange brokers in France were involved in managing agricultural debts—essentially, debt trading [1]. Many countries had similar markets; for example, Italy where debts, as well as government securities, were traded [1, 2].

Eventually, the world began to see actual stock markets, except, without the stocks. The first so-called “stock-less” stock market was seen in Antwerp, Belgium. These markets, rather than trading company shares, dealt with things like affairs of government, businesses, and individual

debt. These markets were built like modern stock markets and produced income in similar ways, but no stocks were traded [1].

The first publicly traded stock/company is said to be the Dutch East India Company, issuing its first shares in 1602. Expeditions that the company sent from Europe to Asia for trade goods had a low chance of returning, as most living during this time knew. In order to combat the high risk that would come with investing in such expeditions, “the company would sell shares to investors to reduce any one person’s liability should the ship be seized by pirates or lost in a storm.” Such stocks were bought and sold on pieces of paper, often inside of coffee shops [3].

Despite a ban in England on issuing shares that lasted until 1825, the first stock market exchange in the world—the London Stock Exchange—was created in 1801. However, due to the ban, this exchange was unable to flourish. Then, in 1817, the New York Stock Exchange was founded in the US, and it took off. It is still used today and is constantly adapting to new advancements in technology [1].

To conclude, here are a few of the most notable events in the history of the United States’ stock market: the stock market crash of 1929, a sharp stock market decline that contributed to the Great Depression; the stock market crash of 1987, the largest single-day market loss in US history; and the stock market crash of 2008 (the Great Recession), which came close to completely taking down the economy [4].

### **1.3 Stock Market Index**

A stock market index is used as a statistical measure to represent how an economy is currently performing. These indices are portfolios of investments, portraying a segment of the financial market, collecting data from various companies across industries. The data is used as a

reference point to help investors compare the current price levels of an index with the past prices. Historically, the stock market indices played an enormous role in allowing ordinary people to invest their money. Before the first index—created by Charles Dow—was established in 1884, it was hard for even professionals to judge the market, allowing for fraud and manipulation to take place [5].

Most indices have some sort of weighting factor incorporated to determine the value of such indices. The primary weighting methods include a price-weighted index and a market-value weighted index. A price-weighted index uses the change in each stock's price per share to change the index. For an index comprised of stock A and stock B, where stock A has a price per share of \$20 and stock B has a price per share of \$10, stock A would account for 66% of the index. An example of a price-weighted index is the Dow Jones Industrial Average. A market-value weighted index uses the market cap to determine the proportion of a stock. For example, the market cap of the S&P 500 index is \$23 trillion as of April 2020. Microsoft, the largest company within the S&P 500, has a market cap of \$1.3 trillion, accounting for 5.66% of the S&P 500 [6]. Other examples of market-value weighted indices include the NASDAQ Composite, while the Russell 2000 is generally based off market-value but includes other factors as well [7].

### **1.3.1 Dow Jones Industrial Average (DJIA)**

The Dow Jones Industrial Average was the second oldest stock index in the United States. It was designed by Charles Dow and established in 1896, coming 12 years after his and the United States' first stock index, the Dow Jones Transportation Average. The DJIA is one of the most heavily followed US stock indices, as it keeps track of 30 public, financially sound companies that exchange on the NYSE and NASDAQ. It was aimed to serve as a representative of the broader US

economy, though many prefer to use the NASDAQ or S&P 500 to represent the whole of the economy because they are market-value weighted and have many more components. Some of the companies included in the DJIA are Microsoft, Walmart, and Nike [8].

The current value of the Dow Jones Industrial Average, which has a market cap of \$8.33 trillion, is 28,323.40. The lowest value of the year occurred when the economy shut down in March 2020, where it was down 9,149 points, or 47%. The total Dow Jones Industrial Average graph is shown below in Figure 1.3.1, with the difference between March 2020 and November 2020 highlighted.



Figure 1.3.1: Dow Jones Industrial Average Market Summary

### 1.3.2 Standard & Poor’s 500 Index

The S&P 500 was created on March 4, 1957 and is a market-value weighted stock index comprised of 505 large, publicly traded companies in the United States. This index is also one of the most followed indices in the United States, as many media companies provide constant updates

as a gauge of large-cap US companies. It accounts for 80% of the market value of the United States equities market, and even though the DJIA was aimed to reflect the US stock market, the S&P 500 does a better job of this, as it uses almost all the largest stocks in the US. The top 10 companies in the S&P 500, which include Apple, Microsoft, and Amazon, account for 28% of the index [9].

The current value of the S&P 500 stands at 3,509.44, with a current market cap of \$30.5 trillion. In March 2020, the value of S&P 500 hit a localized low point of 2,304.9 but has increased 52% since then. The market summary since the inception of the S&P 500 index is shown below in Figure 1.3.2.



Figure 1.3.2: S&P 500 Market Summary

### **1.3.3 NASDAQ Composite**

The NASDAQ (National Association of Securities Dealers Automated Quotation) Composite Index initially began 49 years ago on February 4, 1971 as the world's first electronic stock market. By 1998, it was the first stock market in the United States to begin trading online. This index is a market-value weighted index that tracks over 3,000 companies, which is on the higher end for a stock index. Fifty percent of the NASDAQ is made up of technology companies, with consumer services at 19.43%, health care at 10.21%, and financials 7.21%, following as the next most leading sectors. Some of the most powerful and prominent companies in the world reside with the NASDAQ, including Google, Netflix, Facebook, and Amazon [10].

The current state of the NASDAQ has seen a vast increase since the COVID-19 pandemic resulted in an economic shut down throughout the country. In March 2020, the NASDAQ had a value of 6,879.52 and has seen an increase of 72% since that time, resulting in a current value of 11,895.23. Overall, the NASDAQ Composite Index has seen an increase of 6,120% since its inception, as seen below in Figure 1.3.3.



Figure 1.3.3: NASDAQ Composite Index Market Summary

### 1.3.4 The Russell 2000 Index

The Russell 2000 Index, which is a branch off from the Russell 3000 Index, was created in 1984 by the Frank Russell Company. In total, this index encapsulates 2000 of the smaller cap companies in the Russell 3000 Index. As a market-value weighted index, the Russell 2000 is often used as a benchmark for small-cap investors, much like how the S&P 500 is used as a benchmark for large-cap investors. Many of the companies in the Russell 2000 Index are unknown to the general public, but the three largest companies in the index are MyoKardia Inc., Penn National Gaming Inc., and Mirati Therapeutics. To show how “small” these small-cap companies are, the three largest companies each make up approximately 0.5% of the index [11].

Currently, the Russell 2000 Index stands at a value of 1,644.16 and first reached a point above 1,000 in May 2013. The Russell 2000, compared to the companies previously mentioned, is the only one to not currently be at, or within 5% of, an all-time high, which occurred in August

2018. Since its lowest point of 2020, with a value of 1,014 in March 2020, it has increased by a margin of 62%. The total market summary of the Russell 2000 Index is shown below in Figure 1.3.4.



Figure 1.3.4: Russell 2000 Index Market Summary

## 1.4 Influential Factors of the Stock Market

There are many things that can shift the price of a stock. A massive beat on earnings can send a stock soaring which was the case with Zoom in their Q2 earnings report on Aug 31<sup>st</sup>, 2020. Zoom's revenue for the quarter increased 355% year over year and that sent the stock price from \$325 to \$457 which is a 41% increase in just a day [12]. These increases can be seen below in Figure 1.4.1.



Figure 1.4.1: Zoom Q2 Earnings Result

On the contrary a failed PDUFA can plummet the price of a stock easily over 40%. Overall, there are many things that can influence a specific stock but there are not as many that can affect the market. The main influential factors of the stock market are economics, politics, natural/man-made disasters, and human nature [13].

Economic factors such as unemployment, interest rates, and inflation play a huge role on the market. Unemployment saw a drastic change this year as you can see in Figure 1.4.2 below.

**Chart 1. Unemployment rate, seasonally adjusted, October 2018 – October 2020**

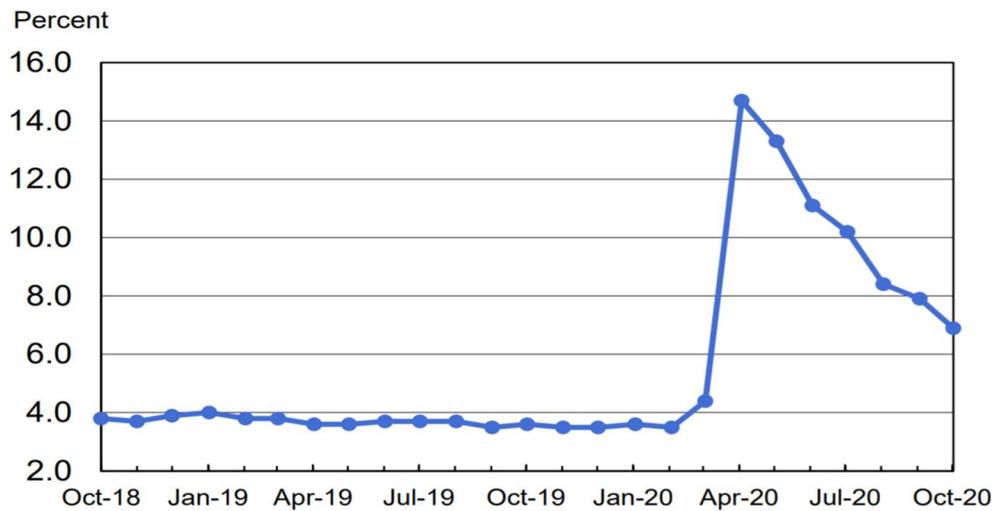


Figure 1.4.2: Change in Unemployment From the Bureau of Statistics [14]

This drastic change in unemployment that occurred in the months of March and April had extreme negative effects on the market. This all coincides with a +30% drop in the Dow Jones Industrial Average, NASDAQ, and Spy (S&P 500 ETF) that began late February and bottomed late March. This shows how the market responded to the extreme increase in unemployment where it more than tripled in 2 months. However, unemployment numbers are not always negative and can have a positive effect on the markets. After the turmoil in March and April, June saw a huge increase in jobs. A record 4.8 million jobs were added in June which is the largest single month gain in US history [15]. This saw the Spy, NASDAQ, and Dow Jones all increase 1.54%, 2.21%, and 1.78% respectively. Interest rates and inflation can also have an extreme effect on the markets. Lower interest rates make companies more profitable due to them having to pay less interest on different loans and liabilities they have. Higher interest rates have the exact opposite effect, but both usually coincide with inflation rates. When inflation is high the federal reserve will increase interest rates to bring the inflation down, and lower interest rates when there is low inflation (high deflation). When interest rates are high companies will have less money and lower evaluations

compared to when rates are low. This can affect the price of these companies' stocks due to their outlooks and projections being raised or lowered due to the interest rates. Natural/man-made disasters not always but can cause these massive shifts in economic factors of the market. The extreme increase in unemployment shown above was caused due to COVID-19, a virus that caused the United States to close its borders and lockdown the country. This is the main reason for the high unemployment. This then led to a domino effect of other things shown above.

Politics are another considerable influence on the market. During election time there is a lot of uncertainty within the market which can cause volatility. Not knowing who the next president is an example of politics causing this volatility. This past election showed this volatility when in the past month the S&P, NASDAQ, and Dow have gone up and down 7% - 9% each. Depending on the next future president could mean major shifts for the market. Each candidate has plans that they want to implement. According to Joe Biden's campaign proposal presented in May 2019, he (if elected) plans to decriminalize marijuana and purge prior criminal records due to marijuana consumption or possession [16]. This showed in the markets when Joe Biden took the lead in the presidential race. Some noticeable weed stocks saw substantial increases in stock price. Aurora Cannabis is up over 134%, Hexo is up over 44%, and Tilray is up over 68% this week. Whichever policies are implemented will help or hurt different sectors in the market.

Human nature is also another factor that influences the stock market, whether it be controlled by hedge funds, day traders, or simply casual traders. Humans are behind the buying and selling of stocks that moves their prices up and down. It is human nature to see stocks selling off and to sell your stocks in fear of them going lower. It is also human nature to be afraid of missing out (FOMO). When they see a stock make a sizeable move upwards, they want to jump in in fear it may go higher, and they will miss this opportunity. This can cause bizarre increases and

decreases in a stock price with no financial or situational reasons to back it. Humans will always be emotional, and these emotions influence the market because humans control the markets.

## 1.5 Project Plan

In this project, three simulations will be conducted using different trading methods and results will be compared to see which method is the most effective. Chapter 1 covered the history of the stock market, which included its origins, as well as important stock market events; the concept of stock market indices, which will be important as we will use them throughout our project; and influential factors of the stock market, so that it is known what else might affect our trading results, other than our chosen trading methods.

In chapter 2, we describe the methods of trading that will be used—swing trading, positing trading, and trend following. We will also briefly discuss the simulation program that will be used to conduct our trading/research. Chapter 3 builds upon the previous chapter by introducing the companies that we will use to trade. It is important that each member uses the same companies so that results remain consistent throughout the project, i.e., spontaneous negative or positive trends from a company will affect *everyone*. Chapter 3 will also go over upcoming catalysts, balance sheets, and price to earnings ratios for each company—three measures that can be observed to assess the status of a company and its stock.

In chapters 4-6, we describe the results of our trading (weekly). This is where we show gains/losses for the week and talk about any important information or events from the week's trading.

In chapter 7, we will have already finished trading, and we will analyze the results. This chapter is arguably the most important of all, as the purpose of this project is to find the most

effective trading methods, in order to become better investors/traders. Our discussion in this chapter will involve comparing gains/losses, figuring out what went wrong (or well), and determining what we should do differently (or the same) in the future.

Finally, in chapter 8, we will conclude our project by offering our final thoughts.

## 2. Trading Methods

In this chapter, we describe the three trading methods that will be used for the project and the program that will be used to conduct the stock market simulation.

### 2.1 Swing Trading

Swing trading (not to be confused with day trading) is a more calm and relaxed style of trading for the average investor. Swing trading (unlike day trading) is held for longer than a day. With swing trading you can hold a stock for several days or even a few months. The longer holding of stocks means you will be making less moves compared to a day trader. This on average increases your chances of profitability because the more decisions you make the more mistakes you will make as well.

There are three major keys to being a swing trader which are an entry point, stop loss and an exit point. An entry point is when you make your purchase of the stock. This is essential because entry points determine how much you could make or lose based on the movement of the stock. An entry point that is too late opens you up to reversals and potentially exiting at a lower price level than which you entered. On the contrary an entry point can allow you to maximize from the upward move of the stock. After you identify your entry level you must look to protect your capital with a stop loss. The stock market is highly unpredictable and even the best traders cannot predict it move for move. Even if you identified and bought at a great price, anything can happen. A stop loss is something that you place with your brokerage so that if a stock drops to a certain level, it will automatically be sold at the stop loss level. This is one of the best ways to protect capital especially since swing traders are not always monitoring stock movements like day traders would. A stop loss gives you reassurance that you will not be the victim of a crazy volatile market. After you

have entered your stock at a reasonable price that allows maximum return and set your stop loss, you need to have an exit strategy. Setting an exit strategy is key so that the unrealized profits you have are not lost from any reversals. Like entry levels, an exit point is determined based off your swing trading technique [17].

The two techniques that will be discussed will be resistance/support and using moving averages. The first technique we will be discussing is resistant and support levels. This idea is shown below in Figure 2.1.1.



Figure 2.1.1: Stock Chart Showing Resistance and Support Levels

As you can see by this image the best entry point would be at the two green circles. Those are the areas that the stock has declined to but does not go much lower than, known as support levels. When identifying this support level, you want to identify a level which the price of stock touches multiple times but goes higher after it touches. At this level there is more buying than selling so it pushes the stock price back up every time it touches. After you enter near support you would look to sell at resistance. Resistance inversely is where the selling overcomes the buying,

and this is where you would generally look to exit your swing trade. A stop loss would be placed at a comfortable price level below support to protect capital. Support and resistance levels when faced with extreme buying or extreme selling can change. A resistance that gets broken due to immense buying then becomes a support level. And vice versa, a support level that gets broken due to intense selling can become a resistance level. When used right, the support/resistance method is an effective way to swing trade [18].

The moving average method is also an effective way to swing trade. This method of swing trading is popular and uses a stock's moving averages. There are two types of moving averages, exponential moving average (EMA) and smoothed moving average (SMA). The difference between the two is the speed at which they change. The EMA is more reactive to price changes and therefore will change its direction faster than the SMA. Day traders use the SMA of shorter time periods because it will give them indicators a lot faster than the EMA. It will give a faster indicator, but also will give more premature indicators, and that is why swing traders generally use the SMA of longer periods. The period is simply the average of a certain amount of trading days. The best possible periods for swing traders are the 21/20, 50, 100, or 200/250 period. One way to use these moving averages is the golden and death cross. You would go short when the 50 moving average goes below the 200 moving average and go long when it goes above it [19].

## **2.2 Position Trading**

Position trading is a type of long-term investment strategy that is often used by those who do not wish to dedicate a lot of time to the stock market. It involves identifying stocks that are expected to increase, then buying, monitoring, and selling those stocks once they reach a peak. This sequence of buying, monitoring, and selling can occur in a period as short as a few weeks, or

as long as a few years. Position traders usually check in on their stock every few days, making it quite the opposite of a method like day trading. Those who use position trading must not let minor fluctuations affect the process, and because of this, they are susceptible to trend reversals that can lead to big losses. However, to prevent this, it is common practice for position traders to set stop-losses on all their stocks. If necessary, stop-losses can be adjusted as prices rise [20].

Choosing when to buy a stock while using position trading is based on two methods of analysis—fundamental and technical. Fundamental analysis is done by looking deep into what is happening within the company. Financial records, earnings reports, CEO comments, and other factors should all be considered when conducting a fundamental analysis. Doing this will give you an idea of how the company is currently performing, and how it will perform in the future. On the other hand, technical analysis involves studying market data, as well as price and volume behavior, to determine how a stock will perform. It is common to use charts to look for uptrends and downtrends [21].

Below is an example of a position trade. An investor may purchase 10 shares of AMZN at \$1,800 each, expecting an upward trend. To control risk, they may place a stop-loss order at \$1,600. They will hold onto this stock for a few weeks, ignoring slight increases and decreases, and then sell at \$2,400, when they are happy with their gains [21]. Below, in Figure 2.2.1, an example of a position trade can be seen.



Figure 2.2.1: Example of Position Trade With AMZN Stock

## 2.3 Trend Following

In recent history, trend following has been one of the more popular trading strategies. Due to the lack of information about this trading strategy before the 20th century, the origin of the method remains to be unknown. While it is likely that the strategy was implicitly used for some time, perhaps centuries, there was never a fully elaborated definition or name for it until the 1900s. On a basic level, the trend following strategy is exactly what the name implies. When a stock is trending in the upward direction, one should buy shares. On the contrary, when the price of a stock is falling, it should immediately be resold [22].

Trend following, commonly referred to as trend trading, is used by investors as a way to ensure capital gains based upon a stock's momentum. When a stock's trend shows that it is increasing in value, the investor will often enter what is known as a "long position." A long

position means that the trader owns the stock or bond, expecting the value to appreciate, whereas a short position refers to the trader not outright owning the stock, but owing those stocks to someone. When an investor takes the short position, he/she expects the stock to decrease in value, allowing them to buy the stock at the lower price and profiting. When a trend follower sees a stock's trend to be a decreasing one, they can take the short position. Trend following is used by short, intermediate, and long-term traders in the market [23]. Many prominent and famously known traders have used trend following including the currently renowned Ed Seykota, who profited over \$400 million using trend following, and Jesse Livermore, the most famous trader of all time, who profited over \$100 million in 1929 [24].

Within the overall strategy of trend following, there many secondary strategies or indicators used to determine when and when not to buy and sell. These indicators consist of moving averages, moving average convergence divergence (MACD), relative strength index (RSI), and on-balance volume (OBV).

Moving averages take the average price of a stock over a period of time and use that average to determine the trend of the stock. A 10-day simple moving average takes the average over the most recent period of five days and compares it to the previous five-day periods. For example, the average over days 1-10 would be compared with the average price over days 2-11 and 3-12 to determine a short-term trend, and the investor will buy, sell, or short the stock based upon the trend shown. Moving averages are taken to drown out any fluctuations within the price chart of a stock [25].

The moving average convergence divergence (MACD) method is both a trend-following and momentum indicator. The MACD uses two moving average lines, fast line and slow line, which are considered as oscillating indicators, meaning that they fluctuate above and below the

center line similarly to a sine wave. The center line for the MACD is always zero. If both lines are above the centerline, this is a buy signal to the investor. Conversely, if they are below the center line, this is a sell or short signal to the investor. The fast line, also referred to as the MACD line, is calculated by subtracting the 26-period exponential moving average (EMA) from the 12-period EMA. Compared to the simple moving average, which was discussed above, the exponential moving average places greater weight on the most recent days when calculating the average. The slow line, or the MACD signal line, is the 9-period EMA of the fast line. The two lines can also be compared to give the investor indicators of when to buy or sell. If the fast line is increasing at a faster rate than the slow line is increasing, the investor should buy, but if the fast line is decreasing at a faster rate than the slow line is decreasing the investor should sell or short [25].

The relative strength index (RSI), which is another oscillating indicator, also gives a good idea of what decision a trader should make. Differently than the MACD, the RSI operates over a range rather than fluctuating above and below a center. Within the range of 0 to 100, different numbers represent different decisions a trader should make. The most crucial determinants are values of 30 and 70. When above 70, the stock is due to start decreasing, while a value below 30 means the stock is due to bounce back. These trends are generalities, though, and are by no means sure things. Another indicator is if the RSI is above 50, then dips below 50 for an abbreviated time, then back above 50, the investor should buy the stock [25].

On-balance volume, or OBV, uses the volume flow, or number of shares traded between a stock's opening and closing time, to predict the change in a stock's price. OBV takes numerous amounts of volume information and compiles them together into a single line indicator. In most cases, if the OBV is up, so is the stock, and the same goes for when the OBV is down. In the cases

where the OBV and stock price are not operating in parallel, it is likely that the OBV will start following the stock price in the future and increase or decrease accordingly [25].

## 2.4 Simulation Program

Stock market simulations, also referred to as paper trading, have many advantages and disadvantages when compared to trading in reality. The basic methodology of paper trading comes via virtual investments, where the trader uses fake money to invest in stocks, which mimic the real-time market. Simulating trading provides beginners with a simplistic path to understand the basics of trading with real money and has many benefits. The main benefit is that there is no risk of losing money, as many simulation programs are free, and the user cannot lose money from bad timing or investments. Another benefit of paper trading is that the user gains valuable experience and confidence, if the user can make some hypothetical profits. There is also no stress involved, meaning the user is less likely to make emotional decisions and they can better analyze what they might be doing wrong. Though all these aspects make it seem like simulations are all positive, there are also downfalls to it. The main disadvantage of paper trading is that the market is not always exact. Sometimes, there are lengthy delays from a change in the real stock to the change in the simulated stock. Some minor cons include the impact of your investment in the real market, as well as missing profits. When you invest large sums of money into a smaller stock, the investment can be a catalyst to the stock, causing it to slightly increase in value. The disadvantage of missing profits comes when the trader makes the right decisions to buy or sell a stock, but only makes hypothetical profits when they could have made that profit in real money. Pertaining to the exact stock simulation program our group will use, there are many free options available. These options include the *Wall Street Survivor*, *HowTheMarketWorks*, *NinjaTrader*, and *Investopedia* [26].

The stock simulation program we chose is Investopedia. Investopedia is a free and easy way to paper trade. It has a \$19.99 commission fee to buy stocks, and \$29.99 for selling and option trades, but we still felt that it was the best choice. While it is true that online brokers are often commission-free nowadays, most of these brokers make money from their users in other ways instead, such as executing your trades at slightly worse prices or accruing interest from your uninvested cash. A broker as simple and straightforward as Investopedia does not use such methods, so we thought it was best to keep the default commission fee of \$19.99 to maintain realism—certainly not cheap, but a fair price. We will start with \$100,000 of virtual cash and will be able to make mistakes while learning the best ways to trade risk-free. Investopedia allows you to connect with over 700,000 other traders and learn from their methods to help better your skill. It also allows you to join your friends and create challenges or keep up with their progress. This is extremely beneficial to us as we can use this to monitor ourselves and hold each other accountable as well. Overall, Investopedia is an uncomplicated way to meet all the needs and requirements of this project [27].

## 3. Company Selections

In this chapter, we will discuss the 12 companies that our group selected for trading. Each member was responsible for picking four companies, but in the end, each member will use all 12. We will also go over some upcoming catalysts for each company that have the potential to influence the trends of their stocks, as well as balance sheets for each (so that we can discuss their financial positions), and price to earnings (PE) ratios (which we can use to assess the market value of the stocks).

### 3.1 Company History

The first four companies selected were PayPal Holdings, Johnson & Johnson, Gores Holdings IV, and Wayfair.

PayPal, founded in 1998, is one of the largest payment companies in the world. The company—created by Peter Thiel and Max Levchin—had a mere 12,000 users in January 2000, but a bold marketing move helped to change everything. They offered to put \$10 into any newly created account, as well as another \$10 for referring new users, and because of this, they saw their user count rise to 2.7 million in August of the same year (224,000% increase). This promotional campaign, coupled with the use of PayPal by eBay users and eBay's eventual purchase of PayPal, certified PayPal's position as a successful platform. The company is also responsible for two significant technological advances: Igor, which is an algorithm that is used to flag suspicious activity and monitor transactions, and CAPTCHA technology, which is used for identifying and stopping bots. Both creations are still used by numerous companies today [28]. As for the history of PayPal's stock (PYPL), it has always done relatively well. In February of 2002, when the stock was first issued, it rose by over 50% and closed on its first day of trading at \$20 per share. In July

2014, when PayPal and eBay split up and PYPL began trading again, the company's market value hit \$49 million. In August of 2020, PYPL was worth around \$200 per share, nearly double what it was in the previous year [29].

The next company, Johnson & Johnson, has been around for a long time and formed in 1886 by brothers Robert Wood Johnson, James Wood Johnson, and Edward Mead Johnson. They produce products ranging from baby oil and adhesive bandages to maternity kits and medical drugs and devices. The company's acquisitions and inventions throughout the years have allowed it to be as successful as it is today. Johnson & Johnson's IPO (JNJ) was released in 1944 [30]. The company's success is reflected in its stock's performance—the company has increased its dividend every year for the last 58 years, and shares went up 25 times from 1986-2016 [31]. As of November 2020, JNJ sits at around \$145 per share.

Gores Holdings IV (GHIV) is merging with the one of the top mortgage companies in the nation, —one that is growing by the day—United Wholesale Mortgage (UWM). UWM utilizes independent mortgage brokers to gain customers and they perform underwriting, origination, and sometimes servicing. The technology they use offers products specific to each mortgage broker which helps to increase the loans they collect. The simplistic but efficient platform offers perks for loans collected and even gives marketing and compliance classes. This has led to brokers being well pleased with the platform. Although the deal is only for 6.4% of the company, UWM is very large, with plenty of mortgage brokers using them. So far in 2020, out of the 63,000 active loan officers with the company, 35,000 have submitted more than 1 loan and 20,000 have submitted more than 6 loans. With the median home listing price being \$226,800 according to Zillow, that is extreme amounts of revenue for this company. The merger is expected to be completed in Q1 2021 and will offer a \$.40 annual dividend. Interest rates are extremely low, and the Fed has not

indicated that they will increase them any time soon. This gives UWM ample time to grow and further solidify themselves as one of the best mortgage companies.

Next up, Wayfair. Founded in 2002 by Niraj Shah and Steve Conine, Wayfair is an ecommerce destination for furniture. It started out as a simple website for selling stereo racks and stands but grew to something much larger. Their growth was sparked by expansion, —both in terms of countries that they shipped to and retailers that they supplied from—and eventually, in January 2014, they became the largest online-only retailer for furniture in the United States [32, 33]. Wayfair (W) went public in 2014 at \$29 per share. The company was hit hard in March 2020, presumably due to COVID-19, but since then, they have done well [34].

The next four stocks selected were XpresCheck, XL Fleet, Spy, and Gevo.

XpresSpa was a company that offered spa services in airports. Its business model was targeted towards giving spa services to travelers who were waiting to board planes. A business model so dependent on airlines thriving was bound to struggle in the pandemic. After the country was shut down and domestic and international travel were put to a halt, XpresSpa was hit hard. By March 15, many employees were furloughed or in the process of being furloughed. On March 24 XpresSpa temporarily shut down all its spas. With America not being able to contain COVID-19 it looked all but over for this company until they made a shift. They transitioned into airport testing—converting their spas into testing centers inside of airports—and are now known as XpresCheck. The plan is to have passengers and employees tested before entering an airplane. With most businesses being deemed non-essential this business model would allow them to generate revenue while helping to slow down this virus [35, 36].

Electric vehicles are the future, and the entire world is realizing that. With Elon Musk and Tesla being the pioneers of the industry other companies are racing to catch up. XL Fleet is an EV company that is planning on going public through a merger with a special acquisition company called PIC. After the merger, XL fleet is expected to have a valuation of \$1 billion. XL Fleet provides hybrid and plug-in hybrid powertrain conversions for U.S. and Canadian commercial fleet vehicles built by Ford, Chevrolet, GMC, and Isuzu. These are electric vehicles that do not have a gas engine and operate fully from their electric capabilities. The size of its fleet is average, but the wide variety of customers is what makes this company so promising. XL Fleet has over 200 customers, including FedEx, The Coca-Cola Company, PepsiCo, Verizon, the City of Boston, Seattle Fire Department, Yale University, and Harvard University. The merger is not expected to be completed until fourth quarter of 2020. However, you can get an early piece of this company by investing into the company under the stock name PIC [37, 38, 39].

The Spy is not a company but a S&P 500 ETF. This ETF has been discussed in previous sections.

Gevo is a company focused on using low carbon renewable resource-based carbohydrate as raw materials and developing renewable natural gas. They are involved in an effort to reduce greenhouse gas emissions that are poisoning the atmosphere. The renewable gas they are producing would replace traditional oils that the world runs on. Gevo's product is such a good replacement due to it being just as efficient as traditional oil/fuel but produces far less greenhouse gas emissions. Companies are taking suit with most recently Trafigura agreeing to the biggest contract Gevo has made to date. This deal was a \$900 million dollar deal. That on top of the substantive offtake deals struck with Delta, Total, and SAS in the past year and with AvFuel in

2018. With the addition of Trafigura deal Gevo has roughly \$1.5 billion in long term contracts making it one of the staple renewable natural gas companies [40, 41].

The last four companies selected were PepsiCo, Pfizer, Delta Air Lines, and Social Capital Hedosophia Holdings Corp. III.

One of the most prominent food and beverage companies in the world, PepsiCo has products in over 200 countries globally. The Pepsi-Cola drink was originally made to replicate the world-famous Coca-Cola, and four years later the drink was so popular that Caleb D. Bradham, the founder, started the Pepsi-Cola Company in 1902. Initially, the company sold the syrup used to make the drink and by 1905, with demand growing, started to sell the 6-ounce bottle of the soft drink. During World War 1, PepsiCo was met with exceptionally hard times, as the price of sugar increased by 900%. In 1923, Pepsi officially filed for bankruptcy, but got back on track during the Great Depression as they started to sell 12-ounce bottles, instead of six ounces, at the same price. This decision resulted in Pepsi's profits over the next two years to double. Since this time, Pepsi has gone through its ups and downs, but has remained a noteworthy company, and has provided serious competition with Coca-Cola over the years. In 2020, the company was listed at number fifty-one on the Fortune 500 list. [42]. Since 1972, the earliest found recording of their data, PepsiCo's stock, PEP, has seen a steady increase in price over the span of 40 years. In the last 20 years, the price has increased by over 600%, but PEP has also seen its biggest drops in that same time frame. The first major drop occurred during the stock market downturn in 2002, when the price dropped from approximately \$32 to \$23, which is a 28% decrease. During the 2008 stock market crash, one year after seeing an all-time high of \$53, the stock dropped all the way down to \$32, resulting in a 39% decrease in price. One of the fastest drops the stock experienced came in the span of one month, where the price dropped 41% from \$145 to \$103. PEP's greatest annual

change in stock price in the last 20 years was a 23% increase in 2019, with the year's opening price at \$109, and the year's close at \$136 [43].

Pfizer, originally known as Charles Pfizer & Company, was founded in 1849 by Charles Pfizer and Charles Erhart in Brooklyn, New York, with its second location in Chicago in 1882. In 1936, the company became the global leader in production of Vitamin C when Doctor Richard Pasternack developed his method for creating the product, without fermentation. Pfizer played an extensive role in World War II as well, expediting the manufacturing process to produce penicillin to treat US, and other allies, soldiers by using deep-tank fermentation. Because of this, they became the world's leader in production of penicillin, which, at the time, was the "miracle drug." Since this, Pfizer has had continued success developing new technologies and medicines in the pharmacy industry, including many top sellers like Viagra, Minipress, and Glucotrol, to name a few. In 2003, Pfizer and Pharmacia Corporation combined operations and invested \$7.1 billion into their research and development and since then has joined the fight against cancer, discovered new drugs, and developed many vaccines [44]. Pfizer, or PFE's, stock price really started gaining traction from about 1995 to 2000 but started to have an overall decrease in stock price from 2000 to 2008, which included even deeper drops in the 2002 downturn and the 2008 crash. Since the stock's 2009 opening price of \$10.80, it has increased by 122% to \$36.70. In March 2020, PFE hit its lowest point of the year, at \$26.99, but has had a decent increase since that point [45].

Delta Air Lines originally began as Huff Daland Dusters, founded in Delaware in 1925 as the world's first aerial crop-dusting company, and started operations shortly afterwards. Delta's Air Service began in 1928, where they could carry up to five passengers to few locations across the United States. In 1930, Delta Air Service was partially bought by the now American Airlines, and Delta Air Corporation debuted in 1931. Delta Air Corporation officially changed their name

to Delta Air Lines in 1945. In 1953, Delta Air Lines began its first international routes after the acquisition of Chicago and Southern Air Lines. Afterwards, Delta was one of the most prominent airlines, ranking as the number one major US airline from 1975 to 1991. Unfortunately, in 2005, the company filed for bankruptcy in September and later launched one of the largest one-month expansions with service lines developing into the Caribbean and Latin America. Today, Delta Air Lines is celebrating 90 years of service, while travelling to and from 320 countries on six different continents [46]. Delta's stock, DAL, which dates to 2007, was on a slow, steady increase until March of this year. Due to COVID-19, many major airlines have taken a significant hit due to lowered demand and limited capacity regulations. At the beginning of 2020, Delta hit an all-time high of \$61.30 and plummeted to \$21.50, resulting in a decrease close to 66%. While they still have not fully recovered, the stock has been trending upwards since and is now at a value of \$36. Aside from another drop in price, which occurred in 2016, DAL was steadily increasing for the most part [47].

Social Capital Hedosophia Holdings Corp. III (IPOC) is merging with Clover Health, a next-generation Medicare Advantage insurance company. They offer some of the best plans that give a wide access to healthcare, all with low out-of-pocket costs. Clover Health most recently announced a deal with Walmart to offer a Medicare advantage plan with zero premiums to eight counties in Georgia. This will be in addition to the 34 counties Clover Health currently resides in, and will be a part of the 108 counties that they are expected to be in next year. The healthcare market is very large, as it is essential and necessary in the United States. No single company can take over the whole market, but they can try to get as big a piece of the pie as possible. Clover Health currently represents 8% of the market in the 34 counties it resides in, and is expected to

control 7% of the 108 counties next year. This is the fastest growing Medicare Advantage Plan in the U.S. and the numbers speak for itself.

## **3.2 Upcoming Catalysts**

### **PayPal**

One catalyst for PayPal is their potential development of their own cryptocurrency. With their acquisition of Venmo (a platform with a millennial-majority userbase), a new cryptocurrency would certainly lead to a strong showing from PayPal in 2021 [48]. This is a potential catalyst because this age group is more likely to purchase cryptocurrency than others. Also, PayPal has recently been involved with global partnerships, specifically one with the Latin American e-commerce company MercadoLibre. Such partnerships should give them an edge over domestic competitors [49].

### **Johnson & Johnson**

One of the largest upcoming catalysts for 2021 is the COVID-19 vaccine, which could have extreme effects on JNJ stock, since they own Pfizer, a company who claims to have a highly effective vaccine in the making. This vaccine and its specifics will be discussed later.

### **Gores Holdings IV**

The main catalyst in the near future for GHIV is the merger. There are an assortment of forms and steps they must meet in order to officially merge with United Wholesale Mortgage. They must submit the required forms to the SEC and their shareholders must vote to go through with this merger. Only then can they set a date to send United Wholesale Mortgages public.

## **Wayfair**

Since it is an online marketplace, Wayfair could see continued growth as uncertainty about when the COVID-19 pandemic will end hangs over the world. Although it was mentioned earlier that COVID-19 might have been the reason for Wayfair's losses in March 2020, online shopping has been increased by the pandemic, so that trend is unlikely to stick.

## **XpresCheck**

The first airport that took the risk on XpresCheck was JFK International Airport. That is where they ran their airport testing pilot to see how it would work and if it would even be effective. The success of the pilot led to many more opportunities with Newark Liberty International Airport and Boston Logan International Airport bringing XpresCheck into their airports. According to a Fox News interview the CEO of XpresCheck has been in talks with government officials to have XpresCheck receive funding in the next stimulus bill. XpresCheck is also in talks with various airports in converting their spas into XpresCheck facilities. Job listings on various sites show that Phoenix Airport is possibly an airport that is under agreement but has not been announced yet. XpresCheck plans on helping to get airlines going and opening for travel in time for the holidays [50, 51].

## **XL Fleet**

The main upcoming catalyst for XL Fleet is the completion of the merger. There are essential things that need to happen for a merger to be completed. Multiple SEC forms must be submitted giving various amounts of information. The most important form is the DEFM14A which announces the vote of whether the merger will go through or not. Every merger must be voted on by the shareholders and if successfully passed a date soon after will be given for the

official merger. XL Fleet has not yet submitted the final forms yet but still have time left in the fourth quarter to maintain schedule.

## **Spy**

The Spy has been extremely volatile lately with positive vaccine news being the latest thing that has gave it a push [52]. Since the S&P 500 contains the top 500 companies, when the markets as a whole trend upward it follows. With the state of the economy being the biggest driver of the markets, important things like monthly job reports can push or pull the markets and the Spy. The Fed announcing increasing or decreasing interest rates also can be a major factor determining the markets. The uncertainty of the election and the future president's actions will be a major mover of the markets. If Joe Biden is confirmed by the electoral college, he has already made plans for reinstating a lockdown to help slow the spread of the virus. This could be a major pull back of the market that has soared to new highs in 2020. Ongoing foreign and international decisions that Joe Biden and his cabinet make will reflect either negatively or positively on the markets.

## **Gevo**

The only upcoming catalysts for Gevo are the potential announcements of more contracts. The deals Gevo has made are all long-term deals that will not take effect immediately with its most recent deal not beginning until 2023.

## **PepsiCo, Inc.**

For PepsiCo, one major catalyst upcoming is the partnership with sports commentator, former NBA player, and sports icon Shaquille O'Neal. With many people calling for police reform in the inner cities, Shaquille partnered Pepsi to help get the movement underway in the "Pepsi

Stronger Together” initiative. The initiative will take place in NBA cities and it will involve many local charities and local police departments. This partnership should help to get more consumers and promotions through fans of the NBA, fans of Mr. O’Neal, and the NBA itself [53].

## **Pfizer**

One of the major upcoming catalysts for this company, as well as part of the reason it is being selected, is the development of the COVID-19 vaccine. As of July 22, 2020, the US government struck a deal with Pfizer for an initial order of 100 million doses for \$1.95 billion and can acquire 500 million additional doses. So far, the vaccine studies have shown a 95% success rate in phase 3 of the trials. On November 20, 2020, Pfizer submitted its emergency use authorization request to the FDA and is awaiting official approval from the administration [54].

## **Delta Air Lines**

Although Delta Air Lines took a major hit this year, there are many upcoming catalysts for the stock to rebound. First and foremost, vaccine trials for COVID-19 have been completed and are currently looking for authorization from the FDA. If all goes well with that, the public’s confidence in the airline should be restored and people should be back flying again. On top of that, many families like to travel away for the holiday seasons. Although many people are still cautious about flying, this should still provide somewhat of a bump to Delta’s financial results of the year. While the price of the stock remains low for right now, the company has plenty of cash, the holiday season is upcoming, and vaccines are almost ready to be put into action. These are valid reasons for a long-term investor to buy the stock [55].

## **Social Capital Hedosophia Corp. III**

Much like the other Special Acquisition Companies (SPACs), Clover Health has a few hurdles to jump through before it can be publicly traded on the stock market. An official date must be announced for the merger vote and the shareholders must vote it through. That is the main catalyst to look forward to but with the rate this company is growing, another deal or partnership is not out of the question.

### **3.3 Balance Sheets & Price to Earnings Ratios**

#### **PayPal**

PayPal did not produce low debt-to-equity (D/E) ratios. This, however, does not mean that the company performed poorly during this time. They kept their total assets above their liabilities in each year, and they increased their total assets each year as well (by quite substantial amounts). While their debt has been increasing, it is still relatively low. In addition to this, they had very high price-to-earnings (P/E) ratios in each of the last four quarters, which usually means that the stock is overvalued or that investors expect better returns in the future. The company's balance sheet can be seen below in Figure 3.3.1.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	51,333,000	43,332,000	40,774,000	33,103,000
> Total Liabilities Net Minority Int...	34,404,000	27,946,000	24,780,000	18,391,000
∨ Total Equity Gross Minority Inte...	16,929,000	15,386,000	15,994,000	14,712,000
> Stockholders' Equity	16,885,000	15,386,000	15,994,000	14,712,000
Minority Interest	44,000	-	-	-
Total Capitalization	21,850,000	15,386,000	15,994,000	14,712,000
Common Stock Equity	16,885,000	15,386,000	15,994,000	14,712,000
Net Tangible Assets	9,895,000	8,277,000	11,487,000	10,442,000
Working Capital	11,576,000	7,059,000	9,782,000	8,855,000
Invested Capital	21,850,000	17,384,000	16,994,000	14,712,000
Tangible Book Value	9,895,000	8,277,000	11,487,000	10,442,000
Total Debt	4,965,000	1,998,000	1,000,000	-
Share Issued	1,278,000	1,265,000	1,247,000	1,234,000
Ordinary Shares Number	1,173,000	1,174,000	1,200,000	1,207,000
Treasury Shares Number	105,000	91,000	47,000	27,000

Figure 3.3.1: PayPal Balance Sheet for the Past Four Years

## Johnson & Johnson

Johnson & Johnson's recent number are not as great as one may have expected from a company of their status. They have far more debt than the previous companies, but they also have slightly more in assets as well. They managed to reduce their total debt by almost 20% from 2017-2019 and they have kept their assets above their liabilities—two positives for the company. Once again, we see high D/E ratios throughout the four years, as well as high P/E ratios from the last four quarters. The company's balance sheet can be seen below in Figure 3.3.2.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	157,728,000	152,954,000	157,303,000	141,208,000
> Total Liabilities Net Minority Int...	98,257,000	93,202,000	97,143,000	70,790,000
∨ Total Equity Gross Minority Inte...	59,471,000	59,752,000	60,160,000	70,418,000
> Stockholders' Equity	59,471,000	59,752,000	60,160,000	70,418,000
Total Capitalization	85,965,000	87,436,000	90,835,000	92,860,000
Common Stock Equity	59,471,000	59,752,000	60,160,000	70,418,000
Net Tangible Assets	-21,811,000	-18,312,000	-24,974,000	20,737,000
Working Capital	9,310,000	14,803,000	12,551,000	38,745,000
Invested Capital	87,167,000	90,232,000	94,741,000	97,544,000
Tangible Book Value	-21,811,000	-18,312,000	-24,974,000	20,737,000
Total Debt	27,696,000	30,480,000	34,581,000	27,126,000
Net Debt	10,391,000	12,373,000	16,757,000	8,154,000
Share Issued	3,119,843	3,119,843	3,119,843	3,119,843
Ordinary Shares Number	2,632,507	2,662,324	2,682,525	2,706,511
Treasury Shares Number	487,336	457,519	437,318	413,332

Figure 3.3.2: Johnson & Johnson Balance Sheet for the Past Four Years

## Wayfair

Unlike the previously mentioned companies, Wayfair has had a negative stockholder's equity value for the past 4 years, indicating that their liabilities exceed their assets. However, this is not always a bad look for the company. While it *can* mean that the company is in financial distress, negative stockholder's equity can also be caused by buybacks, which is when a "company puts all the stock they buy back in the open market (or it may have never been issued to the public in the first place) [56]." The company also had a negative P/E ratio in two of its last four earnings reports, meaning they were losing money during that time. They were able to improve it during the last two quarters, though, producing high P/E ratios of 72.25 and 150.47, respectively. The company's balance sheet can be seen below in Figure 3.3.3.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	2,953,048	1,890,850	1,213,403	761,683
> Total Liabilities Net Minority Int...	3,897,256	2,221,571	1,261,732	682,299
∨ Total Equity Gross Minority Inte...	-944,208	-330,721	-48,329	79,384
> Stockholders' Equity	-944,208	-330,721	-48,329	79,384
Total Capitalization	511,987	408,183	284,576	79,384
Common Stock Equity	-944,208	-330,721	-48,329	79,384
Capital Lease Obligations	913,706	243,145	120,125	68,849
Net Tangible Assets	-963,017	-333,306	-51,434	75,154
Working Capital	-234,381	116,713	77,065	-80,129
Invested Capital	511,987	408,183	284,576	79,384
Tangible Book Value	-963,017	-333,306	-51,434	75,154
Total Debt	2,369,901	982,049	453,030	68,849
Net Debt	873,442	-	-	-
Share Issued	93,600	90,748	88,209	85,831
Ordinary Shares Number	93,600	90,748	88,209	85,831

Figure 3.3.3: Wayfair Balance Sheet for the Past Four Years

## XpresCheck

The balance sheet of XpresCheck has certainly been lackluster as of late. In Figure 3.3.4 below, you can see that their total liabilities have overcome total assets. This has not been the case since at least 2015 according to how far the balance sheet shows. The lead assets have had over liabilities has been constantly dwindling each year and the total debt has been increasing. The debt from 2018 to 2019 is nearly doubled and this is all before the pandemic. The financials that will be released at the end of this year will almost certainly be much worse. The price to earnings ratio of this company is N/A.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	28,724	30,584	65,240	82,807
> Total Liabilities Net Minority Int--	31,260	17,449	19,401	18,638
> Total Equity Gross Minority Inte--	-2,536	13,135	45,839	64,169
Total Capitalization	-477	9,106	47,383	66,028
Preferred Stock Equity	10	14	4	5
Common Stock Equity	-6,249	9,092	40,879	59,523
Capital Lease Obligations	9,495	-	-	-
Net Tangible Assets	-13,022	-61	9,706	18,752
Working Capital	-12,287	-10,899	3,596	11,771
Invested Capital	-487	17,578	47,379	66,023
Tangible Book Value	-13,032	-75	9,702	18,747
Total Debt	15,257	8,486	6,500	6,500
Net Debt	3,578	5,083	132	-
Share Issued	5,157	587.266	442.427	305.081
Ordinary Shares Number	5,157	587.266	442.427	305.081

Figure 3.3.4: XpresCheck Balance Sheet for the Past Four Years

## Gevo

Gevo has a relatively healthy balance sheet. In the last 4 years their assets have had a healthy lead over their liabilities with 88 million being the highest lead and 63 million the lowest. Total debt was the highest it has been in the last 4 years in 2016 at 34 million. Gevo cut it down to 19 million in the following year. Although this is debt it can be perceived as healthy debt considering how their assets outweigh liabilities. This is great for this company because they have not even entered into \$1.5 billion of their long-term contracts. Keeping debt to a minimum will be essential until they can reap the rewards of these agreements. Price to earnings of this company is N/A. The company's balance sheet can be seen below in Figure 3.3.5.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	93,359	107,035	88,853	112,324
> Total Liabilities Net Minority Int...	20,855	18,248	25,322	43,060
> Total Equity Gross Minority Inte...	72,504	88,787	63,531	69,264
Total Capitalization	72,737	101,341	77,537	77,485
Common Stock Equity	72,504	88,787	63,531	69,264
Net Tangible Assets	72,504	88,787	63,531	69,264
Working Capital	4,134	33,420	6,495	-1,342
Invested Capital	87,153	101,341	82,761	103,401
Tangible Book Value	72,504	88,787	63,531	69,264
Total Debt	14,649	12,554	19,230	34,137
Net Debt	-	-	7,677	6,249
Share Issued	14,083	8,641	1,091	353,712
Ordinary Shares Number	14,083	8,641	1,091	353,712

Figure 3.3.5: Gevo Balance Sheet for the Past Four Years

## PepsiCo, Inc.

PepsiCo did not experience any major differences from 2018 to 2019, with slight increase in assets by \$1 million and a slight increase in liabilities by \$500,000. These two factors resulted in a mere increase in shareholder equity of approximately \$500,000. Pertaining to assets, the company saw a decrease in current assets and an increase in non-current assets. Although this is not desired, the same amount that was decreased in current assets is the same jump seen in non-current liabilities, so it is not worrisome. PepsiCo also saw no increase in its total debt, meaning the debt-to-equity ratio decreased due to the slight increase in equity. As of 2019, the debt-to-equity ratio was 2.2, which is concerning to investors. Over the last four years, PepsiCo has seen a fluctuating price to earnings ratio, ranging from 32.63 To 11.96. In 2016, the price to earnings ratio was in the middle of the range at 21.47, while 2017 saw an increase to 32.63. In 2018, the ratio was its lowest over the four years at 11.36 but bounced back to the higher end at 25.71 in 2019 [57]. The company's balance sheet can be seen below in Figure 3.3.6.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	78,547,000	77,648,000	79,804,000	74,129,000
> Total Liabilities Net Minority Int...	63,679,000	63,046,000	68,823,000	62,930,000
> Total Equity Gross Minority Inte...	14,868,000	14,602,000	10,981,000	11,199,000
Total Capitalization	43,934,000	42,813,000	44,685,000	41,148,000
Preferred Stock Equity	-	-	41,000	41,000
Common Stock Equity	14,786,000	14,518,000	10,848,000	11,054,000
Capital Lease Obligations	442,000	-	-	-
Net Tangible Assets	-16,758,000	-16,115,000	-17,693,000	-16,768,000
Working Capital	-2,816,000	-245,000	10,525,000	5,954,000
Invested Capital	46,854,000	46,839,000	50,129,000	47,999,000
Tangible Book Value	-16,758,000	-16,115,000	-17,734,000	-16,809,000
Total Debt	32,510,000	32,321,000	39,281,000	36,945,000
Net Debt	26,559,000	23,600,000	28,671,000	27,787,000
Share Issued	1,867,000	1,867,000	1,866,000	1,866,000
Ordinary Shares Number	1,391,000	1,409,000	1,420,000	1,428,000
Preferred Shares Number	-	-	800	800
Treasury Shares Number	476,000	458,000	446,000	438,000

Figure 3.3.6: PepsiCo, Inc. Balance Sheet for the Past Four Years

## Pfizer

From December 2018 to December 2019, Pfizer's assets have increased by nearly 8 million, while the shareholder equity has stayed constant. This means that the company's liabilities have increased by relatively the same amount that the assets have increased. While the assets have increased, the company has seen its non-current assets increase by 25 million and the current assets decrease by 17 million. Over the same span of time, the debt has increased by nearly 11 million, from 41 million to 52 million. Despite this, with a current shareholder equity of 63 million, Pfizer holds a good debt-to-equity ratio 0.8. Over the last four yearly earnings reports for Pfizer, they have had a rather fluctuating price-to-earnings ratio ranging from 9.2 to 23.8. Out of the last four years, Pfizer's 2016 price to earnings ratio was the greatest, at a value of 23.8, but was cut into less than half of that value at the end of 2017, where its value was the lowest of the four years, at

9.2. In 2018, Pfizer reported its annual price to earnings at its second highest value of the past four years at 21.73, while 2019 was on the lower end at a 13.11 ratio [58]. The company's balance sheet can be seen below in Figure 3.3.7.

Breakdown	12/31/2019	12/31/2018	12/31/2017	12/31/2016
> Total Assets	167,489,000	159,422,000	171,797,000	171,615,000
> Total Liabilities Net Minority Int...	104,042,000	95,664,000	100,141,000	111,775,000
> Total Equity Gross Minority Inte...	63,447,000	63,758,000	71,656,000	59,840,000
Total Capitalization	99,098,000	95,836,000	103,974,000	90,942,000
Preferred Stock Equity	17,000	19,000	21,000	24,000
Common Stock Equity	63,126,000	63,388,000	71,287,000	59,520,000
Net Tangible Assets	-30,879,000	-25,215,000	-33,384,000	-47,553,000
Working Capital	-4,501,000	18,068,000	10,714,000	7,834,000
Invested Capital	115,271,000	104,653,000	113,893,000	101,606,000
Tangible Book Value	-30,896,000	-25,234,000	-33,405,000	-47,577,000
Total Debt	52,145,000	41,265,000	42,606,000	42,086,000
Net Debt	50,840,000	40,126,000	41,264,000	39,491,000
Share Issued	9,369,000	9,332,000	9,275,000	9,230,000
Ordinary Shares Number	5,534,000	5,717,000	5,979,000	6,070,000
Treasury Shares Number	3,835,000	3,615,000	3,296,000	3,160,000

Figure 3.3.7: Pfizer Balance Sheet for the Past Four Years

## Delta Air Lines

While the balance sheet for Delta Air Lines in 2020 has yet to be released, the company was doing well from 2018 into 2019. The company's total assets, non-current assets, and current assets have all increased. With total assets increasing by approximately 4 million to a value of \$64 million, it has been an even increase in current and non-current assets, at about \$2 million apiece. While assets have gone up by \$4 million, liabilities have increased by \$2.5 million, which means that the company achieved a net gain of \$1.5 million in shareholders equity. The company's debt increased by a mere \$500,000 to reach \$17 million, which gives off a decent debt-to-equity ratio of 1.13. The stock's price to earnings ratio has stayed constant over the last four years, with values

of 8.19 in 2016, 11.92 in 2017, 8.51 in 2018, and 9.76 in 2019. There have been no drastic jumps or steep drop offs, like we may expect to see at the end of this year [59]. The company's balance sheet can be seen below in Figure 3.3.8.

<b>Breakdown</b>	<b>12/31/2019</b>	<b>12/31/2018</b>	<b>12/31/2017</b>	<b>12/31/2016</b>
> Total Assets	64,532,000	60,266,000	53,292,000	51,261,000
> Total Liabilities Net Minority Int...	49,174,000	46,579,000	39,382,000	38,974,000
> Total Equity Gross Minority Inte...	15,358,000	13,687,000	13,910,000	12,287,000
Total Capitalization	24,231,000	21,940,000	20,502,000	18,488,000
Common Stock Equity	15,358,000	13,687,000	13,910,000	12,287,000
Capital Lease Obligations	6,095,000	6,756,000	-	-
Net Tangible Assets	414,000	-924,000	-731,000	-2,351,000
Working Capital	-11,955,000	-12,238,000	-10,729,000	-7,788,000
Invested Capital	26,518,000	23,458,000	22,744,000	19,619,000
Tangible Book Value	414,000	-924,000	-731,000	-2,351,000
Total Debt	17,255,000	16,527,000	8,834,000	7,332,000
Net Debt	8,278,000	8,206,000	7,020,000	4,570,000
Share Issued	651,731	688,136	714,674	744,887
Ordinary Shares Number	642,772	679,944	707,198	730,738
Treasury Shares Number	8,960	8,192	7,476	14,149

Figure 3.3.8: Delta Air Lines Balance Sheet for the Past Four Years

## 4. Simulation 1: Swing Trading

In this chapter, we will be showing the results of the stocks bought and sold while using the method of swing trading. As mentioned in Section 2.4, commission fees of \$19.99 for buying and \$29.99 for selling/options are being assumed. Swing trading involves using the 50-day EMA, 200-day EMA, support levels, resistance levels, and stop-losses. Stocks should be bought when either the 50-day EMA crosses the 200 or close to a strong support level. Inversely, stocks should be sold when the 50-day EMA falls below the 200-day or when it hits a strong resistance. The following section highlights the results from 12 weeks of swing trading.

### 4.1 Week 1

I began the week of 11/30/2020 with \$100,000 in cash. I have been timid with my investing and have been waiting for the right moments to invest. I purchased stocks for two companies this week—XpresSpa and Pivotal Investment Corporation II investing into both companies on Thursday. Next week I plan on being more aggressive in my spending utilizing more of my remaining capital. My purchases for the week can be seen in Table 4.1.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/30/20							\$100,000	
12/3/20	XSPA	Buy	\$1.42	1000	\$1,443.99		\$98,556.01	
12/3/20	PIC	Buy	\$14.00	250	\$3,519.99		\$95,036.02	

Table 4.1.1: Week 1 Transactions

### XpresSpa (XSPA)

This stock began the week at \$1.69 and finished at \$1.57, as shown in Figure 4.1.1 below. This stock has seen major selling this week, reaching a low of \$1.35. That appears to be the support of the stock currently. Figure 4.1.2 shows how it bounced off of \$1.35 twice with the second time

being met by strong buying power, quickly increasing to \$1.40 (3% increase) in 30 minutes. Seeing this made me comfortable purchasing it at \$1.42 even though the 50 day (MA) has not yet crossed the 200 day (MA). I will be looking at this stock closely as it can move down quickly. A stop-loss will be set at the support level of \$1.35 to minimize potential gains. If this stock falls back in the \$1.40's I will be adding heavily to this position in anticipation of more airport contracts.



Figure 4.1.1: XSPA 5-day Technical Chart

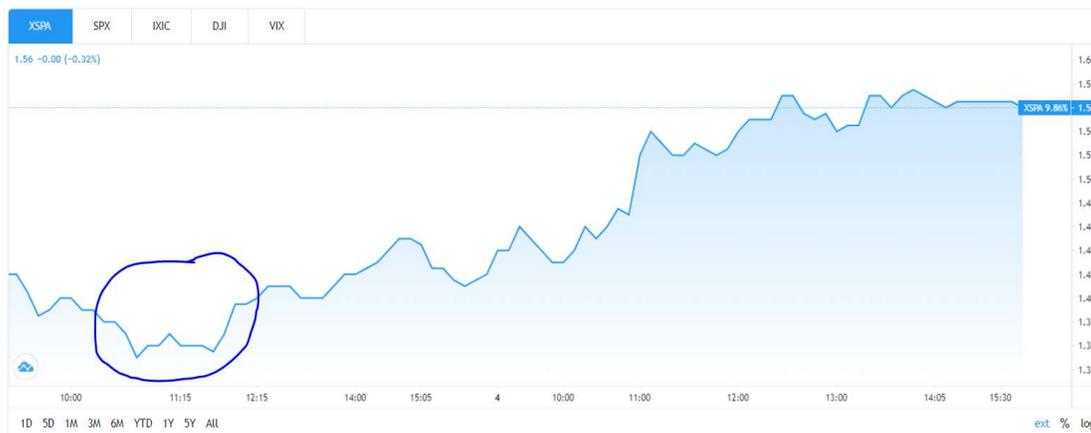


Figure 4.1.2: XSPA Double Bounce Off of \$1.35

## Pivotal Investment Corporation (PIC)

PIC started the week at \$15.20 and ended the week at \$16.25, as shown in Figure 4.1.3. This stock has been moving upwards as it draws closer to the potential merger in Q4 with XL fleet. The previous support level was \$10 for a while until PIC saw major buying beginning middle of November. This stock has immense potential as the 50-day moving average is above the 200-day and has been for quite some time. Still, I sought to wait until PIC reached some type of floor to minimize potential losses and maximize potential gains. The most recent support level is around \$13, as shown in Figure 4.1.4 below. With that support level being 30% higher than the previous I was patient to see if there were any signs of major selling. There were not any major signs, and I was able to purchase the stock before it increased over 10%. I will look to add to this position on any major pullbacks before the anticipated merger in Q4.



Figure 4.1.3: 30-day Technical Chart

16.25 USD +2.12 (15.00%) ↑

Closed: Dec 4, 7:59 PM EST · Disclaimer  
After hours 16.31 +0.060 (0.37%)



Figure 4.1.4: Weeks Price Action Showing \$13 Support

## 4.2 Week 2

XSPA and PIC both gapped up nicely over the weekend to start off the week. This week I really focused on being less timid and investing in plays near support levels. All the stocks I invested in (except one) have already passed the golden cross and the 200-day MA lies below the 50. That is why support and resistance levels have been key in my investing. Slightly frustrated with Investopedia as it does not let you immediately buy/sell at market price as you must wait 20 minutes minimum before a trade can go through. I will use limits from here on out to ensure I buy/sell at a specific price or better. My transactions are recorded in Table 4.2.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/loss	Total Cash	Total Profit
12/7/20							\$95,036.02	
12/7/20	PFE 40 Call 12/21/20 Expiration	Buy	\$2.58	5	\$1,318.74		\$93,717.28	
12/7/20	PIC	Buy	\$15.99	50	\$819.39		\$92,897.89	
12/8/20	PIC	Buy	\$15.39	100	\$1,558.74		\$91,339.15	
12/8/20	PFE 40 Call 12/21/20 Expiration	Sell	\$3.75	2	\$726.51	\$234.00	\$92,065.66	\$234.00
12/8/20	XSPA	Buy	\$1.52	1000	\$1,541.09		\$90,524.57	
12/9/20	GHIV	Buy	\$10.84	1000	\$10,859.99		\$79,664.58	
12/9/20	IPOC	Buy	\$11.47	1000	\$11,489.99		\$68,174.59	
12/9/20	PFE 40 Call 12/21/20 Expiration	Sell	\$3.35	1	\$313.26	\$77.00	\$68,487.85	\$311.00
12/9/20	XSPA	Buy	\$1.46	1000	\$1,484.89		\$67,002.96	
12/10/20	PFE 40 Call 12/21/20 Expiration	Sell	\$3.35	2	\$646.51	\$144.00	\$67,649.47	\$465.00

Table 4.2.1: Week 2 Transactions

## XSPA

I have tripled my position in XSPA to bring my total shares up to 3000. XSPA began the week at \$1.57 and ended the week down at \$1.47. There is a staunch support level around \$1.40 and this is where this stock has been floating around. The 50-day moving average is far below the 200-day, but this stock has many upcoming catalysts that have yet to be finalized and announced. As you can see in Figure 4.2.1 below, XSPA bounced off \$1.44 - \$1.45 4 times throughout the week and this influenced why I bought 2000 shares at the average price of \$1.49 which is slightly above the support level. I will continue to hold this position in anticipation of potential news of funding or airline partnerships. I will be monitoring this one closely as it can drop rather quickly. A stop-loss has been set to sell two-thirds of my shares at \$1.35 to limit any potential losses.



Figure 4.2.1: Price Action of XSPA During the Week of 12/7/20

## PFE

I was slightly impatient when I entered this trade due to speculation of a major catalyst being announced this week (it happened on Thursday). The catalyst was that the FDA would grant them emergency authorization for their COVID-19 vaccine. For a few months PFE had strong support at the \$34 level and strong resistance at \$37. It has fluctuated between these two prices since August as you can see in Figure 4.2.2.



Figure 4.2.2: Resistance at \$37 and Support at \$34

The positive reports of a successful vaccine are what broke it through that resistance level of \$37. I invested into PFE as soon as the market opened because PFE showed a support level of \$40 at the end of last week. I invested into PFE options instead of shares due to it trading near all-time highs (\$44) and it does not have crazy moves. I was uncomfortable investing a large amount of capital due to the rapid movement it made as of recently. To get the best possible gains for the limited capital invested I bought the \$40 ITM 12/21 options. I bought these at the \$40 strike price due to that being the most recent identified support level. These options were monitored very closely, and I was looking to exit them as soon as I saw any kind of reversal or strong resistance. A visualization of what I did with PFE can be seen in Figure 4.2.3.

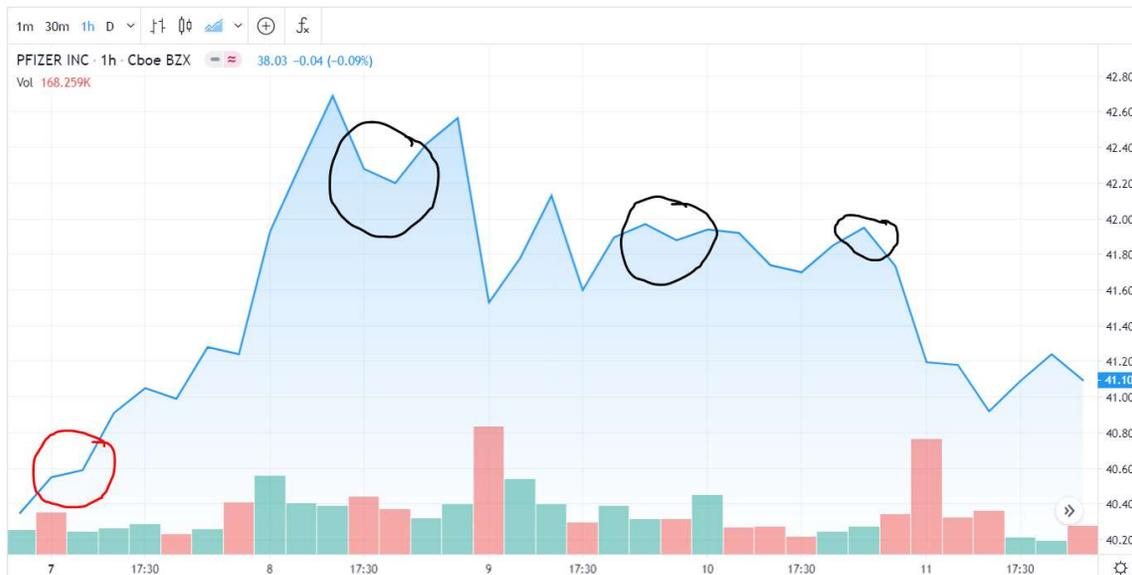


Figure 4.2.3: How I traded PFE

I purchased all 5 call options the morning of 12/8/20. The price of PFE at the time is shown at the red circle. PFE was trading 60 cents above the identified support level of \$40. PFE progressed through the day making steady gains not showing any signs of resistance or reversals. Every step up it made it consolidated around that level in preparation for the next step up. During hours of 12/8/20 PFE continued its gains and then gapped up the next morning. It gapped up a dollar and showed strong buying until it hit a resistance level of around \$42.50. It came down 60 cents from its high that day, so I sold two-fifths of my PFE contracts for 45% gains on those two contracts (\$258 to \$375, and it further regained its losses later in the day, so I decided to hold the rest overnight). PFE gapped down overnight, and I was ready to relieve my position until it started to reverse upon the market open. Since my contracts were \$2 in the money and the expiration date was so far out, they did not lose too much value throughout the volatility. I observed the activity and saw it bounce off of \$41.55 twice which appeared to be support levels now and saw a strong resistance of around \$42.10 as it violently reversed after reaching that level. After the second bounce off of \$41.55 I sold another contract when PFE approached \$42. I sold this contract for

\$335 which resulted in 30% gains. I sold the rest of my options at the third black circle the next day since PFE still showed strong resistance at \$42. In total, I profited 35% on this trade.

## GHIV and IPOC

I began two strong starter positions in these two stocks, shown in Figure 4.2.4 and Figure 4.2.5. All SPACs have an initial, extremely dedicated support level of \$10 due to the considerable sum of institutional investments in them. GHIV specifically was bought at \$10.84 since it had a support level at \$10.5.



Figure 4.2.4: Where I Bought GHIV



Figure 4.2.5: Where I Bought IPOC

In the previous week GHIV moved off of its support level of \$10 and stepped up to \$10.40, consolidated, then stepped up to \$10.70. This is where it consolidated again and showed support at \$10.50 by bouncing off it slightly multiple times. After seeing that price action, I planned on buying GHIV the next morning. I was unfortunately caught in some volatility the morning of 12/9/20 and could not get GHIV as low as I wanted which is why I will be using stop limits from now on due to the 20-minute initial wait. IPOC followed the same price action as GHIV but made larger steps up. They both were bought at the same time and unfortunately suffered the same volatility issues. IPOC was purchased at \$11.47 after showing strong support at \$11.20. Since GHIV is closer to its strongest support at \$10 I will add GHIV any time it dips back close to the support level of \$10.50-\$10.75 to hopefully add 1500-3000 more shares before the expected merger in Q1 2021. IPOC is more than 10% above its strongest support level so I will add a maximum of 1,000 more shares if I can get a pull back into the \$10 range.

## PIC

I added to my position in PIC but will not add anymore. The only solid support level I identified is \$13 and since then it has moved up significantly. I added to this position twice over two days. Both times I added to my position in PIC it showed solid support on that day. The first time I added was at \$16 on 12/7/20 as you can see in Figure 4.2.6 below (black circle). It bounced off of \$16 and continued up the rest of the day. Although this was not the best price, so I only added 50 shares. The next day I added more to my position but was still timid in how much I bought compared to other SPAC plays due to PIC being 50% above its strongest support level of \$10 and 20% above its second strongest support level of \$13. I purchased 100 more shares and that is the last purchase I will make of PIC. I purchased 100 shares at around \$15.39 after it bounced off of \$15.20. The merger vote is set for 12/21/20 and if approved I will be holding my full position through the merger barring any extreme price action or sell indicator.



Figure 4.2.6: Where I Bought PIC on the Week of 12/7/20

### 4.3 Week 3

This week I focused on strengthening positions I liked the most this week. I want to keep a minimum of \$20,000 in cash so I have flexibility in case I need cash for a potential new swing. This week's transactions are shown in Table 4.3.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/14/20							\$67,649.47	
12/15/20	GHIV	Buy	\$10.66	1000	\$10,689.99		\$56,959.48	
12/15/20	XSPA	Sell	\$1.40	2000	\$2,773.81	-\$140.00	\$59,733.29	\$325.00
12/15/20	XSPA	Buy	\$1.36	2000	\$2,757.79		\$56,975.5	
12/17/20	GHIV	Buy	\$10.73	1000	\$10,749.99		\$46,225.51	
12/18/20	GHIV	Buy	\$10.72	1000	\$10,734.99		\$35,490.52	

Table 4.3.1: Week 3 Transactions

### XSPA

XSPA was frustrating this week, to say the least. It hovered around its support level of \$1.35-\$1.40 for the most part until they announced an airline partnership with United Airlines [60]. This sent XSPA soaring as it went from its support at \$1.40 all the way to \$1.80 which is a near 30% increase. It spiked high in the morning since that was when the news was announced. It gradually decreased then trended back upwards. I was waiting to see if it would step up another level before selling any. XSPA then decided to do a \$41.66 million direct offering priced at the market [61]. This sent XSPA back to its support level of \$1.35-\$1.40. It did not fall low enough to trigger my stop loss, but I sold two-thirds of my position to see how it would hold up the next day. I feared it would take a gap down overnight, but it held up well and I rebought my shares the next day. The support level at \$1.35-\$1.40 is strong and I will look to add 2000 more shares Monday before the direct offering closes. The proceeds from the direct offering will be used to fund expansion into more airports. The partnership with United Airlines could lead the way for more

XpresCheck locations in some of the airports under United. Figure 4.3.1 shows the price action of XSPA.



Figure 4.3.1: Price Action of XSPA on 12/17/20

## GHIV

This week I quadrupled my position in GHIV due to it being so close to its floor. I bought 3000 more shares at an average price of \$10.70 and will not purchase any more shares before selling. As you can see in Figure 4.3.2 below, GHIV is only 7% above its strongest support level of \$10 and only 2% above its second support level of \$10.50. With the merger being voted on 1/20/21, I wanted to accumulate as many shares as possible near its strongest support levels, something I failed to do in other SPACs such as PIC and IPOC due to their price levels once I began trading [62].



Figure 4.3.2: Price Action of GHIV Since it Began Trading

## 4.4 Week 4

This week was great for me. The additions I made to GHIV and IPOC last week are largely responsible for a large increase in account size as they gapped up what seemed like every day as they draw closer to their merger dates. My main focus now is exiting my current swings at optimal times to make the most possible profit. My transactions for the week are shown in Table 4.4.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/loss	Total Cash	Total Profit
12/21/20							\$35,490.52	
12/21/20	XSPA	Buy	\$1.39	4500	\$6,271.94		\$29,218.58	
12/21/20	PIC	Sell	\$19.43	100	\$1,922.51	\$483.00	\$31,141.09	\$808.00
12/21/20	PIC	Sell	\$19.13	100	\$1,883.43	\$453.00	\$33,024.52	\$1,261.00

Table 4.4.1: Week 4 Transactions

## XSPA

XpresSpa held up decently well after the closing of the offering. It held up well that day after a slight sell off on 12/21/20 to begin the day and bounced higher. It showed the same support of \$1.30 - \$1.40 so I added 4500 more shares. The 50-day MA is well below the 200-day MA and it sold off heavily to end the week. I did not reset a stop loss on this position and fell vulnerable to the major selling that happened 12/25/20. I will look to exit this position in hopes that it moves up

over the next few weeks. This stock does not sustain gains and support levels become weak as time goes on. Its movement during the week is shown in Figure 4.4.1.



Figure 4.4.1: Price Action of XSPA for Week 4

## PIC

I cut my position of PIC in half on 12/21/20 which was the day of the vote for the merger. Mergers are risky because the shareholders can vote no to it even though it rarely happens. I also sold because it showed some resistance at \$19.50 and with the uncertainty of the merger, I sold half for 32% profit. Unfortunately, Investopedia does not acknowledge the merger and that it was voted yes and now trades as XL. Due to this I cannot sell my remaining 200 shares. I waited to see if there was just a delay and missed the massive spike XL fleet saw on 12/23/20 where it reached \$32+ which would have been over a 100% increase then my entry price. I will be trading XL fleet after it finds some support after the massive spike, which is shown below in Figure 4.4.2.



Figure 4.4.2: Price Action of XL Fleet for Week 4

## 4.5 Week 5

This week I did not make any purchases this week as I focused solely on taking profits and trimming my positions at resistance levels. I will look to sell more of my positions next week and begin new positions in stocks that are near support and nearing or already pass the golden cross.

Week 5's transactions are shown in Table 4.5.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/28/20							\$33,024.52	
12/29/20	XSPA	Sell	\$1.19	3500	\$4,145.01	-\$840.00	\$37,169.53	\$421.00
12/29/20	IPOC	Sell	\$16.06	250	\$3,993.76	\$1,147.50	\$41,163.29	\$1,568.50
12/29/20	GHIV	Sell	\$13.23	1000	\$13,205.00	\$2,490.00	\$54,368.29	\$4,058.50

Table 4.5.1: Week 5 Transactions

## XSPA

I waited to see if XSPA showed any signs of buying or reversal, but it did not and sold for 10%+ loss. I will look to sell the rest of my shares sometime next week at a price closer to my buy.

## GHIV and IPOC

I trimmed both positions by 25%. I sold IPOC at \$16.06 which resulted in a 40% increase. I sold because it showed some resistance at the \$16.30 level, as shown in Figure 4.5.1. It bounced off of this level multiple times throughout the day, so I trimmed my position to lock in gains. I will exit this position completely before the actual merger. The vote is for 1/6/21 so most of my position will be sold if not all due to the uncertainty of the actual merger. After the merger I will look to start a new position near support.



Figure 4.5.1: IPOC Showing Resistance at \$16.30

I sold GHIV at \$13.23 for a 23% increase. GHIV much like IPOC showed some resistance. IT gapped tremendously over the weekend but sold off slowly through the day. GHIV showed some support at \$13.50 on 12/28/20 (black circle) which is why I did not trim my position. It sold off more 12/29/20 and that is when it showed resistance (red circle). These movements are shown below in Figure 4.5.2. I may add more shares or trim my position even more depending on the price action but have time because the merger vote is not until 1/20/21.



Figure 4.5.2: Showing Support and Resistance Levels of GHIV

## 4.6 Week 6

This week I exited weaker positions this week in order to free up cash for new positions.

The transactions are shown in Table 4.6.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
01/04/21							\$54,368.29	
01/04/21	XSPA	Sell	\$1.17	4000	\$4,664.41	-\$880.00	\$59,032.70	\$2,338.50
01/04/21	CLOV	Sell	\$15.25	500	\$7,605.01	\$1,890.00	\$66,637.71	\$4,228.50
01/04/21	CLOV	Sell	\$14.31	250	\$3,556.26	\$710.00	\$70,193.78	\$4,938.50

Table 4.6.1: Week 6 Transactions

## XSPA

I sold my remaining shares this week with a substantial loss. Unexpectedly an offering was announced which turned support levels into resistances. Investors lost hope in the new business model and with no technical fundamentals it sold off massively. I have sold the rest of my shares and will only enter back if the technical aspect of this stock show hope. I will be monitoring this stock closely to see if the 50 EMA crosses above the 200 EMA. Until then I will not trade this stock.

## CLOV

I sold the rest of my position this week prior to the merger. I did not want to have funds locked up like PIC/XL due to Investopedia not acknowledging the merger. I was more lenient with this stock as I was up a considerable amount on it, so I did not set a stop loss on it. I mostly monitored the price action leading up to the merger vote. After the long Christmas holiday there was a massive sell off from CLOV. It rebounded nicely from the week before to high \$16's then sold off to the mid \$15's. Seeing this price action I sold  $\frac{2}{3}$ 's of my remaining position in CLOV leaving the last third to see if there was any rebound in the price. Unfortunately, CLOV sold off some more and I sold the last of my position 1/6/21 which was the day of the merger vote. It is key to sell the day of the merger vote because some companies decide to complete the merger the very next day. This would trap precious capital preventing it from being sold. I will reenter into CLOV after the merger is completed. CLOV's movement during the week is shown in Figure 4.6.1 below.



Figure 4.6.1: Showing CLOV's Price Action the Week of 1/3/21

## 4.7 Week 7

This week I entered some positions a bit prematurely as I entered near weak support levels. Those support levels quickly turned into resistance levels and I gave gains back. My transactions for the week are shown in Table 4.7.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
1/11/21							\$70,193.78	
1/12/21	CLOV	Buy	\$14.87	2000	\$29,759.99		\$40,433.98	
1/12/21	CLOV	Buy	\$14.7	1500	\$22,069.99		\$18,363.99	
1/13/21	XL	Buy	\$22.02	500	\$11,027.49		\$7,336.50	
1/13/21	CLOV	Sell	\$13.97	1750	\$24,412.96	-\$1,452.50	\$31,749.46	\$3,486.00
1/15/21	GEVO	Buy	\$6.46	1000	\$6,474.99		\$25,274.47	

Table 4.7.1: Week 7 Transactions

## **CLOV**

I rebought into CLOV right above the support level at \$14.50. It did not show the price action I expected after the merger as there was more selling than buying. I set a stop loss to sell half of my position at \$14 which triggered the next day. A good amount of SPAC's have sold off as rumors with more speculative companies have caused people to reallocate funds elsewhere. I only set a stop loss for half of my shares as this company still has catalysts ahead which would drive the stock price higher. The Biden administration will be talking about health 1/28/20 and lower the Medicare age down to 60. This would immediately add 23 million people (about the population of New York) to the market CLOV is fast growing in. This on top of more potential partnerships should drive the stock price higher.

## **XL Fleet**

I purchased a little bit of XL as it has sold off noticeably since its high of \$32.50 reached on 12/23/20. It has shown great support at the \$20 level as it bounced off of it multiple times and maintained above it, as shown in Figure 4.7.1. The \$20 mark shows good support, and I will invest a little bit of capital as it may be ready for another leg up.



Figure 4.7.1: XL Fleet Chart

## GEVO

I took a starter position in the biocarbon fuel company GEVO. The chart on this company looks prime for another leg up as it makes moves upward and consolidates then repeats, as seen below, in Figure 4.7.2. I will look to add my full position on another pullback.



Figure 4.7.2: Consolidation and Upwards Movement since November 2020

## 4.8 Week 8

This week I sold stocks who lost investor sentiment and its support levels and began new positions near support with more upside. I regained my losses in bad positions and then some this week. I will be focusing on maintaining these gains and not giving them back. My transactions are recorded in Table 4.8.1 below.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total cash	Total profit
1/18/21							\$25,274.47	
1/19/21	GHIV	Sell	\$12.40	1500	\$18,580.01	\$2,490.00	\$43,854.48	\$5,976.00
1/19/21	GEVO	Sell	\$10.72	500	\$5,340.91	\$2,130.00	\$49,195.39	\$8,106.00
1/20/21	GEVO	Buy	\$9.18	500	\$4,610.24		\$44,585.15	
1/20/21	XSPA	Buy	\$1.51	10000	\$15,116.99		\$29,468.16	
1/21/21	GHIV	Sell	\$11.17	1500	\$16,733.21	\$645.00	\$46,201.37	\$8,751.00
1/21/21	GEVO	Buy	\$8.93	1000	\$8,950.09		\$37,251.28	
1/21/21	XSPA	Buy	\$1.52	5000	\$7,604.49		\$29,646.79	

Table 4.8.1: Week 8 Transactions

## GHIV

I left profit on the table with this trade as I wanted to see if investor sentiment was still strong. The markets moved profits to more lucrative stocks such as EV stocks. Nevertheless, this trade was profitable as I made 13% on this trade. It is not as good percentage wise as previous trades, but I put a large amount of capital into this trade. GHIV peaked on 12/28/20 at 13.81 it then fell sharply down to a little higher than \$13. It never seemed to get past this level. I took 25% profits at \$13.23 seeing the price action. GHIV then fell sharply to \$12 but bounced and showed strong support at the \$12 range. I then sold 50% of the remaining 75% I had of my original trade. Having secured good profits, I decided to let the rest of the shares ride until close to merger. This was to see if investor sentiment would pick up with it. Unfortunately, it did not, and I sold the last of my shares for barely any profit. GHIV's movement is shown in Figure 4.8.1.



Figure 4.8.1: GHIV Chart

## GEVO

Gevo surprisingly gapped up over 50% on 1/19/21 a day after I bought it, an increase that is shown in Figure 4.8.2. The price action that usually happens is Gevo will gap up then reverse slightly and consolidate. I sold half of my shares at the time on the massive price action. I sold half of my shares for 66% profit and looked to reenter. I would have sold all my shares, but I wanted to still be in this play in case it did not follow the trend of the chart and moved further up the next day. As expected Gevo sold off but it sold further due to them utilizing a direct offering to shore up capital. I then repurchased my shares I sold at a lower price of about 10%. The price action was stable the next day around the \$8.50 - \$9 range and it showed good support, so I doubled my position. I will look to begin selling once Gevo makes another move upward.



Figure 4.8.2: GEVO Chart

## XSPA

I added a substantial position to XSPA this week as massive buying has lifted it off of its lows. Rumors going around that the united states government will mandate testing for domestic flights. Xpress Check would be a huge beneficiary of this. Stop loss is set tight to preserve capital.

### 4.9 Week 9

This week I focused on exiting positions to secure profits. I saw noticeable rises in previous investments. I will look to utilize this cash in other positions when the opportunity presents itself. Week 9's transactions can be seen in Table 4.9.1 below.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
1/25/21							\$29,646.79	
1/25/21	GEVO	Sell	\$13.60	500	\$6,780.01	\$2,612.50	\$36,426.80	\$11,363.50
1/25/21	XSPA	Sell	\$2.07	5000	\$10,305.01	\$2800.00	\$46,731.81	\$14,163.50
1/28/21	XSPA	Sell	\$2.80	5000	\$13,980.51	\$6,450.00	\$60,712.32	\$20,613.50

Table 4.9.1: Week 9 Transactions

## XSPA

XSPA saw significant buying and it did not seem to be any specific news that was pushing it higher. There was no catalyst or press release that came out, but XpresCheck did show that it was hiring new jobs in new locations. This insinuates that there is more news to come. This happens for every new opening and never moves the price which is why this price increase was not due to Xpress Check growing business model. There was a lot of buying this week due to retail traders trying to impact hedge funds short positions. XSPA was a stock that began to get pumped due to this battle between institutes and retail traders. I sold a good amount of my position due to this knowing this price was not sustainable. Regardless of why XSPA surged it has created

a nice support level at \$2, as shown in Figure 4.9.1. Will look to see how this support level weathers to determine if I buy more near support.



Figure 4.9.1: XSPA Chart Week of 1/25/21

## GEVO

This stock has been gradually increasing ever since Biden took office. It gaps up then retraces and consolidates. I took profits at the pop and will look to re-add my shares once it settles. GEVO's movement during the week is shown in Figure 4.9.2.



Figure 4.9.2: GEVO Chart Week of 1/25/21

## 4.10 Week 10

This week I trimmed/exited positions that were not as promising as others. These positions had either turned negative technically or did not have much investor sentiment left. Will look to heavily invest in new positions next week. My transactions for the week are shown in Table 4.10.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
2/1/21							\$60,712.32	
2/2/21	XL	Sell	\$20.63	250	\$5,137.51	-\$347.50	\$65,843.89	\$20,266.00
2/2/21	CLOV	Sell	\$14.08	750	\$10,540.01	-\$537.75	\$76,383.90	\$19,728.25
2/2/21	XSPA	Buy	\$2.12	2500	\$5307.49		\$71,076.41	
2/5/21	CLOV	Sell	\$11.62	1000	\$11,600.01	-\$3,177.00	\$82,676.42	\$16,551.25

Table 4.10.1: Week 10 Transactions

## CLOV

I completely exited this position at a noticeable loss. A short selling firm posted an article that brought up claims that the Clover was not being fully transparent to its investors. This caused a severe sell off and broke through the support level at \$13. Fearing anymore potential loss I sold the last 1/3 of my position at a very steep loss. The last 1000 shares made up of majority of the

losses in that position. CLOV did not move up during Biden’s talks about healthcare and they have not released any catalysts that caused an increase in the stock price. I will not re-enter this trade unless there is a major catalyst that is released as investor sentiment is minimal.

## **XSPA**

XSPA fell from its highs back down to its support level at \$2. I added a little above that with a small number of shares as I do not want to risk giving back the gains I have made on this ticker. Domestic testing could still be mandated that along with new testing centers opening could push the stock price higher.

## **XL Fleet**

I sold half of my shares once XL got close to my average price level. Will look to exit the rest of this trade with as minimal loss as possible.

## **4.11 Week 11**

This week my intent was to enter new positions this week, but the markets seemed shaky. I instead shifted my focus to securing profits and going more liquid in case of a reversal in the markets. Week 11’s transactions are recorded in Table 4.11.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
2/8/21							\$82,676.42	
2/9/21	GEVO	Sell	\$13.77	750	\$10,307.51	\$4,046.25	\$92,983.93	\$20,597.50
2/10/21	GEVO	Sell	\$14.80	500	\$7,379.66	\$3,212.50	\$100,363.59	\$23,810.00
2/10/21	XSPA	Sell	\$2.77	2500	\$6,902.01	\$2,650.00	\$107,265.60	\$26,460.00

Table 4.11.1: Week 11 Transactions

## GEVO

I sold GEVO twice this week to secure profits. The first 750 shares I sold was to secure profits. I am up 50% + on this play I do not want to get greedy and give back my gains as I have in other plays. I then sold 500 more shares as it bounced off of the resistance level of \$15. I kept my last 250 shares in case GEVO continued to go higher. This stock has seemed to just go up ever since the technical side has strengthened and the 50 MA crossed the 200 MA. It has tons of revenue lined up with its many contracts signed with major partners. This revenue though will not be realized for years to come. Therefore, even though this stock has consistent gains and market sentiment I removed most of my position. In the wake of an overall market pullback/sell off this stock will be hit hard due to its valuation. Its price to earnings is not justified by anything except future contracts that potentially could not go through. I will look to sell the remaining of my shares at the sign of any severe pull back. GEVO's movement during the week is shown in Figure 4.11.1.



Figure 4.11.1: GEVO Chart Week of 2/8/21

## XSPA

Hopes of government mandate of testing and job openings of new sites have driven the price up tremendously. The January lows are long gone as it is up over 100% + from there. Revenues from the testing sites have not been disclosed and much of the spas are still closed. Yet Positive Investor sentiment is back for the meantime but can turn negative quickly. I sold 2500 shares as it cannot get past the \$3 resistance level. I trimmed my overall position in XSPA due to these reasons but still have 5000 shares left respectfully. This stock still has many catalysts such as new locations, more partnerships, domestic travel mandates and earnings. Earnings should give a perspective as to how much revenue each location is generating and how much of a goldmine or failure Xpress Check is. XSPA's movement during the week can be seen in Figure 4.11.2.



Figure 4.11.2: XSPA Chart Week of 2/8/21

## 4.12 Week 12

My estimated annual return based off the 12 weeks (about 3 months) of trading would have been 248.48%. I sold all my positions simultaneously as the markets looked weak to end the week.

For the last few weeks, the broader indexes have been trading flat. Not keeping gains or maintaining losses and in fear of a Friday sell off I exited all my positions. My total profit and total cash are off by a few hundred dollars. This is because my buy in and sell price is rounded in trade history but was executed at a non-rounded price. For example, on 2/18/21 my trade history shows I sold XSPA at 2.53 for 5000 shares and a commission of 19.99. The cash proceeds for this stock should be 12,630.01 but my trade history shows \$12,605.01 because the stock was exactly sold at 2.525 but it does not show me more than 2 decimal points. Therefore, my cash is not exactly my total profits plus my initial cash value of \$100,000. My transactions for the final week are shown in Table 4.12.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
2/15/21							\$107,265.60	
2/18/21	XSPA	Sell	\$2.53	5000	\$12,605.01	\$4,100.00	\$119,870.61	\$30,560.00
2/18/21	GEVO	Sell	\$10.77	250	\$2,672.51	\$598.75	\$122,543.12	\$31,158.75
2/18/21	XL	Sell	\$18.67	250	\$4,647.51	-\$837.50	\$127,190.63	\$30,321.25
2/18/21	PIC	Sell	\$19.13	200	\$3,806.85	\$906.00	\$130,997.48	\$31,227.25

Table 4.12.1: Week 12 Transactions

## 5. Simulation 2: Position Trading

In this chapter we will present the weekly findings acquired through the method of position trading. As mentioned in Chapter 2, position trading is a method that requires very little involvement from the trader. They simply purchase stocks that seem to be trending upwards—which they identify through technical and fundamental analysis—and then keep an eye on them until they are happy with their gains, or until a stop-loss is triggered. The following sections highlight the results of 12 weeks of position trading (the previously mentioned commission fees are still being used).

### 5.1 Week 1

For the weeks that this simulation is held, we will consider Monday as the start of the week. On this first day of the simulation, I did not trade any stocks. I used this day to carefully consider my options, as this is arguably the most important day of the entire simulation. I used fundamental and technical analysis methods to consider which stocks to buy as soon the market opened on Tuesday morning.

First, —for the stocks that I decided not to buy—is XpresCheck’s stock, XSPA (the company is still known as XpresSpa). The main reasons for this were its poor balance sheet, as discussed in chapter 3, and a large negative trend on the stock’s market summary for the last six months. I also passed on Gores Holdings IV (GHIV) stock, due to the minimal movement that I saw with the stock’s price, and I passed on IPOC for similar reasons. The last two stocks that I did not purchase this week were Delta Air Lines’ stock, DAL, and XL Fleet stock. Not purchasing DAL was an easy decision to make, since travel has been limited due to COVID-19, and there is no telling when things will return to normal. As for XL Fleet, the company has not gone public

yet, but I could have chosen to purchase PIC (the company that they will be merging with) stock. However, I passed on this, since it seems like the stock has already broken its resistance level and I feel it may be too late.

The first stock that I bought was Wayfair. One of the upcoming catalysts mentioned in chapter 3 was COVID-19, and its effects on Wayfair's stock. Many of the companies that were selected took a major hit in March due to COVID-19 (including Wayfair), but there is a reason why Wayfair has potential to be different. Since Wayfair is an online retailer, people should not be hesitant to buy products from the company, despite the pandemic. Ever since the hit that they took in March, Wayfair shares have been slowly increasing in price, and I think it will continue to do so until the pandemic is over. For this reason, I bought 10 Wayfair shares at \$250.43 per share, totaling to \$2504.30. Another stock that I chose to buy was Johnson & Johnson's stock, JNJ. The reason for this was simply because they own Pfizer, a company that *may* release a COVID-19 vaccine in the near future. If this happens, I believe JNJ will see very large increases in price. I bought 50 shares of JNJ at \$148.39 per share, totaling to \$7,419.50. Because of this, I also purchased 100 shares of Pfizer's for \$40.46, a \$4,045.75 total cost. I also purchased shares of PayPal's stock. PYPL is one stock that was not majorly impacted by COVID-19 in March. In fact, the stock has been increasing even more than Wayfair's stock since then, as shown below in Figure 5.1.1.

Market Summary > Paypal Holdings Inc  
NASDAQ: PYPL

+ Follow

217.77 USD +3.23 (1.51%) ↑  
Dec 4, 4:00 PM EST · Disclaimer

1 day 5 days 1 month 6 months YTD 1 year 5 years Max

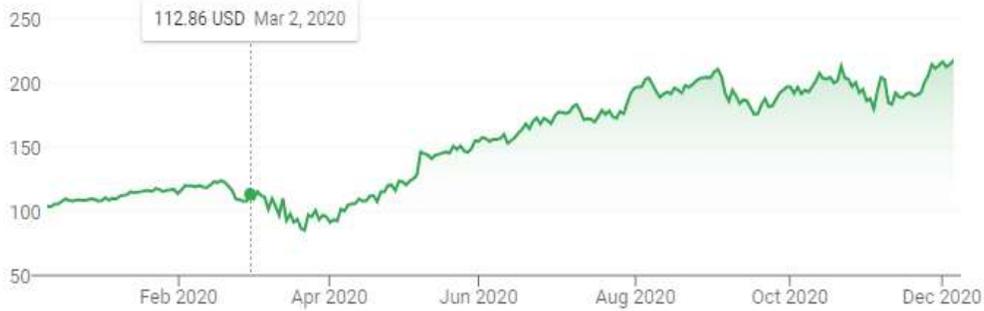


Figure 5.1.1: Increase of PYPL Share Prices Over the Past Year

This was an easy buy for a position trader, so I bought 20 shares at \$220.27, adding up to \$4,405.40. Gevo, Pepsi, and SPY shares are three that I bought because of one thing that they all had in common—they have all recently broken past defined resistance levels. Each stock’s market summaries and resistance levels can be seen below in Figure 5.1.2, Figure 5.1.3, and Figure 5.1.4.

Market Summary > Gevo Inc  
NASDAQ: GEVO

+ Follow

1.81 USD +0.020 (1.12%) ↑  
Dec 4, 4:00 PM EST · Disclaimer

1 day 5 days 1 month 6 months YTD 1 year 5 years Max

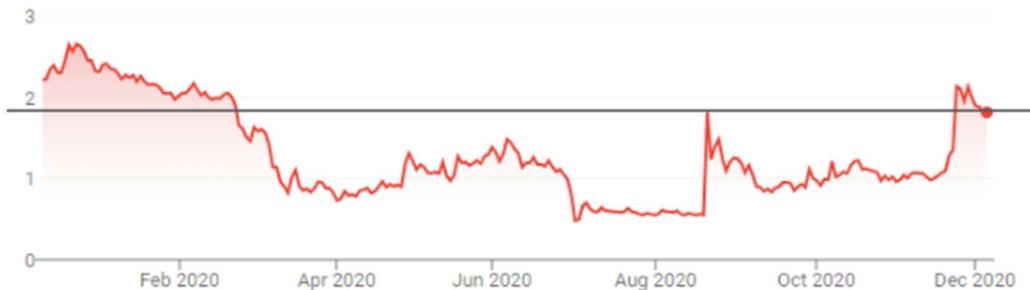


Figure 5.1.2: Market Summary and Resistance Level of GEVO Stock

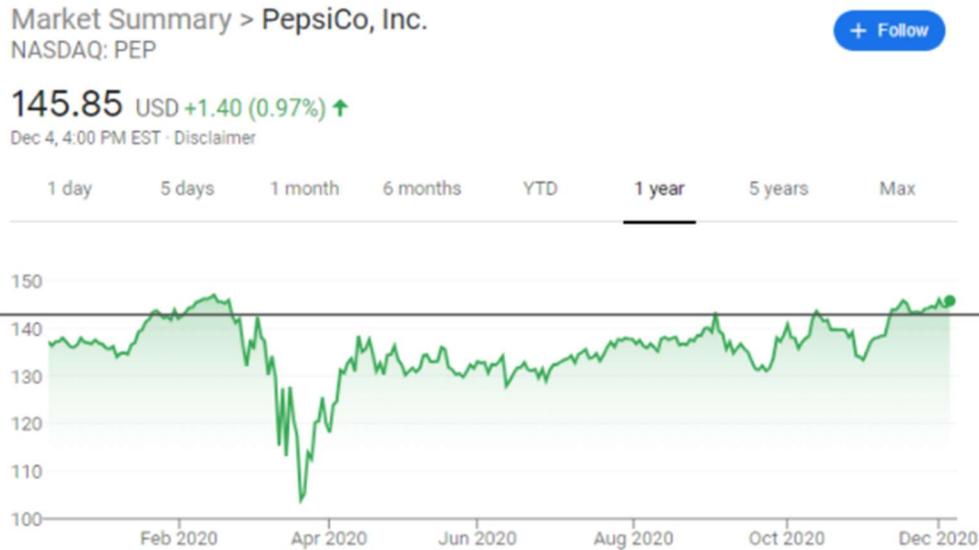


Figure 5.1.3: Market Summary and Resistance Level of PEP Stock



Figure 5.1.4: Market Summary and Resistance Level of SPY Stock

A breakout past a resistance level is one of the main indicators to a position trader that they should buy shares of a stock. For that reason, I bought 200 shares of GEVO at \$1.90 (\$380.94 total), 50 shares of PEP at \$145.26 (\$7,262.75 total), and 10 shares of SPY at \$366.63 (\$3,666.30 total).

For the stocks that I purchased, these are the stop-loss orders that I placed: at \$200.00 for Wayfair, at \$110.00 for Johnson & Johnson, at \$175.00 for PayPal, at \$1.20 for Gevo, at \$300.00 for Spy, at \$100.00 for Pepsi, and at \$30.00 for Pfizer.

I ended this first week \$70,175.13 in cash to spend in the upcoming weeks. JNJ, SPY, and PEP all saw increases in price that were smaller than 2%, while the rest of the stocks decreased, with GEVO at -4.97% being the largest. I will keep an eye on these stocks and potentially buy others in the coming weeks. My portfolio for the week is shown in Table 5.1.1 below.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/30/20							\$100,000	
12/1/20	W	Buy	\$250.43	10	\$2,524.29		\$97,475.71	
12/1/20	JNJ	Buy	\$148.39	50	\$7,439.49		\$90,036.33	
12/1/20	PYPL	Buy	\$220.27	20	\$4,425.39		\$85,610.83	
12/1/20	GEVO	Buy	\$1.90	200	\$400.93		\$85,209.90	
12/1/20	SPY	Buy	\$366.63	10	\$3,686.29		\$81,523.61	
12/1/20	PEP	Buy	\$145.26	50	\$7,282.74		\$74,240.87	
12/1/20	PFE	Buy	\$40.46	100	\$4,065.74		\$70,175.13	

Table 5.1.1: Week 1 Transactions

## 5.2 Week 2

Week 2 of position trading was quite uneventful, but that is to be expected with this method. One adjustment that I made this week was of the sell-stop order that I had placed on my GEVO shares. I had it set to sell all shares at \$1.20, and I bought the stock at \$1.90. This sell-stop occurs at almost half of the price at which I bought the stock, which I realized was a problem, since the whole purpose of the sell-stop is to minimize losses. I changed the sell-stop to a more reasonable price of \$1.60. I also purchased shares of PIC stock, a stock that I left alone in the first week, due to fears that it was too late to be a part of any potential gains from the stock. It has been rapidly increasing for the past three weeks, and of course, there is the merger that is going to happen soon.

These factors were convincing enough for me to buy 100 shares of PIC. The price can be seen in Table 5.2.1 below.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/7/20							\$70,175.13	
12/9/20	PIC	Buy	\$18.23	100	\$1,842.99		\$68,332.14	

Table 5.2.1: Week 2 Transactions

I also took another look at both GHIV and IPOC and chose not to buy once again, despite the upcoming mergers for the two companies. I think it would be smart to see how a merger affects XL Fleet and PIC first, rather than purchasing stocks for every company that has an upcoming merger. I reflected upon my decision not to buy DAL stock last week as well, since the holiday season might increase travel, but I ultimately stayed put since I still believe that COVID-19 restrictions will prevent any gains.

As for the performance of the stocks that I did own—it was much of the same. I saw negligible movement from nearly every stock, though Wayfair was up by about 7% by the end of the week. One of the most disappointing stocks has been PFE. I thought that with the approval of their COVID-19 vaccine, I would see some profit with the stock, but instead, the opposite happened, as shown in Figure 5.2.1 below.



Figure 5.2.1: PFE Stock Falls After FDA Approval of Vaccine on Dec. 11

Week 2 ended with little movement in stock prices. I hope that in the coming weeks, things will start to trend upwards.

### 5.3 Week 3

During week 3, I continued to monitor my owned stocks as well as stocks that I had not yet traded with, however, I did not make any changes to my portfolio at all. I wanted to wait one more week to see if there would be any change in my total account value that was at least somewhat significant, but once again, there was not. There was minimal fluctuation in my stock's prices this week, both upwards and downwards. Because of this, I will heavily increase my spending in the upcoming days/weeks. My total cash to start the week is shown in Table 5.3.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/14/20							\$68,332.14	

Table 5.3.1: Week 3 Transactions

Nevertheless, the performance of the stocks this week should not be overlooked. PYPL continues to be one of my best performers, increasing by a margin of about 7% during the week.

Such increases from PYPL were to be expected though, as it is the main method of digital payment—a trend that is seeing a lot of usage and will continue grow in the future. PYPL’s continued growth can be seen in Figure 5.3.1 below.



Figure 5.3.1: PYPL’s Share Price Increases by \$22 Throughout the Week

PIC, the SPAC that I purchased shares for back in week 2, dipped down to around \$14 at the start of the week, which did worry me, even though it is common for near-merger SPACs to be a risky investment. By the end of the week, it had risen again however, up to about \$19.52—a 7% increase. GHIV, one of the stocks that I have not traded with yet, is still hovering around the same price of about \$11, despite the upcoming merger. I will pay close attention to this stock, as I feel it has a lot of potential. PFE stock has remained on the downwards trend that I saw last week, and DAL has also fallen, so I am glad I made the decision to refrain from purchasing any shares.

The stock that I am going to be watching the closest is IPOC. As mentioned numerous times before, it has a merger pending, but unlike GHIV, it has been slightly volatile, so I am looking for it to break past its resistance level of about \$13.

## 5.4 Week 4

During the fourth week, I stayed true to my word and invested more. I looked through the 12 companies available and searched for any catalysts and indicators that pointed to future profits. The stocks that I decided to trade with are shown in Table 5.4.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/21/20							\$68,332.14	
12/22/20	W	Buy	\$282.53	30	\$8495.89		\$59,836.25	
12/22/20	GEVO	Buy	\$2.83	1000	\$2844.99		\$56,991.26	
12/22/20	IPOC	Buy	\$13.38	200	\$2694.99		\$54,296.27	

Table 5.4.1: Week 4 Transactions

To start, I tripled the amount of Wayfair shares that I owned. Wayfair shares have increased quite substantially since I first purchased 10 for \$250.43 in week 1, which means that I would be paying a hefty price for the shares, but that is part of the reason why I made this decision this week. I have mentioned this many times before, but Wayfair should continue to see growth despite this pandemic. They are an e-commerce business, which is what many people are shifting to while quarantining. I strongly believe that the stock will continue to raise and may even hit \$300 as it did before the pandemic. As for GEVO, there are two reasons why I purchased 1,000 shares at \$2.83. Firstly, I had not bought nearly enough shares the first time I invested in the stock. I bought 200 shares, but that only produced a total cost of \$400.93, so I added in 1,000 more. Secondly, much like Wayfair, its share price is increasing at an impressive rate (up nearly 100% from the price that I originally bought shares), but in this case, the price is still very low (\$2.83 compared to \$282.53 for W stock). Gevo's spike in price can be seen in Figure 5.4.1.



Figure 5.4.1: GEVO Stock Increase From Dec. 1 – Dec. 22

There are multiple reasons for this sharp spike in price, one being Joe Biden’s impending presidency. Biden has made clear his plans regarding renewable energy/fuel, and that is Gevo’s specialty, so that has certainly had some effect on the stock. In addition to this, Gevo has been highly active as of late—executing expansion projects and doing business with other companies. The last purchase that I made this week was 200 shares of IPOC (another SPAC) at \$13.38. The completion of its merger with Clover Health is growing close, and after seeing the effect of a completed merger on PIC stock, I am interested to see how IPOC performs over the next few weeks. I placed a sell-stop at \$10 for this stock.

As I mentioned, the merger between PIC and XL Fleet closed this week, so the companies are now one. I expected my shares of PIC to be transferred to an equivalent number of shares of XL Fleet’s now-public stock, XL, but Investopedia’s simulator handled the merger differently. I was given back all the money I spent on PIC shares, minus \$50, since the price of the shares had gone down by 2.74% since I purchased them. I could have reinvested that cash into shares of XL but opted not to. I mostly just wanted to see if PIC shares would increase in price in the days leading up to the merger, I did not have much interest in the stock’s movement once the merger

had completed. This is because the action of investing in stocks who have recently completed mergers is known by investors to usually be high-risk, low-reward, something often referred to as “picking up pennies in front of a steamroller.” Position trading is not a method for taking big risks, so I passed on the chance.

As of the end of this week, the only stocks I do not own are DAL, XSPA, and GHIV. I do not know if that will change any time soon, as none of the three look very promising. On the other hand, all the stocks that *were* in my portfolio this week besides GEVO had virtually no movement.

## 5.5 Week 5

Last week’s big spending made me decide to do a little bit less this week. The only investment I made is shown below, in Table 5.5.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/28/20							\$54,296.27	
12/28/20	PYPL	Buy	\$243.50	40	\$9759.99		\$44,536.28	

Table 5.5.1: Week 5 Transactions

This week my only buy was PYPL—adding more shares to a stock that I already owned. The stock had just broken past a resistance level of about \$243, and on top of that, there is a cryptocurrency factor that might play a part in its future success. In the past, cryptocurrency movement has correlated with increased usage of PayPal and its services, so the recent news of Coinbase’s IPO made me think this would be a good choice for the week. I also changed some of my sell-stops. First was IPOC, which I changed from \$10 to \$11.50. The stock—which I bought at a price of \$13.38—has the potential to dip heavily, since it is a SPAC nearing its merger date. Because of this, I decided to take the safe route and increase my sell-stop just in case Investopedia handles this merger differently and puts my IPOC shares into shares of Clover Health’s stock. A

change was also made to GEVO's sell-stop. Considering last week's significant price movements with the stock, it made sense to increase the sell-stop for GEVO as well. I raised it to \$2.90, while the stock currently sits at \$4.33 per share. GEVO has been my best performer so far, and although I do not know if it has much more room to improve, I will certainly be holding on to it.

Unfortunately, GEVO's significant increase has not had much of an effect on my account balance, due to some poor showings from my other stocks. Wayfair, in particular, has not been doing well after last week's gamble. Since purchasing an additional 30 shares at a price of \$282.53, the stock has cratered 20% all the way down to \$225.81—I would be lying if I said this was not worrisome. I went all in on the stock last week, not entirely expecting extreme profit, but at least a steady upwards trend for the next few weeks. The reason for this dip is unclear—the movement from 12/22 - 12/31 is shown in the Figure 5.5.1 below.



Figure 5.5.1: Wayfair Stock Declines Leading up to New Year's Day

While I am uncertain of the future that Wayfair holds, there is one thing that the recent change in price has made me decide—if W's share price gets back up near \$280, I will sell and cash out on profits. If this simulation were years long, rather than a few months, I would hold, as I still believe

that W is a great long-term investment for position traders. However, this is not the case, so I will sell as soon as the price increases again in order to secure profits and avoid the threat of the 12-week simulation ending while W is low. I am also going to make a similar move with Pfizer's stock, PFE. I had mentioned in previous sections that I thought the COVID-19 vaccine would greatly impact its price (in a positive way), but nothing of the sort has happened. It did reach an all-time high of about \$42.50 in the days leading up to the vaccine, but I bought in at \$40.46, so I did not sell, because I was not satisfied with the profit. Since then, the stock has fallen to about \$37, with no catalysts to drive it up any time soon. For this reason, I placed a sell-limit order at \$41, so that if it does happen to go back up again, even briefly, I can get rid of my shares.

## 5.6 Week 6

Week 6 was another week of little change. In fact, I made no changes to my portfolio at all. I already own stocks for most of the companies that are available to me, and I did not see any moves that interested me. My total cash at the start of the week is shown in Table 5.6.1

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
1/4/21							\$44,536.28	

Table 5.6.1: Week 6 Transactions

One thing that I did look out for was the so-called “January Effect”—a large spike in prices that often occurs after New Year's Day—to see if it would have any impact on my portfolio. Based on my current account value, I would say that it is possible that it had some effect. W went back up by 14.45%, all the way to \$258.25, which was an encouraging sight to see. SPY, JNJ, and PYPL all saw small increases of 1-3% as well, while GEVO trades near the same as it did last week.

In other news this week, the merger between IPOC and Clover Health was finalized and completed today. Investopedia's simulator handled this merger differently. Unlike the merger

between PIC and XL Fleet, in which the money I had put into PIC shares was given back to me, my IPOC shares were transferred to a number of CLOV (Clover Health’s stock) shares of equal value. Additionally, I will onto the shares of this new stock—something I did not do with the previous merger—because last time, the merger drove up the price significantly. As I mentioned in previous sections, this is certainly a risk, and it might only result in small profit, but I feel confident as long as I have a sell-stop in place.

As for the stocks that I am not holding, XSPA continues its downwards trend, as expected. COVID-19 has severely hurt this stock, and I think that only a major catalyst will turn it around. DAL stock is a tricky situation. It currently trades around \$40 per share and has been doing so since the pandemic started in March 2020. However, the stock’s actual value is around \$60, and will almost certainly get back near that value once the pandemic ends. This means that much like Wayfair, DAL would be a great buy if this stock market simulation was longer.

Overall, I am happy with the direction that my stocks are going, and I hope my current and future investments follow the same trend.

## 5.7 Week 7

This week, I sold some of my shares for the first time. The transactions made can be seen in Table 5.7.1 below.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
1/11/21							\$44,536.28	
1/13/21	W	Sell	\$279.23	40	\$11,149.21	\$129.03	\$55,685.49	\$129.03
1/13/21	JNJ	Sell	\$157.94	50	\$7,877.01	\$437.52	\$63,562.50	\$566.55

Table 5.7.1: Week 7 Transactions

Wayfair share prices went back up sooner than expected, and I sold all my shares once it hit \$279. The quick turnaround did make me second-guess my decision to sell, but I ultimately

went with it anyway. I also sold my JNJ shares. The main reason why I bought shares in week 1 was the pending COVID-19 vaccine, much like I did with PFE. However, once again, I did not see anything else that would cause JNJ stock to increase in the future, so I sold while I was ahead. JNJ increased by 6.4% since I first bought in.

Unfortunately, the day after I sold my W shares, the price skyrocketed. News that digital spending in the fourth quarter had risen 50% from last year caused the price to reach as high as \$366 per share, as shown in Figure 5.7.1.

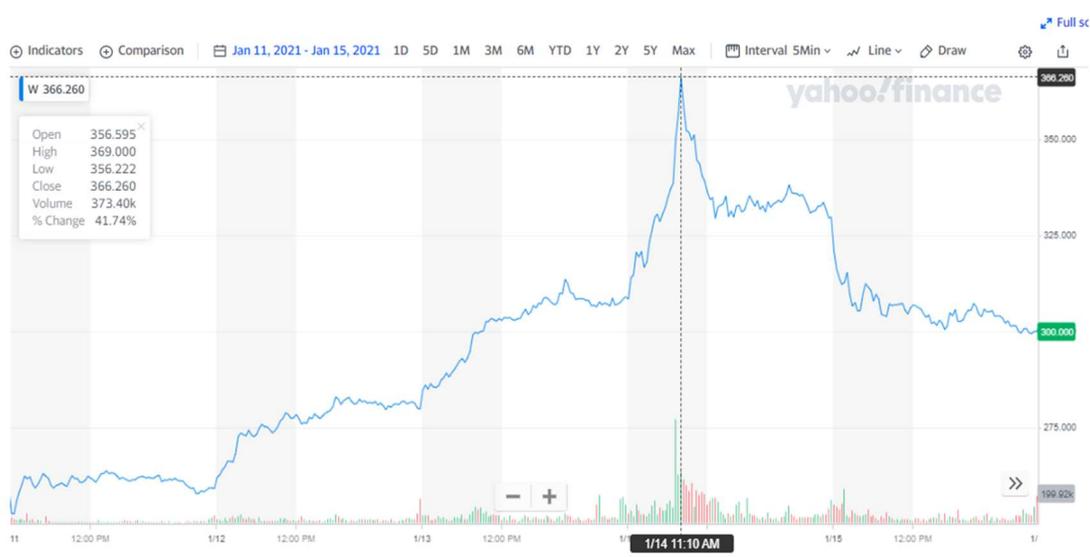


Figure 5.7.1: W Share Price Skyrockets After New Developments

By the end of the week, the price had settled to about \$300. I have only myself to blame for this poor timing, though. If I had done more research prior to selling, I might have held on for a few more days in anticipation of a spike.

For yet another week, GEVO has increased substantially. Its high on Friday was \$7.25, a near 70% increase from last week at the same time. It increased even more on the weekend, which should leave it with an even higher opening price on the Tuesday following MLK Day. I did not

expect this much of a climb, especially before Biden took office. When he does enter the White House on January 20, who knows how far GEVO will go. GEVO's movement throughout the week can be seen in Figure 5.7.2.



Figure 5.7.2: GEVO's Consistent Gains

Another big story this week involving the companies available to us was the signing of LeBron James by PepsiCo. The influential NBA superstar signed a deal with the food/beverage manufacturing giant after nearly 18 years with one of their rivals, The Coca-Cola Company. The many advertisements that he will produce for the company will certainly boost revenue numbers and hopefully have a positive effect on PEP stock, which I already own shares of [63]. I will not buy any more shares, but PEP stock is one that I will be monitoring much closer now.

Most of my stocks are performing well, but GEVO remains a clear outlier. While I certainly do not mind the increases that GEVO is seeing, I hope the upcoming weeks bring some variety to my portfolio.

## 5.8 Week 8

Another week has passed, and more trades have been made. After looking at my options and researching the performance of all available companies, there was only one stock that I decided to buy this week. In addition to the purchase, I sold all shares of a different stock that I had been holding onto for a few weeks. The transactions and their prices can be seen in Table 5.8.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
1/18/21							\$63,562.50	
1/21/21	GHIV	Buy	\$11.15	400	\$4,480.43		\$59,028.07	
1/21/21	CLOV	Sell	\$13.56	200	\$2,692.01	\$2.98	\$61,774.08	\$569.53

Table 5.8.1: Week 8 Transactions

GHIV was the stock that I bought shares of this week. The price of the stock was the lowest it had been since the end of December 2020, and that, as well as the impending merger with United Wholesale Mortgage, was enough to convince me to buy shares. Many news outlets made reports that the two companies would close the deal on the merger no sooner than January 22, 2020. However, the merger closed on the 21<sup>st</sup>, which is the day that I bought my shares. This in turn caused Investopedia to return the cash spent on the 400 GHIV shares, resulting in a net \$0 profit from the stock. I decided not to buy shares of United Wholesale Mortgage's IPO, UWMC, because I had already taken a similar risk with CLOV, and it resulted in very little profit—as expected.

As I previously mentioned, I sold my CLOV shares, albeit for little profit. Ever since its IPO hit \$16.02, it has not gone back to that price, and for the most part, has followed a downwards trend. CLOV's movement is shown in Figure 5.8.1.



Figure 5.8.1: CLOV Stock Movement

As for other stock movement this week, GEVO moved up yet again, reaching a high of \$11.68, and ending at \$10.51 on Friday. Because of this increase, I raised the sell-stop for GEVO to \$7.50. I do not have much to explain GEVO’s continued growth other than what I mentioned in previous sections, but I will continue to hold until it starts to even out at a certain point. Much like W stock did after I sold it, JNJ has been on the rise since I sold my shares at a price of \$157.94, although this time, the reason for the spike is uncertain. JNJ’s sudden spike can be seen in Figure 5.8.2.

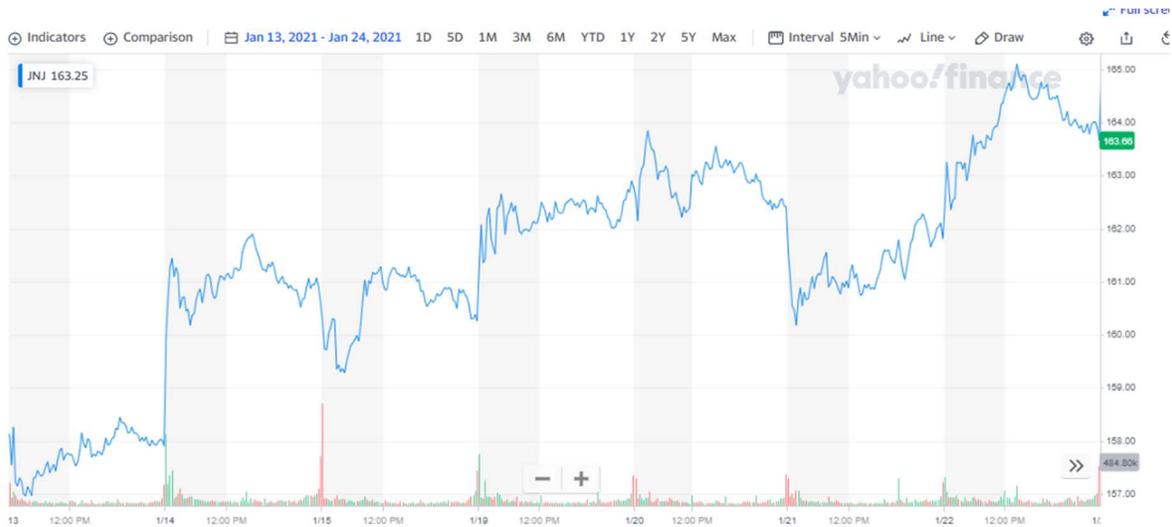


Figure 5.8.2: JNJ Spike Since Selling

## 5.9 Week 9

This week was a very interesting week for the stock market. Investors on a social media site called Reddit came together and sparked a short squeeze on stocks like GME, AMC, and BB. GME, in particular, increased by over 1200% during this period. The historical price movement of GME is shown in Figure 5.9.1.



Figure 5.9.1: GME Short Squeeze Result

As for my stocks, all transactions that I made during the week are shown in Table 5.9.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
1/25/21							\$61,774.08	
1/28/21	SPY	Sell	\$376.36	10	\$3,743.61	\$57.32	\$65,517.69	\$626.85
1/29/21	XSPA	Buy	\$2.44	3000	\$7,339.99		\$58,177.70	
1/29/21	PEP	Buy	\$138.11	50	\$6,925.64		\$51,252.06	

Table 5.9.1: Week 9 Transactions

The first thing that I did during the week was get rid of the 10 SPY shares that I had been holding since week 1. The stock had slowly increased every week since I bought in, but it also had a few brief dips. I wanted to sell and secure profits in case such a dip occurred as the trading simulation ended.

The next day, I bought more PEP shares. The stock has not performed as I expected it to since the announcement of LeBron James' deal with PepsiCo, but the stock had gone all the way down to \$138 for the first time in nearly three months, so I took that as an opportunity to buy in and potentially increase my profit if the stock does perform better in the future.

I also took a look at a stock that I had not yet touched at all—XSPA. The company has had to adapt in order to stay alive during this pandemic, and as of late, it is on a very clear upwards trend. They have made announcements of ramping up COVID-19 testing rates in airports, which I feel will bode well for the stock. The share price—which has traded for under \$2 for most of the year—has recently broken its resistance level of \$2.35. Since the stock is so cheap, I decided to buy 3000 shares and added a sell-stop at \$1.90, with hope that it continues to grow in the upcoming weeks. XSPA's impressive performance can be seen in Figure 5.9.2.



Figure 5.9.2: XSPA Growth Since Start of Simulation

As of now, it seems like GEVO is the main factor that will determine my success, which is worrying. If I do not build some portfolio diversity in the coming weeks, I could be in trouble.

### 5.10 Week 10

During week 10 I did not make any portfolio changes, I just continued to monitor the five stocks that I am holding. My total cash at the start of the week is shown in Table 5.10.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
2/1/21							\$51,252.06	

Table 5.10.1: Week 10 Transactions

My additional PYPL investment from week 5 paid off, as the stock soared to an all-time high of \$274.37 during the week, as shown in Figure 5.10.1.

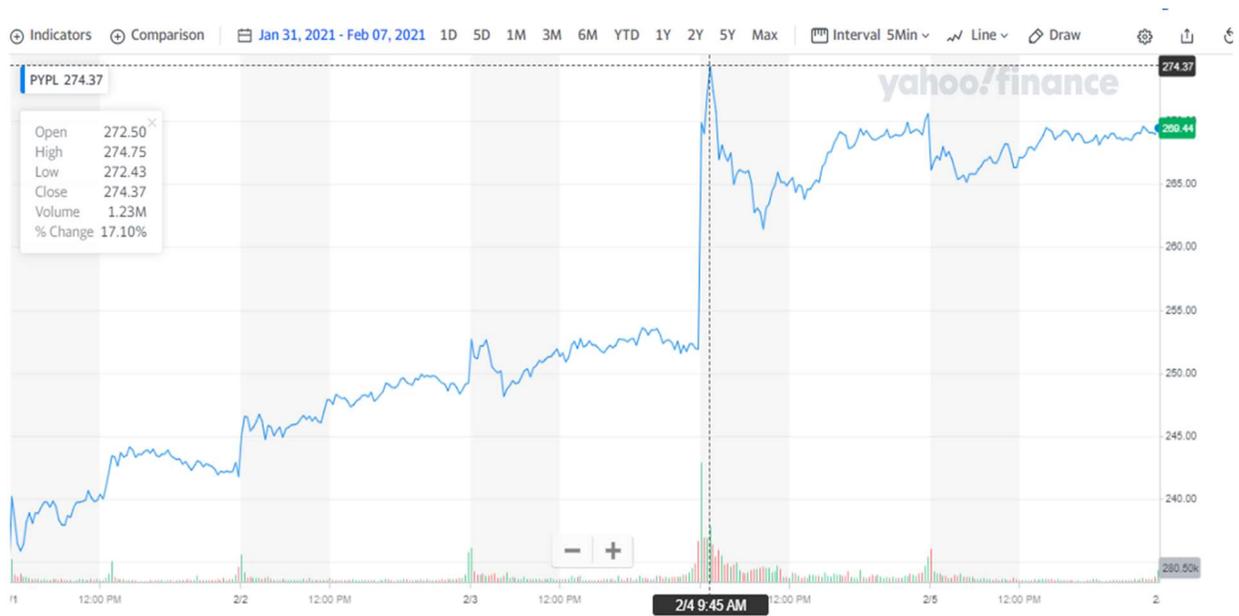


Figure 5.10.1: PYPL’s All-Time High

I am glad I made the decision that I did with this stock, as it has now brought some much-needed diversity to my account. My gains from PYPL totaled to about \$2,500 by the end of the week. PEP is also on the way back up, and I am hoping that it has a spike like PYPL soon. As for GEVO, I am close to moving on. I have set a sell-limit on all my shares of the stock at a price of \$12, so if it ever reaches that price again—which it most likely will—I can secure my +10k in profit. I am also still holding on to my PFE shares, and it does not seem like it will get anywhere near my sell-limit of \$41 before 12 weeks is up.

Looking into the future, JNJ certainly has my attention again. There has been a lot of talk about the company and their work on a COVID-19 vaccine, but I think there is simply not enough time left in the simulation. For that reason, as well as the high price of the stock, I will most likely stay away this time. I also took another close look at DAL, a stock that I had avoided since week 1. It currently sits at a price of \$41.15, and if it passes its resistance level of \$43, I might buy in.

Other stocks like W, UWMC, and CLOV are either too expensive, or performing very poorly, with no signs of improvement.

PYPL's improvement has provided some much-needed diversity, something I mentioned I was looking for last week.

## 5.11 Week 11

As the end of our trading simulation grows closer, I am selling more and more of the stocks in my portfolio. The transactions that I made during week 11 are shown in Table 5.11.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
2/8/21							\$51,252.06	
2/8/21	DAL	Buy	\$43.06	200	\$8,631.99		\$42,620.07	
2/8/21	GEVO	Sell	\$12.10	1200	\$14,490.01	\$11,244.09	\$57,110.08	\$11,870.94
2/9/21	PYPL	Sell	\$284.48	600	\$17,048.81	\$2,863.43	\$74,158.89	\$14,734.37

Table 5.11.1: Week 11 Transactions

The first thing that I did this week was something that may come as a surprise—I bought shares of DAL stock. Throughout the course of the simulation, I had been saying nothing but negative things about DAL stock, mentioning the harsh impact the ongoing pandemic has had on the stock, as well as the unlikeliness that its price goes back up before the 12 weeks are over. However, at the beginning of the week, it broke past a resistance level of \$43—a price point that the stock had not seen since the start of the pandemic in the United States in March 2020. This movement made me rethink my prior statements, and I thought that I could potentially make a bit of profit on the stock during the next 2 weeks. So, I purchased 200 shares of DAL at \$43.06 per share, and by the end of the week, it had increased marginally to a price of \$43.29 (with a \$0.16 boost after hours, which means the stock will open at \$43.45 next Monday). This movement from

DAL came after a relatively poor showing on its most recent earnings report, so I can only assume that the change has to do with the constant influx of COVID-19 vaccine news.

The other two transactions involved selling shares and securing profits. After 10 weeks of holding, I sold all my PYPL shares at a price of \$284.48, bringing in a profit of \$2,863.43 from the stock. The stock had been on a nonstop upwards trend since the beginning of February, and I thought that soon enough, many people would start selling, which would in turn bring the price back down, but once again, I was wrong. Yet another stock has shot up in price soon after I sold it. On the day that I sold my PYPL shares, Tesla CEO Elon Musk announced that the company had purchased 1.5 billion dollars worth of Bitcoin, and that the company will also begin to accept the cryptocurrency as payment soon. This caused Bitcoin prices to skyrocket, which made PYPL skyrocket in the upcoming days as well. I am happy with the return that PYPL gave me, but disappointed that I sold before it hit the price of \$298.37 which it sits at currently. PYPL's movement during the week is shown in Figure 5.11.1.

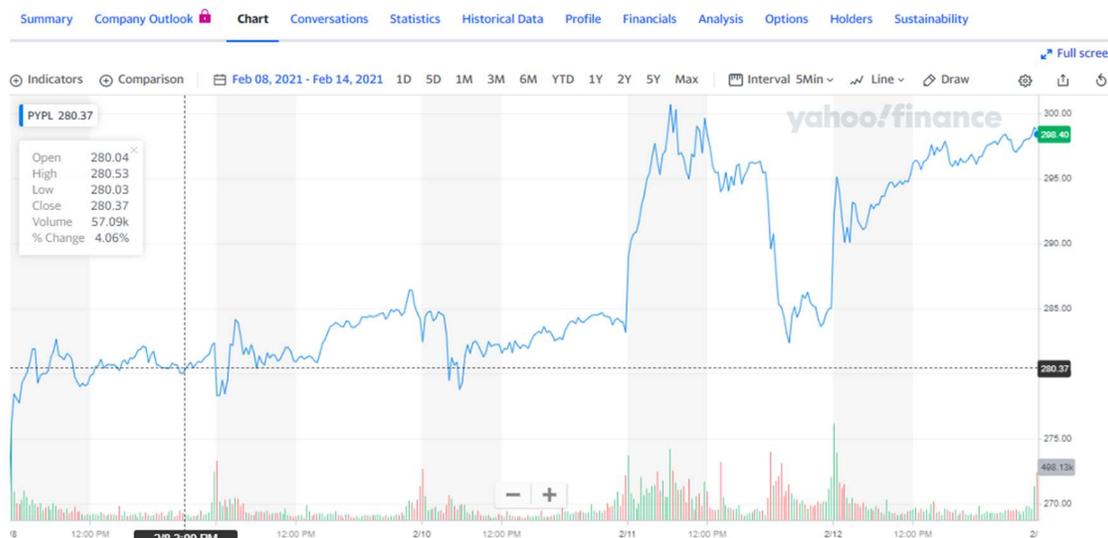


Figure 5.11.1: PYPL's Increase Since My Sale of the Stock

I also sold all shares of my most profitable stock, GEVO, this week. Ever since its peak of \$13.24, it has gone down and stayed around \$10-\$11. Throughout that time, I regretted not selling at its peak, as I was uncertain if it would get that high again before 12 weeks is up. Because of this, I put a sell-limit at a price of \$12, so that if it ever went up again, I would not miss out. That sell-limit triggered this week, selling all shares at \$12.10 for a total profit of \$11,244.09. I never expected such a large return from just one stock, but the profit is more than welcome.

As for my intentions for the upcoming final week—I am still relatively uncertain. Of course, I will need to sell all shares of stocks that I own by Friday (the last day of the simulation), but when it comes to buying more, there is not much that seems appealing/promising. I am content with the number of shares that I own of DAL, XSPA, PEP, and PFE, so I will not be adding any more there; XL, CLOV, and UWMC completed their mergers weeks ago, so any potential profit from those stocks are out of the question; and PYPL and GEVO are two stocks that I recently sold, and they are at prices in which they will most likely not see much movement, so I see no reason to buy back in. That leaves just JNJ, W, and SPY as potential buys for the week, however, all three stocks sit at fairly high prices and have come off recent upwards trends, which leads me to believe that they will fall in the other direction sooner rather than later. For these reasons, I predict that I will not do much trading during the next week, but only time will tell.

If I can finish the last week strong, I will consider this simulation a success for position trading.

## **5.12 Week 12**

In this final week of the simulation, I made no trades besides the sale of all remaining stocks in my portfolio. As mentioned towards the end of last week's section, I did not see many

appealing buys and opted to just watch the stocks that I had. The sales made are shown in Table 5.12.1.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
2/15/21							\$74,158.89	
2/19/21	PEP	Sell	\$132.50	100	\$13,229.51	-\$978.87	\$87,338.40	\$13,755.50
2/19/21	PFE	Sell	\$34.47	100	\$3,427.01	-\$638.73	\$90,815.41	\$13,116.77
2/19/21	DAL	Sell	\$45.78	200	\$9,136.01	\$504.02	\$99,951.42	\$13,620.79
2/19/21	XSPA	Sell	\$2.48	3000	\$7,420.01	\$80.02	\$107,371.43	\$13,700.81

Table 5.12.1: Week 12 Transactions

XSPA and DAL—my two most recent buys—ended with small profit. The gain would have been much larger if I had sold XSPA at its 3-month high of \$3.02, which occurred at the beginning of the week on Tuesday, but I thought that its upward trend would continue much like it had been doing all of February, so I held onto it. The fall of XSPA during the week is shown in Figure 5.12.1.



Figure 5.12.1: XSPA Falls During Final Week

In the end, I sold DAL at \$45.78 and XSPA at \$2.48.

PEP and PFE are the only two stocks throughout the whole 12 weeks that resulted in a loss for me—part of the reason why I held onto them for so long. PEP’s situation is an unfortunate one.

A few weeks ago, after doing some technical analysis on the stock, I decided to add to my share count. I thought it was a guarantee that the stock would increase in the coming days. Additionally, the stock had been very stable up to that point, another reason why I thought my risk was minimal. However, despite my reasoning, the stock's price only fell farther and farther. PEP's movement since I added shares is shown below, in Figure 5.12.2.

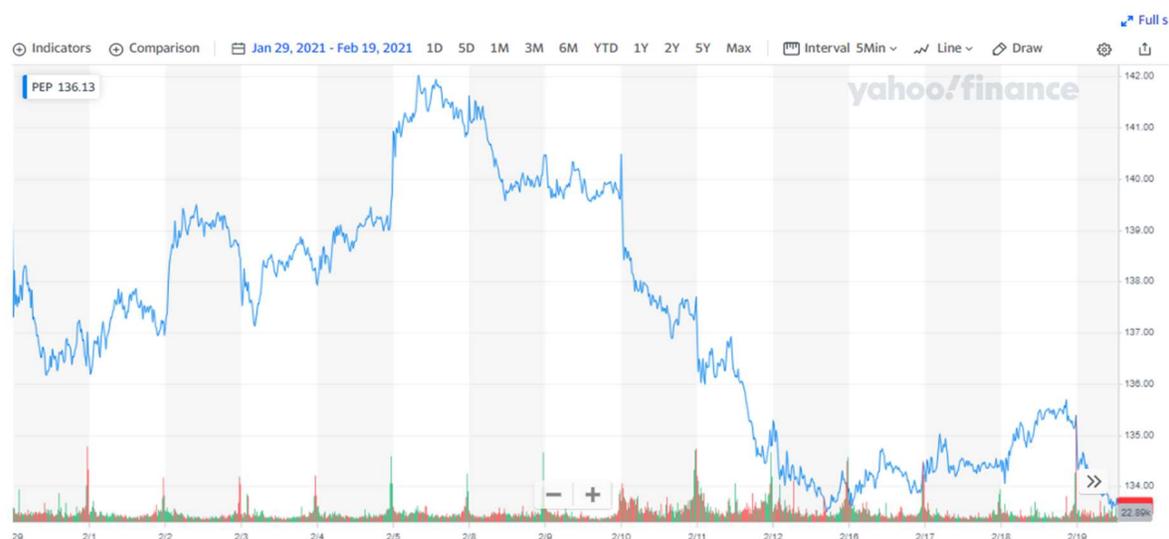


Figure 5.12.2: PEP Plummets After Doubling Shares

I sold PEP for a loss of \$978.87, and PFE for a loss of \$638.73

Table 5.12.1 says that my total cash at the end of the week is \$107,576.35, but that is only because Investopedia does not actually give back the cash from completed mergers (they are stuck in my account, unable to sell), so in reality I finished the simulation with a total of \$113,700.81 in my account, losing \$215.59 since last week. Despite this, I am still happy with the way things turned out with position trading. There were many occasions where I should have planned or researched better, and there were many in which I was simply unlucky, but that is just part of trading.

## 6. Simulation 3: Trend Following

In this chapter, the technique of trend following will be used to trade stocks within the stock market simulation engine. Over the next twelve weeks, different sub-techniques of trend following will be used including the following: moving averages, the moving average convergence divergence (MACD), the relative strength index (RSI), and the on-balance volume (OBV). The decisions made on each of the twelve companies, in addition to the overall gain or loss throughout the simulation, will be reported each week.

### 6.1 Week 1

Over the first week of trading, the primary technique used for decision making was the 15-day simple moving average. With a commission fee of \$19.99, my first transactions should have been larger, in terms of both shares and price. For one company, I only bought one share. To break even for this transaction, the sell price would have to increase by nearly 100%. This was clearly a mistake. Most of the companies selected were experiencing either a downtrend, constant trend, or increased only a small amount or for a short period of time. Since the start of the week on November 30th, Gevo, XpresSpa, and Wayfair all decreased in value, with Gevo down 10%, XpresSpa down 7.1%, and Wayfair down 9.34%. Although XpresSpa was down overall, all of the damage came in the beginning of the week, as it increased nearly 10% in the latter half and will be watched in the future.

Through that same time span, Johnson & Johnson and Pfizer showed to be relatively volatile and riskier investments. Even though it increased overall, Pfizer's 15-day moving average showed a downtrend. Pfizer was up 7% in the first day of the week and then flatlined for the rest of the week. Overall, it went up 6%, but has an upcoming catalyst with rumors indicating that the

company's vaccine could be approved by the FDA as early as Thursday. Johnson & Johnson is a company that performed well in the past week, as it increased 3.9% overall. From the opening price on Monday to the closing price of Tuesday, Johnson & Johnson increased 3.3%, but from Wednesday's opening price to week's close, it increased by less than 1%. Two of the companies (Spy and Pepsi) had minor changes in the past week with respect to the stock's price and the moving averages. Spy increased by less than 2% and Pepsi had an increase of only 0.9%. These companies were not showing any buy signals.

The three companies that were invested in—Delta Air Lines, Pivotal Investment Corp, and PayPal—totaled a \$4,966 initial investment. Delta Air Lines' (DAL) moving average was relatively flat to start the week before increasing drastically on December 3rd, which is when the investment was made. One mistake, because of commission fees, was only buying one share worth \$43. As shown in Figure 6.1.1, the stock decreased throughout December 4th and was the only stock invested in with a negative return at -2.4%.



Figure 6.1.1: Delta Air Lines Stock During Simulation Week 1

PayPal (PYPL) was a stock that had a gain during week 1. Shown in the figure below, PayPal reached a peak at the beginning week, but I was too timid to make an investment at the time. After the peak, the stock decreased significantly and fast, but showed signs of bouncing back right away, with the moving average steadily trending up. Once the trend up proved to be reliable, the initial investment was made for 15 shares at \$217, totaling \$3,266. Since it was bought late into the trend, it increased by 0.3% before the close of the week. The trend, shown by the moving average, looks to be a strong, sturdy one. So far, there has been a \$10 profit from PayPal, and its movement is shown in Figure 6.1.2 below.



Figure 6.1.2: PayPal Stock During Simulation Week 1

Pivotal Investment Corp (PIC), the biggest gainer of the week, started the week on a downtrend. With the 15-day moving average above the stock price, resistance to drop was shown by the stock. Once the trend reversed and started upwards, the initial investment was made for 102 shares at \$13.94 per share. The stock showed support while on the rise, with the moving average staying below the stock price. Later in the week, the stock skyrocketed upwards. Since the time of investment, the stock has increased by 16.56%, for a total increase of \$235. Figure 6.1.3 below

shows the activity of the PIC stock throughout the past week and the summary of week 1's transactions can be seen in Table 6.1.1.



Figure 6.1.3: Pivotal Investment Corp Stock During Simulation Week 1

Week 1	Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
	12/3/20	DAL	Buy	\$43.39	1	\$63.39		\$99,936.61	
	12/3/20	PIC	Buy	\$13.94	102	\$1,441.81		\$98,494.80	
	12/4/20	PYPL	Buy	\$217.10	15	\$3,276.50		\$95,218.30	

Table 6.1.1: Week 1 Transactions

For week 2, the main companies worth keeping an eye on are Johnson & Johnson, PIC, and Pfizer, as well as the companies that are already trending upwards.

## 6.2 Week 2

During week 2, a simple 15-day moving average was used to determine buy and sell transactions. Most of the decisions that were made, were made in the beginning of the week due to not seeing any buy or sell signals in the latter half of the week. For starters, two companies, which the team did not invest in during the first week and felt were too expensive to invest a

substantial amount of money into, were replaced. These companies, Facebook and Netflix, whose prices are both normally above \$250, were replaced by two cheaper merger companies, GHIV and IPOC, who are currently at or around \$10 per share.

First, the companies that have yet to be traded with throughout the simulation are the following: PepsiCo (PEP), Wayfair (W), XpresSpa (XSPA), Gevo Inc. (GEVO), Johnson & Johnson (JNJ), and the SPDR S&P 500 ETF Trust (SPY). Much like in week 1, Pepsi and SPY, whose changes during the past week were 1% or less, have been relatively stagnant with respect to price and the 15-day moving average. Because of this, there was no trend down or trend up strong enough to trade, so these stocks were left untouched. Since the start of the simulation, XSPA, Wayfair, and Gevo have all been trending down overall. XSPA, during the past week, went down another 7.84% after a 7.1% drop during week 1. In week 1, Wayfair decreased by 9.34%. This caused the price to fall below the moving average. During week 2, the price slowly crept back up towards the moving average with a 0.48% increase, but the trend was not strong enough to purchase shares. Gevo's highest stock price throughout the simulation so far (\$2.00 per share) occurred on day one of week 1. During last week, Gevo decreased 10 percent down to \$1.80, and has oscillated above and below this point since. The one company that I did not trade, which has been a missed opportunity in both weeks, is Johnson & Johnson. After increasing 3.3% in the first week, the stock followed up on the strong performance with another constant increase of 2.3%. Though these increases have not been major, they have been steady and worth keeping an eye on.

Two companies, which were traded in week 1, were held onto in week 2 with no sell indicator. Delta Air Lines (DAL), since purchased, has decreased 3.79%. Fortunately, only one share was purchased, but unfortunately, it was purchased at the peak price of the trend (\$43.39). Over the two weeks, the 15-day moving average indicator has shown a constant, strong trend up,

but since reaching \$43, the stock decreased and stayed around \$42. Because the moving average still indicates a trend up, the stock is worth holding onto until showing otherwise. Like DAL, the same circumstance concerning when the stock was purchased also occurred with PayPal. Since the 15 shares of PayPal were purchased at \$217.10, the stock price has decreased slightly, by 1.4% to \$214.06. The moving average indicator, at the time, was showing a strong trend up, but has since tapered off and is beginning to flatline. These stocks should be monitored as to whether trends continue up, or reverse and go down.

The companies that were actively traded during week 2 were IPOC, GHIV, Pfizer, and PIC. From the beginning of the week on, IPOC showed a very strong upwards trend, both by looking at the stock price and the 15-day moving average. The stock price increased 6.46% over the past week, and the moving average directly followed it. Afterwards, the investment for 250 shares at \$11.39 was made, totaling approximately \$2,800. Once the purchase was made, the stock peaked and dropped back down to close at \$11.36 for the week. Despite this, I still expect the stock to continue its trend up, indicated by the moving average. In total, the return on investment has only been a loss of \$6.46. The stock price chart, as well as the 15-day moving average is shown below in Figure 6.2.1.



Figure 6.2.1: IPOC Stock During Simulation Week 2

Pfizer showed a steady trend up during the beginning of the last week, increasing by 5% by the end of Tuesday. During this spike, an investment of 85 shares at \$40.81 was made, which equates to \$3,500. Favorably, the purchase was made at the right time before the spike. After increasing the 5%, the stock returned to a price near the initial price of the upswing, which was still an increase compared to the purchase price of the stock. Overall, the stock increased by 1% over the week, while the investment saw an increase of only 0.76%. Unless the stock price drops low enough for the moving average to start trending down, the stock will be held. The chart of Pfizer's stock is shown below in Figure 6.2.2.



Figure 6.2.2: Pfizer Stock During Simulation Week 2

GHIV was my biggest gainer of the week, with an overall increase of over 3%, but with a purchase price of \$10.80, and the week's closing price at \$11.22, there was 3.89% return on investment. With the initial purchase totaling \$2,805.00, this resulted in a profit of \$105. Early in the chart below, it is seen that the moving average indicator is closely above the stock price, showing resistance. Once these lines crossed, the stock started slowly on its trend up, before increasing greatly over the last two weeks. With the moving average so far below the stock price currently, it is showing a low floor with support at a low value. GHIV's movement during the week is depicted in Figure 6.2.3 below.



Figure 6.2.3: GHIV Stock During Simulation Week 2

Lastly, PIC was another company that was traded during week 2. To start out the week, the stock price was on a decline for two straight days after its peak to end last week. Because of this downtrend, I decided to sell 70 of my 102 shares to confirm some gain and leave some shares in case it bounced back. After the decline from \$16.30 to \$15.50, I sold shares, and then the stock returned to just over \$17 before ending the week at \$16.19, as shown in Figure 6.2.4. Realistically, I would have been better off keeping all the shares I had, but I felt it was best to confirm some gain in the case that the stock continued to drop.



Figure 6.2.4: PIC Stock During Simulation Week 2

A summary of week 2’s transactions can be seen below in Table 6.2.1.

Week 2								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
12/7/20	PFE	Buy	\$40.81	85	\$3,488.85		\$91,729.45	
12/8/20	PIC	Sell	\$15.64	70	\$1,074.80	\$119	\$92,804.25	\$119
12/9/20	GHIV	Buy	\$11.39	250	\$2,867.50		\$89,936.75	
12/9/20	IPOC	Buy	\$10.80	250	\$2,720.00		\$87,216.75	

Table 6.2.1: Week 2 Transactions

### 6.3 Week 3

Throughout the third week of trading, buy, sell, and hold transactions were carried out by means of the 15-day moving average. It was one of the slower weeks in terms of transactions made. Although many of the listed companies did have a net increase in value, many of those companies did not show support or a strong enough trend to buy. In accordance with the six companies in my portfolio at the end of Week 2, four of them were held, one was sold, and the last company showed a strong enough trend up to buy more shares. At the end of week 3, six of the listed companies have yet to be traded with.

On the list of companies that have not been traded with, there is PepsiCo (PEP), S&P 500 ETF Trust (SPY), Johnson & Johnson (JNJ), Gevo, Wayfair (W), and XpresSpa (XSPA). Many of the companies have consistently shown the same trends in weeks one through three. SPY and PEP have shown minimal changes in value throughout the simulation, with both increasing by margins just over 1% again this week. While those companies, as well as their moving averages, seemed to be relatively stagnant, XSPA continued its trend by decreasing in value, with its third consecutive week of a 7% drop in price. To close the week, the stock was valued at \$1.34. JNJ has been on a constant rise of 2-3% per week, with an increase of 3.64% this week. If JNJ was invested during the first week, my portfolio would have seen significant gains so far, but it is hard to gage how strong the trend up is and how long it will last when it increases at this slow pace. After a big decrease in week 1, and little to no change in week 2, Wayfair showed a very small increase of 1.6% in week 3. The biggest missed opportunity of the week was GEVO, which increased by a margin of 14%.

The companies held onto during week 3 were 15 shares of PayPal (PYPL), 85 shares of Pfizer (PFE), and 250 shares each of GHIV and IPOC. One crucial mistake I made was holding onto my shares of Pfizer. Although the moving average indicator was still trending up, causing me to hold, the stock price was trending down. Throughout week 3, the value dropped from \$39.21 to \$37.68, which is a 3.9% decrease. Furthermore, with a purchase price of \$40.81, the stock has decreased since then by 7.66%. Another stock that was held during week 3, GHIV, also decreased in value, from \$11.97 to \$11.56% (-3.4%), while the moving average was trending upwards. The stock ultimately decreased because of one sharp decline on Tuesday. After this, the trend continued back up. Since purchasing the stock at \$10.80, the stock has increased by 7% for a total gain of \$190. The other two companies held, namely IPOC and PYPL, both resulted in notable increases.

PayPal increased by a margin of 9.46% throughout the week (8.92% since purchase), while IPOC increased by 8.52% this week (15.1% since the purchase). After the purchases of these companies in previous weeks, PYPL has increased my portfolio by \$290, while IPOC has increased it by \$430.

There were only two companies that were actively traded during this week, Delta Airlines (DAL) and PIC. Because DAL has been relatively constant so far (at or around \$40), I was waiting for either the moving average to flatten or trend down to sell or increase significantly to buy more shares. During week 3, the moving average indicator began to flatten, resulting in the sale of the lone share before it started to decrease. DAL's movement during the week is shown below, in Figure 6.3.1. As mentioned in week 1, this was a bad purchase with a \$20 commission, and at no point was it realistic to break even on this trade.



Figure 6.3.1: DAL Stock During Simulation Week 3

For PIC, I still had 32 shares left (at \$13.94) after I sold 70 last week to solidify my gains. PIC opened the week at a price of \$17.65 and closed at \$16.57, but in between this there was a sharp decrease in price down to \$14.66 where I bought 85 more shares. Even though the price dropped, the moving average was still trending up, triggering a buy signal. With my 117 shares, I

have seen a total increase of approximately \$250. PIC's price throughout the week is shown in Figure 6.3.2.



Figure 6.3.2: PIC Stock During Simulation Week 3

At the end of week 3, my portfolio consists of 117 shares of PIC, 15 shares of PYPL, 85 shares of PFE, and 250 shares each of IPOC and GHIV. The summary of week 3's transactions is below in Table 6.3.1.

Week 3								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
12/16/20	DAL	Sell	\$41.09	1	\$21.09	-\$42.30	\$87,237.84	\$76.70
12/16/20	PIC	Buy	\$14.66	85	\$1,266.09		\$85,971.75	

Table 6.3.1: Week 3 Transactions

During weeks one through three, the main indicator of trend following used was the 15-day simple moving average. In weeks four through six, the main indicator to be used will be the moving average convergence divergence (MACD). In week 4 specifically, because the market closed the final two days of the week, most of the time will be spent observing companies' trends relating to the MACD, learning how to use the MACD, and accurately interpreting buy and sell signals.

## 6.4 Week 4

During week 4 of the stock market simulation, only one transaction was made due to a merger. Most of this time was used to familiarize myself with an indicator, the moving average convergence divergence (MACD), that is much more in depth than the simple moving average. For the MACD, there are two essential signal lines, the fast line and the slow line. If the fast line is increasing at a faster rate than the slow line, this is a buy signal. Conversely, if the fast line is decreasing at a faster rate than the slow line, this is a sell signal. If the lines are increasing at the same rate or both stagnant, this is a signal to hold. Corresponding to week 3's report, the companies in my portfolio were held for the week, with 117 shares of PIC, 15 shares of PYPL, 85 shares of PFE, and 250 shares each of IPOC and GHIV. The companies not yet traded with have remained the same, being PepsiCo (PEP), S&P 500 ETF Trust (SPY), Johnson & Johnson (JNJ), Gevo, Wayfair (W), and XpresSpa (XSPA).

Because of the short week in the market, many of the companies saw minimal changes in stock price, such as PEP, SPY, DAL, JNJ, and XSPA. All five of these companies saw changes that were under 1.5%, whether it was increasing or decreasing. For these companies, the MACD lines were typically both constant. During this week, Wayfair fell by 7.3%, and the fast line was decreasing at a faster rate than the slow line. Much like last week, it would have been very beneficial if I had invested in GEVO, which increased by another 16%.

The companies that I held all increased during week 4. Pfizer opened up the week at \$37.24 and closed the week at a similar price of \$37.44, resulting in a 0.6% increase. PayPal increased its value by 2.89%, from \$237.72 to \$239.44. The two biggest gainers of the week in my portfolio were GHIV and IPOC, increasing by 17.9% and 14.5% respectively. While the MACD lines were

stagnant during the minimal increase in Pfizer, the fast line increased at a faster rate than the slow line for the three other companies. An example of a buy signal from the MACD lines is shown by IPOC in week 4 below.

On December 21st, PIC merged with XL Fleet (XL), but my shares did not transfer over. If they had, the stock would have increased up to a value of \$29.78. Instead, it terminated at a price of \$14.66, netting my total gain for PIC at only \$23. The summary of week 4’s transactions is shown below in Table 6.4.1.

Week 4								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
12/22/20	PIC	Sell	\$14.66	117	\$1,715.22	\$23.40	\$87,686.97	\$100.10

Table 6.4.1: Week 4 Transactions

Going into week 5, companies to keep my eyes on are XL Fleet and GEVO.

## 6.5 Week 5

For the duration of week 5, the MACD signal lines were used to determine buy and sell transactions. Many of the companies were either stagnant, with respect to the signal lines or they were showing a sell signal. Because of this, I have still not traded with the following companies: SPY, JNJ, GEVO, Wayfair, and XSPA. Delta Airlines was also not part of any transactions in week 5 but has been previously traded with during weeks one to three. There were three companies that showed a clear buy signal with respect to the MACD, one company that showed a sell signal, and one company that showed a hold signal.

Regarding the five companies that have not yet been traded with, there was only one during week 5 that saw some sort of increase. In fact, three of the five companies had decreases that were more than 11%, which were GEVO, Wayfair, and XSPA. After multiple weeks of increasing by

nearly 15%, GEVO saw a decrease of 11.8%. Wayfair continued its trend down from week 4, decreasing by 12.4%, while XSPA, who has been constantly dropping throughout the simulation, decreased by 13.1%. The one company that has not been traded with that showed some gain through the course of week 5 was Johnson & Johnson, which increased 2.6%. Despite this increase, the MACD lines were stagnant at the start of the week, and the fast line only began to minimally separate from the slow line at the end of the week. At the time, it did not seem to be a strong enough trend to invest in. SPY remained relatively constant throughout the week, netting an increase of only 0.45%, while DAL's opening and closing prices for the week had a difference of 6 cents.

The company that showed a hold signal throughout week 5 was PayPal. To open the week, the price of the stock was listed at \$235.73. To close the week, it was listed at \$234.20, with the stock decreasing by 0.6%. Due to the minimal change in price, the MACD lines were constant and, because the purchase price of the stock was \$217.10, I still had gains ensured.

Pfizer showed a sell signal during week 5. With the stock decreasing in week 3 and staying steady at around \$38 during week 4, I sold the stock at a price of \$36.90. Unfortunately, I purchased the stock before a single spike. Since that spike, the stock has only decreased or, at best, remained equal to itself. The stock price, as well as the MACD lines, are depicted below in Figure 6.5.1.



Figure 6.5.1: PFE Stock During Simulation Week 5

The three companies that showed a buy signal during this week were GHIV, IPOC, and PEP. Week 5 marks the first time during the simulation that PEP has shown a buy signal, which is in figure 6.5.2 below. As noticed, the fast line was beginning to increase at a rate that is faster than the rate of the slow line. After purchasing the stock at \$147.85, the stock only increased by a mere 45 cents, to a price of \$148.30, as shown below.



Figure 6.5.2: PEP Stock During Simulation Week 5

In addition to holding the 250 shares each of IPOC and GHIV that were bought previously, both of these companies were showing buy signals, with essentially the same exact chart for stock price and the MACD lines. These charts are shown below in figures 6.5.3 and 6.5.4. For both companies there was a slight dip in stock price, but the MACD fast line continued to increase at a faster rate than the slow line. This exact situation seems to be the most ideal, where the price is lowered, but still, overall, is trending up. At the lesser prices, I was able to buy 250 shares of GHIV at \$13.09 and 300 shares of IPOC at \$16.32. The first 250 shares of GHIV were purchased at a price of \$10.80 during, while IPOC was originally purchased at \$11.39. Both of these transactions were made during week 2. At the end of week 5, GHIV had a closing price of \$14.11 and IPOC closed at \$18.00. In total the 500 shares of GHIV have resulted in a gain of \$1084. The 550 shares of IPOC have increased my portfolio value by just over \$2000. So far, these have been my two biggest gainers of the simulation, and their movement is shown below, in Figures 6.5.3 and 6.5.4.



Figure 6.5.3: GHIV Stock During Simulation Week 5



Figure 6.5.4: IPOC Stock During Simulation Week 5

At the end of week 5, my portfolio consists of 20 shares of PepsiCo (PEP), 550 shares of IPOC, 500 shares of GHIV, and 15 shares of PYPL. The summary of week 5’s transactions is shown below in Table 6.5.1.

Week 5								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
12/29/20	PFE	Sell	\$36.25	85	\$3,082.45	-\$406.40	\$90,769.42	-\$306.30
12/31/20	PEP	Buy	\$147.85	20	\$2,976.99		\$87,792.43	
12/31/20	GHIV	Buy	\$13.09	250	\$3,291.24		\$84,501.19	
12/31/20	IPOC	Buy	\$16.32	300	\$4,915.99		\$79,585.20	

Table 6.5.1: Week 5 Transactions

Going into week 6, a few companies to keep my eye on are Johnson & Johnson, Wayfair, and XpresSpa. Johnson & Johnson has been a relatively slow and steady company throughout the simulation, while Wayfair’s and XpresSpa’s prices are dropping, which could trigger a buy low signal.

## 6.6 Week 6

Continuing from the same strategy used in weeks four and five to determine buy, sell, and hold transactions, week 6 also used the MACD signal lines. During this week, the list of companies

in which I have yet to trade with was reduced to 4, with the remaining companies being the SPY, JNJ, GEVO, and XSPA. While these four companies did see similar increases of 1.6%-1.7%, this did not have much influence on the lines of the MACD. For a buy signal, the fast line should be increasing at a faster rate than the slow line, but these minimal increases did not cause that to happen to the extent wanted. For GEVO and XSPA, both MACD lines were equal, looking like the exact same line. For SPY and JNJ, the fast line had a value greater than the slow line, but they were increasing at the same rate, so they were parallel. There were also three other companies, which have been previously traded, that were not a part of any week 6 transaction: Delta Airlines, Pfizer, and XL Fleet (PIC's merger). It was observed throughout the week that there were only two companies with a hold signal, two companies with a sell signal, and one buy signal.

In reference to the companies that were traded in previous weeks, but not week 6, one saw an increase, one saw a decrease, and the last one stayed constant throughout the week. Delta Airlines (DAL), which closed last week at a price of \$40.21, gapped down over the weekend to \$38.73. After this occurred, it increased for two days straight, back to its original price that it closed at in week 5 (\$40.21). Because of this, the MACD lines were both decreasing at the same rate, which is neither a buy nor sell signal. XL Fleet, whose price peaked two weeks ago at the merger date with PIC, has been declining since that point. During this past week, the price of XL opened at \$22.25, and dropped by a value of one dollar by the end of the week. Although this may seem slim in the grand scheme of things, it still amounts to a near 4.5% decrease. Pfizer was the company that stayed relatively constant throughout week 6. After selling my shares of PFE during week 5, the stock saw a minimal increase of just over 0.5%. According to the MACD lines, the week would have shown a hold signal to anyone who owned shares of Pfizer.

The two companies that showed a hold signal during week 6 were both GHIV and IPOC. GHIV did see a slight decrease in price, but it was only a difference of just over 1%. After opening the week at 13.76, the MACD lines began to decrease at a slightly faster rate than the slow line was decreasing. While this is technically a sell signal, I decided to keep the stock until the end of the week, in hopes that it would bounce back from its week low of \$12.86. After increasing during the second half of the week, the stock closed at a price of \$13.57, which is higher than both of purchase prices, \$10.80 (250 shares) and \$13.09 (250 shares). IPOC merged with Clover Health Investments (CLOV) on Thursday, January 7th. Unlike PIC in week 4, the 550 shares that I had purchased of IPOC did transfer over to CLOV. After purchasing 300 additional shares of IPOC last week at a price of \$16.32, the stock opened the week at \$19.24, but dropped down to \$16.75 by the end of Monday. Just prior to the merger, the stock increased back up to \$17.30. Unfortunately, after merging on Thursday, CLOV closed the week at \$15.90, which is higher than the initial 250 shares I purchased at \$11.39, but lower than week 5's purchase price of IPOC (\$16.32).

The two companies that showed a clear sell signal during week 6 were both Pepsi (PEP) and PayPal (PYPL). After purchasing PayPal at \$217.10 in the first week of simulation, the stock increased during nearly every week, and reached a peak of \$243.50 during that span. In Figure 6.6.1 below, PayPal opened the week at \$237 and then reached a local low point of \$225, which caused the MACD lines to switch to a sell signal. After selling the 15 shares at \$235, I made a net gain of \$270.



Figure 6.6.1: PYPL Stock During Simulation Week 6

Pepsi was another company during week 6 that showed a sell signal. After the MACD fast line's short time of increasing at a greater rate than the slow line towards the end of last week, it immediately started to decrease at a faster rate than the slow line, causing a signal to sell. The 20 shares of PEP were purchased at a price of \$147.85, reached a peak of only \$148.30 during that span, and were sold at \$142.93. This is shown below in Figure 6.6.2.



Figure 6.6.2: PEP Stock During Simulation Week 6

There was only one company throughout the span of week 6 that clearly showed itself as a buy signal, Wayfair. Shown in Figure 6.6.3 below, after decreasing by 7.3% in week 4 and 12.4%

in week 5, it reached its lowest price of the simulation at \$226. Once this minimum had arrived, it started to increase at a fast rate, resulting in the MACD fast line to increase at a faster rate than the slow line. Following this, I bought 50 shares at \$250.55, which continued to increase, closing the week at \$258.40. Throughout the whole week, the stock increased by a margin of 14.1%. From the purchase price, there was a 3.2% return on investment.



Figure 6.6.3: W Stock During Simulation Week 6

At the end of week 6, my portfolio consists of 50 shares of Wayfair, 500 shares of GHIV, and, because of the merger, 550 shares of CLOV. The summary of week 6 transactions is shown below in Table 6.6.1.

Week 6	Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
	1/6/21	PEP	Sell	\$142.93	20	\$2,838.60	-\$138.39	\$82,423.80	-\$444.69
	1/7/21	PYPL	Sell	\$235.14	15	\$3,507.04	\$230.54	\$85,930.84	-\$214.15
	1/7/21	W	Buy	\$250.55	50	\$12,547.24		\$73,383.60	

Table 6.6.1: Week 6 Transactions

In building this portfolio, weeks four through six used the MACD lines as the determinant for buy and sell signals. In weeks seven to nine, the main method used to determine buy and sell signals will be the relative strength index, or RSI. The beginning portion of week 7 will be spent

observing companies' trends relating to the RSI, learning how to use the RSI, and accurately interpreting buy and sell signals.

## **6.7 Week 7**

Through the first half of week 7, time was spent researching the RSI, interpreting its buy and sell signals, and studying companies' trends with respect to the RSI. Unfortunately, unlike the simple moving averages and the MACD, the RSI is used more for long-term, buy and hold positions. Although it does not provide the best method for capital gains during this project, it is still a useful skill to know long term trading techniques. There will likely be less transactions during the next few weeks than the previous weeks. When using the RSI, which is a momentum indicator on a scale of 0-100 that evaluates when companies are either oversold or overbought, there is one buy signal, one sell signal, and another occurrence that is essentially a "judgement call". When the RSI has a value above 70, it is indicated that the stock is overbought, and the owner should sell shares. Conversely, if the RSI has a value that is below 30, the stock has been oversold and is due for a rebound, creating a buy signal. The "judgment call" signal occurs when the stock's RSI value is fluctuating above and below 50. If the value of the RSI starts above 50, drops back below, then above again, it is likely to keep increasing. This situation is far less of a sure thing than when the stock is at a value of 70 or 30, hence why it is a judgement call.

During week 7, the list of companies that I have yet to trade with was narrowed down to three companies, which are SPY, JNJ, and GEVO. There were also multiple companies that were traded in previous weeks, but not this week. These companies include XL Fleet, PayPal, PepsiCo, Delta Airlines, and Pfizer. The course of week 7 showed that there were also two companies displaying a hold signal, one showing a sell signal, and one depicting a buy signal.

With regards to the three companies that have not been traded yet, one company had one of the biggest gaining weeks of the simulation. GEVO opened the week at \$4.26 and closed the week at \$6.40. This price change represents an increase by 50%! Sadly, the indication for GEVO was not a buy signal, as the value of the RSI was over 70 for most of the week, actually indicating a sell signal because the stock was overbought. Johnson & Johnson's RSI was between 50 and 70 for the entire week, which, if I did have shares, would have told me to hold on to them. JNJ's stock price experienced no change from the opening price of the week to the closing price of the week, with minor fluctuations in between. The SPDR S&P 500 ETF stock experienced a small decrease of 1%, with the RSI between 50 and 70, similarly to JNJ.

The remaining companies that were not a part of transactions during week 7 were Pfizer (PFE), PayPal (PYPL), XL Fleet (XL), Delta Airlines (DAL), and PepsiCo (PEP). In terms of stock price and the RSI, PFE and PEP had extremely similar weeks. Both companies experienced a decrease in price, as PFE decreased by 1.6% and PEP decreased by 1.8%, while the RSI for each was between 30 and 50 for the duration of the week. This position is neither a buy nor sell signal, so there was no transaction made. The RSI for both PYPL and XL was similar, staying between 50 and 70, even though the change in price was different, with one increasing and the other decreasing. PayPal's price increased by only 1%, and XL's price decreased by almost 3%. Of these five companies, Delta Airlines was the only company that had a fluctuating RSI around 50 during week 7, with it starting below 50, going above 50, then back below. For it to be interpreted as a buy signal, the opposite would have to happen, where it starts above, dips below, then back above again. From the beginning of the week to the end, the price of DAL increased by 1.4%.

Two companies during week 7 showed a hold signal with respect to the RSI, being both GHIV and CLOV. GHIV, whose price decreased by just below 4%, showed a hold signal in terms

of the RSI. The value for the stock's relative strength was between 50 and 70 for the week, meaning it was nearing the overbought status, but had not quite reached that point. CLOV's RSI was above 50 for the majority of the week, until it dipped below for the latter half of Friday. If the stock returns to its 50+ value from the beginning of the week during week 8, it may indicate a buy signal. For the price of CLOV, it was dropping all week, experiencing a near 6.5% decrease. Although both of these companies showed a hold signal, they also both decreased by a rather large margin, which was very frustrating in the short term.

The one company that showed a sell signal during week 7 was Wayfair. Shown in Figure 6.7.1 below, the price of the stock to open up the week was \$259, and by Thursday, it reached a peak of \$329.89. Consequently, the RSI during this span changed from around 50 to above 70, which is a signal to sell shares because the stock has been overbought. After the RSI peaked on Thursday, it dropped down to below 70 on Friday, which is when I sold the 50 shares I had at a price of \$300. My total gain from this stock, after purchasing 50 shares at \$250, was \$2,477.



Figure 6.7.1: W Stock During Simulation Week 7

The last company, XpresSpa (XSPA) was the one company that showed a judgement call, which I took a chance on and bought. To start the week, the price of the stock opened at \$1.20, and as the stock increased to \$1.32 the next day, the RSI increased to over slightly over 50. By midweek, the price and RSI both slightly decreased, but by the end of the week, they had both increased again. To end the week, the RSI was at a value of 51.05, which is when I decided to buy, and the price was up to \$1.35. From the beginning of the week to the end, the price of the stock increased by 12.5%, but since I bought the stock at a price equal to the closing price for the week, there was neither a gain nor a loss. The movement of the stock can be seen below, in Figure 6.7.2.



Figure 6.7.2: XSPA Stock During Simulation Week 7

At the end of week 7, after selling my 50 shares of Wayfair, my portfolio consists of 500 shares GHIV, 550 shares of CLOV, and 6,000 shares XSPA. The summary of week 7 transactions is shown below in Table 6.7.1.

Week 7	Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
	1/13/21	W	Sell	\$300.90	50	\$15,025	\$2,477.76	\$88,408.60	\$2,263.61
	1/14/21	XSPA	Buy	\$1.35	6,000	\$8,120		\$80,288.60	

Table 6.7.1: Week 7 Transactions

Going into week 8, companies to keep my eye on are CLOV and DAL if their RSI value rebounds back above 50, as well as PEP and PFE, if their RSI drops below 30.

## **6.8 Week 8**

Throughout the course of week 8, the list of companies that have yet to be traded stayed the same from week 7, with the list including GEVO, JNJ, and SPY. In addition to this, the companies that were previously traded with, but were not bought, sold, or held in week 8 are the following: Wayfair, PayPal, Pfizer, and PepsiCo. There were also two companies that were held throughout the week, two companies that were judgement call buys, and one company that was sold due to a merger.

As for the three companies that have not been traded in the first eight weeks, all of them saw some sort of increase in price, with GEVO being the biggest gainer of the three. GEVO's price closed week 7 at \$6.40 and gapped up to \$8.85 to open up week 8. On just Monday, the price increased by another \$2.18 to close the day at \$11.03. Although this was intriguing with the fast rise, the RSI was above 70 throughout the whole week, indicating the stock had been overbought. After the rise in price in the beginning of the week, the stock closed the week valued at \$10.50, which is an 18% increase from Monday's opening price, but a 5% decrease from Monday's closing price. The SPY stock, whose price increased by 1% this week, and JNJ, whose price increased by 0.5%, both repeated the same sequences that were seen last week in terms of the stock price and the RSI, with the RSI staying relatively constant between 50 and 70. This is neither a buy nor sell signal.

The companies that were not part of any transactions in week 8 but had been traded in previous weeks of the simulation consisted of Wayfair, PayPal, Pfizer, and PepsiCo. In terms of

RSI, Wayfair and PayPal had very similar weeks, while the change in their prices was different. Both companies had a sustained RSI between 50 and 70, but Wayfair had no change in price from the start of the week to the end and PayPal experienced a 2% increase. On the other side of the spectrum, Pfizer and PepsiCo both had relative strengths between 30 and 50. Similarly to Wayfair, Pfizer experienced no change in price through week 8, while Pepsi was the only one of the four to experience a decrease in price, which was by 2.5%.

Two companies that I had shares of were displaying hold signals, which were CLOV and XSPA. Clover Health Investments opened up the week with a price of \$13.75 and closed the week at \$13.55, accounting for a 1.5% decrease in price. The relative strength index of this company remained below 50 all week, which is a good sign that it could bounce back after two consecutive decreasing weeks. XSPA was the biggest gainer of the week, increasing by a margin of 26% from \$1.38 to \$1.74. Although the relative strength of the stock was between 50 and 70 for the whole week, it was not constant, but instead rising up towards 70. If this value eclipses 70 next week, which seems likely, it will be sold.

The one company that would have been sold during week 8 was GHIV, but this was due to it merging with UWM Holdings Group (UWMC). After the merge, when trying to sell, the simulation gives an error message saying “GHIV is not a valid symbol”. Similarly to PIC merging, and unlike when IPOC merged, the shares I had of GHIV did not transfer over to UWMC. Fortunately, UWMC was at a lower price than GHIV at the time of the merge, but the gain from GHIV is stuck in my account because I cannot sell it. With an average purchase price of GHIV at \$11.39, the stock terminated at \$13.09, and on the date of the merger UWMC was at \$11.54. The RSI after the merger for UWMC was between 30 and 50 and decreased towards 30. If this trend continues and the RSI drops below 30, this will trigger a buy signal.

The remaining two companies, XL Fleet and Delta Airlines, were both bought in week 8. Both companies showed similar trends with respect to the RSI, just over different time frames. XL fleet, dating back to last week, was above 50, below 50 for the beginning of this week, then back above 50 to close out the week. 200 shares of the stock were bought on Friday at a price of \$20.50. It then proceeded to close the week at \$21.00, as shown in Figure 6.8.1.



Figure 6.8.1: XL Stock During Simulation Week 8

For Delta, the RSI was above 50 during the middle portion of week 7, dropped below to end the week, and then back above to start week 8. After this occurrence, 40 shares of DAL were bought at \$39.96. Towards the end of the week, the RSI dropped back below 50, but the stock increased ever so slightly to \$40.00. This movement is shown in Figure 6.8.2.



Figure 6.8.2: DAL Stock During Simulation Week 8

To end week 8, my portfolio includes the 500 shares of GHIV that cannot be sold (but would have been), 6,000 shares of XSPA, 550 shares of CLOV, 200 shares of XL Fleet, and 40 shares of DAL. The summary of week 8’s transactions is shown below in Table 6.8.1.

Week 8								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
1/21/21	GHIV	Sell	\$13.09	500	\$6,525	\$575	\$86,813.60	\$2,838.61
1/22/21	XL	Buy	\$20.50	200	\$4,120		\$82,693.60	
1/22/21	DAL	Buy	\$39.96	40	\$1,618.40		\$81,075.20	

Table 6.8.1: Week 8 Transactions

Going into week 9, companies to keep an eye on are on XSPA if the RSI continues to increase to above 70 and UWMC if the RSI continues to drop to below 30.

## 6.9 Week 9

At the termination of week 9, there were three companies that have yet to be traded with throughout the simulation. This list comprises the same companies from the previous week, with SPY, GEVO, and JNJ. Week 9 also had four other companies that were not a part of any transaction during week 9 but have been previously traded in the simulation. There were also two stocks

showing hold signals, one company showing a sell signal, and two more companies showing a buy signal.

Throughout the course of week 9, the three companies that have not been traded yet all experienced very similar weeks. In terms of the RSI, two of the companies had sustained values between 50 and 70 throughout the week. One of those companies, SPY, saw a moderate reduction in price, from \$384.39 to \$370.01, or a 3.7% decrease. The other company on this list that had an RSI between 50 and 70, was GEVO. In the two previous weeks, GEVO's relative strength was up above 70 (sell signal), and this week it dropped into the range between 50-70. GEVO experienced the biggest drop in price of the three. Over the weekend it gapped from \$10.15 to \$12.60. Once again, the stock had a very strong Monday, where it increased from \$12.60 to \$13.24, but by the week's end, the stock closed with a value of only \$10.61, which is a 19.8% drop from Monday's closing price. JNJ's RSI held a value over 70 for the entire week, indicating that, had I owned shares of JNJ, it would be time to sell. JNJ, like GEVO and SPY, also had a reduction in price, but only by 1.7%, from \$165.98 to \$163.13.

The following four companies, Wayfair, PayPal, PepsiCo, and Pfizer, all experienced reduction in prices, two of which were rather steep decreases. Wayfair and PayPal, the two steeper decreases of the week, had similar weeks with respect to the RSI. Both of the relative strengths started the week above 50, and ended the week below 50, but they happened at different times. PayPal's RSI dropped below 50 during the middle of the week, while Wayfair did not drop below that value until Friday. When regarding prices, Wayfair saw a decrease by a margin of over 10% and PayPal's price decreased by nearly 8%. The other two companies, PepsiCo and Pfizer, similarly to weeks seven and eight, saw RSI values on the lower end, between 30 and 50 for the

whole week. Pepsi's price decreased by a margin of only 1%, while Pfizer's decrease was a little bit larger, at 1.8%

The two companies that were held in week 9 were DAL and XL. After buying both stocks in week 8, they both had similar RSI values in week 9, causing me to hold them throughout the week. For XL, the RSI continued from last week's pattern by opening the week above 50 but dropping below during the second half of the week. DAL's RSI was much more volatile this week, fluctuating above and below 50 throughout different points of the week. While being held, DAL unfortunately decreased by just over 4% and closed the week at a price that was a 5% decrease from the original purchase price of \$39.96. XL opened the week at \$19.96 after gapping down over the weekend. From the start of week 9 to the end, the price of XL also decreased by 5%, and the drop with respect to the purchase price was even larger, nearly 7.5%.

There was one company during this week that showed a sell signal, which was XSPA, shown in Figure 6.9.1. After originally purchasing the stock during week 7, the stock increased during week 8, and continued to increase for the beginning half of week 9. The stock opened up the week with its RSI above 70, denoting it was time to sell. As the stock continued to rise with the RSI in the 70+ region, I likely should have waited until the RSI started to decrease out of the 70+ region, but instead I sold the stock at \$1.96 once it entered the 70+ region, as opposed to waiting for the peak, which occurred at \$2.28. With an original purchase of 6,000 shares at \$1.35, there was still a 45% return on investment, for a total gain of \$3,660.

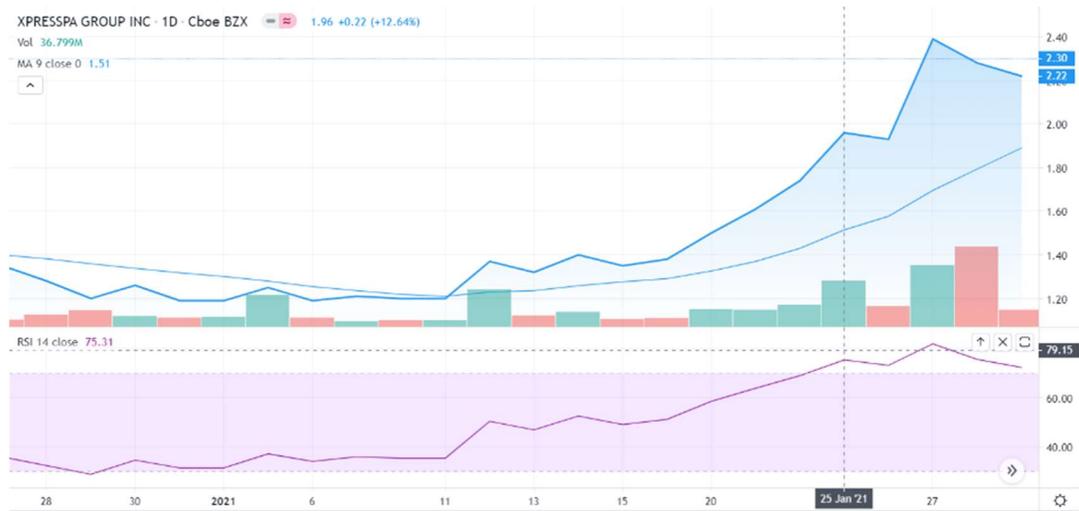


Figure 6.9.1: XSPA Stock During Simulation Week 9

The two companies that were bought in week 9 were additional shares of CLOV and UWMC. UWMC opened the week with a decreasing price and the RSI value reached 30 exactly on Tuesday, indicating the stock has been oversold and should be bought at the low price. With this, I purchased 100 shares of the stock at \$10.07, and at the end of the week, the stock closed at a price of \$9.91. At this point, the stock’s RSI is still at 30 and can still rebound to an uptrend. This can be seen in Figure 6.9.2 below.



Figure 6.9.2: UWMC Stock During Simulation Week 9

The last company, CLOV, whose stock chart is depicted in Figure 6.9.3 below, was bought on a judgement call. In week 7, the RSI was above 50, which dropped below 50 in week 8, and then rose above 50 to start week 9. After this increase in the RSI, 70 shares of the stock were bought at \$13.93. In total, I have 620 shares. During the middle of the week, the stock showed promise, increasing to \$15.76, but then it immediately returned to the purchase price by the end of the week. Once this happened, I did not have much trust in the stock to rebound again, so I sold shares. With an average purchase price of all my shares valued at \$14.06, I sold 300, out of 620, at \$13.95, where the gain/loss was essentially negligent in the grand scheme.



Figure 6.9.3: CLOV Stock During Simulation Week 9

At the end of week 9 my portfolio consists of 100 shares of UWMC, 320 shares of CLOV, 40 shares of DAL, and 200 shares of XL. The summary of transactions made during the week are shown below in Table 6.9.1.

Week 9								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
1/27/21	XSPA	Sell	\$2.20	6,000	\$13,180	\$5,060	\$94,255.20	\$7,898.61
1/27/21	CLOV	Buy	\$13.93	70	\$995.10		\$93,260.10	
1/29/21	UWMC	Buy	\$10.07	100	\$1,027		\$92,233.10	
1/29/21	CLOV	Sell	\$13.95	300	\$4,165	-\$73	\$96,398.10	\$7,825.61

Table 6.9.1: Week 9 Transactions

Weeks seven to nine were spent using the RSI as the main determinant for buy and sell signals. Because of how slow it is, this is definitely the least favorable method to use so far. Many times, during the hold periods, the stocks were actually decreasing. As of now, the MACD, which was used in weeks four to six, has contributed to the most gains. In weeks ten to twelve, the last three weeks of simulation, the main method used to determine buy and sell signals will be the on-balance volume, or OBV. The beginning portion of week 10 will be spent observing companies' trends relating to the RSI, learning how to use the RSI, and accurately interpreting buy and sell signals.

## 6.10 Week 10

During the final three weeks of the simulation, the primary method that will be used to determine buy and sell signals is the on-balance volume, or OBV. Like the RSI, and unlike the two methods used in the first half of the simulation, OBV is more commonly used as a long-term trading technique. It is also a momentum indicator that uses volume changes to make price predictions. While the buy/sell signals from the RSI depend on the value of the relative strength, the OBV is value independent and buy and sell signals are determined by the slope of the OBV line. When using the OBV, a buy signal occurs when the stock price is trending down while the OBV is increasing. On the contrary, a sell signal occurs during an uptrend when the OBV is decreasing. To confirm the trend, I will use a 9-day simple moving average. For example, if the 9-day simple moving average is increasing at the time that the OBV is decreasing, this would indicate

a sell signal. It is also recommended to sell when both OBV and the price are decreasing. Like all indicators, OBV is not perfect and there are many times in which there is a false signal.

By the end of week 10, the list of companies that have not yet been traded with was reduced to only two, which are GEVO and JNJ. There were only three other companies, in addition to GEVO and JNJ, that were not traded with during this week, which means that all the other seven companies were either bought, sold, or held. Of these seven companies, there were four showing buy signals, two with sell signals, and one hold signal.

The two companies that have not yet been traded, GEVO and JNJ, were showing sell signals, as the OBV for both companies was decreasing while the overall trend of the price was decreasing, which was indicated by the 9-day simple moving average. Throughout the week, GEVO's price experienced an increase of 4%. JNJ's stock, although the moving average of the price was increasing, the price decreased, but only by 0.4%. Because the OBV was decreasing, this shows that the overall number of shares was decreasing, and most other investors were selling the stock and the price is likely decreasing because of this.

The other three companies that were not traded within week 10 were PayPal, Pfizer, and XpresSpa. XSPA, like GEVO and JNJ, was showing a sell signal. As the moving average of the stock was trending upwards, the on-balance volume was decreasing, indicating the stock price was likely to decrease as well. The stock opened the week with a price of \$2.34 and closed the week at \$2.15, which is an 8% decrease. Although the price was decreasing, the overall trend from the moving average was increasing, because of the sharp rise in price in the past two to three weeks. PayPal's overall trend from the moving average and the OBV were synchronized, as they both were increasing. If I had shares, this would be characterized as a hold signal. This could be a buy signal as well, but it is risky because the trader has likely missed their window of gains. This was

certainly not the case, as the stock price had a huge increase from \$238 to \$268, for a 12% increase. On the opposite end, there was Pfizer, whose price and OBV were both decreasing. The price of Pfizer dropped by 3% during the week.

The one company that was showing a hold signal, for the companies that I had shares of, was XL Fleet. The price of XL was stagnant throughout the week, and the OBV was also reflective of this, slightly oscillating above and below a centerline. Because of this consistency, the price of this stock is just as likely to increase as it is to decrease during week 11. It will be necessary to stay on top of it.

The two companies that were displaying sell signals in week 10 were UWMC and CLOV. Both companies were in the same situation, with both the OBV and price decreasing. While this is not the definite sell signal, it felt like the most logical move. Because the OBV was decreasing, traders were pulling out of the stock as the price was decreasing. UWMC's stock decreased by 1% throughout the week, and, after purchasing 100 shares at a price of \$10.07, I sold the stock at \$9.99 to avoid any further loss. Similarly, CLOV's price decreased by 8%, from \$14.13 to \$12.93. Luckily, I sold the stock on Wednesday, where the price was just \$13.16. Both stock's charts can be seen below in Figures 6.10.1 and 6.10.2.



Figure 6.10.1: CLOV Stock During Simulation Week 10



Figure 6.10.2: UWMC Stock During Simulation Week 10

Finally, there were four companies during week 10 that were bought. Week 10 marks the first time that my portfolio had shares of SPY. After the price increased slightly on Monday, the overall trend was still, ever so slightly, decreasing. Simultaneously, as seen in figure 6.10.3, the OBV of the stock was continuing upwards, meaning that more and more investors were buying the stock and it was likely to continue increasing. After purchasing 15 shares of the stock at

\$381.51, it closed the week at \$387.71, which is a 1.6% increase. Its movement is shown in Figure 6.10.3.



Figure 6.10.3: SPY Stock During Simulation Week 10

DAL was another company that showed a buy signal. In addition to the 40 shares that were bought at \$39.96, 60 more shares were bought at \$39.78, for an average purchase price of \$39.85. After decreasing during week 9, the stock opened up week 10 at a local low of \$37.82, causing the overall trend in price to be that of a decreasing one. At this time, the OBV of the stock was increasing, which is a buy signal, shown in Figure 6.10.4 below.



Figure 6.10.4: DAL Stock During Simulation Week 10

The two other companies that showed the same situational buy signal in week 10 were PepsiCo and Wayfair. Both companies had prices that, overall, were trending down with respect to the simple moving average. This is a prime spot to buy the stock, as the OBV is trending up. I purchased 25 shares each of Pepsi and Wayfair. Pepsi's purchase price was \$139.68, and it closed the week at \$140.96, for an increase by just under 1%. Wayfair's 25 shares were purchased at \$278.03, and then closed the week at \$289.30. Both stock charts are below, denoted by Figures 6.10.5 and 6.10.6.



Figure 6.10.5: PEP Stock During Simulation Week 10

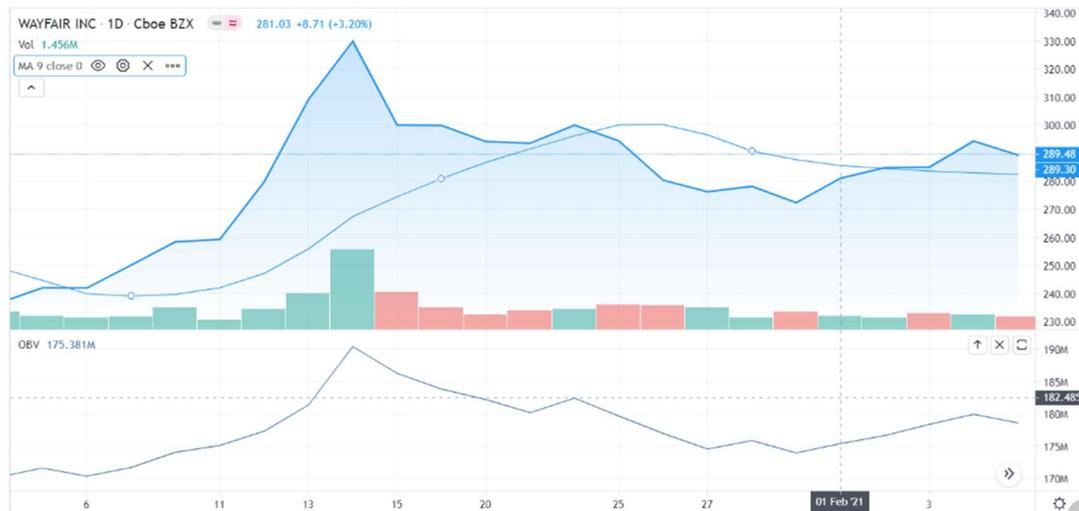


Figure 6.10.6: W Stock During Simulation Week 10

At the termination of week 10, my portfolio consists of 25 shares of Wayfair, 25 shares of PepsiCo, 100 shares of DAL, 200 shares of XL, and 15 shares of SPY. The summary of week 10's transactions is shown below in Table 6.10.1.

Week 10	Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
	2/1/21	UWMC	Sell	\$9.99	100	\$979	-\$48	\$97,377.10	\$7,777.61
	2/1/21	W	Buy	\$278.03	25	\$6,970.75		\$90,406.35	
	2/3/21	CLOV	Sell	\$13.16	320	\$4,211.20	-\$288	\$94,618.55	\$7,489.61
	2/3/21	SPY	Buy	\$381.51	15	\$5,735		\$88,882.55	
	2/3/21	DAL	Buy	\$39.78	60	\$1,213.40		\$87,669.15	
	2/4/21	PEP	Buy	\$139.68	25	\$3,512.00		\$84,157.55	

Table 6.10.1: Week 10 Transactions

Going into week 11, a company to keep an eye on that was trending downwards in price per stock is Pfizer.

## 6.11 Week 11

During week 11, the main method of trading that was used was the OBV and a 9-day simple moving average used to determine the trend. By the end of week 11, all twelve of the listed companies have finally been traded with. There were four companies this week that were not part

of any transaction, three companies that were held, two companies that were sold, two companies that were bought, and one company that was both bought and sold during the week.

For the companies that were not traded during the week, only one of them had an increase in price, which was XSPA. The stock price opened the week at \$2.21 and closed the week at \$2.68, for an increase of 21.2%. After decreasing last week, the stock increased this week, as did the OBV. The only reason this stock was not bought was because the moving average never reflected the reduction in price, which is where the buy signal comes. The other three companies, UWMC, CLOV, PFE, all saw decreases in week 11. UWMC and CLOV both saw a decrease by margins of 8.3% and 7.3%, respectively, while Pfizer decreased from \$34.96 to \$34.73, which is only a 0.6% reduction. For all three, the OBV accurately reflected the decreases of each company, as it was also decreasing throughout the week.

There were three companies who were showing hold signals, being Delta Airlines, Wayfair, and XL Fleet. Delta's stock price stayed relatively flat for most of the week, opening at \$43 and closing the week at \$43.29. The OBV of the stock was also flat, but the moving average was continuing to increase, showing that the stock price is still trending up. If the OBV increases, the stock will continue to be held, but if it decreases, the stock will be sold. XL Fleet was in a similar situation to DAL, where the stock price and OBV were both flat. The difference in these two companies is that XL Fleet has been flat since it was purchased back in week 8 at \$20.50, and the moving average is also flat. For Wayfair, the stock was purchased at \$278.03 in week 10, and saw major increases in week 11, closing the week at \$292.97. Compared to the purchase price, there has been a 5.3% increase. Once the OBV starts to decrease, which has yet to happen, the stock will be sold.

The two companies that were bought in previous weeks that were sold in week 11 were PEP and SPY. Pepsi's stock saw a drastic decrease, but luckily, I sold the stock before the drop happened because the OBV started to decrease. The stock was bought at \$139.68 and sold at \$140.40, which was an increase in price, but because only 25 shares were bought and sold, the net was a loss of \$22 because of commission. The stock chart is shown below in Figure 6.11.1.



Figure 6.11.1: PEP Stock During Simulation Week 11

SPY, whose stock chart is shown below in Figure 6.11.2, was bought last week at \$381.51. After increasing to start the week, the stock price started to flatten around \$390 in the middle of the week while the OBV started to decline. At this point, the stock was sold at a price of \$391.64. With 15 shares sold at this price, the net gain was \$134 with commission.



Figure 6.11.2: SPY Stock During Simulation Week 11

The two companies that were bought in week 11 were JNJ and GEVO. This week marks the first time that either of these were traded with. Although there were not really any clear-cut buy signals from these companies, I decided to take a chance on them because of the rate at which they have been increasing throughout the simulation. Both purchases ended up paying off, where GEVO was bought at a low point of \$11.55 and JNJ was purchased at \$164.45. By the end of the week, Gevo reached a price of \$14.61 and JNJ reached \$166.58. Both of their OBVs had been increasing for multiple weeks. Their stock figures are shown below in Figures 6.11.3 and 6.11.4.



Figure 6.11.3: GEVO Stock During Simulation Week 11



Figure 6.11.4: JNJ Stock During Simulation Week 11

The one company that was both bought and sold during week 11 was PYPL. After closing last week at a price of \$269, the stock gapped up to \$277 over the weekend and was purchased afterwards at \$278.29. Although the stock was not decreasing as the OBV was increasing, the OBV seemed to be increasing at a much faster rate than the stock price. This indicates that the stock price will continue to increase, which it did. By the end of the week, the stock reached \$298.27,

but it was sold before that at \$294.88. With 45 shares, there was a net increase of \$706.55. The stock chart is below in Figure 6.11.5.



Figure 6.11.5: PYPL Stock During Simulation Week 11

At the end of week 11, my portfolio consists of 25 shares of Wayfair, 200 shares of XL, 100 shares of DAL, 1,000 shares of GEVO, and 40 shares of JNJ. The summary of week 11's transactions can be seen below in Table 6.11.1.

Week 11								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
2/8/21	PEP	Sell	\$140.40	25	\$3,490	-\$22	\$87,647.15	\$7,467.61
2/8/21	PYPL	Buy	\$278.29	45	\$12,543.05		\$75,104.10	
2/8/21	GEVO	Buy	\$11.55	1,000	\$11,570		\$65,534.10	
2/10/21	SPY	Sell	\$391.64	15	\$5,869	\$134	\$69,403.10	\$7,601.61
2/12/21	JNJ	Buy	\$164.45	40	\$6,598		\$62,805.10	
2/12/21	PYPL	Sell	\$294.88	45	\$13,249.60	\$706.55	\$76,054.70	\$8,308.16

Table 6.11.1: Week 11 Transactions

## 6.12 Week 12

During week 12, the final week of simulated trading, the OBV, along with the 9-day simple moving average, was used to determine buy and sell signals. Throughout the week, all the companies that I did not have any shares stayed either constant or decreased. Because of this, no

new companies were bought, and the week only consisted of sell signals. Since it was the final week, if a company did not show any sell signals during the week, the stock was sold on the final day of trading. All in all, five companies were sold this week, none were bought, and the remaining seven were not traded with.

The seven companies that were not traded with, namely PayPal (PYPL), S&P 500 ETF Trust (SPY), XpresSpa (XSPA), Clover Health Investments (CLOV), UWM Holdings Group (UWMC), PepsiCo (PEP), and Pfizer (PFE), all experienced a decrease in price. Three of the companies saw their OBV and stock price increase to start the week then both decrease lower than their opening values. These companies saw the least amount of decrease of the seven. Pepsi and Pfizer saw decreases of 1.2%, while SPY saw a decrease of just 1%. Conversely, the other four companies all saw decreases of at least 6%, three of which saw decreases of 10% or greater. PayPal opened the week at \$306.13 and closed the week at \$286.92, accounting for a 6.3% decrease. CLOV and UWMC both saw 10% decreases and XSPA, after opening the week at \$2.96, dropped to \$2.47, which is a 16.6% decrease. Fortunately, I did not have shares of any of these companies. Of the companies I did have shares of, two of the five decreased in price.

JNJ opened the week at \$166.58, which was the same price it closed at last week. After purchasing the stock at \$164.45, the stock price was relatively flat with an increasing OBV. I assumed that, due to this, the stock price would follow the OBV and increase, but they both took a sharp decrease, with the price moving from \$165.74 to \$162.98. During this decline on Friday, I sold the 40 shares I had at \$163.75, which was a small loss of \$68. JNJ's movement is shown in Figure 6.12.1.



Figure 6.12.1: JNJ Stock During Simulation Week 12

XL, which I had 200 shares of, and had been relatively constant over the past couple of weeks in terms of stock price, started decreasing at the start of the week, as shown below, in Figure 6.12.2. Because it had been constant, whichever way it started to trend seemed like it would be the overall trend for the week. Once the OBV and stock price were decreasing I sold the stock on Wednesday at \$19.46 (which was purchased at \$20.50), which resulted in a loss of \$248.

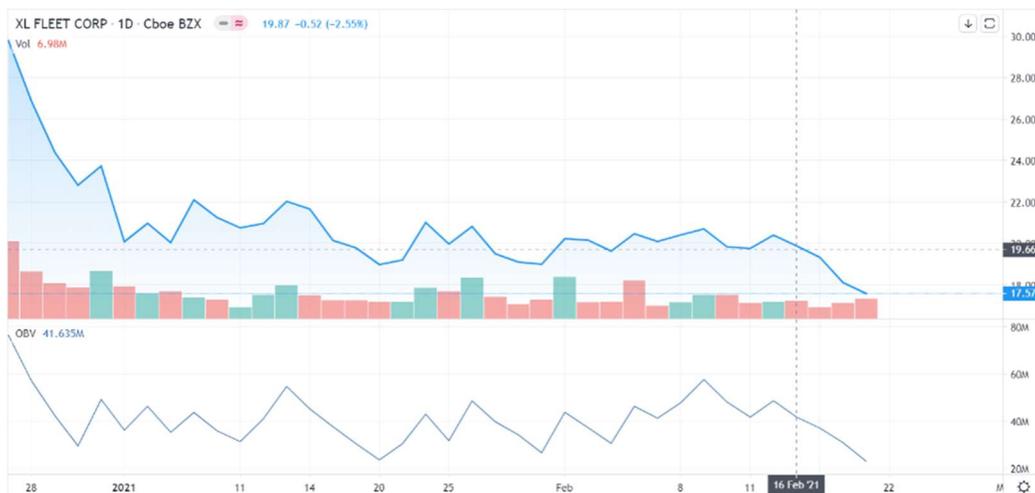


Figure 6.12.2: XL Stock during Simulation Week 12

GEVO was in a similar situation to XL, where it started decreasing at the start of the week, shown in Figure 6.12.3. After purchasing 1000 shares at the start of last week at \$11.55, the stock closed last week at \$14.61. Once the stock and OBV started decreasing this week, I sold immediately on Tuesday to secure a profit. I sold the 1000 shares at \$14.07 for a total profit of \$2,480, which was my biggest gainer of the week.



Figure 6.12.3: GEVO Stock During Simulation Week 12

DAL, which I purchased 100 shares of at \$39.78, was sold on Friday at \$45.86. To start this week, the OBV was on a slight decline, where it could have been sold but the stock price was continuing to increase. By the end of the week, both the OBV and stock price were rising again, and I sold because it was the final day of trading. After selling the 100 shares, I profited \$561. DAL's movement throughout the week is shown in Figure 6.12.4.



Figure 6.12.4: DAL Stock During Simulation Week 12

W, similarly, could have, and probably should have, been sold during the beginning of the week, when the price and OBV was dropping drastically. The stock dropped by \$20 (around the purchase price of \$278.03) on Tuesday and Wednesday, stayed relatively flat on Thursday and then skyrocketed to \$292.73 to close the week. Fortunately, I stayed patient and sold the stock during the final hour on Friday at a price higher than the closing price, \$293.54. Selling the 25 shares netted me a profit of \$347.75. W's movement is shown in Figure 6.12.5 below.



Figure 6.12.5: W Stock During Simulation Week 12

At the end of the simulation, my investments netted a total profit of \$11,380.91. In just this week, my total profit increased by \$3072.75, which was my second highest increase in a week. The summary of my transactions can be seen below in Table 6.12.1. To reflect on my increases in the grand scheme of the simulation my portfolio increased by just 11% in comparison to \$100,000, but since my lowest total cash of the simulation was only \$62,805.10, I only spent \$37,194.90. In comparison to that number, my portfolio value increased by 31%.

Week 12								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
2/16/21	GEVO	Sell	\$14.07	1,000	\$14,050	\$2,480	\$90,104.70	\$10,788.16
2/17/21	XL	Sell	\$19.46	200	\$3,872	-\$248	\$93,976.70	\$10,540.16
2/19/21	DAL	Sell	\$45.86	100	\$4,566	\$561	\$98,542.70	\$11,101.16
2/19/21	W	Sell	\$293.54	25	\$7,318.50	\$347.75	\$105,864.20	\$11,448.91
2/19/21	JNJ	Sell	\$163.70	40	\$6,530	-\$68	\$112,391.20	\$11,380.91

Table 6.12.1: Week 12 Transactions

## 7. Comparison & Analysis

During this simulation of the stock market, three different trading methods were utilized for 12 weeks, by three separate traders. All trades were made strategically, and each trader conducted their trades under the same conditions. In this chapter, the results of each method will be compared.

The first method discussed will be swing trading. The transaction record for the 12-week simulation using swing trading is recorded below in Table 7.1.1. Throughout the simulation there were a total of 52 transactions. These transactions included the purchases and sales of different stocks and options.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
Week 1							\$100,000	
12/3/20	XSPA	Buy	\$1.42	1000	\$1,443.99		\$98,556.01	
12/3/20	PIC	Buy	\$14.00	250	\$3,519.99		\$95,036.02	
Week 2							\$95,036.02	
12/7/20	PFE 40 Call 12/21/20 Expiration	Buy	\$2.58	5	\$1,318.74		\$93,717.28	
12/7/20	PIC	Buy	\$15.99	50	\$819.39		\$92,897.89	
12/8/20	PIC	Buy	\$15.39	100	\$1,558.74		\$91,339.15	
12/8/20	PFE 40 Call 12/21/20 Expiration	Sell	\$3.75	2	\$726.51	\$234.00	\$92,065.66	\$234.00
12/8/20	XSPA	Buy	\$1.52	1000	\$1,541.09		\$90,524.57	
12/9/20	GHIV	Buy	\$10.84	1000	\$10,859.99		\$79,664.58	
12/9/20	IPOC	Buy	\$11.47	1000	\$11,489.99		\$68,174.59	
12/9/20	PFE 40 Call 12/21/20 Expiration	Sell	\$3.35	1	\$313.26	\$77.00	\$68,487.85	\$311.00
12/9/20	XSPA	Buy	\$1.46	1000	\$1,484.89		\$67,002.96	
12/10/20	PFE 40 Call 12/21/20 Expiration	Sell	\$3.35	2	\$646.51	\$144.00	\$67,649.47	\$465.00
Week 3							\$67,649.47	
12/15/20	GHIV	Buy	\$10.66	1000	\$10,689.99		\$56,959.48	
12/15/20	XSPA	Sell	\$1.40	2000	\$2,773.81	-\$140.00	\$59,733.29	\$325.00
12/15/20	XSPA	Buy	\$1.36	2000	\$2,757.79		\$56,975.5	
12/17/20	GHIV	Buy	\$10.73	1000	\$10,749.99		\$46,225.51	
12/18/20	GHIV	Buy	\$10.72	1000	\$10,734.99		\$35,490.52	
Week 4							\$35,490.52	
12/21/20	XSPA	Buy	\$1.39	4500	\$6,271.94		\$29,218.58	
12/21/20	PIC	Sell	\$19.43	100	\$1,922.51	\$483.00	\$31,141.09	\$808.00
12/21/20	PIC	Sell	\$19.13	100	\$1,883.43	\$453.00	\$33,024.52	\$1,261.00
Week 5							\$33,024.52	
12/29/20	XSPA	Sell	\$1.19	3500	\$4,145.01	-\$840.00	\$37,169.53	\$421.00

12/29/20	IPOC	Sell	\$16.06	250	\$3,993.76	\$1,147.50	\$41,163.29	\$1,568.50
12/29/20	GHIV	Sell	\$13.23	1000	\$13,205.00	\$2,490.00	\$54,368.29	\$4,058.50
Week 6							\$54,368.29	
01/04/21	XSPA	Sell	\$1.17	4000	\$4,664.41	-\$880.00	\$59,032.70	\$2,338.50
01/04/21	CLOV	Sell	\$15.25	500	\$7,605.01	\$1,890.00	\$66,637.71	\$4,228.50
01/04/21	CLOV	Sell	\$14.31	250	\$3,556.26	\$710.00	\$70,193.78	\$4,938.50
Week 7							\$70,193.78	
1/12/21	CLOV	Buy	\$14.87	2000	\$29,759.99		\$40,433.98	
1/12/21	CLOV	Buy	\$14.7	1500	\$22,069.99		\$18,363.99	
1/13/21	XL	Buy	\$22.02	500	\$11,027.49		\$7,336.50	
1/13/21	CLOV	Sell	\$13.97	1750	\$24,412.96	-\$1,452.50	\$31,749.46	\$3,486.00
1/15/21	GEVO	Buy	\$6.46	1000	\$6,474.99		\$25,274.47	
Week 8							\$25,274.47	
1/19/21	GHIV	Sell	\$12.40	1500	\$18,580.01	\$2,490.00	\$43,854.48	\$5,976.00
1/19/21	GEVO	Sell	\$10.72	500	\$5,340.91	\$2,130.00	\$49,195.39	\$8,106.00
1/20/21	GEVO	Buy	\$9.18	500	\$4,610.24		\$44,585.15	
1/20/21	XSPA	Buy	\$1.51	10000	\$15,116.99		\$29,468.16	
1/21/21	GHIV	Sell	\$11.17	1500	\$16,733.21	\$645.00	\$46,201.37	\$8,751.00
1/21/21	GEVO	Buy	\$8.93	1000	\$8,950.09		\$37,251.28	
1/21/21	XSPA	Buy	\$1.52	5000	\$7,604.49		\$29,646.79	
Week 9							\$29,646.79	
1/25/21	GEVO	Sell	\$13.60	500	\$6,780.01	\$2,612.50	\$36,426.80	\$11,363.50
1/25/21	XSPA	Sell	\$2.07	5000	\$10,305.01	\$2800.00	\$46,731.81	\$14,163.50
1/28/21	XSPA	Sell	\$2.80	5000	\$13,980.51	\$6,450.00	\$60,712.32	\$20,613.50
Week 10							\$60,712.32	
2/2/21	XL	Sell	\$20.63	250	\$5,137.51	-\$347.50	\$65,843.89	\$20,266.00
2/2/21	CLOV	Sell	\$14.08	750	\$10,540.01	-\$537.75	\$76,383.90	\$19,728.25
2/2/21	XSPA	Buy	\$2.12	2500	\$5307.49		\$71,076.41	
2/5/21	CLOV	Sell	\$11.62	1000	\$11,600.01	-\$3,177.00	\$82,676.42	\$16,551.25
Week 11							\$82,676.42	
2/9/21	GEVO	Sell	\$13.77	750	\$10,307.51	\$4,046.25	\$92,983.93	\$20,597.50
2/10/21	GEVO	Sell	\$14.80	500	\$7,379.66	\$3,212.50	\$100,363.59	\$23,810.00
2/10/21	XSPA	Sell	\$2.77	2500	\$6,902.01	\$2,650.00	\$107,265.60	\$26,460.00
Week 12							\$107,265.60	
2/18/21	XSPA	Sell	\$2.53	5000	\$12,605.01	\$4,100.00	\$119,870.61	\$30,560.00
2/18/21	GEVO	Sell	\$10.77	250	\$2,672.51	\$598.75	\$122,543.12	\$31,158.75
2/18/21	XL	Sell	\$18.67	250	\$4,647.51	-\$837.50	\$127,190.63	\$30,321.25
2/18/21	PIC	Sell	\$19.13	200	\$3,806.85	\$906.00	\$130,997.48	\$31,227.25

Table 7.1.1: Swing Trading Transactions

Figure 7.1.1 below shows the cash levels at the beginning of each week, with the final cash amount being at the beginning of week 13 (end of simulation). \$100,000 in cash was in the account at the start of week 1 and that number rose to \$130,997.48 by the end. The cash levels fluctuated up and down throughout the simulation. This is because shares were frequently bought and sold for different companies while using swing trading.

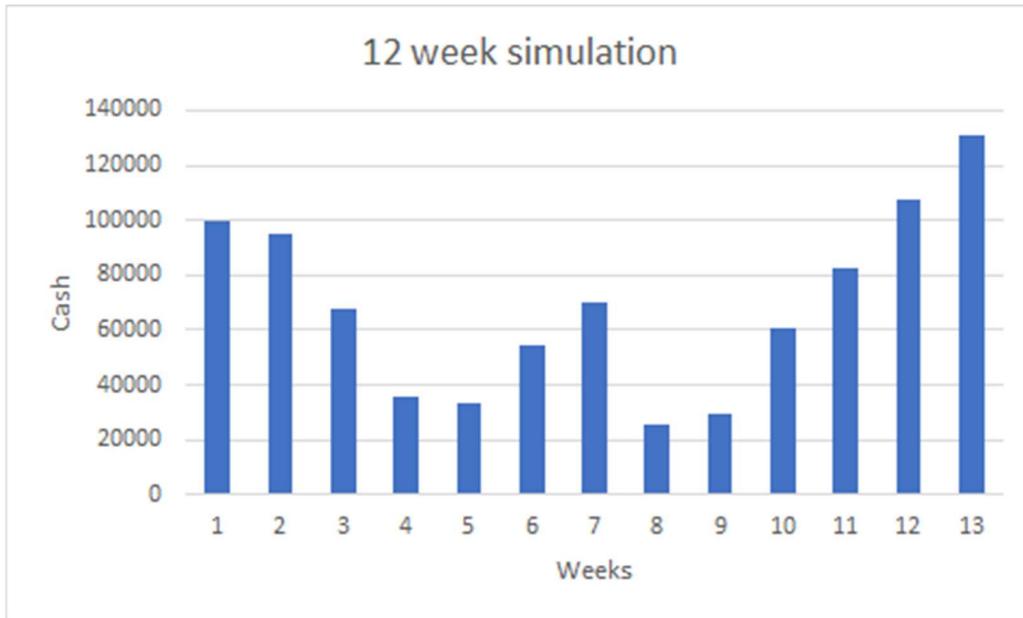


Figure 7.1.1: Swing Trading Cash Amounts

Another one of the methods used was position trading. To recap the plan/strategy for position trading, position traders use both fundamental and technical analysis to decide which stocks to buy, then they hold those stocks for relatively long periods of time—sometimes as long as a year. All transactions made during the twelve weeks of position trading are shown in Table 7.1.2 below.

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
Week 1							\$100,000	
12/1/20	W	Buy	\$250.43	10	\$2,524.29		\$97,475.71	
12/1/20	JNJ	Buy	\$148.39	50	\$7,439.49		\$90,036.33	
12/1/20	PYPL	Buy	\$220.27	20	\$4,425.39		\$85,610.83	
12/1/20	GEVO	Buy	\$1.90	200	\$400.93		\$85,209.90	
12/1/20	SPY	Buy	\$366.63	10	\$3,686.29		\$81,523.61	
12/1/20	PEP	Buy	\$145.26	50	\$7,282.74		\$74,240.87	
12/1/20	PFE	Buy	\$40.46	100	\$4,065.74		\$70,175.13	
Week 2							\$70,175.13	
12/9/20	PIC	Buy	\$18.23	100	\$1,842.99		\$68,332.14	
Week 3							\$68,332.14	
Week 4							\$68,332.14	
12/22/20	W	Buy	\$282.53	30	\$8495.89		\$59,836.25	
12/22/20	GEVO	Buy	\$2.83	1000	\$2844.99		\$56,991.26	
12/22/20	IPOC	Buy	\$13.38	200	\$2694.99		\$54,296.27	
Week 5							\$54,296.27	
12/28/20	PYPL	Buy	\$243.50	40	\$9759.99		\$44,536.28	
Week 6							\$44,536.28	
Week 7							\$44,536.28	
1/13/21	W	Sell	\$279.23	40	\$11,149.21	\$129.03	\$55,685.49	\$129.03
1/13/21	JNJ	Sell	\$157.94	50	\$7,877.01	\$437.52	\$63,562.50	\$566.55
Week 8							\$63,562.50	
1/21/21	GHIV	Buy	\$11.15	400	\$4,480.43		\$59,028.07	
1/21/21	CLOV	Sell	\$13.56	200	\$2,692.01	\$2.98	\$61,774.08	\$569.53
Week 9							\$61,774.08	
1/28/21	SPY	Sell	\$376.36	10	\$3,743.61	\$57.32	\$65,517.69	\$626.85
1/29/21	XSPA	Buy	\$2.44	3000	\$7,339.99		\$58,177.70	
1/29/21	PEP	Buy	\$138.11	50	\$6,925.64		\$51,252.06	
Week 10							\$51,252.06	
Week 11							\$51,252.06	
2/8/21	DAL	Buy	\$43.06	200	\$8,631.99		\$42,620.07	
2/8/21	GEVO	Sell	\$12.10	1200	\$14,490.01	\$11,244.09	\$57,110.08	\$11,870.94
2/9/21	PYPL	Sell	\$284.48	600	\$17,048.81	\$2,863.43	\$74,158.89	\$14,734.37
Week 12							\$74,158.89	
2/19/21	PEP	Sell	\$132.50	100	\$13,229.51	-\$978.87	\$87,338.40	\$13,755.50
2/19/21	PFE	Sell	\$34.47	100	\$3,427.01	-\$638.73	\$90,815.41	\$13,116.77
2/19/21	DAL	Sell	\$45.78	200	\$9,136.01	\$504.02	\$99,951.42	\$13,620.79
2/19/21	XSPA	Sell	\$2.48	3000	\$7,420.01	\$80.02	\$107,371.43	\$13,700.81

Table 7.1.2: Position Trading Transactions

Compared to a trading method like swing trading, not many trades were made. Position trading is centered more towards casual traders—those who only wish to check their account and make trades once or twice a day. This factor meant that there was little variation in total account balance for a number of weeks—one of the few cons of position trading, and something that swing trading and trending following do not usually suffer from. Of course, there were pros as well. First, as mentioned before, the time commitment is minimal, making it an ideal strategy for those who are

busy with other things in life but still wish to have another steady source of income. And to build off of that point—the risk with position trading is minimal. All stocks are researched intensively before purchases and sales and sell-stops prevent big losses for the trader. Even if a stock’s price falls, you have the option to hold it for an extended period of time, waiting for it to climb back up to a desirable point, whereas with trend following, if a trader takes a long position on a stock and that stock plummets, they are going to take a big hit.

The third method used through the twelve weeks of trade simulation was trend following. Within trend following, there are different sub-strategies that can be used to help determine a trend. During the first three weeks of trading, a simple 15-day moving average was used to confirm trends and buy/ sell signals. After the first three weeks, my account value reached \$100,827.49 in assets, while spending \$14,028.25 in cash and profiting only \$76.70. Much of this is because I was still holding many of the companies bought in these weeks, so profits were not solidified. This method proved to be more difficult than others because it was less explicit and more of a judgement call on the trader. The summary of weeks one through three, which consisted of 9 transactions, can be seen below in Table 7.1.3.

Week 1								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
12/3/20	DAL	Buy	\$43.39	1	\$63.39		\$99,936.61	
12/3/20	PIC	Buy	\$13.94	102	\$1,441.81		\$98,494.80	
12/4/20	PYPL	Buy	\$217.10	15	\$3,276.50		\$95,218.30	
Week 2							\$95,218.30	
12/7/20	PFE	Buy	\$40.81	85	\$3,488.85		\$91,729.45	
12/8/20	PIC	Sell	\$15.64	70	\$1,074.80	\$119	\$92,804.25	\$119
12/9/20	GHIV	Buy	\$11.39	250	\$2,867.50		\$89,936.75	
12/9/20	IPOC	Buy	\$10.80	250	\$2,720.00		\$87,216.75	
Week 3								
12/16/20	DAL	Sell	\$41.09	1	\$21.09	-\$42.30	\$87,237.84	\$76.70
12/16/20	PIC	Buy	\$14.66	85	\$1,266.09		\$85,971.75	

Table 7.1.3: Transactions Using Moving Averages

Throughout weeks four to six, another method was used to determine trends. This indicator was the moving average convergence divergence, which consisted of a fast line and slow line. Buy signals were triggered when the fast line increased at a faster rate. Conversely, if the fast line was decreasing at a faster rate than the slow line, it was a sell signal. Throughout this period my assets increased from \$100,827.49 to \$101,832.60, with \$73,383.60 in cash and a total profit of -\$214.15. These were the worst weeks of the simulation, as my profits dropped by nearly \$300. Much of this loss was because of one trade, where I lost \$406.40 from Pfizer. Many times, when using this method, the buy/sell signals seemed to follow the actual stock by too much time. The summary of the 8 transactions made in this period are below in Table 7.1.4.

Week 4								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
12/22/20	PIC	Sell	\$14.66	117	\$1,715.22	\$23.40	\$87,686.97	\$100.10
Week 5								
12/29/20	PFE	Sell	\$36.25	85	\$3,082.45	-\$406.40	\$90,769.42	-\$306.30
12/31/20	PEP	Buy	\$147.85	20	\$2,976.99		\$87,792.43	
12/31/20	GHIV	Buy	\$13.09	250	\$3,291.24		\$84,501.19	
12/31/20	IPOC	Buy	\$16.32	300	\$4,915.99		\$79,585.20	
Week 6								
1/6/21	PEP	Sell	\$142.93	20	\$2,838.60	-\$138.39	\$82,423.80	-\$444.69
1/7/21	PYPL	Sell	\$235.14	15	\$3,507.04	\$230.54	\$85,930.84	-\$214.15
1/7/21	W	Buy	\$250.55	50	\$12,547.24		\$73,383.60	

Table 7.1.4: Transactions Using MACD

During the third quarter of trading, which was weeks seven to nine, the indicator used was the relative strength index (RSI). The RSI determines, given by the name, the strength of the stock. On a scale of one to 100, the most important values are 70 and 30. If the RSI of the stock drops below 30, this indicates that the stock has been oversold and many traders are pulling out of the stock. This is a buy a signal. A sell signal, when using RSI, occurs when the strength is above 70, indicating the stock has been overbought. During this time, my assets increased from \$101,832.60 to \$107,183.50 and my profits increased by over \$8,000. This one is nearly tied, in terms of increases in assets, with the next trading method. The number of transactions made in these three

weeks was like the other two methods, with the total being nine. These transactions are shown below in Table 7.1.5.

Week 7								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
1/13/21	W	Sell	\$300.90	50	\$15,025	\$2,477.76	\$88,408.60	\$2,263.61
1/14/21	XSPA	Buy	\$1.35	6,000	\$8,120		\$80,288.60	
Week 8								
1/21/21	GHIV	Sell	\$13.09	500	\$6,525	\$575	\$86,813.60	\$2,838.61
1/22/21	XL	Buy	\$20.50	200	\$4,120		\$82,693.60	
1/22/21	DAL	Buy	\$39.96	40	\$1,618.40		\$81,075.20	
Week 9								
1/27/21	XSPA	Sell	\$2.20	6,000	\$13,180	\$5,060	\$94,255.20	\$7,898.61
1/27/21	CLOV	Buy	\$13.93	70	\$995.10		\$93,260.10	
1/29/21	UWMC	Buy	\$10.07	100	\$1,027		\$92,233.10	
1/29/21	CLOV	Sell	\$13.95	300	\$4,165	-\$73	\$96,398.10	\$7,825.61

Table 7.1.5: Transactions Using RSI

Over the final trading period, the method of trading used was the on-balance volume, or OBV. The OBV is not scaled and is relative to each stock. In essence, bigger companies who have bigger market caps will have higher normal values of OBV. Buy and sell signals are determined by overall trends in combination with the OBV trend. For example, if the stock is trending upwards and the OBV starts to pull back, then this tells the trader that the most people in the stock are selling and the price will follow. In this scenario, you should sell. In the opposite scenario, the stock will be trending downwards and the OBV begins to increase, then one should buy the stock. Throughout this period, my assets increased from \$107,183.50 to \$112,391.20. The transactions from this period are summarized in Table 7.1.6 below.

Week 10								
Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
2/1/21	UWMC	Sell	\$9.99	100	\$979	-\$48	\$97,377.10	\$7,777.61
2/1/21	W	Buy	\$278.03	25	\$6,970.75		\$90,406.35	
2/3/21	CLOV	Sell	\$13.16	320	\$4,211.20	-\$288	\$94,618.55	\$7,489.61
2/3/21	SPY	Buy	\$381.51	15	\$5,735		\$88,882.55	
2/3/21	DAL	Buy	\$39.78	60	\$1,213.40		\$87,669.15	
2/4/21	PEP	Buy	\$139.68	25	\$3,512.00		\$84,157.55	
Week 11								
2/8/21	PEP	Sell	\$140.40	25	\$3,490	-\$22	\$87,647.15	\$7,467.61
2/8/21	PYPL	Buy	\$278.29	45	\$12,543.05		\$75,104.10	
2/8/21	GEVO	Buy	\$11.55	1,000	\$11,570		\$65,534.10	
2/10/21	SPY	Sell	\$391.64	15	\$5,869	\$134	\$69,403.10	\$7,601.61
2/12/21	JNJ	Buy	\$164.45	40	\$6,598		\$62,805.10	
2/12/21	PYPL	Sell	\$294.88	45	\$13,249.60	\$706.55	\$76,054.70	\$8,308.16
Week 12								
2/16/21	GEVO	Sell	\$14.07	1,000	\$14,050	\$2,480	\$90,104.70	\$10,788.16
2/17/21	XL	Sell	\$19.46	200	\$3,872	-\$248	\$93,976.70	\$10,540.16
2/19/21	DAL	Sell	\$45.86	100	\$4,566	\$561	\$98,542.70	\$11,101.16
2/19/21	W	Sell	\$293.54	25	\$7,318.50	\$347.75	\$105,864.20	\$11,448.91
2/19/21	JNJ	Sell	\$163.70	40	\$6,530	-\$68	\$112,391.20	\$11,380.91

Table 7.1.6: Transactions Using OBV

Throughout the whole simulation, four different strategies of trend trading were used: moving average, MACD, RSI, and OBV. Based on the numbers presented, the worst method to use was the MACD, and then the simple moving average. After this, the two best methods, OBV and RSI, were both close in profit and increase in assets. In terms of transaction numbers, the OBV led to the most, with 17. This was almost double the amount of any of the other three methods.

Figure 7.1.2 below compares the total account balance of each method during the 12-week period. Although this does not show realized profits, total account balance is a good metric to show how well an investor's investments were performing. Our group thought that it was clear that swing trading is the most effective of the three methods. Swing trading is a method intended to net the trader decent gains in short time periods, which made it perfect for this simulation.

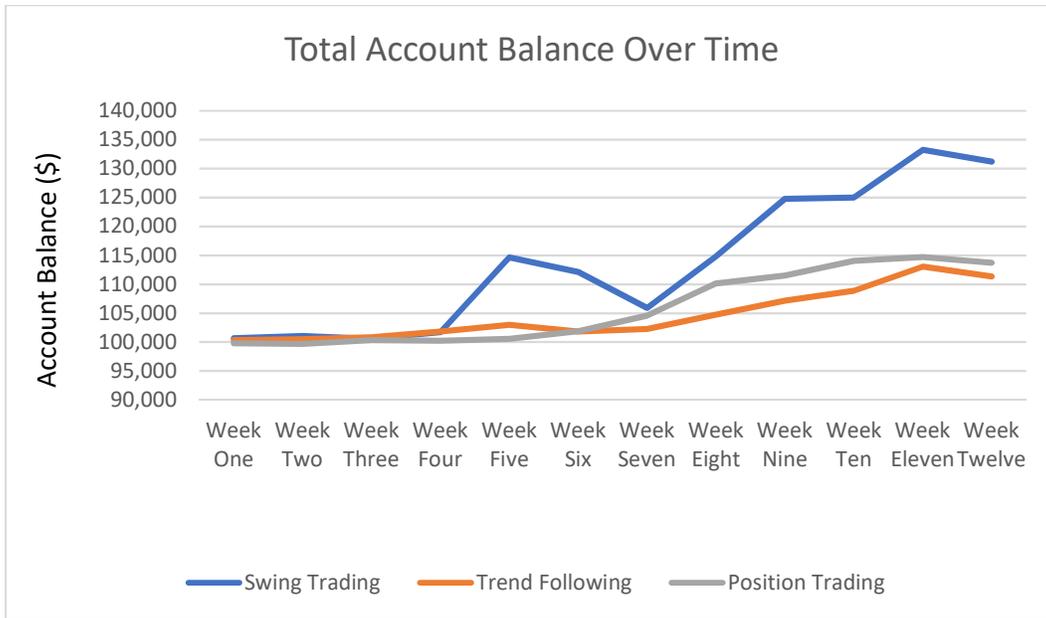


Figure 7.1.2: Trading Method Comparison

## 8. Conclusion

After weeks of buying, selling, and researching, we conclude our project. We experimented with numerous strategies and companies, yet we each found ways to conduct our trades successfully. Of course, the condensed format and “pretend” online broker make this project much different than physically trading, but the concepts we learned and knowledge we gained made this project worthwhile.

Each member of our group came into this project with similar goals—expanding our knowledge of the stock market, becoming more effective traders, learning how to analyze data, becoming better writers, etc. After completion, we all agree that our expectations were met. Conducting a stock market simulation in the manner in which we did with this project cannot be done without a lot of effort and commitment, and that put us on a path toward success. In addition to that, although swing trading was a standout, we found ourselves three very effective trading methods. All three had relatively large amounts of profit, especially for such a short period of time.

All in all, we believe that this project provided us with very valuable knowledge, and that this knowledge will help us in the real world for years to come.

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