

Project Number: DZT 2110

**Stock Market Simulation**

An Interactive Qualifying Project Report: Submitted to the Faculty of

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

By

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Submitted:

August 22, 2022

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This report represents the work of one WPI undergraduate student 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

The goal of this IQP was to learn about the history and workings of the stock market, while also researching and using trading methods to find ways of maximizing profit in the market. The project consisted of research into the history of the stock market and its biggest indexes, followed by a 4-week simulation to compare the active trading method to the passive Buy and Hold method. The simulation consisted of 2 portfolios, where the same 5 stocks across both portfolios were traded. The active trading method yielded a positive return of 1.96%, while the Buy and Hold method had a negative return of 6.18%. This valuable experience will help for future investments in the stock market due to a better understanding of different trading methods and how to use them.

## Acknowledgements

The success of my Interactive Qualifying Project (IQP) would not have been possible without the help and support of multiple individuals. Firstly, I would like to thank Professor Tang for his continuous support and guidance throughout this project. I would also like to thank my parents for their support and encouragement as I worked on this project.

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# 1. Introduction

## 1.1. Goals and General Plan

The goal of this IQP is to develop an understanding of the stock market and how to use the resources associated with it. More specifically, I aim to develop my ability to understand stock trading and how to become a better investor. To accomplish this goal, I will conduct research about the history of the stock market and basic strategies used to build wealth in the market. Then, I plan to conduct a 4-week stock trading simulation. I will be using two portfolios containing an initial investment of \$100,000 each to trade stocks. Each portfolio will contain the same 5 stocks, each worth approximately 20 percent of the portfolio. However, the trading strategies in the two portfolios will differ. In one portfolio, I will buy shares at the beginning of the simulation and follow the buy-and-hold strategy, in which I will passively invest and not sell the stocks until the end of the simulation. The other portfolio will be managed with a strategy of actively trading, in which I will buy and sell stocks to make a profit. At the end of the four weeks, I will sell the stocks in both portfolios and compare the profit gained between the two to see whether passively investing or actively investing led to a larger gain in the market over the time period. After the end of each week, I will document the gains or losses accrued through active trading, while also looking at the change in price of the 5 stocks I am trading in my portfolio.

## 1.2. History of the Stock Market

Amsterdam, Netherlands was the location of the first modern stock market in history, which was created in 1611 by the Dutch East India Company [1]. At the height of Imperialism led by world powers including the Dutch, British, and French, sea voyages that were launched to bring

back goods from the East were seen as risky. Due to factors including weather, poor navigation and even Barbary pirates, ship owners needed some financial backing in the case of a lost ship. They had initially sought investors who could put up money for a voyage to help outfit the ship and crew. In return, they would receive a percentage of the proceeds if the voyage was successful. However, these investors had to invest in separate limited liability companies for each voyage, which would be dissolved after a voyage's completion. The East India companies constructed a new way of investing, in which they issued stock that would pay dividends to investors. These dividends came from the proceeds of all voyages the companies undertook, which was a change from investing from voyage to voyage. The shares were issued on paper, which allowed investors to sell their shares to other investors if they wished. Since there was no official stock exchange, investors had to carry out trades through brokers, who did most of their trading at local stores and coffee shops. Investors were able to achieve large profits through this new method of investing, which allowed them to invest in a collection of voyages the East India companies embarked on rather than individual ones [2]. In the United States, the stock market made its inception in 1790 in Philadelphia. The Philadelphia Stock Exchange helped spur the development of the U.S.'s financial sectors and its expansion west. Two years later the Buttonwood Tree Agreement, in which a group of men involved in the agreement met daily to buy stocks and bonds, led to the origin of the New York Stock Exchange (NYSE).

## 1.3. Stock Market Indexes

### 1.3.1. Dow Jones Industrial Average

The Dow Jones Average, computed by Dow Jones & Company, Inc., is one of the most commonly used indicators of general trends in the prices of United States stocks. Founded by

Charles Henry Dow and Edward D. Jones, the Dow Jones & Company began computing a daily industrials average back in 1896. Initially, the average was created by using a list of 12 stocks and dividing their total price by 12. Since then, the list of stocks has been broadened, and the divisor has been adjusted to compensate for factors including stock splits, stock substitutions, and dividend changes. The average is now meant as an indicator for general market price trends, which includes 30 stocks [3]. Of those 30, the most expensive stocks weigh the heaviest on the average. The 3 stocks with the most weight are UnitedHealth Group (UNH), Goldman Sachs (GS), and Home Depot (HD) [4].

### 1.3.2. NASDAQ Composite

The Nasdaq Composite Index is a market weighted index of over 3,700 stocks listed on the Nasdaq stock exchange. It uses a market capitalization weighting methodology, in which the index's value is calculated by summing the market capitalization of the index components based on the stocks' current price, then being adjusted a constant index divisor. The index was launched on February 5<sup>th</sup>, 1971, where it had an index value of 100. The index is heavily weighted towards the technology sector, with the three most weighted stocks being technology stocks in Apple (AAPL), Microsoft (MSFT), and Amazon (AMZN). Over the past 10 years, the index has produced an annualized return of 15.4%, even with some declines affecting the index [5].

### 1.3.3. Standard & Poor's 500

The Standard & Poor's 500 index, more commonly known as the S&P 500, is a market-capitalization-weighted index of 500 leading publicly traded companies in the U.S. It is regarded as one of the best gauges of prominent American equities' performance and the stock market overall. As it uses a market-cap weighting method, a higher percentage of the index is allocated to

companies with the largest market capitalizations. The index focuses on the U.S. market's large-cap sector and is also a float-weighted index, meaning company market caps are adjusted by the number of shares available for public trading. As with the Nasdaq Composite Index, the 3 most heavily weighted stocks in the index are the technology giants Apple (AAPL), Microsoft (MSFT), and Amazon (AMZN). Over the past 10 years, the index has produced an annualized return of 13.8% [6].

### 1.3.4. Russell 2000

The Russell 2000 index is a market-capitalization-weighted index measuring the performance of 2,000 small-cap companies in the U.S. market. Launched in 1984 by the Frank Russell Company, the index is the most widely quoted measure of the overall performance of small-cap to mid-cap stocks. It is made up of the bottom two-thirds in company size of the Russell 3000 index. Many mutual fund investors prefer the index as it reflects the investment opportunity presented throughout the entire market, instead of indices that may be concentrated heavily in certain sections of the market. New companies added to the index are announced between May and June every year. Currently, the top 3 holdings in the index by market capitalization are Ovintiv Inc. (OVV), Antero Resources Co (AR), and Chesapeake Energy (CHK). Over the past 10 years, the index has produced an annualized return of 9.35% [7].

## 1.4. Stock Market Crashes

### 1.4.1. 1929 Stock Market Crash

Throughout the history of the stock market, it has had many periods of surging growth and collapsing declines in which investors have had to navigate through. Throughout the 1920s,

American society was flourishing and the economy were expanding alongside a boom in the stock market in a period nicknamed “The Roaring Twenties”. However, this all came to an end on October 24, 1929 as the market dropped 11% in an event named “Black Thursday”. Further single-day double-digit losses of 13 and 12 percent, respectively, on the following “Black Monday” and “Black Tuesday” sent the market into a spiraling downturn. The reason for this sudden decline was due to excess leverage. Many investors and trusts began buying large amounts of stock on margin, meaning they only paid 10% of a stock’s value to acquire it under a margin loan. Consumers were also buying items heavily using credit, and these factors led to one of the darkest periods in American economic history, better known as the Great Depression [8].

### 1.4.2. Black Monday

On October 19, 1987, the Dow Jones Industrial Average plunged nearly 22%. A series of factors including a widening U.S. trade deficit, the rise of computerized trading, and tensions in the Middle East led to the sell-off on that day. The biggest factor seemed to be the use of programmed trading, in which computers tended to produce more buy orders when prices were rising and more sell orders when prices were falling. As sell orders flooded the market on the day nicknamed “Black Monday”, other investors followed suit with their holdings. Fortunately, since the crash was not due to economic reasons, the market was able to recover from its effects quickly as all losses were recouped by September 1989 [8].

### 1.4.3. Dot-Com Bubble

In the last decade of the 20<sup>th</sup> century, the markets were on a great positive run, led by the domination and rise of internet-based stocks. The NASDAQ Index was the leading index for this run, surging from 1,000 points to 5,000 points between 1995 and 2000. However, the dot-com

bubble started to burst as the index plummeted 76.81% from March 10, 2001 to October 4, 2002. The reason for this crash was due to overvalued internet stocks, in which investors poured money into every internet company, even ones without revenues, in a belief they would become extremely profitable. The Federal Reserve tightened its monetary policy, leaving capital to be constrained away from these stocks. It took the NASDAQ Index 15 years to recover from these losses, as investors overvalued all internet companies [8].

#### 1.4.4. Financial Crisis of 2008

In 1999, the Federal National Mortgage Association wanted to make home loans more accessible to those with low credit ratings and less money to spend on down payments. These borrowers, known as subprime borrowers, were offered mortgages with payment terms that included high interest rates and variable payment schedules increasing their risk of defaulting on their loans. This increased availability fueled explosive growth in mortgage orientations and home sales, as consumers took on additional debt to buy new goods. Companies and financial institutions also took on large debts attempting to take advantage of the surging economy. As the debts started to pile up in the market, signs started to appear of a potential problem. In March 2007, investment bank Bear Stearns announced it could not cover its losses linked to mortgages given out to subprime borrowers. Other institutions followed suit, and from October 2007 to March 2009, the market crashed 54% from its peak as the economy was ridden with individual and organizational debts [8].

#### 1.4.5. Coronavirus Crash of 2020

Following the Financial Crisis of 2008, the stock market went on the largest gain in history, returning over 468%. However, as history reflects, all stock market bull runs eventually end

somewhere. During the week of February 24, 2020, the Dow Jones and S&P 500 tumbled between 11 and 12% each as investor fears about the potential impacts of COVID-19 plagued the market. This decline continued into March, as markets declined by over 30% in the span of a month. However, the quick decline was met with a quick recovery, as pre-pandemic peaks were reached in May 2020. This recovery was due to a massive amount of stimulus money given by the federal government, with the Federal Reserve slashing interest rates and injecting \$1.5 trillion into money markets, followed by Congress passing a \$2.2 trillion aid package in March [8].



## 2. Trading Methods

The two trading methods I will be using during the 4-week simulation are the buy-and-hold method and the active trading method. For both methods, I will buy the 5 stocks selected at the start of the simulation. The buy-and-hold method will entail me not selling or buying any stocks for the 4-week period of the simulation, letting the market play out. In comparison, the active trading method will entail me buying and selling stocks multiple times throughout the simulation to try and create a larger profit than the buy-and-hold method.

### 2.1. Buy-And-Hold Trading

Buy and hold trading, also known as long term investing, is a passive investment strategy in which an investor buys stocks and holds them for a long period regardless of market fluctuations. Shareholders who own stock of a company may be more committed to a certain company and want to invest in the company for the long term, with no concern about short-term volatility. The U.S. stock market has returned substantial gains to investors over long periods in the past, which has rewarded patient investors who bought stock in companies whose stock prices increased significantly throughout history [9].

### 2.2. Active Trading

Active trading refers to buying and selling stocks in an attempt to capture quick profit based on short-term movements in price. The most common category of active trading is day trading, which involves buying and selling a security within the same trading day. Investors try to take advantage of any events that may influence the stock's price, such as earnings announcements or other important news. Scalping involves using a high volume of trades to take advantage of small

price discrepancies. Lastly, swing trading involves positions held for several days to several weeks. Investors may be looking at a time span of a few hours or days, or potentially weeks to try and take advantage of any patterns that benefit the investor [10].

### **3. Selection of Stocks**

For this simulation, I attempted to pick stocks from different sectors of the market to create a more diversified portfolio, while also having large, well-known brands that investors would know about. The five sectors I decided to choose from were the technology sector, consumer discretionary, health care, consumer staples, and financial sectors.

#### **3.1. Apple**

Apple Inc. is an American multinational technology company specializing in consumer electronics, software, and online services. Founded on April 1<sup>st</sup>, 1976 in Los Altos, California, the co-founders Steve Jobs, Steve Wozniak, and Ronald Wayne worked together to launch their first product, the Apple-1 computer. With a rise in popularity in technology in the following decades, the company grew rapidly before being listed on the stock market [11]. On December 12, 1980, the company listed its stock on the NASDAQ stock exchange, for a starting price of \$22 per share [12]. Now led by CEO Tim Cook, the company has reached a market cap of over \$2 trillion, making it the largest company in the United States through market capitalization. In the past year, the stock has gained 4%, currently trading at a price of \$145.38 per share (Figure 3.1).



Figure 3.1: Apple, Inc. Stock Chart

### 3.2. Nike

Nike, Inc. is an American multinational corporation engaged in the design, development, manufacturing, and worldwide marketing and sales of footwear, apparel, equipment, accessories, and services. Founded on January 25, 1964 by Phil Knight and Bill Bowerman in Eugene, Oregon, the company was initially called “Blue Ribbon Sports” before being renamed to Nike in 1971. The company rose to fandom through its sale of shoes, primarily sneakers and other athletic footwear. In December 1980, the company listed its stock on the NYSE at \$22 a share [13]. With a \$178B market cap, the company has grown into a household name popular throughout the sports and lifestyle industries. In the past year, the stock has declined 13%, currently trading at a price of \$120.95 a share (Figure 3.2).



Figure 3.2: Nike, Inc. Stock Chart

### 3.3. Johnson & Johnson

Johnson & Johnson is an American multinational corporation that develops medical devices, pharmaceuticals, and consumer packaged goods. The pharmaceutical giant was founded in January 1886 in New Brunswick, New Jersey by pharmacist Robert Wood Johnson and his brothers James Wood Johnson and Edward Mead Johnson. They initially founded the company based on research into the nature of airborne germs and infectious diseases, before branching out into other areas. On September 24, 1944, the company listed its stock on the NYSE for \$37.50 a share [14]. With a market cap of \$447B, Johnson & Johnson is the largest pharmaceutical company in the world based on market cap. In the past year, the stock has gained 3%, currently trading at a price of \$176.42 a share (Figure 3.3).

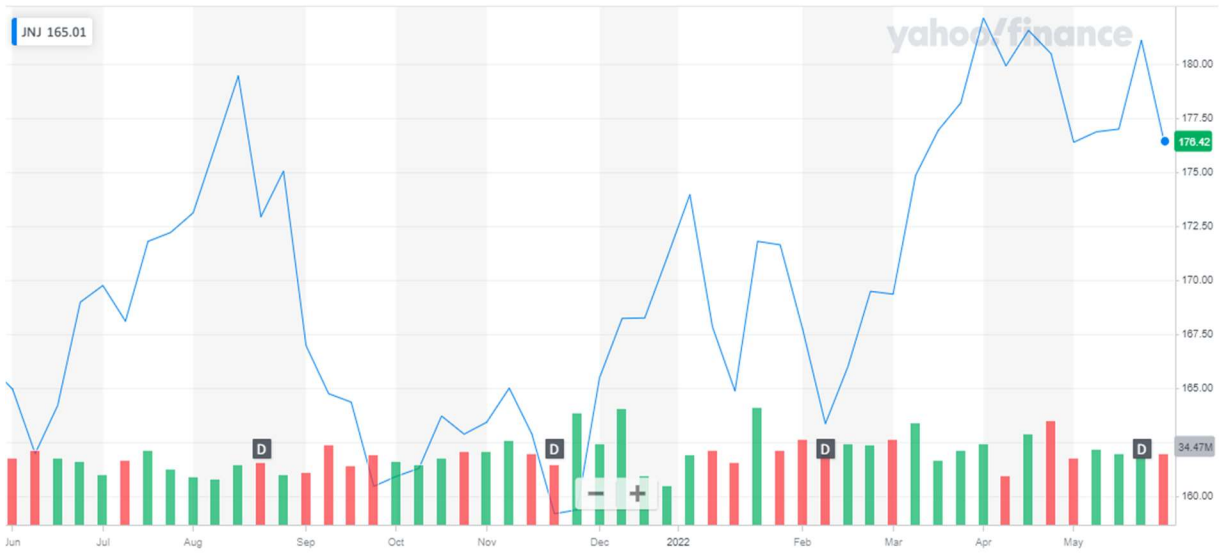
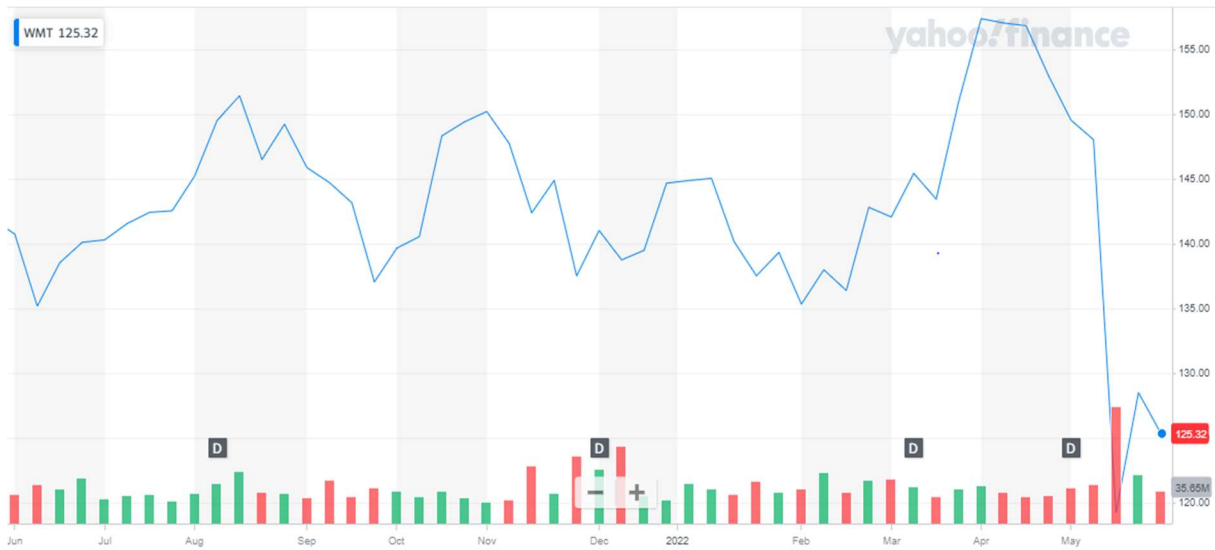


Figure 3.3: Johnson & Johnson Stock Chart

### 3.4. Walmart

Walmart, Inc. is an American multinational retail corporation that operates a chain of hypermarkets, discount department stores, and grocery stores worldwide, with the largest portion located in the United States. Founded on July 2, 1962 in Rogers, Arkansas, Sam Walton opened the first Walmart store before opening many more and bringing in millions of dollars in sales. The company started trading its stock on the NYSE on August 25, 1972, for a price of \$16.50 per share [15]. With a market cap of \$327B, the company is the second largest retail company in the world. In the past year, the stock has declined 13%, currently trading at a price of \$125.32 a share (Figure 3.4).



*Figure 3.4: Walmart, Inc. Stock Chart*

### 3.5. Visa

Visa, Inc. is an American multinational financial services corporation that facilitates electronic funds transfers throughout the world, primarily through Visa-branded credit cards, debit cards, and prepaid cards. Founded on September 18, 1958 in Fresno, California by Dee Hock, the company launched a credit card program for customers to use. Through the development of their credit card and expansion into other services, the company became one of the largest credit card providers in the world. The company started trading its stock on the NYSE on March 18, 2008, for a price of \$44 per share [16]. With a market cap of \$408B, the Californian-based company is the largest financial services company based on market cap. In the past year, the stock has declined 14%, currently trading at a price of \$212.65 per share (Figure 3.5).



Figure 3.5: Visa, Inc. Stock Chart



## 4. Active Trading Simulation

Over the next 4 weeks, I will be conducting my simulation of the 5 stocks selected, which are Apple, Nike, Johnson & Johnson, Walmart, and Visa. Using the active trading method, I will buy and sell the stocks throughout the week to profit in my portfolio. The stocks will only be traded during regular trading hours (9:30am to 4pm) when the stock market is open (not on market holidays). At the end of each week, I will give a report of my trades for the week, with a summary of total profit or loss from buying and selling stocks. I will also give an update on each individual stock's performance over the week and compare that to how my active trading portfolio performed over each week.

### 4.1. Week 1 (June 6 – June 10)

Week 1 of my simulation was conducted on the days between Monday, June 6<sup>th</sup> and Friday, June 10<sup>th</sup>. I started the simulation with \$100,000 to trade and no stocks yet in my portfolio, since it was the beginning of my simulation. I started off by buying stock in Apple and Nike, buying 100 shares of each company. I bought Apple stock for a price of \$147.03 per share and Nike stock for a price of \$121.50 per share, investing \$26,853 into the two stocks combined. I then proceeded to sell all 200 stocks for a net loss before buying Johnson and Johnson stock on Friday and day-trading to sell the stock at a profit. At the end of the week, Apple stock plummeted by 6.2%, Nike stock declined by 4.6%, and Johnson and Johnson stock was down 2.2%. The overall markets also declined, with the Dow Jones Industrial declining 4.6% for the week due to investor worries about a Federal Reserve rate hike and inflation fears. For the week, my active trading portfolio declined by 0.2%. Table 4.1 shows the trades I conducted for week 1.

Table 4.1: Active Portfolio Week 1 Trades

Date	Symbol	Buy/ Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
							\$100,000.00	
6/6/2022	AAPL	Buy	\$147.03	100	\$14703.00		\$85,297.00	
6/6/2022	NKE	Buy	\$121.50	100	\$12150.00		\$73,147.00	
6/8/2022	NKE	Sell	\$123.05	100	\$12305.00	\$155.00	\$85,452.00	\$155.00
6/9/2022	AAPL	Sell	\$142.60	100	\$14260.00	-\$443.00	\$99,712.00	-\$288.00
6/10/2022	JNJ	Buy	\$171.41	80	\$13712.80		\$85,999.20	
6/10/2022	JNJ	Sell	\$172.55	80	\$13804.00	\$91.20	\$99,803.20	-\$196.80

Apple opened at \$146.14 on Monday and closed at \$137.13 for the week, declining 6.2%. After Tuesday, the stock price started to drop, and I was holding 100 shares for too long, so I decided to sell the stock at a loss of \$443 total, which could have been more had I held the stock for longer since its price kept declining, especially on the 10<sup>th</sup>. Figure 4.1 shows Apple stock's price chart for Week 1.

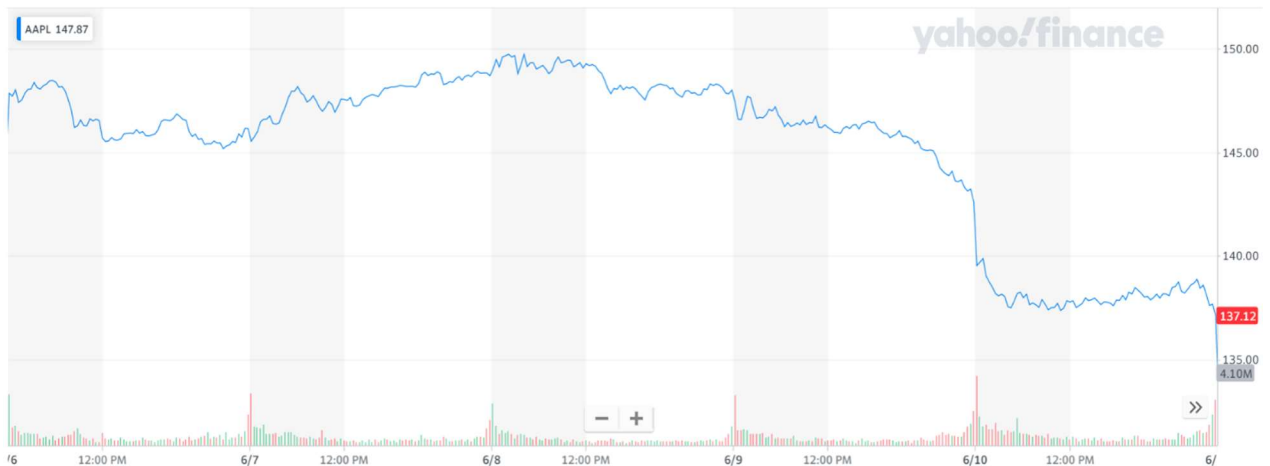
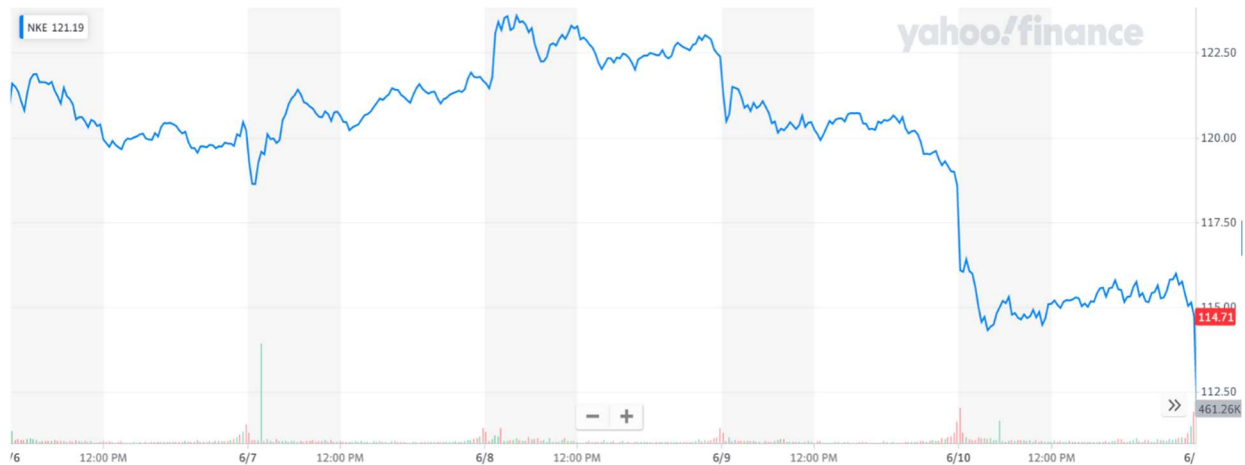


Figure 4.1: Apple, Inc. Week 1

Nike opened at \$120.23 on Monday and closed at \$114.73 for the week, declining 4.6%. I bought Nike's stock on Monday and sold it on Wednesday after its price increased by 1.3%. That was a good decision, since the stock slid 6.3% from Wednesday to Friday. Selling Nike stock helped me reduce some of my losses for the week, that were mainly caused by selling Apple stock for a loss. Figure 4.2 shows Nike stock's price chart for Week 1.



*Figure 4.2: Nike, Inc. Week 1*

Johnson & Johnson opened at \$176.40 on Monday and closed at \$172.55 for the week, declining 2.2%. After investing in Nike and Apple, I saw a good buying opportunity on Friday when the stock dropped almost \$3 a share from its closing price on Thursday to its opening price on Friday. I was then able to day-trade and sell the stock for over a dollar profit per share before the market closed on Friday. Figure 4.3 shows Johnson & Johnson's stock price chart for Week 1.

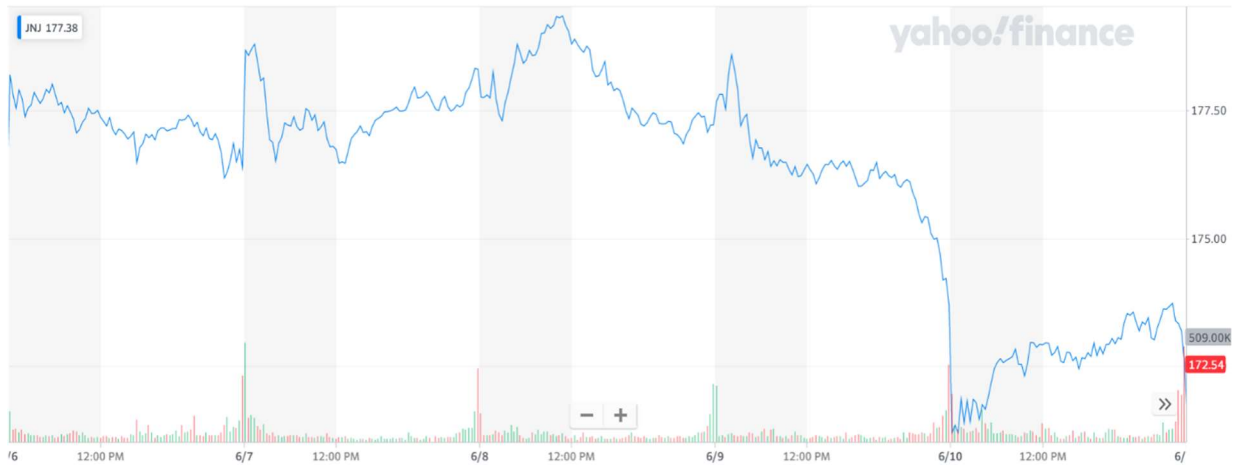


Figure 4.3: Johnson & Johnson Week 1

Walmart opened at \$124.87 on Monday and closed at \$121.70 for the week, declining 2.5%. I was lucky not to have invested in Walmart stock this week, especially since there were two large drops in the price from Monday to Tuesday and Thursday to Friday. The stock was volatile, which led me to stay away from it for the week, since inflation fears were worrying investors about retailers including Walmart. Figure 4.4 shows Walmart’s stock price for Week 1.

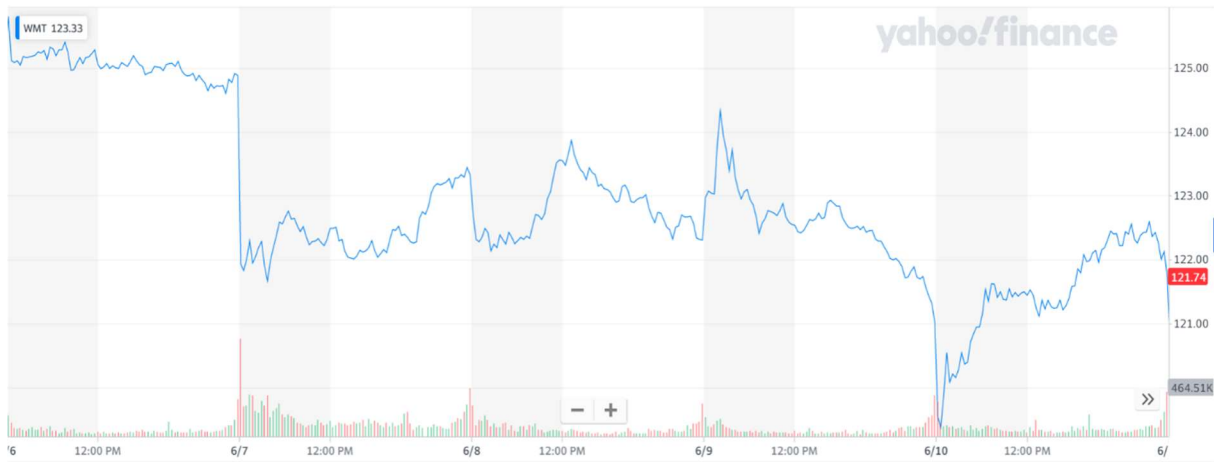


Figure 4.4: Walmart, Inc. Week 1

Visa opened at \$212.94 on Monday and closed at \$199.51 for the week, declining 6.3%. Visa was the worst performing stock of the 5 for the week, as its price declined below the \$200

mark after having increased over 10% from its recent dip at \$193. Figure 4.5 shows Visa's stock price for Week 1.



*Figure 4.5: Visa, Inc. Week 1*

## 4.2. Week 2 (June 13 – June 17)

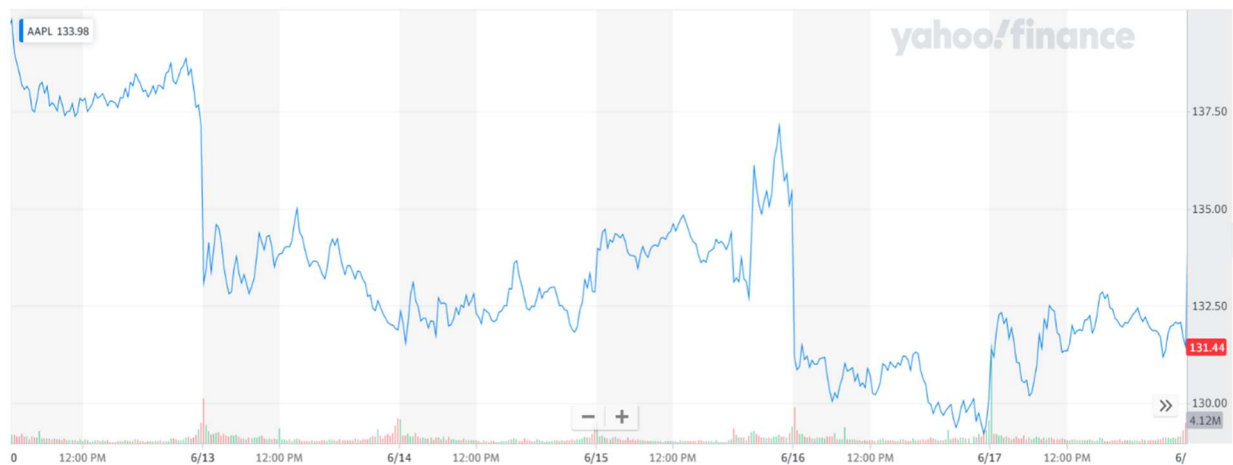
Week 2 of my simulation was conducted on the days between Monday, June 13<sup>th</sup> and Friday, June 17<sup>th</sup>. At the start of the week, I did not own any stocks in my portfolio, as I sold them all at the end of the first week. My portfolio contained \$99,803, a drop from the initial \$100,000 starting balance caused by an overall loss in stock trading for the first week. I started off by buying Visa stock on Monday, which was the worst performing stock in my portfolio last week. I bought 90 shares of Visa stock at \$192.26 per share. The next day, I bought 125 shares of Walmart stock at \$118.76 per share, and 100 shares of Apple stock at \$132.27 per share, for a total investment of \$28,082 between the two stocks. Visa's stock price rose from Monday to Wednesday, leading me to sell Visa stock for a profit. The same activity occurred with Apple stock, which I sold on the same day to recoup some profits from. Johnson and Johnson's stock price was falling early in the week, so I used my profits to reinvest in the pharmaceutical giant's stock. I bought 90 shares for a price of \$168.20 per share, which I held onto through the end of the week. On the same day, I also

sold all 125 shares of Walmart stock for a profit of \$2.20 per share. At the end of the week, Apple stock declined by 0.2%, Walmart stock declined by 0.9%, and Visa stock declined by 1.2%. The overall markets also declined, with the Dow Jones Industrial declining 2.1% for the week, due to a late week decline wiping out the early week's gains. Table 4.2 shows the trades I conducted for week 2.

*Table 4.2: Active Portfolio Week 2 Trades*

Date	Symbol	Buy/ Sell	Price	Shares	Net Cost/Proceeds	Profit/ Loss	Total Cash	Total Profit
6/13/2022	V	Buy	\$192.26	90	\$17303.40		\$82,499.80	
6/14/2022	WMT	Buy	\$118.76	125	\$14845.00		\$67,654.80	
6/14/2022	AAPL	Buy	\$132.37	100	\$13237.00		\$54,417.80	
6/15/2022	V	Sell	\$195.41	90	\$17586.90	\$283.50	\$72,004.70	\$86.70
6/15/2022	AAPL	Sell	\$136.29	100	\$13629.00	\$392.00	\$85,633.70	\$478.70
6/16/2022	JNJ	Buy	\$168.20	90	\$15138.00		\$70,495.70	
6/16/2022	WMT	Sell	\$120.96	125	\$15120.00	\$275.00	\$85,615.70	\$753.70

Apple opened at \$131.88 on Monday and closed at \$131.56 for the week, declining 0.2%. After having declined in price most of last week, I determined it was a good time to buy the dip in Apple. After holding the stock through the end of Tuesday, I saw a good selling opportunity as I was able to sell my 100 shares to make a total profit of \$392. Figure 4.6 shows Apple's stock price chart for week 2.



*Figure 4.6: Apple, Inc. Week 2*

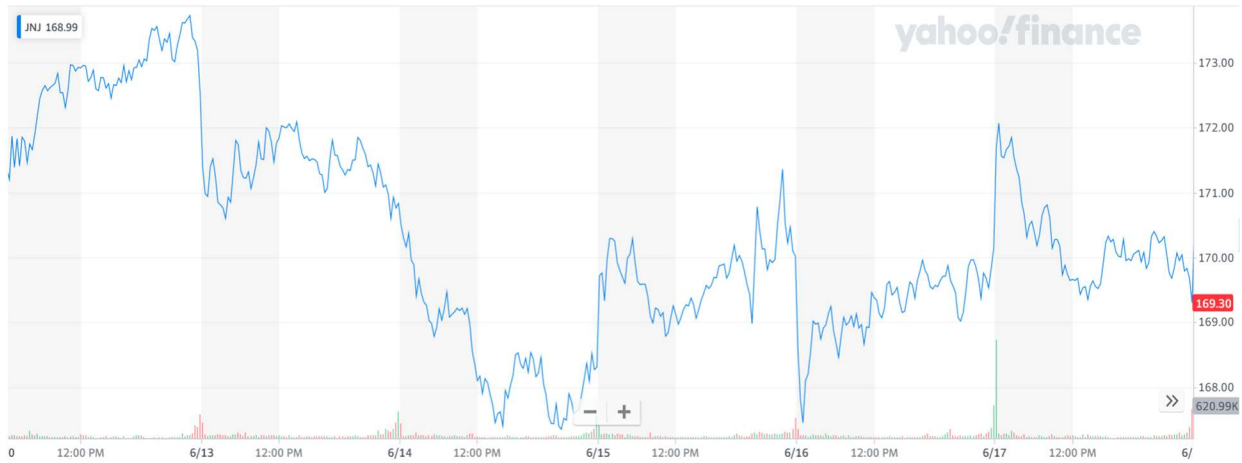
Nike opened at \$110.44 on Monday and closed at \$107.34 for the week, tumbling 2.8%. Nike was the worst performing stock in my portfolio for the week, so I was lucky not to have traded it this week. Figure 4.7 shows Nike’s stock price chart for week 2.



*Figure 4.7: Nike, Inc. Week 2*

Johnson & Johnson opened at \$170.81 on Monday and closed at \$169.46 for the week, declining 0.8%. After continuing a steady decline in price from last week, I saw an opportunity to buy the stock, which I did at a price of \$168.20 per share. The stock was volatile for the week, so

I decided to hold onto my shares in the hopes of a positive breakout in price at the beginning of next week. Figure 4.8 shows Johnson & Johnson's stock price chart for week 2.



*Figure 4.8: Johnson & Johnson Week 2*

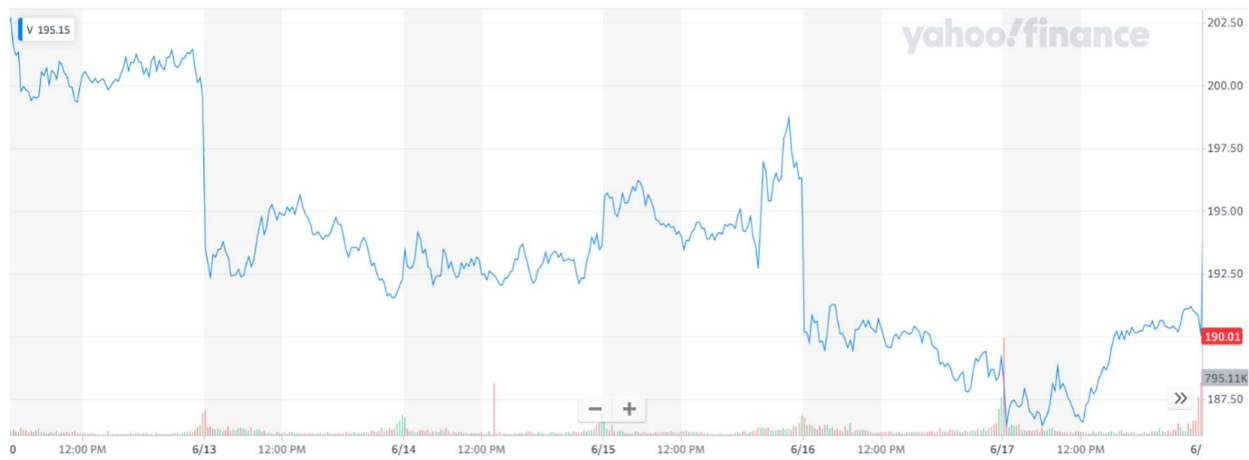
Walmart opened at \$119.41 on Monday and closed at \$118.29 for the week, declining 0.9%. Having seen the stock slide in price and not having invested in the company yet, I took a chance on buying 125 shares. I held onto the shares for a day and a half, at which point I was able to sell and profit \$275. Figure 4.9 shows Walmart stock's price chart for week 2.



*Figure 4.9: Walmart, Inc. Week 2*



Visa opened at \$192.26 on Monday and closed at \$190.01 for the week, declining 1.2%. Like with Apple's stock, I bought the stock early in the week and sold it mid-week before its weekly gains were wiped out, and I was able to profit \$283.5 from my trade. Figure 4.10 shows Visa's stock price chart for week 2.



*Figure 4.10: Visa, Inc. Week 2*

### 4.3. Week 3 (June 21 – June 24)

Week 3 of my simulation was conducted on the days between Tuesday, June 21<sup>st</sup> and Friday, June 24<sup>th</sup>. At the start of the week, I sold the Johnson & Johnson stock I had bought the previous week for a profit of \$468.90, the biggest profit I had gained in one trading session up to that point. On Wednesday, I bought Nike and Visa stock while their prices were on the decline, but I was not able to turn both into profit. I was fortunate to have seen Nike's stock price rise the next day, which led me to sell 100 stocks for a profit of \$1.26 per share. However, Visa's stock was dropping quickly, which led me to sell my shares in the company for a loss to stop myself from losing even more money if the stock price dropped even more. Fortunately, I bought Walmart stock and reinvested into Johnson & Johnson stock on Thursday, which rewarded me with a great trading session on Friday, when the overall market rose significantly on the news of a possible

slight easing on the Fed’s inflation expectations. I sold Walmart’s stock and decided to hold onto Johnson & Johnson’s stock, just like last week, as the stock price surged 6.8% for the week. Likewise, Nike’s stock jumped 4.1% for the week, Walmart’s stock increased 4.6%, and Visa’s stock increased 5%. The overall market also showed great gains, with the Dow Jones increasing 4.6% for the week. Table 4.3 shows the trades I conducted for week 3.

*Table 4.3: Active Portfolio Week 3 Trades*

Date	Symbol	Buy/ Sell	Price	Shares	Net Cost/ Proceeds	Profit Loss	Total Cash	Total Profit
6/21/2022	JNJ	Sell	\$173.41	90	\$15606.90	\$468.90	\$101222.60	\$1222.60
6/22/2022	NKE	Buy	\$106.00	150	\$15900.00		\$85322.60	
6/22/2022	V	Buy	\$195.53	85	\$16620.05		\$68702.55	
6/23/2022	V	Sell	\$194.27	85	\$16512.95	-\$107.10	\$85215.50	\$1115.50
6/23/2022	NKE	Sell	\$107.26	150	\$16089.00	\$189.00	\$101304.50	\$1304.50
6/23/2022	WMT	Buy	\$122.26	110	\$13448.60		\$87855.90	
6/23/2022	JNJ	Buy	\$178.25	95	\$16933.75		\$70922.15	
6/24/2022	WMT	Sell	\$124.36	110	\$13679.60	\$231.00	\$84601.75	\$1535.50

Apple opened at \$133.46 on Tuesday and closed at \$141.66 for the week, gaining 6.1%. I did not trade Apple’s stock this week since I did not see any outstanding opportunities to buy the stock, though I missed out on the stock’s great day on Friday. Figure 4.11 shows Apple’s stock price chart for week 3.



*Figure 4.11: Apple, Inc. Week 3*

Nike opened at \$108.46 on Tuesday and closed at \$112.91 for the week, gaining 4.1%. The stock's price dropped due to fears of rising inflation and supply chain shortages, and I picked up 150 shares to trade. The stock hovered around the \$106-107 range, at which point I decided to sell at \$107.26 per share. Figure 4.12 shows Nike's stock price chart for week 3.



*Figure 4.12: Nike, Inc. Week 3*

Johnson & Johnson opened at \$170.75 on Tuesday and closed at \$182.29 for the week, gaining 6.8%. Being the best performing stock this week, I sold early in the week for a profit of \$468.90 and could have had more gains if I was more patient, but I bought back into the stock

mid-week and was rewarded as the stock continued to rise, leading to a double-digit price gain for the week. I have held the stock to trade next week, hoping for a continuation of this week and a possible breakout to the \$185 range. Figure 4.13 shows Johnson & Johnson's stock price chart for week 3.



*Figure 4.13: Johnson & Johnson Week 3*

Walmart opened at \$118.30 on Tuesday and closed at \$123.72 for the week, gaining 4.6%. I was initially a bit hesitant to buy the stock this week due to volatility, but I saw a possible breakout on Thursday that I wanted to trade in, leading me to buy 110 shares for \$122.26. Luckily, that breakout was sustained, as I was able to flip the stock for a \$231 net profit on Friday. Figure 4.14 shows Walmart's stock price chart for week 3.



Figure 4.14: Walmart, Inc. Week 3

Visa opened at \$195.71 on Tuesday and closed at \$205.51 for the week, gaining 5%. Unfortunately, I lost money trading Visa stock this week, as I bought at an unlucky price point when the stock price started to fall, leading me sell for a loss of \$107.10. Fortunately, my other trades netted larger gains, in an overall great trading week. Figure 4.15 shows Visa's stock price chart for week 3.

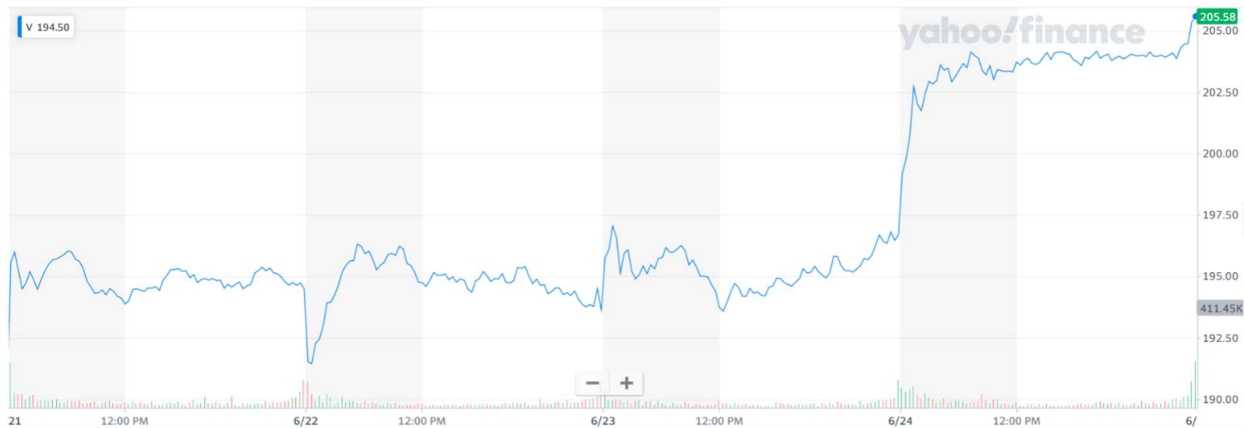


Figure 4.15: Visa, Inc. Week 3

#### 4.4. Week 4 (June 27 – July 1)

Week 4 of my simulation was conducted on the days between Monday, June 27<sup>th</sup> and Friday, July 1<sup>st</sup>. At the start of the week, I sold the Johnson & Johnson stock I had bought the previous week for a profit of \$321.10, after having bought Apple and Walmart stock the day prior. With this week being my last week of the simulation, I decided to be more aggressive and execute more trades during the week to gain more profit. Initially, I was in a bad situation for the week, having lost over \$400 trading Apple, Nike, and Walmart stock. A mid-week bounce was met with a late week gain, as I was able to take advantage of the dip and profit on Johnson & Johnson and Walmart stock while also selling the Visa stock I bought at the beginning of the week for a good profit on Friday. As I had made a good profit from weeks prior, I was willing to take some risks in order to find profits through active trading, and I went through the swing from losses to profits during the week. For the week, my portfolio gained \$425.4 from trades, aided mainly by 2 successful trades in Johnson & Johnson, which had decreased 1.4% for the week. The other stocks in my portfolio performed as follows: Apple stock declined 1.9% for the week, Nike stock plummeted 8.4% for the week, Walmart stock slipped 0.9% for the week, and Visa stock fell 2.1% for the week. The overall market also declined, with the Dow Jones decreasing 1.4% for the week. Table 4.4 shows the trades I conducted for week 4.

Table 4.4: Active Portfolio Week 4 Trades

Date	Symbol	Buy/ Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
6/27/2022	WMT	Buy	\$123.00	115	\$14145.00		\$70456.75	
6/27/2022	AAPL	Buy	\$142.50	150	\$21375.00		\$49081.75	
6/28/2022	JNJ	Sell	\$181.63	95	\$17254.85	\$321.1	\$66336.60	\$1856.60
6/28/2022	NKE	Buy	\$103.13	150	\$15469.50		\$50867.10	
6/28/2022	WMT	Sell	\$122.62	115	\$14101.30	-\$43.70	\$64968.40	\$1812.90
6/29/2022	V	Buy	\$198.73	105	\$20866.65		\$44101.75	
6/29/2022	AAPL	Sell	\$139.97	150	\$20995.50	-\$379.50	\$65097.25	\$1433.40
6/30/2022	NKE	Sell	\$103.03	150	\$15454.50	-\$15.00	\$80551.75	\$1418.40
6/30/2022	JNJ	Buy	\$175.94	175	\$30789.50		\$49762.25	
6/30/2022	WMT	Buy	\$121.41	150	\$18211.50		\$31550.75	
7/1/2022	JNJ	Sell	\$177.99	175	\$31148.25	\$358.75	\$62699.00	\$1777.15
7/1/2022	WMT	Sell	\$122.18	150	\$18327.00	\$115.50	\$81026.00	\$1892.65
7/1/2022	V	Sell	\$199.38	105	\$20934.90	\$68.25	\$101960.90	\$1960.90

Apple opened at \$142.70 on Monday and closed at \$138.93 for the week, declining 1.9%.

As it was the last week of my simulation, I decided to buy 150 shares of the company at the beginning of the week in the hopes that it would be a good trading week for the stock. Unfortunately, it was not, as I was forced to sell my shares for a \$379.5 loss, giving me my second loss in trading Apple stock after losing over \$400 in the first week. Figure 4.16 shows Apple's stock price chart for week 4.



*Figure 4.16: Apple, Inc, Week 4*

Nike opened at \$112.24 on Monday and closed at \$101.18 for the week, plummeting 8.4% for the week. Although Nike was the worst performing stock of the week, I was fortunate to have only taken a \$15 loss on the stock, as I attempted to profit off the stock’s early week decline. Unfortunately, I was not able to see any upward momentum for the stock, so I decided to sell before any greater losses, which helped my portfolio stabilize for the week. Nike had beat earnings estimates which they reported on Monday, but issues such as supply chain bottlenecks and inflation hurt investor feelings about the company. Figure 4.17 shows Nike’s stock price for week 4.

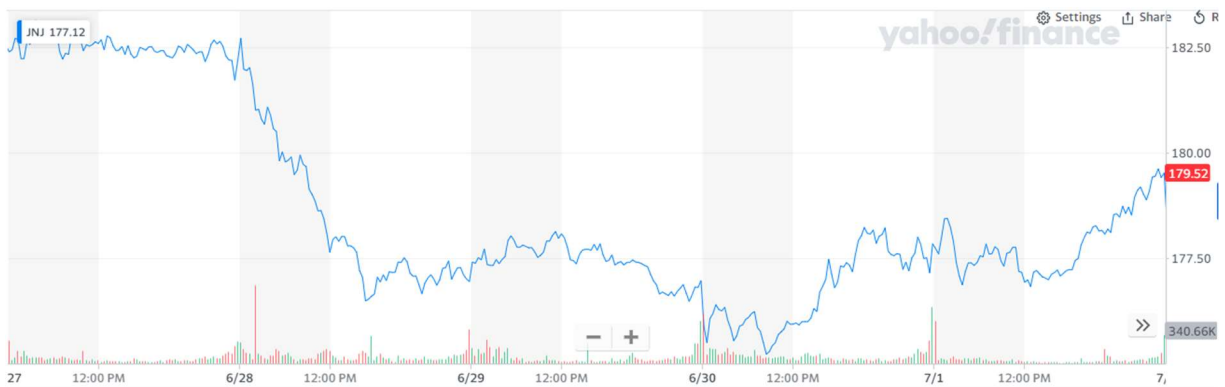


*Figure 4.17: Nike, Inc, Week 4*

Johnson & Johnson opened at \$181.64 on Monday and closed at \$179.52 for the week, decreasing 1.4% for the week. The company’s stock price had risen significantly at the end of the



previous week, and I cashed out by selling my shares that I had bought last week for a profit of \$321.10. After a few days of not trading JNJ, I decided to buy the stock mid-week as it had fallen in price. Like the end of last week, I was rewarded with an increase in the stock price, leading me to make \$358.75 after selling 175 stocks of the company. Figure 4.18 shows Johnson & Johnson's stock price for week 4.



*Figure 4.18: Johnson & Johnson, Week 4*

Walmart opened at \$123.78 on Monday and closed at \$122.63 for the week, decreasing 0.9%. As with the rest of the market, the beginning of the week was rocky, where I lost money trading 115 stocks of the company after buying on Monday and selling on Tuesday. However, I decided to test my luck by buying 150 shares on Thursday, which I was able to profit from by selling for a \$115.50 gain. Figure 4.19 shows Walmart's stock price for week 4.

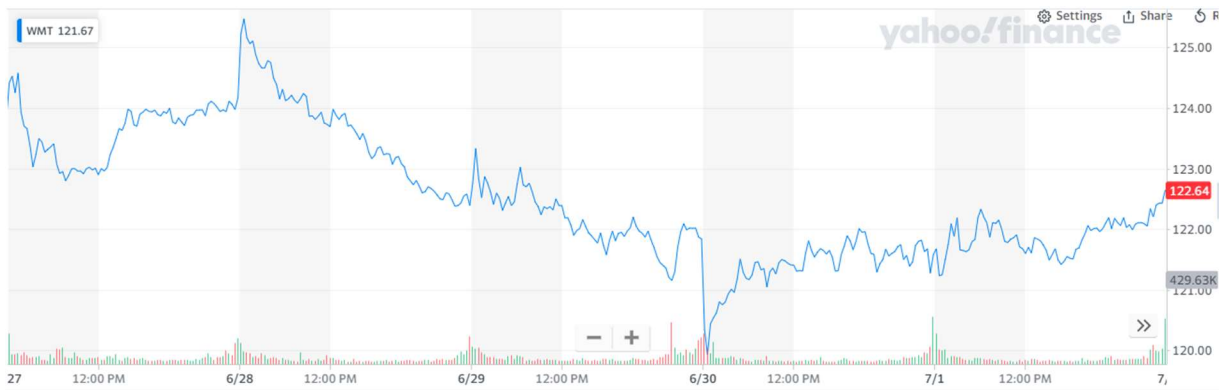


Figure 4.19: Walmart, Inc, Week 4

Visa opened at \$205.75 on Monday and closed at \$199.18 for the week, falling 2.1% for the week. After having traded the other 4 stocks earlier in the week, I decided to buy 105 shares of Visa for under \$200, which was the target it has been hovering between for the past few weeks. I held the stock until the last day of the simulation, in which I was able to make \$68.25 off the trade, leaving me with a total profit of \$1960.90 over the course of the simulation.



Figure 4.20: Visa, Inc, Week 4

## 4.5. Summary

Over the course of the simulation period, the active trading simulation netted a gain of 1.96%, or \$1960.90. This was a great result, since the markets lost value during the simulation period, mostly due to inflationary concerns and negative consumer sentiments about the economy.

The stock that performed the best during the simulation was Johnson & Johnson, in which a total profit of \$1239.95 was made. One of the strategies that helped me the most was buying the dip in stocks, where I would buy stocks when their prices dropped a significant amount to where I believed the stock price would go up. By being active in the market and monitoring dips, I was able to be proactive and create profit in a market that was giving many investors a hard time. This experience will help me when I plan to invest in the stock market with my own money, as the lessons learned from this simulation will help me as I try to create as much profit as possible.

## 5. Buy-and-Hold Simulation

While conducting my active trading simulation over the course of 4 weeks, I also tracked my passive trading portfolio, where I invested an equal amount of money into the 5 companies mentioned. I started with \$100,000 and would not buy or sell any stocks for the simulation period, to see whether a buy-and-hold strategy would be effective compared to an active trading strategy. Due to the power of compound interest, many investors who have a long-time horizon in the market use this strategy to weather through the market's ups and downs, many of whom buy stocks of well-known companies who have created reliable profits for loyal investors in the past. I will look at the performance of the buy-and-hold portfolio and give a report on its performance from week to week, before comparing the performance of the buy-and-hold strategy to the active trading strategy in the next section.

### 5.1. Week 1 (June 6 – June 10)

Week 1 of my simulation was conducted between the trading hours of June 6<sup>th</sup>, 2022, and June 10<sup>th</sup>, 2022. I started with \$100,000 in my buy-and-hold portfolio and invested approximately \$20,000 in each of the five stocks using the opening prices on June 6<sup>th</sup>. I bought 136 shares of Apple, 164 shares of Nike, 112 shares of Johnson & Johnson, 158 shares of Walmart, and 92 shares of Visa, with approximately \$530 not invested. I then calculated the value of the stocks at the end of the week using Friday's closing price and totaled the five companies' stock value to find out my portfolio's total value at the end of the week. At the end of week 1, the portfolio's value dropped by 5.1%, which was caused by economic uncertainty in the market. Table 5.1 shows the buy-and-hold portfolio performance for week 1.

*Table 5.1: Buy-And-Hold Week 1 Performance*

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$137.13	\$18649.68	-6.73%	\$94903.96
NKE	\$121.5	164	\$114.73	\$18815.72	-5.57%	
JNJ	\$177.21	112	\$172.55	\$19325.6	-2.63%	
WMT	\$125.82	158	\$121.7	\$19228.6	-3.27%	
V	\$215.45	92	\$199.51	\$18354.92	-7.40%	

## 5.2. Week 2 (June 13 – June 17)

Week 2 of my simulation was conducted between the trading hours of June 6<sup>th</sup>, 2022, and June 10<sup>th</sup>, 2022. Having already lost 5% of my portfolio for the first week, a positive week could have reversed some of my losses as the simulation neared its halfway point. Unfortunately, my stocks continued to perform poorly, with three stocks losing over 10% of their value over the past two weeks. The market continued its pattern of decline from previous months, as inflation worried investors and was running rampant, impacting supply chains and consumer prices. The portfolio value dropped 3.9% for the week and 8.8% over the past 2 weeks. Table 5.2 shows the buy-and-hold portfolio performance for week 2.

*Table 5.2: Buy-And-Hold Week 2 Performance*

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$131.56	\$17892.16	-10.52%	\$91175.62
NKE	\$121.5	164	\$107.34	\$17603.76	-11.65%	
JNJ	\$177.21	112	\$169.46	\$18979.52	-4.37%	
WMT	\$125.82	158	\$118.29	\$18689.82	-5.98%	
V	\$215.45	92	\$190.01	\$17480.92	-11.81%	

### 5.3. Week 3 (June 21 – June 24)

Week 3 of my simulation was conducted between the trading hours of June 21<sup>st</sup>, 2022, and June 24<sup>th</sup>, 2022. After two straight weeks of losses, it seemed as if the buy-and-hold portfolio would not be able to make an overall profit. Fortunately, the market had a positive week on the easing of economic uncertainty and lessening fears of inflation. Although the trading week was only four days due to Juneteenth being observed on Monday, the market made up for some of the losses in the previous two weeks. Johnson & Johnson had a strong week and became the first stock in the portfolio which is valued at a profit if I were to sell. For the week, the portfolio gained 6.6% for the week and is now losing 2.8% overall. Table 5.3 shows the buy-and-hold portfolio performance for week 3.

Table 5.3: Buy-And-Hold Week 3 Performance

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$141.66	\$19265.76	-3.65%	\$97183.60
NKE	\$121.50	164	\$112.91	\$18517.24	-7.07%	
JNJ	\$177.21	112	\$182.29	\$20416.48	2.87%	
WMT	\$125.82	158	\$123.72	\$19547.76	-1.67%	
V	\$215.45	92	\$205.51	\$18906.92	-4.61%	

#### 5.4. Week 4 (June 27 – July 1)

Week 4 of my simulation was conducted between the trading hours of June 27<sup>th</sup>, 2022, and July 1<sup>st</sup>, 2022. As this was the last week of my simulation, a positive week in the market could have pushed my portfolio into the positive overall so that I would have made a profit from the buy-and-hold strategy. However, the market took a downturn this week, leaving the portfolio with a loss both for the week and overall. Nike was the worst performing stock, having dropped almost 10% for the week because of supply chain issues and inflation concerns, despite beating earnings estimates. For the week, the portfolio lost 3.5%, and lost 6.2% overall. Table 5.4 shows the buy-and-hold portfolio performance for week 4.

Table 5.4: Buy-And-Hold Week 4 Performance

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$138.93	\$18894.48	-5.51%	\$93823.78
NKE	\$121.50	164	\$101.18	\$16593.52	-16.72%	
JNJ	\$177.21	112	\$179.52	\$20106.24	1.30%	
WMT	\$125.82	158	\$122.63	\$19375.54	-2.54%	
V	\$215.45	92	\$199.18	\$18324.56	-7.55%	

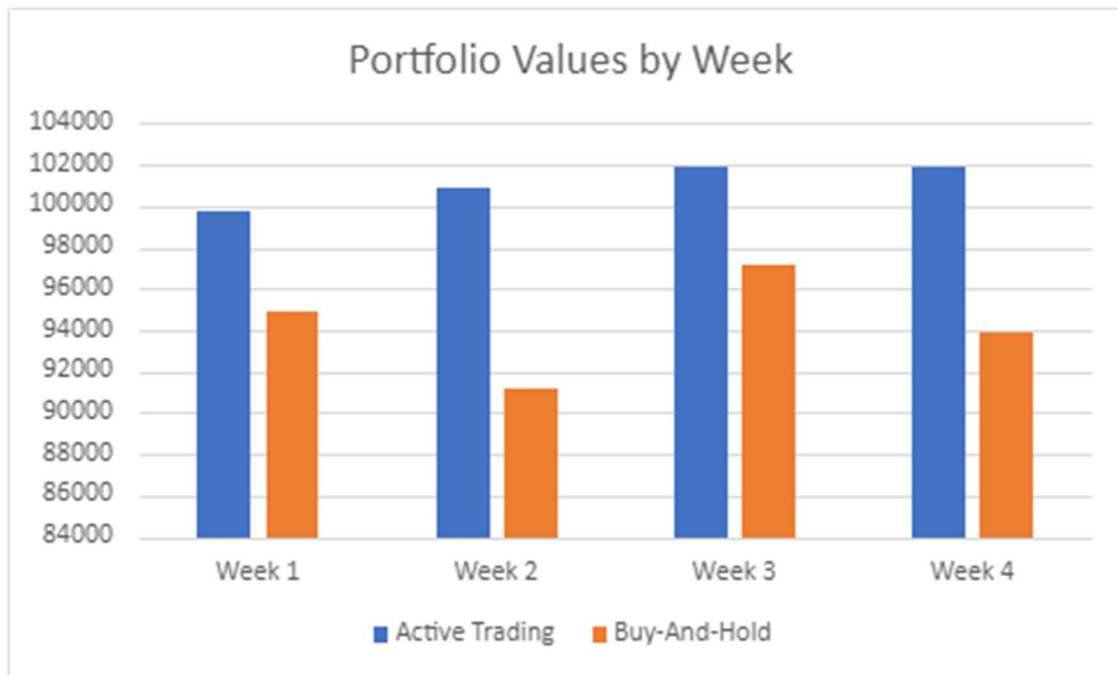
## 5.5. Summary

Over the course of the simulation period, the buy-and-hold simulation netted a loss of 6.18%, or -\$6,176.22. As the overall markets were dropping from week to week, the result of the buy-and-hold trading simulation reflects the larger pattern of steep losses over the four weeks. Four out of the five stocks in the portfolio lost value overall, which gives further insight to why the portfolio lost value. Although the method does not seem to be successful over the span of four weeks, many investors using the buy-and-hold simulation hold their stocks for a long period of time, to diminish the effects of volatility in the market and create profit through compound interest. With a longer time frame, the results of the buy-and-hold simulation could look much more different. However, this simulation gives me some good insights into when to hold stocks versus investing more actively in volatile times.



## 6. Simulation Results and Analysis

At the end of the simulation, it was clear to see that the active trading strategy outperformed the buy-and-hold strategy, as the active trading strategy led to a profit while the buy-and-hold strategy led to a loss in the portfolio. Over the 4-week period, the active trading method led to a \$1960.90 profit, resulting in a 1.96% increase. On the other hand, the buy-and-hold strategy led to a \$6176.22 loss, resulting in a 6.18% decrease. Similarly, the Dow Jones also lost 6.22%, which is very close to the passive portfolio's loss. To show what happened during the simulation period, the figure below shows a chart comparing the values of the active trading portfolio to the passive trading portfolio by week.



*Figure 6.1: Trading chart comparison*

In terms of individual stocks, the best performing stock overall was Johnson & Johnson, which returned a 1.3% profit overall. The worst performing stock was Nike, losing 16.7% over the course of the simulation. Johnson & Johnson was the only net positive stock out of the 5 stocks

selected for the simulation, with the other four stocks losing between 2.5% and 16.7% in value over the course of the simulation. Figure 6.2 shows the stock price chart of all 5 stocks during the simulation period. For reference, Visa is in green, Johnson & Johnson is in orange, Apple is in black, Walmart is in purple, and Nike is in blue.

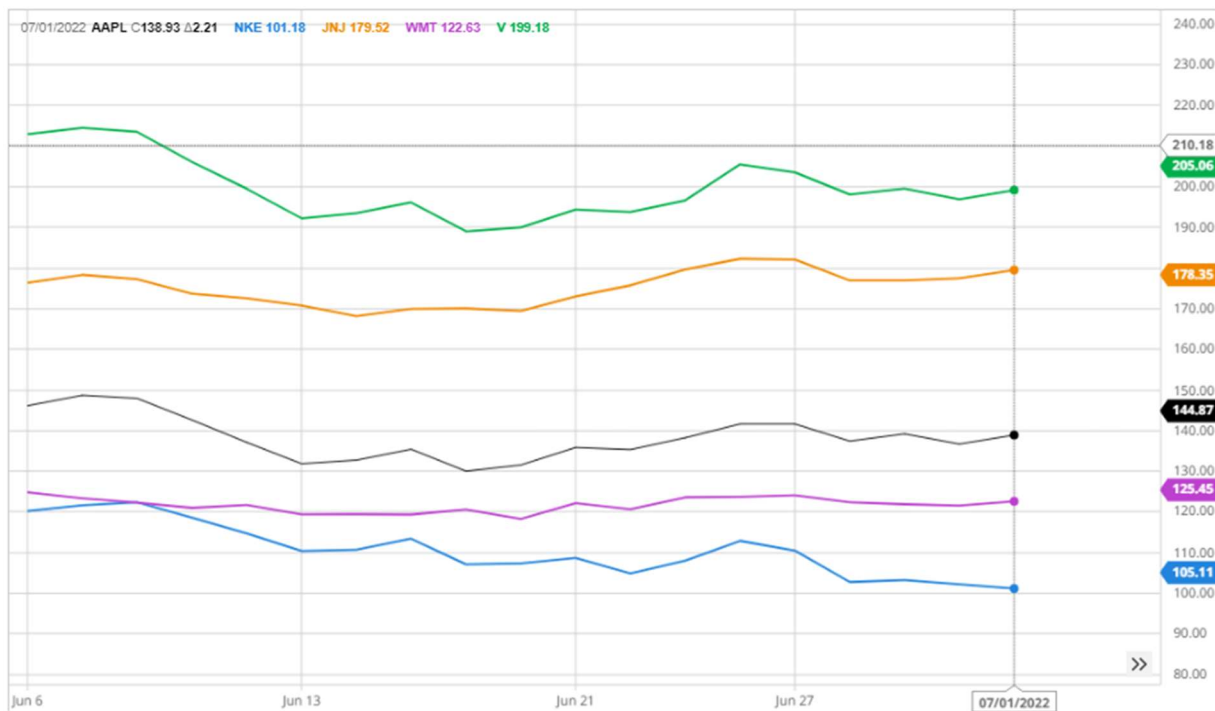


Figure 6.2: Stock price chart over simulation period

Although the markets were down for three of the four weeks of the simulation, neither of my portfolios rose and declined in the same way from week to week. In week 1, the portfolio value using the buy-and-hold strategy was \$94903.96, a decline of 5.1%. The active trading portfolio only declined 0.2%, due to a loss in Apple stock. The Dow Jones declined 5%, as shown in Figure 6.3. This means that although my active trading portfolio lost value in the first week, it still outperformed the buy-and-hold method and the stock market in week 1.



*Figure 6.3: Dow Jones Week 1*

In week 2, the markets continued to slip, with the Dow Jones declining 4% (as seen in Figure 6.4). The passive income portfolio fell as well, losing 3.9% for the week and 8.8% overall. However, the active trading portfolio had a positive week, having sold Visa, Apple and Walmart for a profit. Including the value of the unsold Johnson & Johnson stocks at the end of the week, the active trading portfolio gained 1.1% for the week and 0.9% overall.



*Figure 6.4: Dow Jones Week 2*

In week 3, the market had its first positive week, with the passive income portfolio gaining 6.6% for the week, while losing 2.8% overall. The Dow Jones jumped 4.7% for the week on the easing of consumer concerns around economic instability and inflation (see Figure 6.5), while the active trading portfolio gained 1% for the week and 1.9% overall. It was interesting to see how

despite a great gain in the market this week, my active trading portfolio gained less than the passive portfolio.

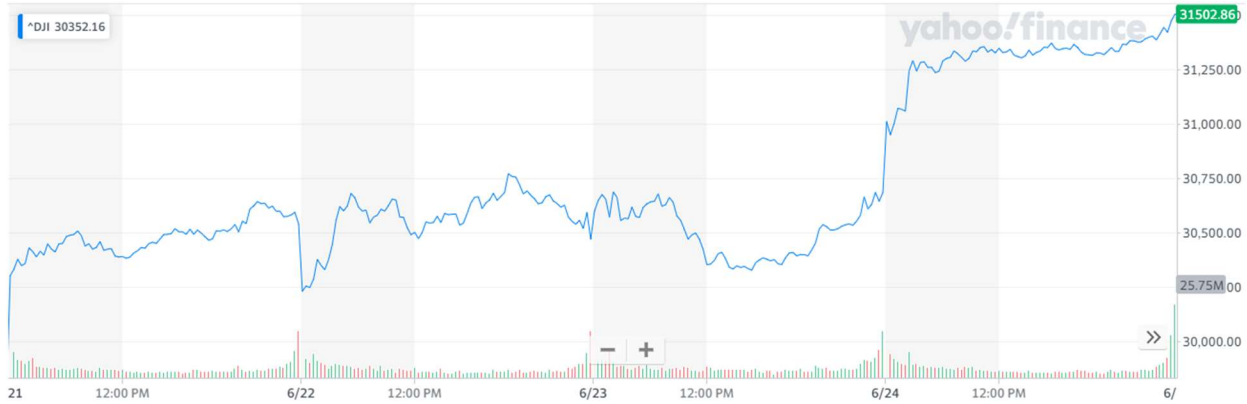


Figure 6.5: Dow Jones Week 3

In week 4, the market went back to its pattern of losing, as the Dow Jones posted its smallest weekly loss for the simulation period at 1.4% (as seen in Figure 6.6). The passive income portfolio lost 3.6% in the week, meaning it lost 6.2% overall. However, the active trading method was successful once again, posting a small, but positive 0.04% weekly profit to help push the portfolio's overall performance to a 1.96% gain for the simulation.



Figure 6.6: Dow Jones Week 4

## 7. Conclusion

According to the simulation, the active trading strategy worked out best for me in the stock market, as I was able to buy and sell stocks while not holding them for too long to incur heavy losses. Also, the active trading strategy returned an overall profit, while the passive trading strategy returned a loss. However, it was interesting to me to see how in the week that the market returned positive gains, the passive income portfolio outperformed the active trading portfolio. This explains why there are so many different trading strategies, since the stock market's situation can change from week to week, and even from day to day. The current stock market climate was not great, as investors were selling stock for weeks due to fears of inflation and supply chain issues. Despite a tumultuous period in the stock market, I was still able to make a profit by active trading, which gives me encouragement in the stock market even in times of turmoil. It would be interesting to see if the same results were to appear in different situations, such as when the stock market is a bull market compared to the current bear market. I gained lots of valuable experience through this project and simulation, which I hope will set me up well to invest into the stock market down the road, in order to make a profit.

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## Appendix

Table A: Active Trading Simulation Trades

Date	Symbol	Buy/ Sell	Price	Shares	Net Cost/ Proceeds	Profit/ Loss	Total Cash	Total Profit
							\$100,000.00	
6/6/2022	AAPL	Buy	\$147.03	100	\$14703.00		\$85,297.00	
6/6/2022	NKE	Buy	\$121.50	100	\$12150.00		\$73,147.00	
6/8/2022	NKE	Sell	\$123.05	100	\$12305.00	\$155.00	\$85,452.00	\$155.00
6/9/2022	AAPL	Sell	\$142.60	100	\$14260.00	-\$443.00	\$99,712.00	-\$288.00
6/10/2022	JNJ	Buy	\$171.41	80	\$13712.80		\$85,999.20	
6/10/2022	JNJ	Sell	\$172.55	80	\$13804.00	\$91.20	\$99,803.20	-\$196.80
6/13/2022	V	Buy	\$192.26	90	\$17303.40		\$82,499.80	
6/14/2022	WMT	Buy	\$118.76	125	\$14845.00		\$67,654.80	
6/14/2022	AAPL	Buy	\$132.37	100	\$13237.00		\$54,417.80	
6/15/2022	V	Sell	\$195.41	90	\$17586.90	\$283.50	\$72,004.70	\$86.70
6/15/2022	AAPL	Sell	\$136.29	100	\$13629.00	\$392.00	\$85,633.70	\$478.70
6/16/2022	JNJ	Buy	\$168.20	90	\$15138.00		\$70,495.70	
6/16/2022	WMT	Sell	\$120.96	125	\$15120.00	\$275.00	\$85,615.70	\$753.70
6/21/2022	JNJ	Sell	\$173.41	90	\$15606.90	\$468.90	\$101,222.60	\$1222.60
6/22/2022	NKE	Buy	\$106.00	150	\$15900.00		\$85,322.60	
6/22/2022	V	Buy	\$195.53	85	\$16620.05		\$68,702.55	
6/23/2022	V	Sell	\$194.27	85	\$16512.95	-\$107.10	\$85,215.50	\$1115.50
6/23/2022	NKE	Sell	\$107.26	150	\$16089.00	\$189.00	\$101,304.50	\$1304.50
6/23/2022	WMT	Buy	\$122.26	110	\$13448.60		\$87,855.90	

6/23/2022	JNJ	Buy	\$178.25	95	\$16933.75		\$70,922.15	
6/24/2022	WMT	Sell	\$124.36	110	\$13679.60	\$231.00	\$84,601.75	\$1535.50
6/27/2022	WMT	Buy	\$123.00	115	\$14145.00		\$70,456.75	
6/27/2022	AAPL	Buy	\$142.50	150	\$21375.00		\$49,081.75	
6/28/2022	JNJ	Sell	\$181.63	95	\$17254.85	\$321.10	\$66,336.60	\$1856.60
6/28/2022	NKE	Buy	\$103.13	150	\$15469.50		\$50,867.10	
6/28/2022	WMT	Sell	\$122.62	115	\$14101.30	-\$43.70	\$64,968.40	\$1812.90
6/29/2022	V	Buy	\$198.73	105	\$20866.65		\$44,101.75	
6/29/2022	AAPL	Sell	\$139.97	150	\$20995.50	-\$379.50	\$65,097.25	\$1433.40
6/30/2022	NKE	Sell	\$103.03	150	\$15454.50	-\$15.00	\$80,551.75	\$1418.40
6/30/2022	JNJ	Buy	\$175.94	175	\$30789.50		\$49,762.25	
6/30/2022	WMT	Buy	\$121.41	150	\$18211.50		\$31,550.75	
7/1/2022	JNJ	Sell	\$177.99	175	\$31148.25	\$358.75	\$62,699.00	\$1777.15
7/1/2022	WMT	Sell	\$122.18	150	\$18327.00	\$115.50	\$81,026.00	\$1892.65
7/1/2022	V	Sell	\$199.38	105	\$20934.90	\$68.25	\$101,960.90	\$1960.90

Table B: Buy-And-Hold Simulation Weekly Results

Week 1:

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$137.13	\$18649.68	-6.73%	\$94903.96
NKE	\$121.5	164	\$114.73	\$18815.72	-5.57%	
JNJ	\$177.21	112	\$172.55	\$19325.6	-2.63%	
WMT	\$125.82	158	\$121.7	\$19228.6	-3.27%	
V	\$215.45	92	\$199.51	\$18354.92	-7.40%	

Week 2:

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$131.56	\$17892.16	-10.52%	\$91175.62
NKE	\$121.5	164	\$107.34	\$17603.76	-11.65%	
JNJ	\$177.21	112	\$169.46	\$18979.52	-4.37%	
WMT	\$125.82	158	\$118.29	\$18689.82	-5.98%	
V	\$215.45	92	\$190.01	\$17480.92	-11.81%	

Week 3:

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$141.66	\$19265.76	-3.65%	\$97183.60
NKE	\$121.50	164	\$112.91	\$18517.24	-7.07%	
JNJ	\$177.21	112	\$182.29	\$20416.48	2.87%	
WMT	\$125.82	158	\$123.72	\$19547.76	-1.67%	
V	\$215.45	92	\$205.51	\$18906.92	-4.61%	

Week 4:

Stock	Initial Price	Shares	End-of-week Price	Stock Value	Stock % Change	Portfolio Total
AAPL	\$147.03	136	\$138.93	\$18894.48	-5.51%	\$93823.78
NKE	\$121.50	164	\$101.18	\$16593.52	-16.72%	
JNJ	\$177.21	112	\$179.52	\$20106.24	1.30%	
WMT	\$125.82	158	\$122.63	\$19375.54	-2.54%	
V	\$215.45	92	\$199.18	\$18324.56	-7.55%	