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

Yulun He   _____

Yu-sen Wu   _____

Zhijie Wang   _____

Submitted:
February 20, 2016

Approved by Professor Dalin Tang, Project Advisor

_____

Abstract

In this Interactive Qualifying Project (IQP), the group conducted a 14-week stock market simulation using three different trading strategies: technical, swing, and position trading. The team researched the fundamentals of the stock market and the basics of trading using tools and resources gathered from the Internet. Each member managed a portfolio using one trading strategy with an initial $500,000 to invest. Trading decisions were supported by market analysis techniques and results were exchanged in weekly conventions. The overall performances for the three portfolios were: technical trading: +3.86%, swing trading: +16.83%, and position trading: +13.82%. The project gave the team members a valuable beginning stock trading experience and helped them to gain a better knowledge and understanding of the stock market. This IQP has built a strong foundation for potential investment in the future.

Table of Contents

List of Figures

List of Tables

1.   Introduction

1.1   Goal

The objective of this IQP is to become competent in the field of investment in the stock market by researching the fundamentals and acquiring a solid understanding of the strategies and skills essential to become successful investors. It is imperative that we dedicate a significant portion of this project to accumulating information before investing. We will spend the first 7 weeks exploring various topics regarding background information of the stock market. During this time, we will also need to familiarize ourselves with the terminology and learn to how use the tools that will provide us an interpretation of the market. After building a foundation, we will then apply the newfound knowledge by means of a stock market simulation. In each simulation, a different strategy will be utilized such that we can compare progress. At the end of the simulation, we will assess the overall results and try to understand cause and effect. As a result of the simulation, we hope to take away useful skills that will help us become better investors as well as to have an open mind for the market.

1.2   History of the Stock Market

The early beginnings of the stock market dates back hundreds of years ago as a simple form of money lending where these "lenders" traded debts amongst themselves. In exchange for high-risk, profit could be made from these high-interest loans. As this business grew, the lenders began selling these debts to other people.

The first people to make significant advance in this field were Venetians who traded securities from other governments. They carried on this practice which can be dated back to the 1300s.

The first stock exchange was established in Antwerp, Belgium in 1531 where moneylenders and other parties of interest would come together to do business and resolve other ordeals. This establishment dealt with more of financial partnerships rather than trading "stocks". We can see that the beginnings of the stock market first starts with a sense of trust and relationship building to produce profitable returns.

Around a century later, East India and Asia were highly profitable areas of trade for the Dutch, British, and French governments. However, the issue with the trades stems from the physical transfer of the goods itself. The voyages required to transport the goods involved great risk influenced by a variety of factors. Ship owners sought investors for the sake of not losing all their profit if their ship were lost. If the trade was successful, investors would receive a percentage of the profit having provided some provision. This collective investment is an early example of a joint stock company.

One company that emerged with government aid was the British East India Company. Since investors wanted a piece of the profit, competition rose. As a result, the financial market experienced great change. Another company, the South Seas Company had a similar system backed by the king in which investors bought shares immediately when they were issued. The problem with this mindset is that shares that did not make sense or have reason could easily be slipped in and bought. The end result was the South Seas Company crashing.

The New York Stock Exchange, formed by a group of brokers in 1792, became the center of business and trade in the United States. It quickly rose to become a power stock exchange center both in the US and outside. In 1971, with the advance of technology, NASDAQ became a competitor as a result of electronic trades which were more efficient [1].

1.3 Factors Influencing Stock Market

The stock price, also known as share price or market price, is the current cost of purchasing a security on an exchange of equity of an asset or service and is essentially determined by the most recent price at which the stock was traded [2].

Similar to everyday commodity prices, stock prices vary from time to time yet with a significantly larger degree of fluctuation. This fundamental behavior of stock prices is a reflection of supply and demand. When prospective buyers outnumber sellers, demand becomes too high and subsequently the stock price rises. On the other hand, when sellers outnumber buyers, supply takes the lead and thus the stock price falls [3]. If more investors want a stock and are willing to pay more, the stock price will go up. If more investors are selling a stock and there appears to be a lack of buyers, the stock price will go down [4]. The factors that drive such behaviors of investors are the fundamental causes of the volatility of the stock prices. The stock market is difficult to predict due to the enormous number of potential factors. A good comprehension of such factors is necessary for basic stock trading [5].

One of the major factors that affect the value of a company is its own performance. The performance can be determined by the company's report history, future estimated earnings, announcement of dividends, introduction of a new product or a product recall, takeover or merger, change of employment, etc. For instance, earnings are major measurements of the companies' performances. Public companies are required to report their earnings once each quarter of the year and during these earning seasons investors determine the future value of the companies. Therefore, decisions are made based on their analysis of the earnings projection.

The performance of the company itself certainly is not the only factor that changes the stock price. The performance of the whole industry can also play a major part in the fluctuation

of the market. Often, the stock price of the companies in the same industry will move in the same direction with each other because market conditions generally have similar effect on the companies in the same industry. If industry A has the tendency to replace industry B, most likely the stock prices of A will increase and those of B will decrease.

Investor sentiment can also influence the stock prices. If investors are positive and confident towards the market, the market is likely to become a bull market that makes the stock prices go up. Accordingly, if investors hold negative expectations and fading confidence towards the market, it becomes a bear market and stock prices fall.

The last main factor on stock price is the big economic environment. This includes interest rates, governmental policies, inflation/deflation, and value of the country's currency, etc. For example, if the interest rates increase when a company owes money to the bank, its liability also increases since it has to pay more on interest. Therefore, the company may reduce the profit and dividends it pays the shareholders. As a result, the company loses shareholders and the stock price drops. Another example is the governmental policies. If certain newly enacted policies benefit certain industries the stock price of these industries will increase. This also relates to the performance of the industry as discussed above [6].

1.4   Stock Market Index

Stock market index is a powerful tool to measure the value of a section of the stock market. Learning how to analyze the stock market indices will help us understand the trends in the stock market. Therefore, it is a critical component for our project. Stock market indices are usually computed from prices of selected stocks. They may be classified by region. The global index includes MSCI World and S&P Global 100. Some regional indices include the American S&P 500, the Japanese Nikkei 225, and the British FTSE 100. Since our project stimulates the

stocks in the U.S. Market, we will focus on American stock market indices. There are three major stock indices in the U.S.: Dow Jones Industrial Average, NASDAQ Composite and S&P 500.

1.4.1 Dow Jones Industrial Average

The Dow Jones Industrial Average, the second oldest U.S. market index, also called the Dow Jones, is created by *Wall Street Journal* editor and Dow Jones & Company. "It is an index that shows how 30 large publicly owned companies based in the U.S. have traded during a standard trading session in the stock market. The average is price-weighted, and to compensate for the effects of stock splits and other adjustments, it is currently a scaled average" [7].

Only few best U.S. companies can be selected as a Dow Jones's company. Some standards for Dow Jones's selection include the excellent reputation, sustained growth, and interest to a large number of investors. As of September 4th 2015, the composition of Dow Jones is shown in Table 1.4.1.

Table 1.4.1. The composition of Dow Jones

Apple Inc.	The Home Depot, Inc.	NIKE, Inc.
American Express Company	International Business Machines Corporation	Pfizer Inc.
The Boeing Company	Intel Corporation	The Procter & Gamble Company
Caterpillar Inc.	Johnson & Johnson	The Travelers Companies, Inc.
Cisco Systems, Inc.	JPMorgan Chase & Co.	UnitedHealth Group Incorporated
Chevron Corporation	The Coca-Cola Company	United Technologies Corporation
E. I. du Pont de Nemours and Company	McDonald's Corp.	Visa Inc.
The Walt Disney Company	3M Company	Verizon Communications Inc.
General Electric Company	Merck & Co. Inc.	Wal-Mart Stores Inc.
The Goldman Sachs Group, Inc.	Microsoft Corporation	Exxon Mobil Corporation

1.4.2 NASDAQ Composite

Along with the Dow Jones Industrial Average and S&P 500, NASDQ is one of the three most-followed indices in U.S. stock market. The composition of the NASDAQ Composite is heavily weighted towards information technology companies. As of 24 April 2015, NASDAQ composite's component had 5073 companies [8].

1.4.3 Standard & Poor's 500

S&P 500 is based on the market capitalization of 500 leading companies having common stock listed on the NYSE or NASDAQ. S&P 500 is the most widely used U.S. market stock index because contrast to NASDAQ, it covers all important industries in the U.S. rather than only IT domain, and it contains more companies than Dow Jones which is 30 largest. Therefore, S&P 500 is famous for its diverse constituency and weighting methodology. For selection standard, S&P 500 only select U.S. companies with market cap of USD 5.3 billion or greater [9]. In the following simulation, we used S&P 500 as a major benchmark to assess the general performance of U.S. market.

1.5 Stock Market Indicators

1.5.1 Interpretation of Stock Table

Table 1.5.1 shows a typical stock table/quote that lists information regarding the details of the stock performance.

Table 1.5.1. A typical stock table

52W high	52W low	Stock	Ticker	Div	Yield %	P/E	Vol 00s	High	Low	Close	Net chg
s45.39	19.75	ResMed	RMD			52.5	3831	42.00	39.51	41.50	-1.90
11.63	3.55	Revlon A	REV				162	6.09	5.90	6.09	+0.12
77.25	55.13	RioTinto	RTP	2.30	3.2		168	72.75	71.84	72.74	+0.03
31.31	16.63	RitchieBr	RBA			20.9	15	24.49	24.29	24.49	-0.01
8.44	1.75	RiteAid	RAD				31028	4.50	4.20	4.31	+0.21
s38.63	18.81	RobtHalf	RHI			26.5	6517	27.15	26.50	26.50	+0.14
51.25	27.69	Rockwell	ROK	1.02	2.1	14.5	6412	47.99	47.00	47.54	+0.24

Column 1   Column 2   Column 3   Column 4   Column 5   Column 6   Column 7   Column 8   Column 9   Column 10   Column 11   Column 12

Columns 1 & 2 represent the highest and lowest prices that the stock has experienced in one year. Column 5 is the dividend per share which shows the annual dividend payment per share. The blanks indicate that the company does not pay out dividends. Column 6 is the dividend yield which is the percent return on the dividend. It is calculated as the quotient of the annual dividends per share and price per share. Column 8 is the volume of trade which represents the number of trades in the day in hundreds. Column 9, 10 & 11 are the day's high, low, and close respectively. Column 12 is the net change from the previous day's close price.

These definitions of course do not only apply to tables, but also in interpreting the graphs that visually display the same data [10].

1.5.2   Moving Averages

In mathematics, a moving average is an analysis method of interpolating the data points by carrying out series of averages of different subsets of the full data set. In the stock market, a moving average (MA) utilizes past prices of a stock to provide trend-following or lagging information of that stock that can be exploited by the investors to predict future movement of the share price. Simple moving average (SMA), average of a security over a defined number of time periods, and exponential moving average (EMA) are the two basic and commonly used MAs.

The most common applications of MAs are to identify the trend direction and to determine support and resistance levels [11].

MA crossover is the most basic type of signal and is favored among many stock traders as it is fairly objective. The first type of crossover is when the price of a stock moves from one side of a MA and crosses to the other side. A cross above a MA can signal the beginning of an uptrend and would likely be used by traders as a suggestion of buying and vice versa. The second type of crossover occurs when a short-term average crosses above a long-term average. This is used by traders to determine the momentum shift towards a strong behavior of the asset, similarly to the first type [12].

Figure 1.5.1 shows an example of two moving averages with different periods. As explained above, the cross between a short and long term moving average indicated a strong shift in trend which can be seen below. The price moves from a flat trend to a strong upward trend.
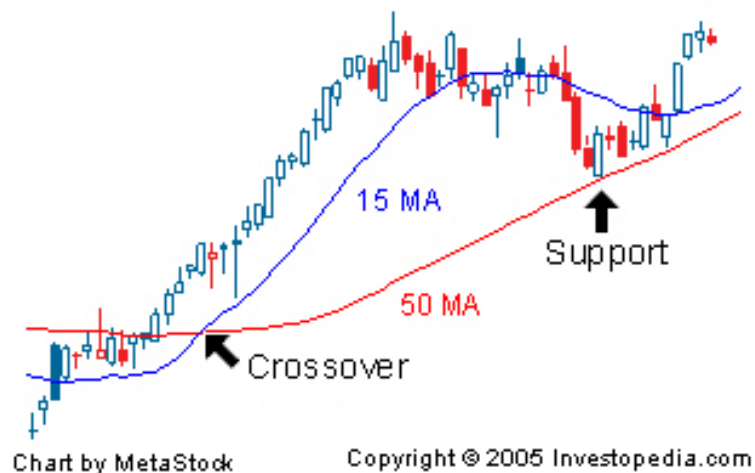
Figure 1.5.1. Moving Average [12]

This indicator is featured in many popular trading mediums and is a very useful tool for analysis techniques. By understanding its characteristics and how it applies to stock trends, we can use this knowledge to predict future trends and support our trading decisions.

1.5.3   Relative Strength Index (RSI)

The RSI values indicate when the stock is about to change in trend. RSI helps to signal overbought and oversold conditions in a security.

"The indicator is plotted in a range between zero and 100. A reading above 70 is used to suggest that a security is overbought, while a reading below 30 is used to suggest that it is oversold. This indicator helps traders to identify whether a security's price has been unreasonably pushed to current levels and whether a reversal may be on the way." [13]

Figure 4.6.1 shows an example chart using the RSI values. When the RSI values exceed 70, stocks have been overbought and the trend changes slightly later. The same is seen when the stocks have been oversold.
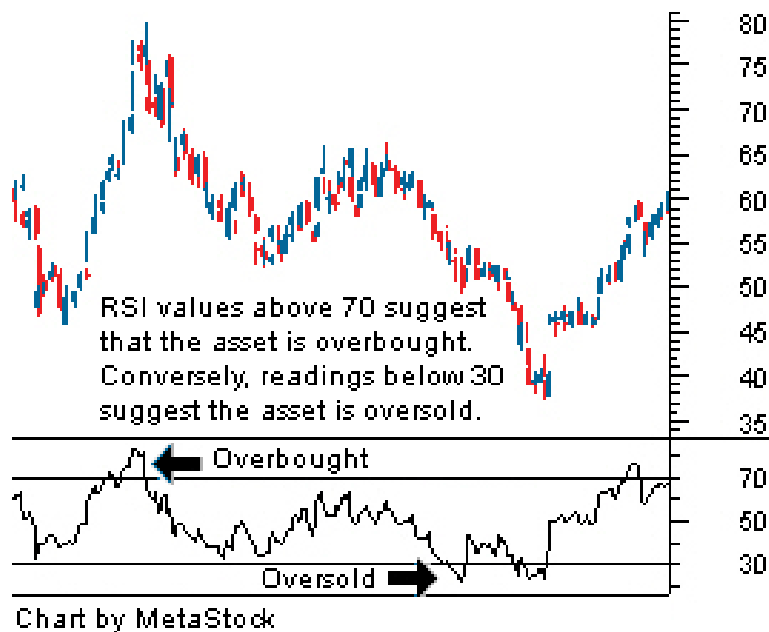
Figure 1.5.2. RSI Indicator Chart [13]

One potential use for this tool is to support a decision for holding onto stocks. If the stock is currently in an uptrend and the RSI data shows that the curve is bounded by the overbought and oversold lines, then it indicates that the trend change is less likely to occur. Therefore, a trader would be more confident in holding during an uptrend. Another method would be to seek

9

out the trend changes instead. If a stock is in a downtrend and the curve goes below the oversold line in the RSI chart, then it indicates that a trend change is more likely to occur. A trader that is lucky enough predict accurately and catch the trend change would reap profit.

1.5.4   Bollinger Bands

Bollinger Bands were developed by John Bollinger in the early 1980s. This tool has been regarded as a valuable means to make trading decisions by analyzing the volatility of the market. There are three bands to be considered: an upper, middle, and lower band. The middle band represents an intermediate movement of the securities prices often in the form of a moving average curve. The enveloping bands are determined by the volatility usually the standard deviation.

Figure 1.5.3 shows an example of Bollinger bands on a typical price chart. EXXON is used as the example here. It is important to note that the bands contain the prices very well.
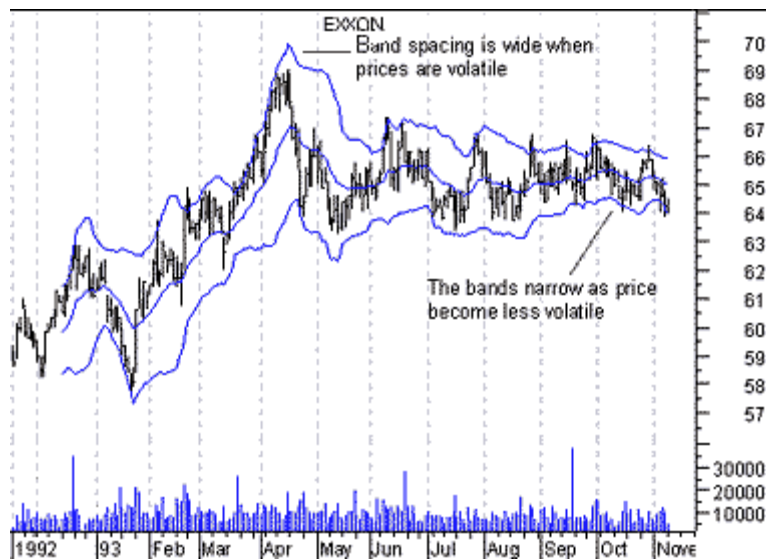
Figure 1.5.3. Bollinger Bands: EXXON Prices [39]

The interpretation of the bands is rather simple. In short, the characteristic to monitor is the outer bands' deviation from the middle. If the deviation is large, a high volatility (large

changes in price) is implied. The converse is also true that smaller deviations imply low volatility (small changes in price). Generally, security prices tend to remain within the bounds of the upper and lower bands [14].

According to *Technical Analysis from A to Z* by Steven B. Achelis, the following characteristics of the Bollinger Bands were noted by Mr. Bollinger himself.

- Sharp price changes tend to occur after the bands tighten, as volatility lessens.

- When prices move outside the bands, a continuation of the current trend is implied.

- Bottoms and tops made outside the bands followed by bottoms and tops made inside the bands call for reversals in the trend.

- A move that originates at one band tends to go all the way to the other band. This observation is useful when projecting price targets.

2.   Trading Methods

The goal of this project is to simulate the trading in stock market and gain experience that could be applied in real life. To achieve this goal, some common trading methods are studied, they are: position trading, swing trading, and technical trading. Each trading method was studied in the following sections and each group member selected their own trading method.

2.1   Technical Trading

"It has been observed that human nature remains more or less constant and tends to react to similar situations in consistent ways. Based on this premise, by studying the nature of previous market turning points, it is possible to develop some characteristics that can help identify major market tops and bottoms. The technical approach to investment is essentially a reflection of the idea that prices move in trends that are determined by the changing attitudes of investors towards a variety of economic, monetary, political, and psychological forces" [15].

The technique encompasses a broader spectrum of trading. It does not only apply inclusively to trading, but is applied by economists and meteorologists. The goal of this method is collect data of past trades, combine them, and produce a model that can predict future trends. These traders analyze patterns and consider hundreds of factors that can have an influence on the curves of the graphs.

The data that a technical trader must analyze is too much to review by numbers alone. Tools were created to represent the data in a visually friendly way. A chart is one representation of the data that plots useful information so that observations can be made regarding the prices relative to time.

Technical traders look for indications to find where recognizable trends are likely to occur. "A vast majority of chart patterns may be divided into two main groups: reversal and

12

continuation. Reversal patterns indicate a change in the previous trend occurring in the market. "Continuation patterns confirm the movement of market in the same direction as the previous trend" [15]. Using this logic, a critical scenario would be recognizing continuation patterns in an uptrend. Another would in the case where the prices are moving in a downtrend. With trend reversal indicators and good timing a trader can secure large profits.

Although some patterns in history may repeat themselves, it has its limitations and cannot be used to fully predict the future patterns. It provides a starting point for investors to consider as a candidate for potential trade [16]. Accurate analysis requires more experience and study in the area. A combination using technical analysis in conjunction with other techniques is more ideal. Even more, the ability to weight indications is necessary for predicting trends.

Investment Analysis and Portfolio Management provides examples and more advanced technical indicators for reference. However, this IQP will use basic indicators to analyze patterns.

2.2   Swing Trading

Swing trading is a common trading strategy that the traders use to capture gains in a stock within a short range of time, typically between one day and one or two weeks. Unlike position traders, swing traders focus more on the short-time price momentum pattern of the stocks rather than the fundamental and intrinsic factors that the stocks are related to and affected by [17].

The best candidates for swing trading are the large-cap stocks that are most actively traded on the major stock exchanges because these stocks are most likely to demonstrate clear trends within short periods of time and thus swing traders ride on the wave until they predict a new trend is going to take over the old one.

The best time to perform swing trading is when the market is either a strong bear or bull market and any market in between these two extremes are not considered to be good because in these two extremes the stock prices are generally carried in one direction only whereas in the regular markets the stock price tends to stay stable, which swing traders will not be able to benefit much from [18].

According to *Wiley Trading: Swing and Day Trading Evolution of a Trader*, two of the most commonly used techniques for swing trading are support/resistance and trend line analysis. A general rule of thumb for support and resistance is to buy at support and sell at resistance. Another way to swing trade on support and resistance is too short at resistance and cover at support. However, in this simulation, the trader will not deploy at tactics on shorting. Determining support and resistance is therefore crucial to swing trading as often times price drops much faster than it rises. One example of extrapolating the information lies in areas denoted as peaks and valleys that indicate resistance and support, respectively.

Trend line trading is a very popular technique that can be applied to swing trading, position trading, and technical trading. By definition, a trend line is a line that connects lows or the highs over to project out into the future. It is critical to select the accurate trend lines to determine the direction of the stock. The trend lines should not be broken as in they should not be intersected by some lows or highs along the lines. If this ever occurs, a new trend line should be created. On a bullish market, we want to buy a stock when the price line approaches the trend line underneath it because the stock price will most likely to curve up. Similarly, for a bearish market, we want to sell the stock when the price line reaches the overhead trend line to minimize the loss or to still profit. This can be demonstrated in Figure 2.2.1 below.

Figure 2.2.1. Sample Trend Line Trading Method [19]

2.3 Position Trading

Position trading is a very common method that involves long term investment. This strategy involves doing more research initially, taking a position, and then monitoring and managing it. It also is less time consuming than other trading methods due to the lower trading frequency and is not limited to any particular market. These traders view short-term fluctuations as minor since they believe that it will all even out in the future. The evaluation of the asset using this method involves understanding the charts and profit is from the move in trends [20].

Generally, the position trading can carry less risk than buy and hold. The reason for that is timing the exit can lower the chance of losses.

One of the risks of position trading is that ignoring minor fluctuations can actually turn into a disadvantage because a trend change may occur. Since the concept of position trading is based on holding stocks for long periods, position traders may fall into a trap of investing in a

declining market. Many of these traders have set safety lines in order to prevent themselves from that situation.

In *Wiley Trading: Fundamental Analysis and Position trading: Evolution of a Trader*, the author indicates a typical pattern of stock performance as shown in Figure 2.3.1, which is called a high-and-tight flag. It means when the price of a stock rises by at least 90 percent, a flag pattern usually appear, which is often a good signal to invest in the stock. Usually the move up will be replicated when the stock leaves the flag zone [21].

Figure 2.3.1. The historical sale resulted in a net gain of 78% in nine months [21]

A beginner to the positon trading should pay attention to the news of the stock market. News usually has great impact on a specific stock price as well as general market trends. The author of the book considers news as a key factor to predict when the indexes will transition

from bull to bear or the reverse. For example, if the market is at bottom and bad news does not push the index lower and good news encourage the market to go up, then this would imply that the markets are ready to go higher [21].

Another lesson from the book is that beginner of position trading should focusing more on the primary price trends as the phrase saying, *go with the flow and rising tide lifts all boat*. The stock in bull market usually outperformed the similar company in bear market. Although this may sound obvious but is helpful for the beginner [21].

Because the simulation will last only 14 weeks, stocks will be traded with a higher frequency than normal position trader who can hold a stock for months or years. However, it will still be a lower frequency compared to swing trading. Therefore, a distinction can be made to compare the methods at the end of the simulation.

2.4   Simulation Program

There are many simulation programs available on the internet, such as Investopedia and StockTrak. The program the group will be using is Yahoo Finance, because it integrates many functions actual trading applications provide. It allows users access to real-time information and investment updates to stay on top of the market. It even goes beyond stocks and track currencies, commodities and more. It is also convenient to choose Yahoo Finance because it has a default application on mobile phones which makes it easy to monitor the market information anytime and anywhere.

The interface of the simulation program is shown in Figure 2.4.1. There are many different functions that can be turned on or off display. Some of the useful ones that will be used will be GAIN & % GAIN which will give us an idea roughly of the earnings and losses.

Figure 2.4.1. Simulation Program Interface

To buy or sell a stock we can use the Add/edit holdings function as shown in Figure 2.4.2, to buy a stock, first, we entered the number of shares, and entered the price paid for each share. We can also enter the cost for each commission, but we assumed commission is 0 for trading.

Figure 2.4.2. Edit/Delete Holdings Details

We can also find the history chart and static information in "Chart, News, Stats, Options, Board" function as shown in Figure 2.4.3. This opens up an interactive chart which implements many different features such as moving averages, RSI, and Bollinger Bands. Using this tool will be necessary when we make trades.

Figure 2.4.3. Chart in Yahoo Simulator

3.   Company Selections

Before buying a company's stock, the investors usually evaluate the stock by its valuation, strategy, plans for diversification and appetite for risk. After considering these factors, each group member chose ten stocks that will be potential candidates for investment in this project.

3.1   Price-Earnings Ratio (P/E)

The price earnings ratio, also called P/E ratio, is an indicator to determine whether a stock is suitable to buy at a certain time. It is determined by the company's market value and investors' expectation for the company. The smaller the P/E ratio means you would claim more than what you pay. So usually investor will seek the stock with lower P/E ratio. But sometimes high P/E ratio does not automatically mean that the company would be a bad investment because it might have an expected growth in the future. The Price-Earnings Ratio is calculated from following equation:

$$Price\ Earnings\ Ratio = \frac{Market\ Value\ per\ Share}{Earnings\ per\ Share} \tag{1}$$

The price earning is a critical indicator reflects a company's potential to grow and gain more profit. The team took P/E ratio in consideration during company selection [22].

3.2   Financial Statement

There are three major financial statements available: Income statement, Balance sheet and Cash flow. Among those three, we focused more on the balance sheet because it tells the financial state of a company.

Balance sheet is the statement of company's assets, liabilities, and capital at a certain point of time. It provides the balance of income and expenditure over the preceding period. Table 3.2.1 is one example of typical balance sheet. It provides us three critical financial pieces of

information: total assets, total liabilities and shareholders' equity. Total assets mean sum of all the goods, property, and uncollected amounts from other companies. Liability means the sum of debts and anything owned by other organization. The shareholders' equity tells us about how much of the company is owned by shareholders. This information contains some of the criteria that we will consider when doing a fundamental analysis. Usually, if a company's debt to asset ratio goes low, it implies that the company performs well. However, having a high ratio does not necessarily mean that the company is doing well. The company may be investing more so that it will grow in the future. Therefore, knowing the company's actions is as important as calculating ratios.

Table 3.2.1. Quarterly Balance Sheet for Amazon [23]

Fiscal year ends in December USD in Million except per share data		2014-12	2015-03	2015-06
▼ Assets				
▼ Current assets				
▶ Cash		17,416	13,781	14,001
Receivables		5,612	4,772	4,920
Inventories		8,299	7,369	7,470
Total current assets		**31,327**	**25,922**	**26,391**
▼ Non-current assets				
▶ Property, plant and eq...		16,967	17,736	19,479
Goodwill		3,319	3,491	3,523
Other long-term assets		2,892	2,926	3,047
Total non-current asse...		**23,178**	**24,153**	**26,049**
Total assets		**54,505**	**50,075**	**52,440**
▼ Liabilities and stockh...				
▼ Liabilities				
▶ Current liabilities		28,089	23,177	23,912
▶ Non-current liabilitie...		15,675	16,025	16,760
Total liabilities		**43,764**	**39,202**	**40,672**
▶ Stockholders' equity		10,741	10,873	11,768
Total liabilities and ...		**54,505**	**50,075**	**52,440**

Another ratio that can be considered is called the quick ratio, which is calculated by following equation:

$$Quick\ Ratio = \frac{Current\ Assets - Inventories}{Current\ Liabilities} \qquad (2)$$

The quick ratio simply gives an idea of whether a company has enough cash to handle its short-term debts. If the number is greater than or equal to 1, then the company can be said to have the capability of covering those debts.

From the example given above, the quick ratio is calculated to be 0.791 using the most recent quarter data. Since ratio is below 1, it can be implied that Amazon does not have enough cash or liquid assets to handle immediate debts.

3.3 Simulation 1 Technical Trading

3.3.1. GE (GE.)

General Electric Company is a diverse infrastructure and financial services company. They have an extensive range of services and products that are vital to the management and maintenance of public utilities that include Power & Water, Oil & Gas, Energy Management, Aviation, Healthcare, Transportation, Appliances and Lighting. Its influence has extending into 175 countries [24].

3.3.2. BAC Bank of America (BAC.N)

Bank of America is a bank holding and a financial holding company. It services individual consumers as well as small to middle market businesses. The company also provides institutional investors and services for asset management and also risk management [24].

3.3.3. Microsoft (MSFT.O)

Microsoft Corporation is dedicated to developing, and supporting a range of software products and services. It is company that has been developing technologies that include computing devices, phones, server applications, software development tools and other content as well. Although other companies may surpass it, it still has its mark of influence throughout the earlier years [24].

3.3.4. ATT (ATTB34.SA)

AT&T Inc. is another tech-company that provides entertainment, Internet, and other mobile services. It is a well-known provider of telecommunications across the world. One of its products, AT&T U-verse delivers high speed broadband services and manages networking to business customers [24].

3.3.5. Intel (INTC.O)

Intel designs and manufactures digital technology such as desktops, tablets, smartphones, and other consumer products. In an age where telecommunication and convenience is highly desired, products that help achieve this goal are on demand. Intel is another tech company that offers these services in the pool of technology competition [24].

3.4   Simulation 2 Swing Trading

3.4.1. Apple Inc. (NASDAQ: AAPL)

Apple is a U.S. multinational technology company that focuses on designing and manufacturing mobile phones, personal computers, music players, and sells numerous corresponding services [25]. The company is said to worth more than $700 billion now and is continuing to grow as the consumer market keeps expanding [26].

3.4.2. Phillips 66 (NYSE: PSX)

Phillips 66 is a United States based energy manufacturing and logistics company with high-performing Midstream, Chemicals, Refining, and Marketing and Specialties businesses. The Midstream segment functions as DCP Midstream LLC that processes natural gas. The Chemicals segment is represented by Chevron Phillips Chemical Co. LLC whose primary business is to produce energy related chemicals such as olefins and polyolefin. The Refining segment deals with the purchase, refinement, marketing and transportation of crude oil and petroleum commodities in the U.S., Europe and Asia. The Marketing and Specialties segment Purchases for resale and markets refined products, mainly in the United States and Europe [27].

3.4.3. Chevron Corporation (NYSE: CVX)

Chevron Corporation is a multinational energy corporation based in the United States. It is engaged in every aspect of the oil, natural gas, and geothermal energy industries. Its services and products include crude oil, natural gas, transportation fuels, lubricants, petrochemical products, generated power, and geothermal energy. The corporation also invests in profitable renewable energy and energy efficiency solutions and develops futuristic energy resources, such as advanced biofuels [28].

3.4.4. Chicago Bridge & Iron Company N.V. (NYSE: CBI)

Chicago Bridge & Iron Company, also known as CB&I, is a Dutch-American multinational conglomerate engineering, procurement and construction company that provides a range of services to customers in the energy infrastructure market across the world. The Company also provides various Government services. CB&I mainly operates as Engineering, Construction and Maintenance, Technology, integrated maintenance services and Fabrication services. The company currently employs over 50,000 people worldwide [29].

3.4.5. Baidu Inc. (NASDAQ: BIDU)

Baidu, Inc., founded by Yanhong Li in 2000 in Beijing, China, is a Chinese web services company that focuses on the search engine services in mainland China along with several other side products such as online cloud storage, location-based services, video-sharing platform, etc. Its Baidu.com website has become the most visited Chinese websites and the most used Chinese online search engine. It is also the first Chinese company to be included in the NASDAQ Index [30].

3.5 Simulation 3 Position Trading

Simulation 3 employs the position trading method. Since position method has a relative low trading frequency. It is recommended to select companies that have relative steady performance. So I chose mostly the leaders of the industry from different sectors including retailer, motor, banking, electrical, aerospace, energy, hotel, food, and appliance industry. The companies are elected based on its history performance, price-earnings ratio, financial report and other statistical measures. I also consider the companies' recent activities that may boost the company's earnings.

3.5.1. Amazon (NYSE:AMZN)

Amazon.com, Inc. is an American electronic commerce and cloud computing company with headquarters in Seattle, Washington. It is largest Internet-based retailer in the US. With a historical high growth speed as shown in Figure 3.5.1 and a high forward P/E (1yr) ratio of 112.55, it is reasonable to anticipate the company will keep its trend to grow for a relative long term.

Figure 3.5.1. Amazon's history performance

3.5.2. Tesla Motors (NYSE: TSLA)

Tesla Motors, Inc. is an American automotive and energy Storage Company that designs, manufactures, and sells electric cars, electric vehicle powertrain components, and battery products. As the dominator in electric carmakers, Tesla Motors obtain a high forward P/E (1yr) ratio of 106.38 and high growth in history as shown in Figure 3.5.2. Recently Tesla launches the Powerwall Battery, the battery that could power the entire house, which start a new revolution in the energy industry. It is reasonable to anticipate Tesla will keep growth in long term and worth holding.

Figure 3.5.2. Tesla's history performance

3.5.3. JPMorgan Chase (NYSE: JPM)

JPMorgan Chase & Co. is an American multinational banking and financial services holding company. It is the largest bank in the United States, and the world's fifth largest bank by total assets with total assets of US$2.6 trillion. As one of the dominator in banking industry, JPMorgan has its world renowned reputation and historical proved performance as shown in Figure 3.5.3. As the US economy edged up, it is safe to anticipate JP Morgan will keep growing in long term.
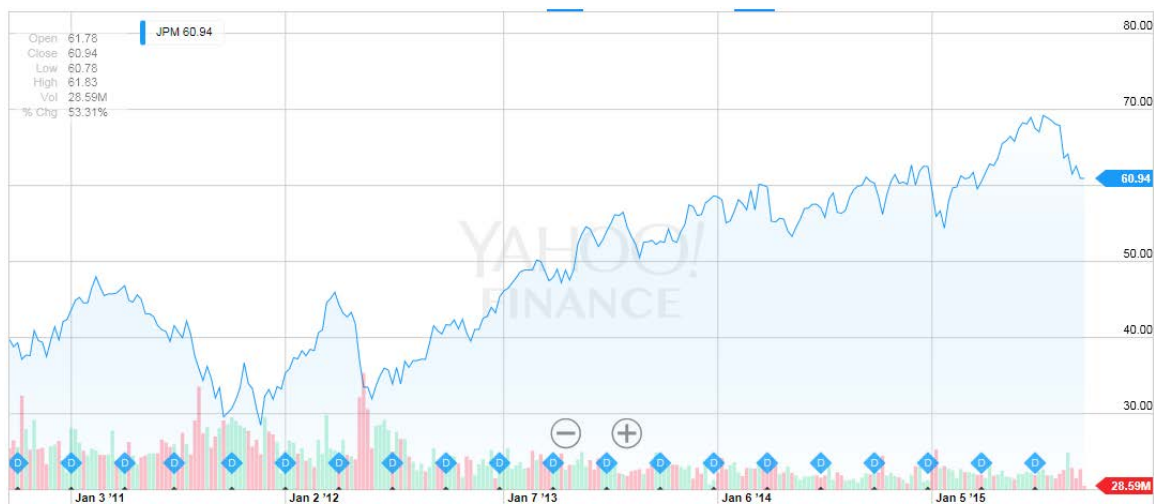
Figure 3.5.3. JP Morgan's 5-year performance

3.5.4. Exxon Mobil (NYSE: XOM)

Exxon Mobil Corporation explores for and produces crude oil and natural gas in the United States, Canada/South America, Europe, Africa, Asia, and Australia/Oceania. As a dominator in the energy industry, even the crude prices fell sharply in the second half of 2014, but Exxon Mobil's earnings slipped only $60 million to $32.5 billion and make itself the second place in terms of profitability on the Fortune 500 list. The energy stock generally goes down this year as shown in Figure 3.5.4 due to regional warfare in Mideast, but it could be a good time to invest now since it might grow rapidly in the rest of the year.

Figure 3.5.4. Exxon Mobil 5-year performance

3.5.5. Intercontinental Hotels Group (NYSE: IHG)

InterContinental Hotels Group PLC owns, manages, franchises, and leases hotels and resorts worldwide. It include a variety of luxury hotel brands: InterContinental, HUALUXE, Crowne Plaza, Hotel Indigo, Holiday Inn, Holiday Inn Express, EVEN, and Kimpton. According to the research, IHG had 84 million of loyal members worldwide. As of September 15, 2015, it owned, managed, leased, and franchised approximately 4,900 hotels and 724,000 guest rooms in approximately 100 countries. Although the company obtain a poor stability as shown in Figure 3.5.5 but it obtain Forward P/E (1 yr): 18.28. IHG's stock is worth holding but should take only small portion of the whole investment, since it could be risky.

Figure 3.5.5. IHG history performance

4.   Simulation 1 Technical Trading

To begin technical trading, I decided the best route to take is to start investing in the market for the first few weeks gaining experience with seeing how the fluctuations vary for each of the selected companies. It would influence the program because I would know some trends that I see apparent from experimenting with these companies. After the second week, I plan to put to use the data that I've gathered from the initial trial weeks.

4.1   Week 1

I began the first week very conservatively only spending $93,000 out of the total $500,000 on companies that I saw fit. I wanted to save a significant amount for next week because this week, the companies were not in a position where I should buy. The companies were all experiencing some rising trend which is usually followed by a drop, so I wanted to wait until there was some change before I made a final decision.

In Figure 4.1.1, the price per share of Amazon from September 4 to October 2 appears to experience a dramatic local rise. I had bought 100 shares from Amazon on September 26 at

about $524.25 per share. The share price raised about 1.58% from when I bought the stocks. The total gain of that week for that stock was $829. Amazon appears to be still on a steady, gradual rise so I still have confidence that the stock will continue.

Figure 4.1.1. Yahoo AMZN Sept 4 – Oct 2

However, the other stocks that I have invested in have not been performing to par. Apple and Bank of America have not experienced much change in the week. In fact, the net loss from both is under $200 combined. On the other hand, a company that I had thought was going to experience oscillation is steadily dropping.

I invested 5000 shares in OpGen on September 30 in high hopes that they would experience a jump in stock price because new smaller companies tend to have more significant changes in their stock prices. The charts that show their performance in the last month show that they had unpredictable behavior. I had hoped to catch OpGen in a falling state and try to sell when they rise again. I still believe that they will have more oscillation in the week. The total loss is $2,300 at this point for OpGen alone. Figure 4.1.2 shows OPGN's prices.

Figure 4.1.2. Yahoo OPGN share price Sept 18 – Oct 2

Figure 4.1.3 shows Intel's stock performance between September 18 and October 2.

Figure 4.1.3. Yahoo INTEL Sept 18 – Oct 2

Some of the companies that I decided not to invest in were in an uptrend in which I felt that if I had invested, then I would lose profit because it would be accompanied by a fall. I predict that Intel will experience a drop in stock price soon, most likely next week. If that is the

case, then I will invest because the general trend appears to be on a rise and if it falls, I predict it

will rise again. Table 4.1.1 shows the transactions for week 1.

Table 4.1.1. Transactions for Week 1

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
9/23/2015							500000	
9/25/2015	AMZN	Buy	$524.25	100	$52,432		$447,568	$0
9/30/2015	AAPL	Buy	$111.10	100	$11,117		$436,451	$0
9/30/2015	OPGN	Buy	$2.78	5000	$13,907		$422,544	$0
9/30/2015	BAC	Buy	$15.46	350	$5,418		$417,126	$0
9/30/2015	C	Buy	$48.53	200	$9,713		$407,413	$0

4.2   Week 2

Over the course of this week, there was not much change in the overall from these stocks.

However, I was correct in thinking that OpGen would fluctuate during this week. In fact, in the

first few days I had checked the stocks and found that it changed 20 percent at one point.

However, I did not sell because I was hoping that it would rise even more. The 20 percent

positive change actually evened out the initial investment for a zero net loss. I went out to pick

up lunch and checked back again and found that it had dropped 8 percent in the total 2 minutes

that I had gone out. In that time frame, about $800 of potential profit was lost. Smaller

companies like OpGen show very unpredictable results. Table 4.2.1 shows the change after

coming back to check on the company.

Table 4.2.1. Performance Oct 5 (Specific note on OPGN)

SYMBOL	PRICE	CHG & % CHG		52-WK RANGE		SHARES	MKT VALUE	GAIN & % GAIN	
AMZN	543.68	+11.14	+2.09%	284	580.57	100	$54,368.00	$+1,936.00	+3.69%
GE	26.82	+1.35	+5.30%	19.37	28.68	-	-	-	-
AAPL	110.78	+0.40	+0.36%	92	134.54	100	$11,078.00	$-39.00	-0.35%
OPGN	2.6000	+0.2800	+12.07%	2.21	5.44	5,000	$13,000.00	$-907.00	-6.52%
BAC	15.69	+0.31	+2.02%	14.6	18.48	350	$5,491.50	$+73.50	+1.36%
MSFT	46.63	+1.06	+2.33%	39.72	50.05	-	-	-	-
T	33.43	+0.79	+2.42%	30.97	36.45	-	-	-	-
INTC	31.21	+0.70	+2.29%	24.87	37.9	-	-	-	-
S	4.42	+0.17	+4.00%	3.1	6.33	-	-	-	-
C	51.16	+1.28	+2.57%	46.6	60.95	200	$10,232.00	$+519.00	+5.34%
Total							$ 94,169.50	$ 1,582.50	1.71%

Another company that caught my interest was Tesla. In the past week, Tesla's stock dropped very significantly. In Figure 4.2.2, the curve of the stock price and the simple moving average are displayed. The idea is that investing in Tesla now would be a good decision because based on the moving average, the stock has a good chance to converge back to the average in the next few weeks. I invested almost half my budget because I am confident that Tesla will be successful in the future.

Figure 4.2.1. Yahoo TSLA Oct 2 – Oct 10

For the other companies, investments were not made this week because of the fear that it would drop right after investing. In Figure 4.2.3, it should be apparent that the stocks are moving in a trend well above the moving average which indicates good performance, but induces a fear that the stocks will go back down. However, the best time to make the investment in Intel or Microsoft would have been the start of this week. The potential profit from each company would have been significant.
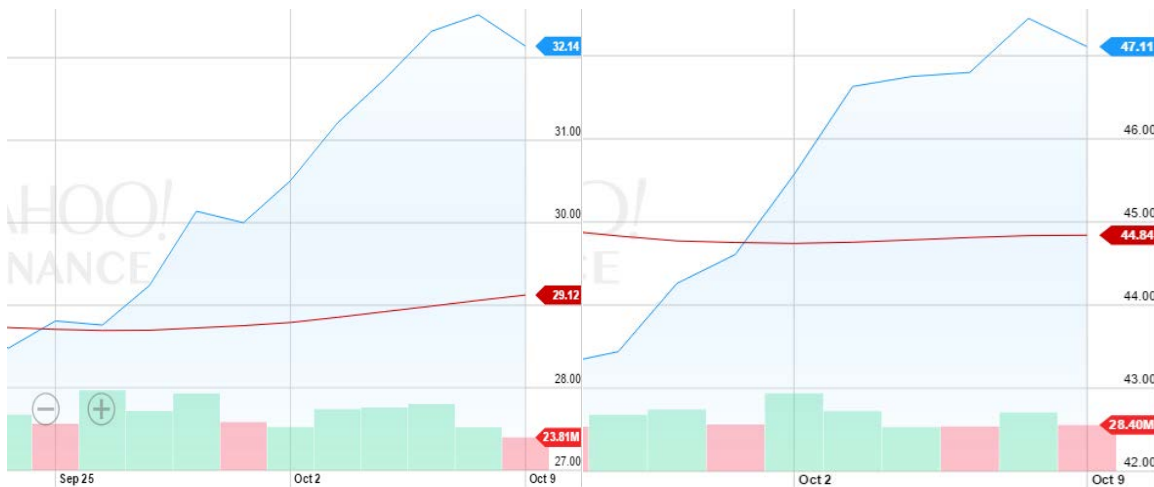
Figure 4.2.2. Yahoo INTEL & MSFT Oct 2 – Oct 10

The performance at the end of the week was decent. All companies seemed to have experienced a net profit, which is the desired result. Citigroup made a positive comeback after a loss from the previous week. However, OpGen continues to drop and may be raising a flag to prevent further losses. The overall net profit is merely a positive $334 but is more than satisfactory as no real losses ensued. The net gain actually went from negative to positive this week. Larger companies like Amazon show reliable and predictable trends whereas smaller companies require special attention to reap profit. In the end of this week, the time to sell is still unclear because each of the companies show promise, but the actually returns have yet to reach satisfactory values. Table 4.2.2 shows the progress for the week.

SYMBOL	PRICE	CHG & % CHG		52-WK RANGE		SHARES	MKT VALUE	GAIN & % GAIN	
TSLA	220.69	-6.03	-2.66%	181.4	286.65	1,000	$220,690.00	$+0.00	+0.00%
AMZN	539.80	+6.64	+1.25%	284	580.57	100	$53,980.00	$+1,548.00	+2.95%
GE	28.07	+0.04	+0.14%	19.37	28.68	-	-	-	-
AAPL	112.12	+2.62	+2.39%	92	134.54	100	$11,212.00	$+95.00	+0.85%
OPGN	2.40	-0.14	-5.51%	2.21	5.44	5,000	$12,000.00	$-1,907.00	-13.71%
BAC	15.58	-0.17	-1.08%	14.6	18.48	350	$5,453.00	$+35.00	+0.65%
MSFT	47.11	-0.34	-0.72%	39.72	50.05	-	-	-	-
T	33.14	-0.26	-0.78%	30.97	36.45	-	-	-	-
INTC	32.14	-0.38	-1.17%	24.87	37.9	-	-	-	-
S	4.47	-0.08	-1.76%	3.1	6.3	-	-	-	-
C	51.38	-0.27	-0.52%	46.6	60.95	200	$10,276.00	$+563.00	+5.80%
Total							$ 313,611.00	$ 334.00	0.11%

Table 4.2.1 shows the transactions for the second week 2. Only shares from Tesla were bought.

Table 4.2.3. Transactions Week 2

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/9/2015	TSLA	Buy	$220.69	1000	$220,697		$186,716	$0

4.3   Week 3

In this week, I spent time writing the code to retrieve data from a financial source (Yahoo Finance) using Matlab and its package Financial Toolbox. This toolbox allows the user to retrieve the high, low, open, and close prices of a specified stock. Using evaluation methods, the price for the day can be estimated by an average of these four components. After obtaining the graphs to reflect the data, I decided to analyze it using local extrema. I've set a window interval and a sensitivity value for the function to search for these critical points. From them, I can then

partition the graph in a way to reflect the trends that have occurred within the given period. Using these trends, I will select companies based on criteria that I will test such as moving averages, volume, and percent changes.

Samples of the GUI that retrieves data from Yahoo Finance are shown in Figure 4.3.1 and Figure 4.3.2 below.
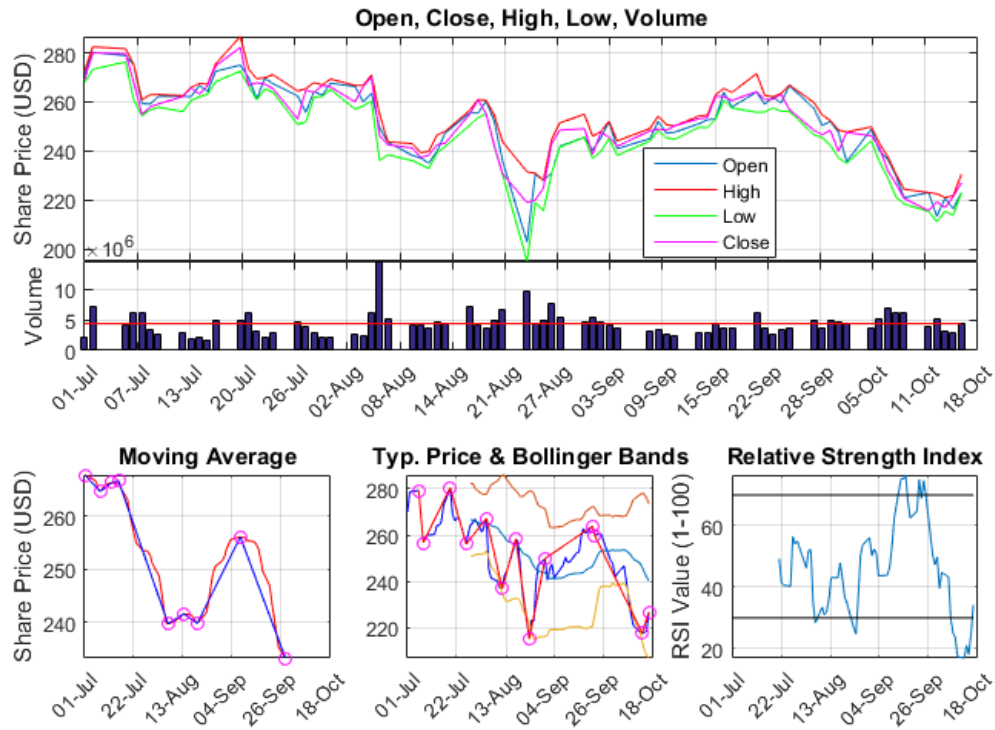
Figure 4.3.1. Matlab TSLA Jul 1 – Oct 18
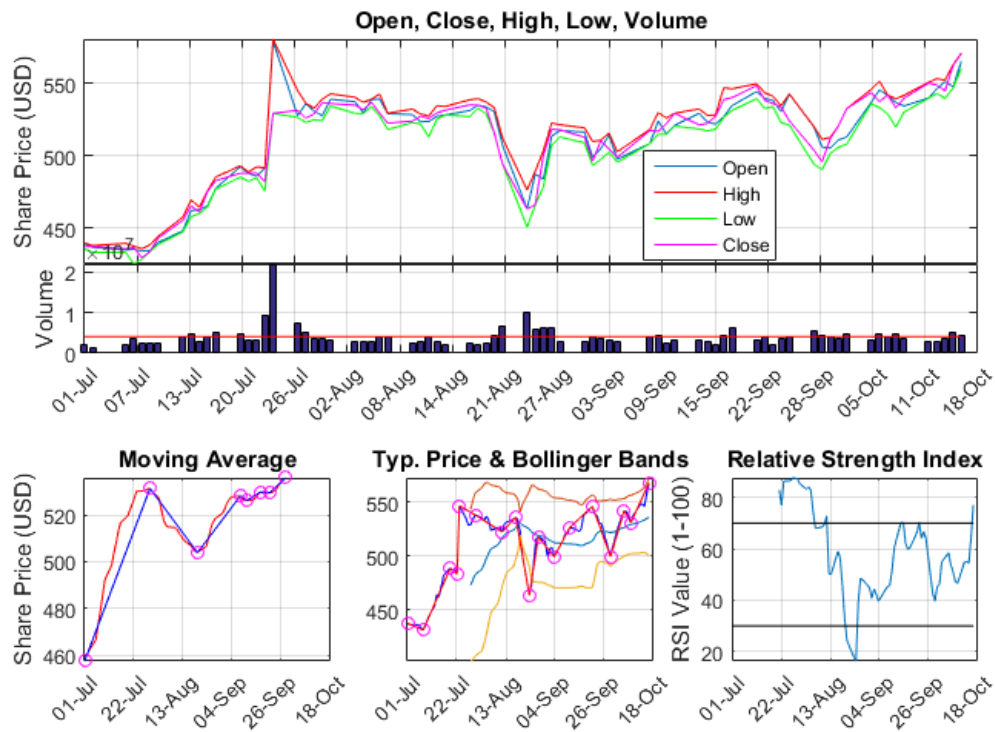
Figure 4.3.2. Matlab AMZN Jul 1 – Oct 18

After reviewing what graphical indicators would be best to use for recognizing trends, I decided to base my first search on the last local trending period. To do this, I used the data fed from Yahoo Finance and manipulated it with the Financial Toolbox to generate a simple moving average data series. A function used to find local extrema was executed on this data set and the points were superimposed on the same graph. Lines were generated to connect these points to resemble a partitioning of the stock data. With this method, the program will have a way to know where uptrend and downtrends are located.

The last two points of the simple moving average were used to figure out whether the stock is currently rising or falling. However, although the moving average is a general indicator, the actual stock price may not at all reflect the same movement. For example, the actual price

may fluctuate in a way that would produce the image of a rising trend in its corresponding moving average. For this week, I will test a method that uses recent historical data.

A sample of the Matlab code has been provided below that iterates through an array of stock symbols and selects candidates that pass the conditional statements.

```matlab
y1 = loc_extrema_mavg.pts(end,2); %gets last point
y2 = loc_extrema_mavg.pts(end-1,2); %gets second to last point
x1 = loc_extrema_mavg.pts(end,1); %gets last mavg datenum
x2 = loc_extrema_mavg.pts(end-1,1); %gets second to last mavg datenum
pct.rise = risePercentage(y2,y1); %gets percent rise
%checks for positive rise, trend interval, and within a bound
if (y1 - y2) > 0 && ...
    (x1 - x2) > trendinterval && ...
    pct.rise > pct.lowbound && ...
    pct.rise < pct.highbound
    %adds company to potential candidate list if
    %criteria is met.
    company = cellstr(company);
    stocklist = [stocklist;company];
end
```

The variables, *y1*, *y2*, *x1*, and *x2* are obtained from the last two points of the moving average. The percent rise, *pct.rise*, is obtained using the last two values of the moving average relative to the point before the last. The percent rise is bounded by two limits to find stocks that are within a certain uptrend range. The *trendinterval* variable is to check how long the trend has been lasting.

I set the trend interval to 14 days, and the high and low bounds to 5.1% and 5.5% respectively. I wanted to limit the candidates down to a manageable range and also pick ones that are in a current rising trend. I picked these rise percentage limits because they are relatively moderate to factor out companies that have higher rises because they would be likely to fall as sharply resulting in loss in profit if I were to buy at that time.

After filling an array with 3280 stock symbols from the NYSE, the candidate program reduced the list to 26 potentials. I picked 5 of them that appeared to continue in the same trend based on how much fluctuation there is and its general motion.

Table 4.3.1 shows the transactions for week 3. I've decided to sell all the stocks from the previous week and try to trade based on the candidates that the program has picked and what I've learned from experience from the prior two weeks. I also partitioned them around $100,000 each see how they perform percentage-wise. Lastly, the prior two weeks netted a total positive gain approximately $12,000.00, which is good progress.

Table 4.3.1. Transactions for Week 3 Algorithm 1

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/16/2015	C	Sell	$52.69	200	$10,531	$818	$211,040	$704
10/16/2015	TSLA	Sell	$227.01	1000	$227,003	$6,306	$438,043	$7,010
10/16/2015	AMZN	Sell	$570.73	100	$57,066	$4,634	$495,109	$11,644
10/16/2015	AAPL	Sell	$111.04	100	$11,097	-$20	$506,206	$11,624
10/16/2015	BAC	Sell	$16.12	350	$5,635	$217	$511,841	$11,841
10/16/2015	ACE	Buy	$108.95	1000	$108,957		$402,884	$11,841
10/16/2015	PKY	Buy	$16.97	5000	$84,857		$318,027	$11,841
10/16/2015	RTN	Buy	$111.30	900	$100,177		$217,850	$11,841
10/16/2015	CSC	Buy	$64.32	1700	$109,351		$108,499	$11,841
10/16/2015	TRC	Buy	$23.87	4000	$95,487		$13,012	$11,841

4.4   Week 4

In the fourth week, the results of previous week were obtained. All the stocks that had been purchased as candidates were sold and the profit/loss were recorded. Table 4.4.1 shows the transactions of week 4. The total profit rose to $25,472.99 which is more than doubled the previous week's profit.

Table 4.4.1. Transactions for Week 4 Algorithm 1

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/23/2015	ACE	Sell	$114.83	1000	$114,823	$5,866	$127,835	$17,707
10/23/2015	PKY	Sell	$17.09	5000	$85,443	$586	$213,278	$18,293
10/23/2015	RTN	Sell	$117.77	900	$105,986	$5,809	$319,264	$24,102
10/23/2015	CSC	Sell	$66.31	1700	$112,720	$3,369	$431,984	$27,471
10/23/2015	TRC	Sell	$23.35	4000	$93,393	-$2,094	$525,377	$25,377
10/23/2015	ASR	Buy	$158.01	600	$94,813		$430,564	$25,377
10/23/2015	JTA	Buy	$12.20	7500	$91,507		$339,057	$25,377
10/23/2015	SMP	Buy	$38.86	2500	$97,157		$241,900	$25,377
10/23/2015	STI	Buy	$41.75	2500	$104,382		$137,518	$25,377
10/23/2015	ESD	Buy	$14.37	7000	$100,597		$36,921	$25,377

In taking a closer inspection at Figure 4.4.1, the last two extrema of the simple moving average of the previous week, Oct 16, was clearly in an uptrend and the fluctuation amplitudes were not too unpredictable. We see that it continues in the rising trend, which was the predicted and desired direction.
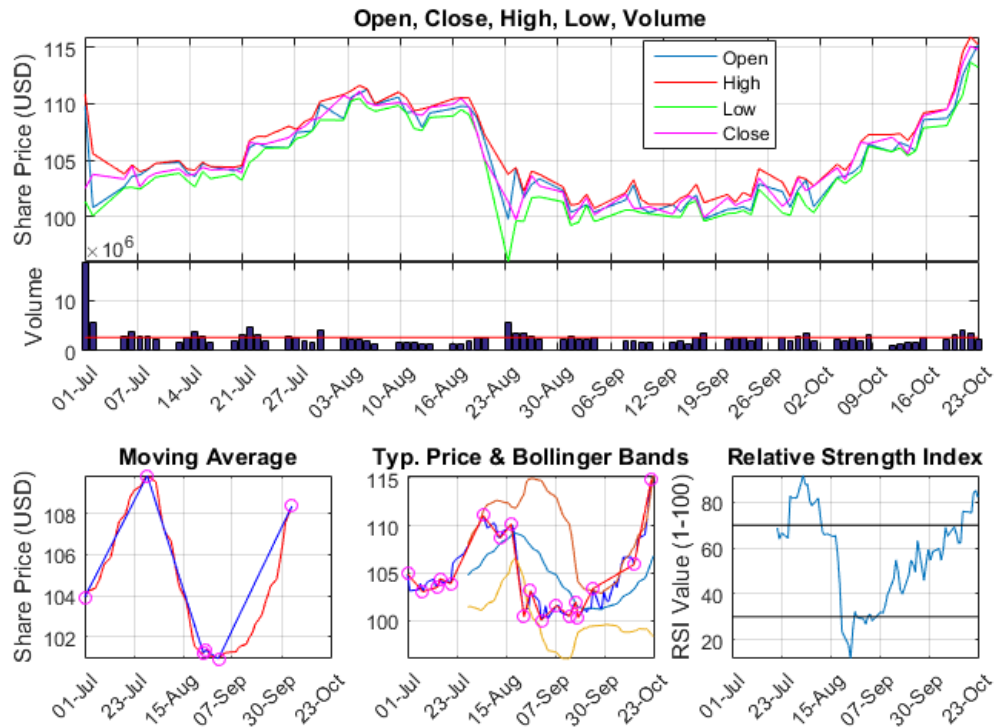
Figure 4.4.1. Matlab ACE Jul 1 – Oct 23

Figure 4.4.2 below contains the stock, TRC, which was the only stock out of the five candidates that resulted in a loss of profit. Although the most recent trend was in an upward direction, the large fluctuations proved to be a danger. Before selling the stock, the price dropped below what it had been bought for. The initial idea of using the moving average, essentially sort of a "momentum", is more reliable when the stock does not experience big fluctuation. In the case of TRC, the stock had shown a history of unstable price changes which is an indicator that it might be not a reliable candidate for this type of method. Another factor that will be incorporated in future methods will be the volume of trades. In all these graphs, heavy rises and falls correspond to the activity of trades in the market. "If the previous relationship between volume and price movements starts to deteriorate, it is usually a sign of weakness in the trend. For example, if the stock is in an uptrend but the up trading days are marked with lower volume, it is a sign that the trend is starting to lose its legs and may soon end." [13]
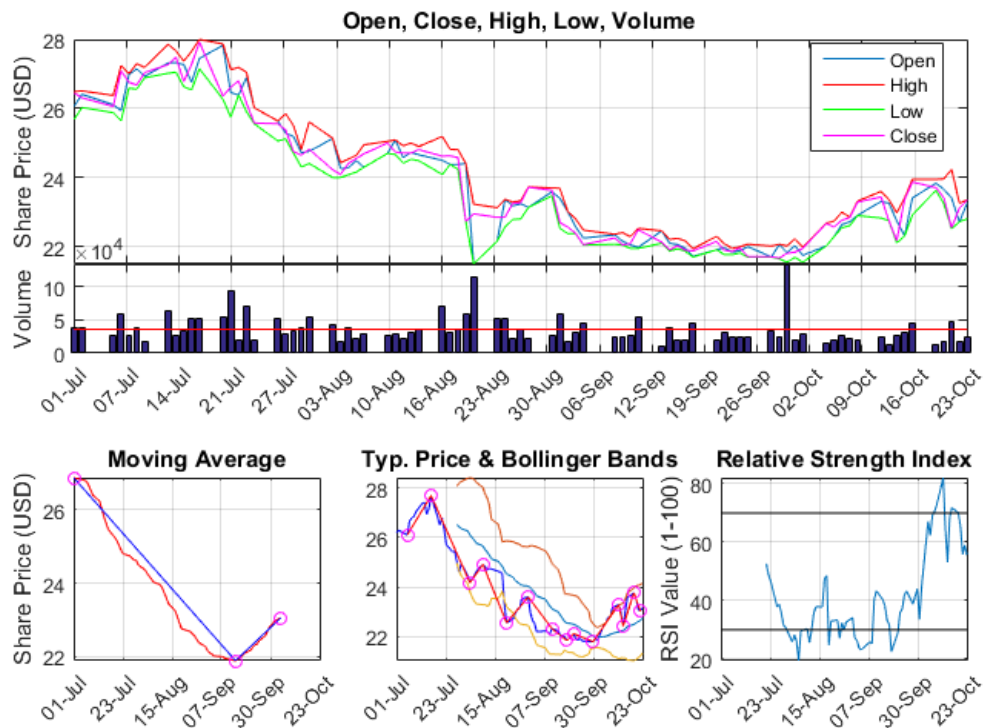
Figure 4.4.2. Matlab TRC Jul 1 – Oct 23

4.5   Week 5

The second results of the first candidate selection method are shown below. It is clear that SMP was an incredibly great trade for a week span. The net gain was over 10% of what had been initially invested. However, the other four stocks seem to be lacking in respect. We can analyze how the stocks behaved during this period and their overall stability.

Table 4.5.1 shows the transactions for this week.

Table 4.5.1. Transactions for Week 5 Algorithm 1

Table 4.5.1. Transactions for Week 5 Algorithm 1

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/30/2015	ASR	Sell	$154.74	600	$92,837	-$1,976	$129,758	$23,401
10/30/2015	JTA	Sell	$12.17	7500	$91,268	-$239	$221,026	$23,162
10/30/2015	SMP	Sell	$44.25	2500	$110,618	$13,461	$331,644	$36,623
10/30/2015	STI	Sell	$41.52	2500	$103,793	-$589	$435,437	$36,034
10/30/2015	ESD	Sell	$14.71	7000	$102,963	$2,366	$538,400	$38,400
10/30/2015	EVR	Buy	$54.00	2000	$108,007		$430,393	$38,400
10/30/2015	DGX	Buy	$67.95	1500	$101,932		$328,461	$38,400
10/30/2015	MCY	Buy	$54.01	2000	$108,027		$220,434	$38,400
10/30/2015	CST	Buy	$35.93	3000	$107,797		$112,637	$38,400
10/30/2015	TEI	Buy	$10.26	7000	$71,827		$40,810	$38,400

In the Figure 4.5.1, the overall stability of SMP is high since the graphs show that its fluctuation is relatively low. The movement of this stock is rather predictable except for the extraordinary rise in the last segments. The behavior also matches the volume graph which shows the above average activity in this stock.
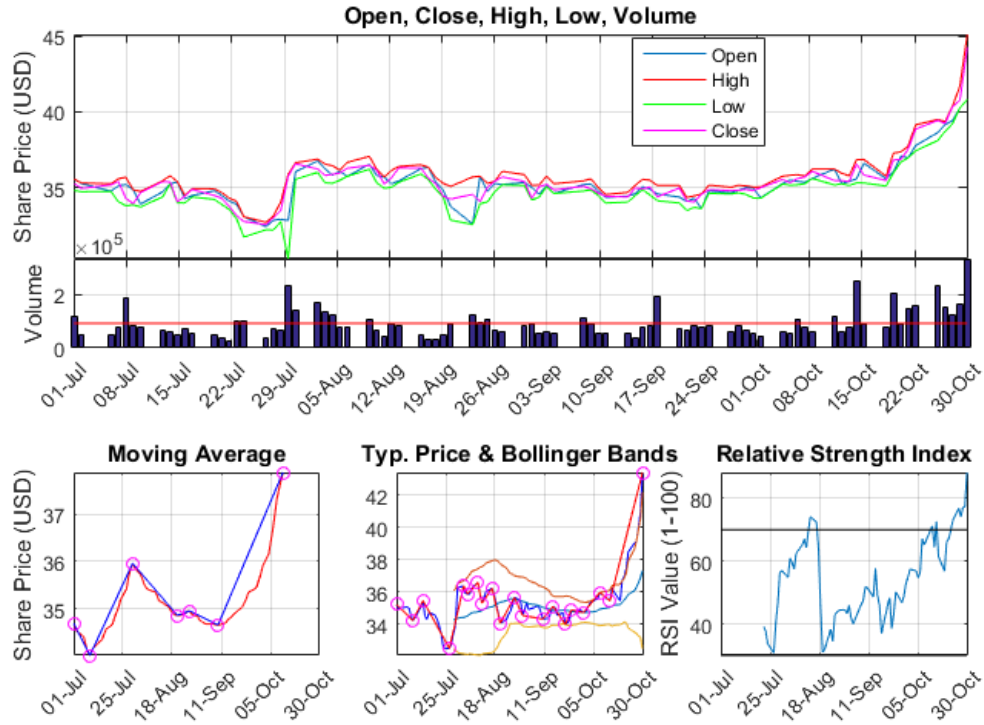
Figure 4.5.1. Matlab SMP Jul 1 - Oct 30

The stock that performed the worst over this week despite being one of the potential candidates is ASR. Figure 4.5.2 below shows the stock activity of ASR and the moving average is the most deceiving here. It appears as if on average it is increasing almost linearly. However, although the simple moving average shows this, the actual typical stock price is a combination of sharp rises and falls. We see again here the instability that poses a danger when using this short term trading method. In the next week, criteria can be implemented that takes the fluctuations and volume trading into account and find stock candidates that show stability in behavior.
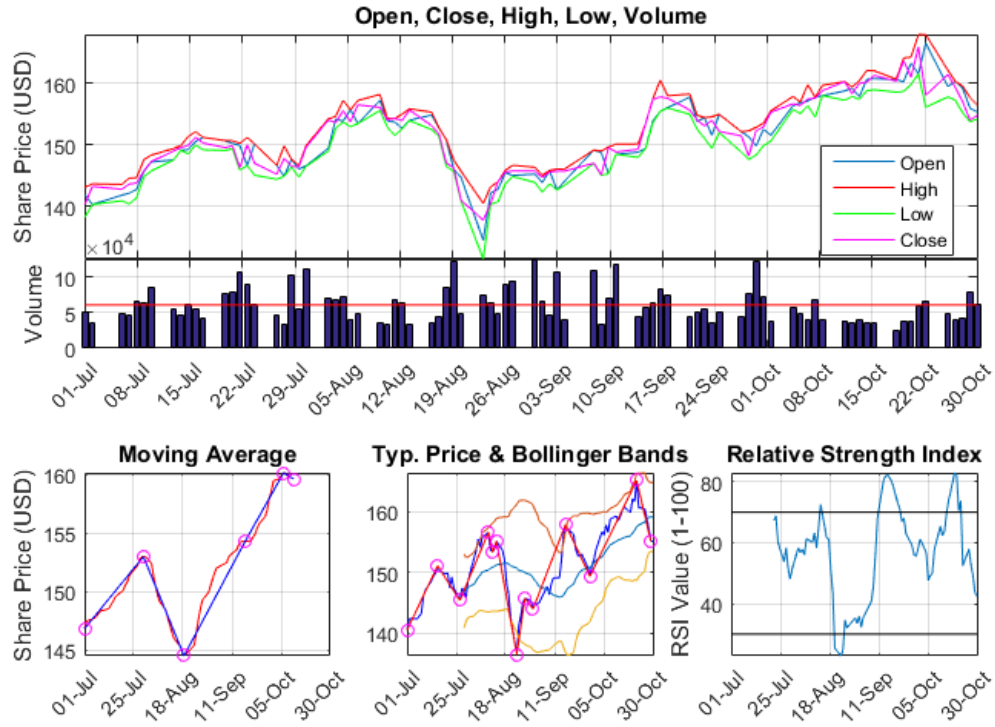
Figure 4.5.2. Matlab ASR Jul 1 - Oct 30

In these few trial weeks of the prototype program, a lot of valuable data was gathered related to what stocks can be considered good candidates for a current trend analysis. The overall profit is still positive which is definitely a feat considering the risk involved in the stock market.

4.6   Week 6

The earnings for week 6 were in the positive range which ends the three-week period for algorithm 1 with a profit each week. Using this method resulted in a net profit for each week and appears to be relatively efficient. The transactions for week 6 are shown below in Table 4.6.1. The trade in EVR performed the best and the summation of the other four stocks seems to break even.

Table 4.6.1. Transactions for Week 6 Algorithm 2

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/6/2015	EVR	Sell	$59.04	2000	$118,073	$10,066	$158,883	$48,466
11/6/2015	DGX	Sell	$68.20	1500	$102,293	$361	$261,176	$48,827
11/6/2015	MCY	Sell	$52.17	2000	$104,333	-$3,694	$365,509	$45,133
11/6/2015	CST	Sell	$37.23	3000	$111,683	$3,886	$477,192	$49,019
11/6/2015	TEI	Sell	$10.20	7000	$71,393	-$434	$548,585	$48,585
11/6/2015	E	Buy	$32.38	3500	$113,337		$435,248	$48,585
11/6/2015	HSY	Buy	$86.16	1100	$94,783		$340,465	$48,585
11/6/2015	MDC	Buy	$25.51	4000	$102,047		$238,418	$48,585
11/6/2015	RIO	Buy	$34.72	3000	$104,167		$134,251	$48,585
11/6/2015	UTL	Buy	$34.83	3000	$104,497		$29,754	$48,585

Instead of the previous mechanics of the first search algorithm, this new one will look for falls in the stock prices and use the RSI values to predict a trend change. This method is especially dangerous because it is using stocks that are falling in value. If the stock proceeds to fall then profit will be lost of course. However, great profit can be gained if predicted correctly.

Figure 4.6.2 shows one of the stock candidates that the Matlab program selected based on a falling stock within a 5 to 7 percent range and also a RSI value that goes beyond the 30 line which indicates a shift in the trend.
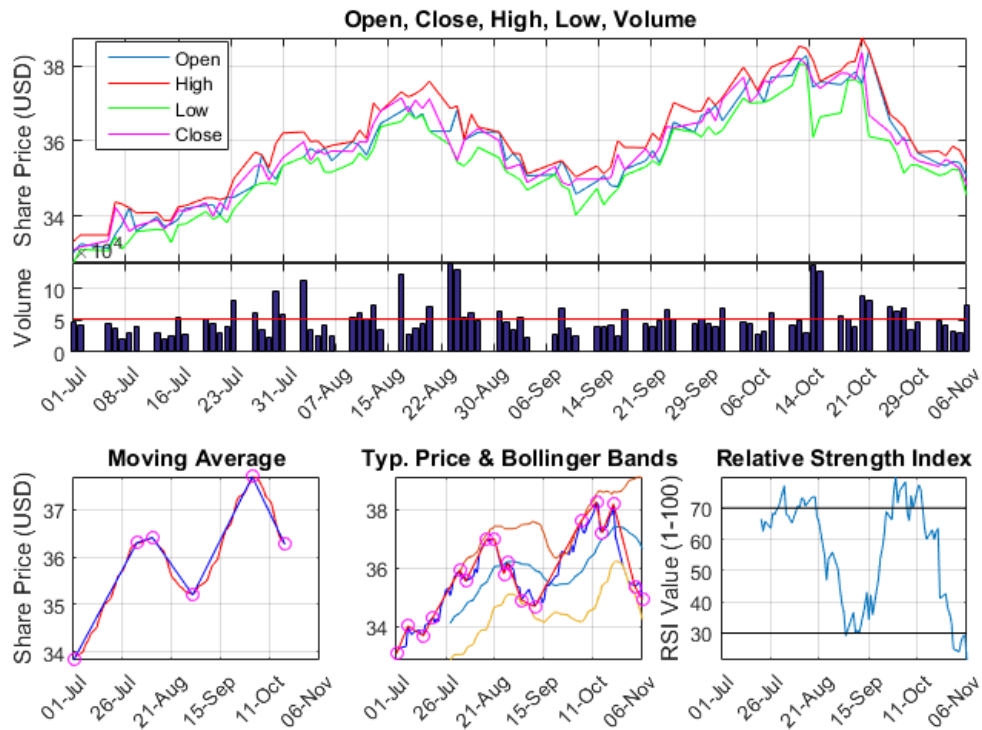
Figure 4.6.1. Matlab UTL Jul 1 - Nov 6

The addition to the code is shown below:

```
rsi.data = rsindex(t); %gets RSI data
rsi.rsivals = fts2mat(rsi.data,'RSI'); %extracts RSI values
rsi.rsi7 = rsi.rsivals(end-7:end); %uses the last week's RSI values
trend_change = rsi.rsi7(rsi.rsi7 > 70 | rsi.rsi7 < 30);
%checks if values      exceed ranges
```

The hope for this week is to catch a stock in a trend reversal. If the program can predict which stocks will switch in trends, then profit can be made by buying the stock when it is low and selling it when it rises back up.

4.7   Week 7

The general performance of this week had been bad using the new algorithm. The downtrend continued which resulted in losses. However, during the middle of the week, the majority of the stock prices had actually increased which may suggest that this method only works for very short intervals. After waiting to see the results a week later, the stocks had

dropped below what they were bought for. What can be taken from this experience is that predicting continuity of trends is more stable than predicting trend changes. Although there was a trend change during the week, one must be attentive to sell when the profit is available. The opportunity for profit for this week was missed, but now there is a better idea of how predicting these trend changes work.

Table 4.7.1 shows the loss from each of the companies. However, this is if I were to sell these stocks now. I will hold onto these stocks for this week and see if there will be a trend change over a longer period. To evaluate this algorithm, I could potentially break up the next week into two segments for short term trading. For now, I will see if the trend change occurs in the next week after the RSI indication.

Table 4.7.1. Transactions for Week 7 Algorithm 2 (Potential Loss)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/13/2015	E	Sell	$30.78	3500	$107,723	-$5,614	$137,477	$42,971
1113/2015	HSY	Sell	$83.82	1100	$92,195	-$2,588	$229,672	$40,383
11/13/2015	MDC	Sell	$25.01	4000	$100,033	-$2,014	$329,705	$38,369
11/13/2015	RIO	Sell	$34.24	3000	$102,713	-$1,454	$432,418	$36,915
11/13/2015	UTL	Sell	$34.79	3000	$104,363	-$134	$536,781	$36,781

Figures 4.7.1 and 4.7.2 below show the behaviors of the MDC and HSY in particular. It appears that they are still moving in a general downtrend which suggests that the first algorithm is more reliable at finding stable stocks. The trend change prediction itself is very risky and although there is a good chance to catch a fluctuation on the rise, the overall effect on the profit is negative if left unattended.
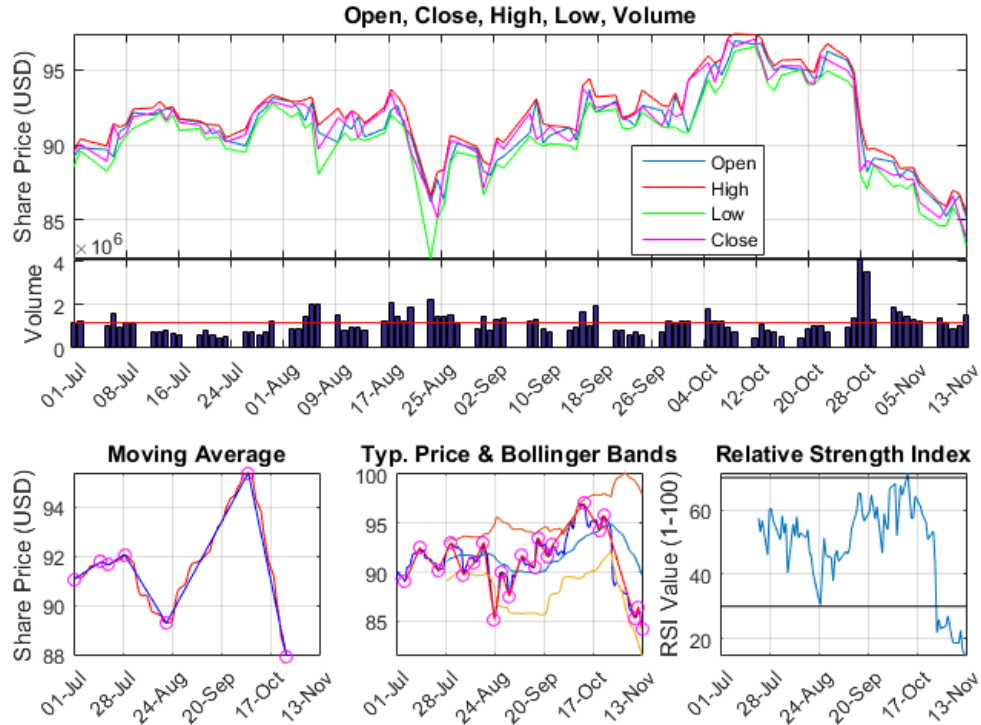
Figure 4.7.1. Matlab HSY Jul 1 - Nov 13
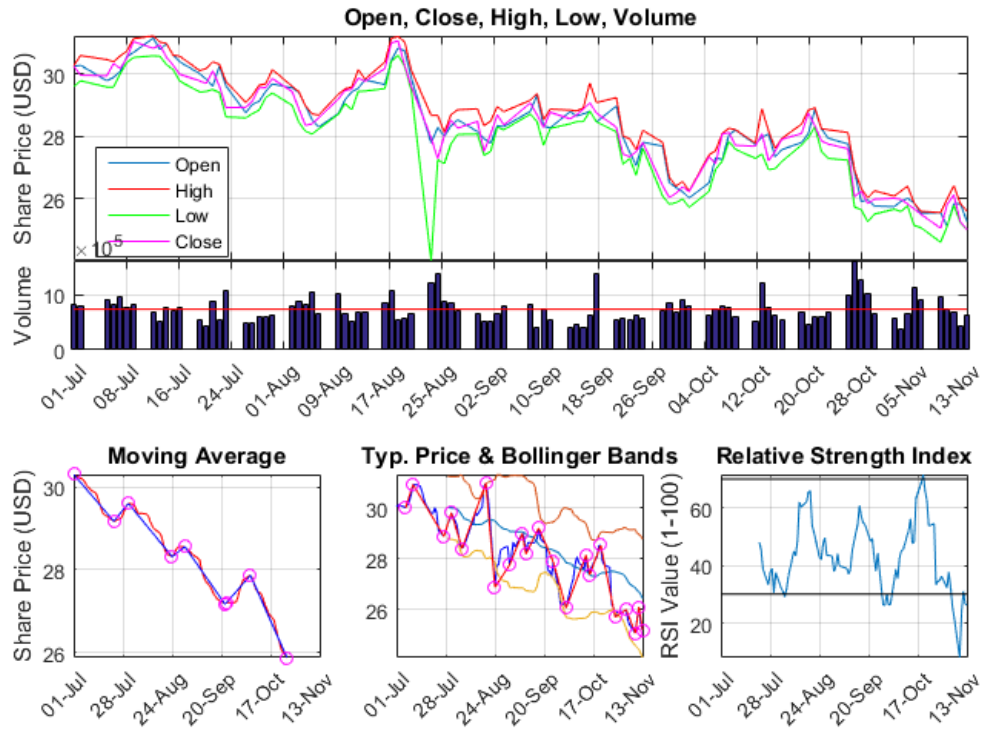
Figure 4.7.2. Matlab MDC Jul 1 - Nov 13

48

If there is significant loss with the coming next week, this algorithm most likely will be dropped because of its unreliability and a new version of the first algorithm may be implemented. A completely new indicator may even be used depending on what the results are.

4.8   Week 8

In this week, I sold the stocks bought using the second algorithm. Previously, if I had sold the stocks the week earlier, I would have lost a considerable amount of profit. I made a good call to hold the stocks for a week longer to see if the trend change would actually occur. What I've observed over this week was similar to the behavior of the previous week. The stocks had increased mainly during the middle period of the week. Perhaps this method is more of a short-term rather than a medium-term one. From these observations, it would be beneficial to include this strategy into the next plan. In the next iteration of this algorithm, the same criteria will be used. However, more companies will be bought in order to collect more data and vary the results. Instead of only selling with the price nearing the end of the week, the price during the mid-point will be closely monitored.

Table 4.8.1 shows the transactions for week 8. As one can see, the total profit from selling the first iteration stocks is minuscule. In fact, the net from the profit and loss nearly balances each other. The number of stocks that lost money is greater than the companies that did profit. Ten new stocks for this week were considered based on the same criteria as the first round iterations. Each stock has been bought with similar total price and progress will be tracked.

Table 4.8.1. Transactions for Week 8 Algorithm 2

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/20/2015	E	Sell	$31.28	3500	$109,473	-$3,864	$139,227	$44,721
11/20/2015	HSY	Sell	$84.59	1100	$93,042	-$1,741	$232,269	$42,980
11/20/2015	MDC	Sell	$26.47	4000	$105,873	$3,826	$338,142	$46,806
11/20/2015	RIO	Sell	$34.68	3000	$104,033	-$134	$442,175	$46,672
11/20/2015	UTL	Sell	$35.61	3000	$106,823	$2,326	$548,998	$48,998
11/20/2015	BFS	Buy	$54.85	1000	$54,857		$494,141	$48,998
11/20/2015	BR	Buy	$55.85	850	$47,480		$446,662	$48,998
11/20/2015	CNL	Buy	$49.40	900	$44,467		$402,195	$48,998
11/20/2015	D	Buy	$69.00	800	$55,207		$346,988	$48,998
11/20/2015	GPI	Buy	$81.54	600	$48,931		$298,057	$48,998
11/20/2015	KF	Buy	$36.55	1300	$47,522		$250,535	$48,998
11/20/2015	PGR	Buy	$31.58	1500	$47,377		$203,158	$48,998
11/20/2015	PNK	Buy	$32.91	1600	$52,663		$150,495	$48,998
11/20/2015	MO	Buy	$57.13	900	$51,424		$99,071	$48,998
11/20/2015	SFE	Buy	$16.25	3010	$48,920		$50,151	$48,998

Figures 4.8.1 and 4.8.2 below show the stock behavior of candidates BR and SFE. In analyzing the trend changes that occur with these stocks, the RSI factor still appears to be consistent with the critical points where these changes occur. It is also important to note that the changes occur slightly after the RSI value has been met. One of the goals for this week is not only to see if the trend change occurs, but also to gauge how long it will generally take for the change to happen. From the observations up to this point, the period is very hard to track if there even is any correlation at all.
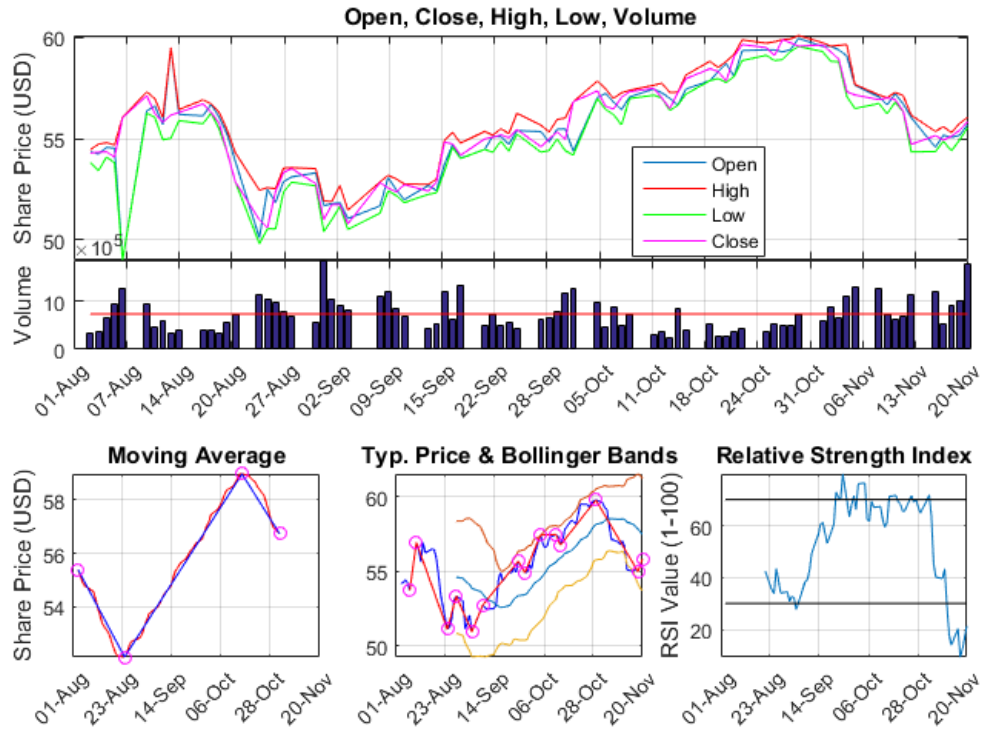
Figure 4.8.1. Matlab BR Aug 1 - Nov 20
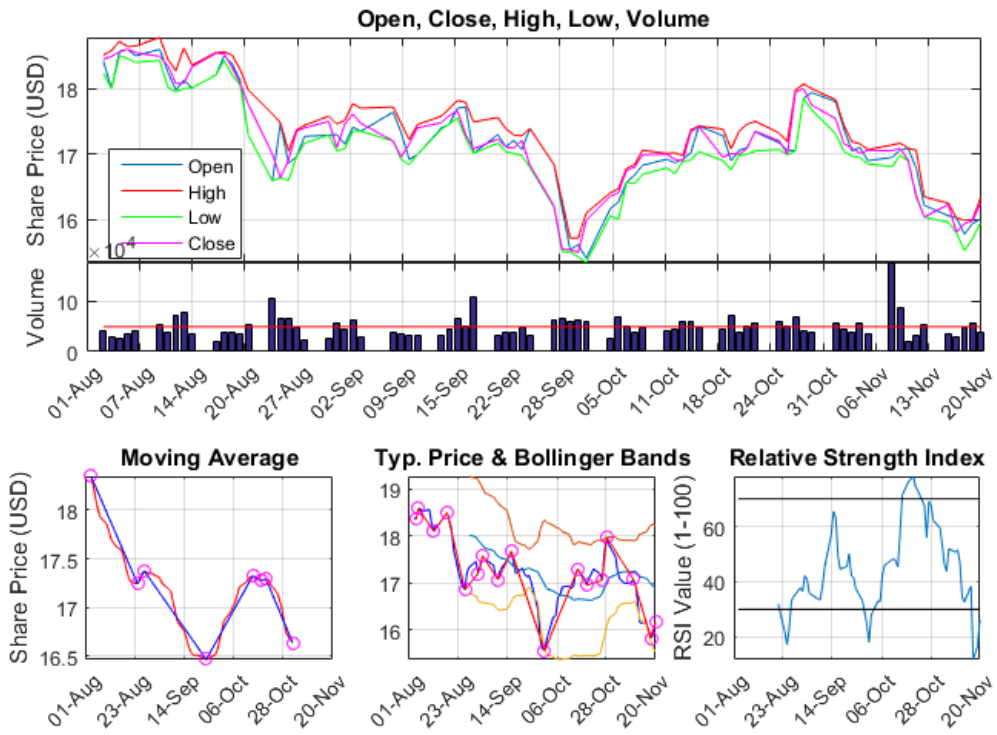
Figure 4.8.2. Matlab SFE Aug 1 - Nov 20

51

4.9   Week 9

The results of the last trial of algorithm 2 are shown in Table 4.9.1. Upon inspection, 30% of the stock candidates had undergone a gradual loss over the week. During the middle of the week, I had traded in CNL, GPI, and PNK because their prices were satisfactory for a safe net profit. The first three trades, early before the week's end, were profitable between 1-2%. Although the magnitude of the percent return was lower than the ones in the first algorithm, it was safer to sell when a certain threshold was met. I thought 1-2% was a good line to establish especially since I had 10 total stocks to keep track of.

The total profit of this week was $1,038 which is a lot less than the previous weeks, but looking at the number of positive to negative trades, this method seems safer. It also appears consistent with risk vs. profit ratio.

Table 4.9.1. Transactions for Week 9 Algorithm 2

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/25/2015	CNL	Sell	$50.26	900	$45,227	$760	$95,378	$49,758
11/26/2015	GPI	Sell	$82.89	600	$49,727	$796	$145,105	$50,554
11/26/2015	PNK	Sell	$33.28	1600	$53,241	$578	$198,346	$51,132
11/27/2015	BFS	Sell	$55.76	1000	$55,753	$896	$254,099	$52,028
11/27/2015	BR	Sell	$55.10	850	$46,828	-$651	$300,927	$51,377
11/27/2015	D	Sell	$67.37	800	$53,889	-$1,318	$354,816	$50,059
11/27/2015	KF	Sell	$37.10	1300	$48,223	$701	$403,039	$50,760
11/27/2015	PGR	Sell	$31.12	1500	$46,673	-$704	$449,712	$50,056
11/27/2015	MO	Sell	$57.75	900	$51,968	$544	$501,680	$50,600
11/27/2015	SFE	Sell	$16.32	3010	$49,116	$196	$550,796	$50,796

For this week, I decide to take both the previous algorithms are combine them to optimize the results. The first algorithm was the best regarding the profit. The second appears to be satisfactory. The combination of these two will lead me to stocks that are on uptrends and using the RSI values from algorithm 2, I can enhance the confidence that the stocks will continue to

rise as long as an indication that a trend change will not be likely to occur. Of course, like any other stock trading strategy, it will not be perfect, but it should continue building up confidence in potential candidates.

The changes to the code are simple. The conditions were set back to the first algorithm so that uptrends will be detected. The range for the current trade will be from 5-7% rise and the addition to the second algorithm (RSI) was included as an additional argument to the search criteria. From the previous methods, using more candidates provides a better idea of how the strategy is working. Therefore, I will continue to expand the stocks for the week from the average five.

The transactions for week 9 using algorithm 3 are shown in Table 4.9.2 below. Just as the other trials before, I kept the net cost of each trade around $50,000 to $60,000 so that percent yield is the performance factor. The number of candidates that the search algorithm found was 17, but I narrowed it down to 9 because of some other factors such as low volume suggesting that the trend won't continue for long.

Table 4.9.2. Transactions for Week 9 Algorithm 3

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/27/2015	AIZ	Buy	$84.90	700	$59,437		$491,359	$50,796
11/27/2015	BWXT	Buy	$30.15	1700	$51,262		$440,097	$50,796
11/27/2015	CUZ	Buy	$9.65	5000	$48,257		$391,840	$50,796
11/27/2015	FFG	Buy	$68.34	900	$61,513		$330,327	$50,796
11/27/2015	PGEM	Buy	$13.32	4500	$59,947		$270,380	$50,796
11/27/2015	PSF	Buy	$24.95	2500	$62,382		$207,998	$50,796
11/27/2015	TAP	Buy	$93.31	560	$52,261		$155,738	$50,796
11/27/2015	TOWR	Buy	$30.46	1800	$54,835		$100,903	$50,796
11/27/2015	WR	Buy	$42.42	1500	$63,637		$37,266	$50,796

The general behavior of the candidates is very similar to stocks AIZ and FFG shown in Figure 4.9.1 and Figure 4.9.2 below. The general trend is a rise and the RSI values for the course of the last week fall within 30 and 70 which suggests that a trend change is not likely to happen. Therefore, this builds up more confidence that the stock will continue to remain in the uptrend. Using this combination of two strategies, hopefully, the combined indication factors will stack and prove to be an effective method.
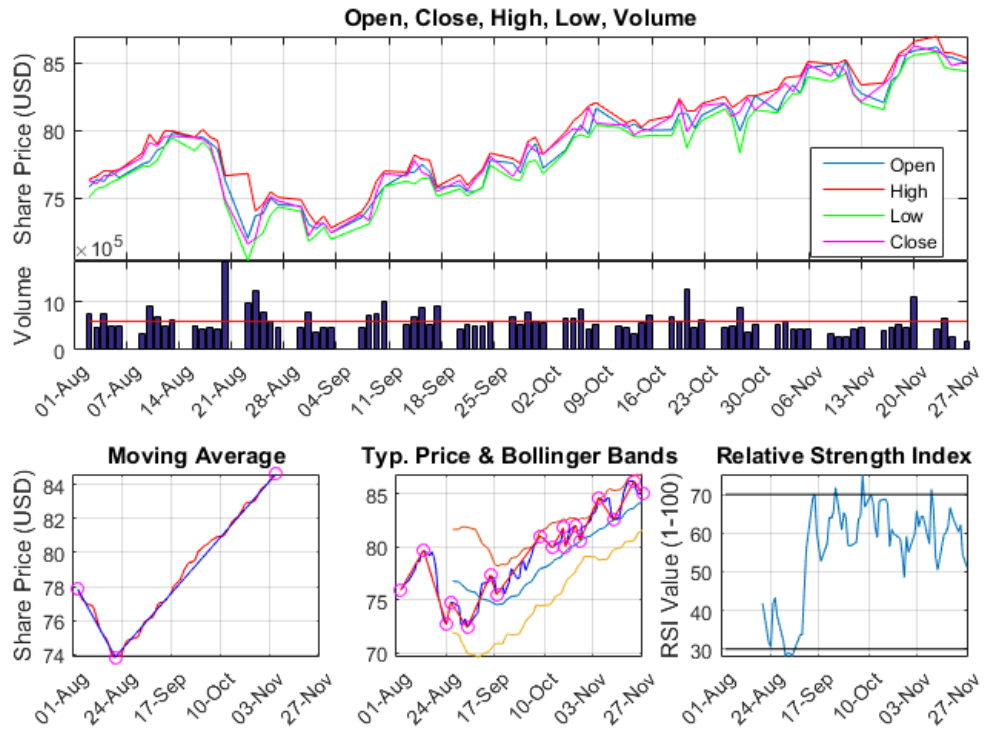
Figure 4.9.1. Matlab AIZ Aug 1 - Nov 27
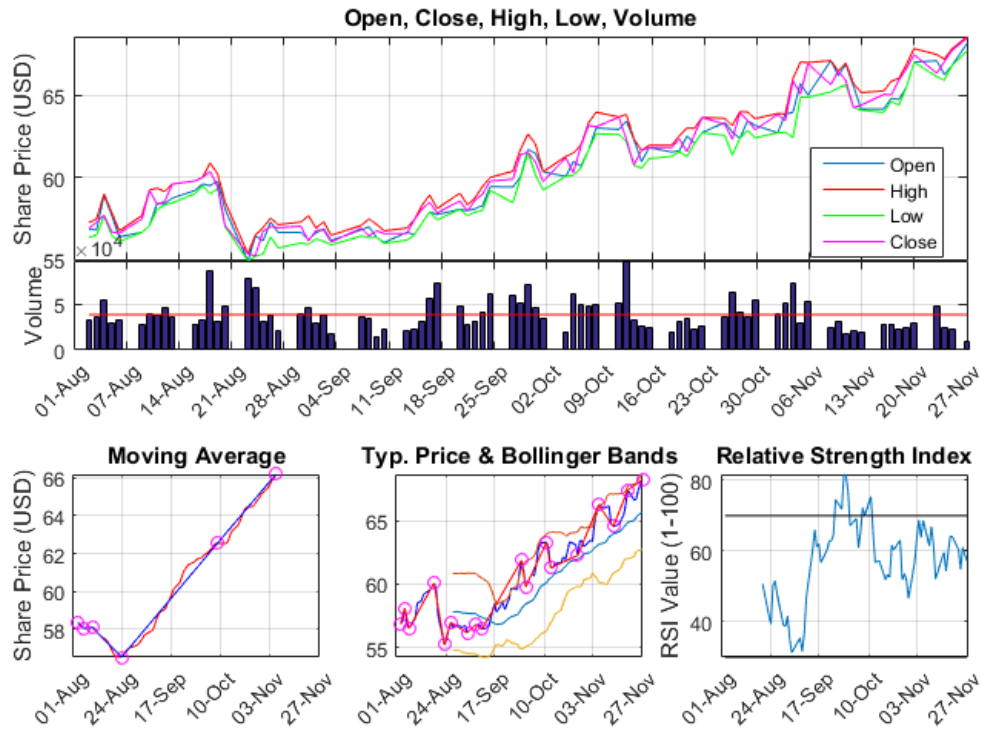
Figure 4.9.2. Matlab FFG Aug 1 - Nov 27

4.10 Week 10

Continuing with the algorithm from the previous week, the previous stocks were sold and a new set of stock candidates were searched, and shares were bought. The overall performance of this week was not what was expected. In the initial three weeks of simulation using uptrends, the net profit for the transactions of the week was positive and had happened consecutively. The current method is using the same strategy, but with another factor to optimize the confidence in the stock (RSI). Table 4.10.1 shows all the transactions for week 10. This week there was a 2:1 ratio of trades that resulted in a net loss to net gain. Although the hit to the total profit of the simulation was less than 5%, the results of this week seem to weaken the reliability of the algorithm.

Table 4.10.1. Transactions for Week 10 Algorithm 3

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/4/2015	AIZ	Sell	$86.56	700	$60,585	$1,148	$97,851	$51,944
12/4/2015	BWXT	Sell	$31.21	1700	$53,050	$1,788	$150,901	$53,732
12/4/2015	CUZ	Sell	$9.31	5000	$46,543	-$1,714	$197,444	$52,018
12/4/2015	FFG	Sell	$68.12	900	$61,301	-$212	$258,745	$51,806
12/4/2015	PGEM	Sell	$12.76	4500	$57,413	-$2,534	$316,158	$49,272
12/4/2015	PSF	Sell	$24.85	2500	$62,118	-$264	$378,276	$49,008
12/4/2015	TAP	Sell	$95.14	560	$53,271	$1,011	$431,547	$50,019
12/4/2015	TOWR	Sell	$30.00	1800	$53,993	-$842	$485,540	$49,177
12/4/2015	WR	Sell	$42.08	1500	$63,113	-$524	$548,653	$48,653
12/4/2015	KAI	Buy	$42.45	1500	$63,682		$484,971	$48,653
12/4/2015	LOW	Buy	$76.74	800	$61,399		$423,572	$48,653
12/4/2015	MKL	Buy	$917.66	70	$64,243		$359,329	$48,653
12/4/2015	MSA	Buy	$45.75	1400	$64,057		$295,272	$48,653
12/4/2015	TEVA	Buy	$65.72	900	$59,155		$236,117	$48,653
12/4/2015	TPH	Buy	$13.74	4000	$54,967		$181,150	$48,653
12/4/2015	TSS	Buy	$56.23	1000	$56,237		$124,913	$48,653
12/4/2015	UHT	Buy	$50.91	1000	$50,917		$73,996	$48,653
12/4/2015	WGO	Buy	$22.09	2500	$55,232		$18,764	$48,653

The two trades that resulted in the highest magnitude change will be analyzed. The stock charts for BWXT and PGEM are shown in Figure 4.10.1 and Figure 4.10.2 respectively. As one can observe from BWXT, the prediction that it would continue to trend upward was correct. It may even continue to rise. However, the RSI value exceeds the 70 mark indicating that it was overbought and thus a trend change will likely occur. The volume during this week's period appeared to be around average which adds a sense of stability of the trend. Also, this stock does not have too much fluctuation in its graphs which adds even more credibility to say that these types of stocks are the ones to use for this method.
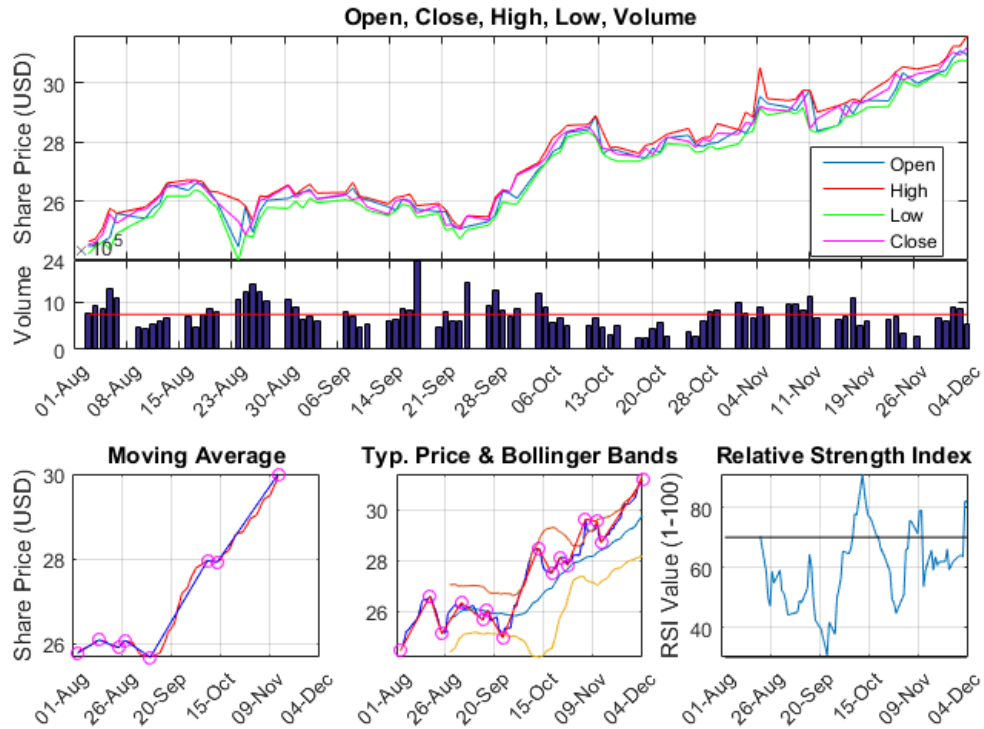
Figure 4.10.1. Matlab CUZ Aug 1 - Dec 4

The behavior of PGEM is actually opposite from the indicators that were used. The moving average is giving the sense that the stock has an upward momentum, but clearly the actual prices during this week experience a local parabolic drop. Not only this, but the RSI values are enclosed within 30 and 70 which also indicates that a trend change is not as likely to occur. If we look at the general behavior of PGEM, the stock looks unstable. The program currently does not check if the stop is stable or not, which is left up the user's final decision. This had been a recurring idea over the course of the simulation and will be more of a consideration for next week's stock candidates.
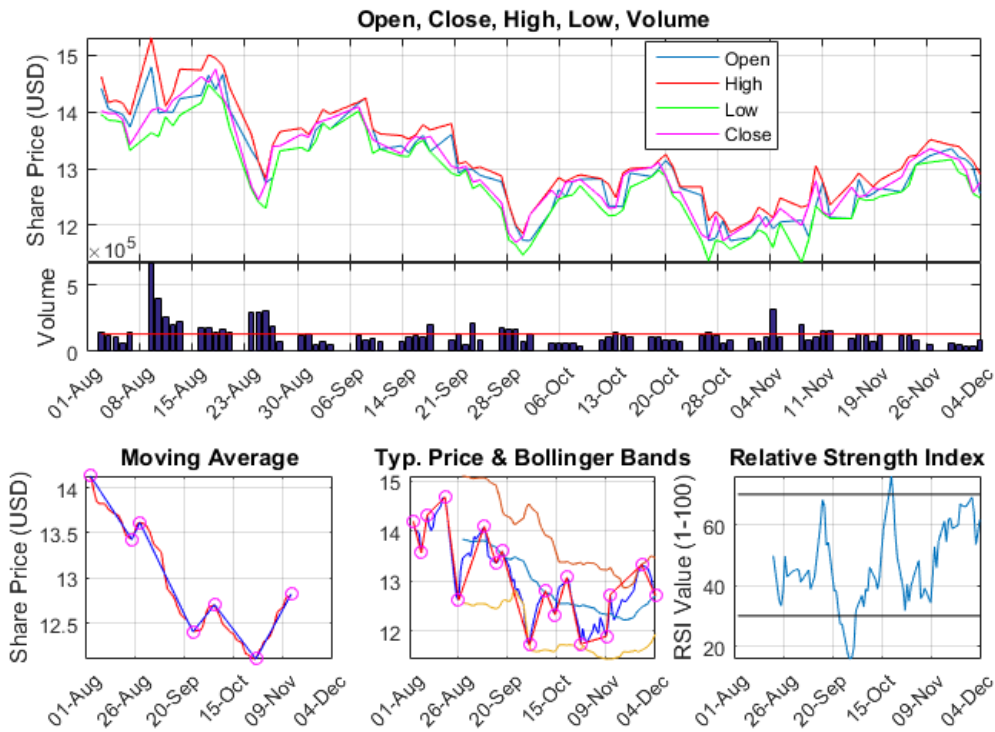
Figure 4.10.2. Matlab PGEM Aug 1 - Dec 4

I will continue to use this algorithm and see how the results of next week will compare to the results of this week. To keep consistency, I bought this week's stocks in the same manner as the previous week without change to the search criteria of the program. The change to buying more stock symbols will make a great difference because it allows for more trial runs. The first three weeks of simulation may not have been well representative of the search algorithm's potency because only 5 stocks were under examination. It may not even be unwise choice to buy up to 20 stocks per week such that more data can be taken into consideration.

4.11 Week 11

The most notable thing to report this week is the general market behavior. The stock market for this week had a brutal ending. All the stock candidates from the previous week would have resulted in 100% loss if I were to sell them now as shown in Table 4.11.1 below. The hit to my total profit would be enormous because almost half of it would be lost. For this reason, I intend on holding the stocks to see if the market will recover next week. I believe it should jump right back up and continue on the previous trend. I also emphasize that the table below does not represent trades that I have confided in. It is only displaying what would have been the result had I sold the stocks normally at the end of the week. After comparing the results of the individual stocks to the market as a whole, I judged that the numbers should recover as with the market.

Table 4.11.1. Transactions for Week 11 Algorithm 3

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/11/2015	KAI	Sell	$41.24	1500	$61,853	-$1,829	$80,617	$46,824
12/11/2015	LOW	Sell	$75.01	800	$60,001	-$1,398	$140,618	$45,426
12/11/2015	MKL	Sell	$885.10	70	$61,950	-$2,293	$202,568	$43,133
12/11/2015	MSA	Sell	$42.89	1400	$60,039	-$4,018	$262,607	$39,115
12/11/2015	TEVA	Sell	$64.49	900	$58,034	-$1,121	$320,641	$37,994
12/11/2015	TPH	Sell	$12.56	4000	$50,233	-$4,734	$370,874	$33,260
12/11/2015	TSS	Sell	$53.74	1000	$53,733	-$2,504	$424,607	$30,756
12/11/2015	UHT	Sell	$50.59	1000	$50,583	-$334	$475,190	$30,422
12/11/2015	WGO	Sell	$20.90	2500	$52,243	-$2,989	$527,433	$27,433

To demonstrate the performance of the market, I retrieved the data from the last 5 days of the market from the DOW, NASDAQ, and S&P500 indexes. This data is displayed in Figure 4.11.1, Figure 4.11.2, and Figure 4.11.3 respectively. As one can see, at least one thing is absolutely clear about the current trend of the market. The market is dropping and the percent

drop appears to be around 2% which is rather significant since it represents the weighted averages of many other stocks.
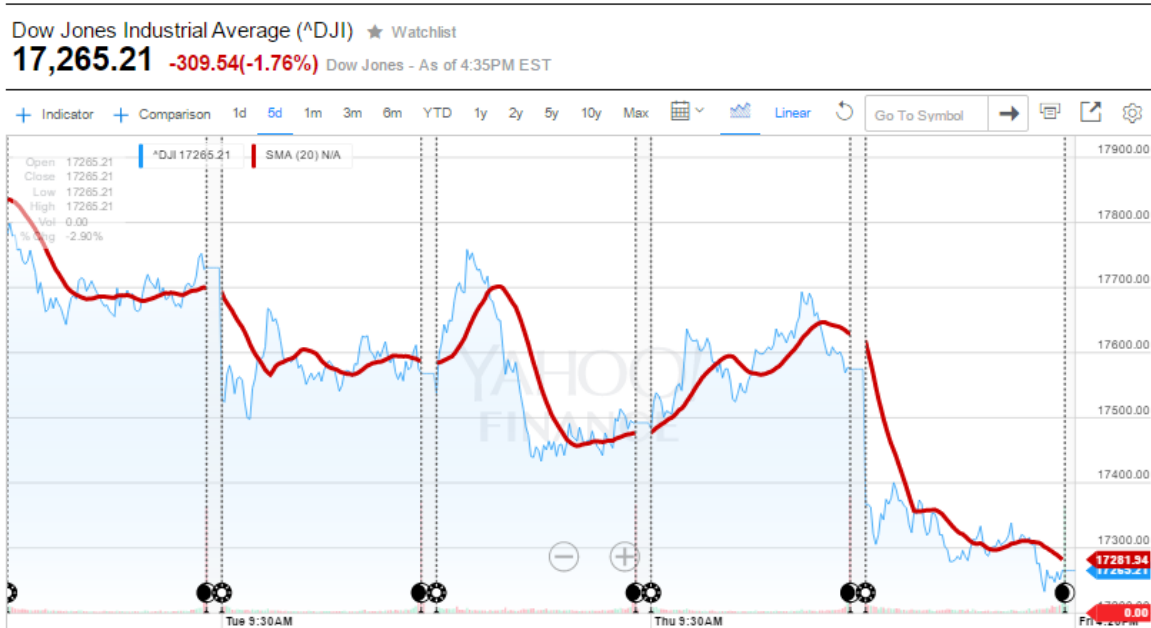
Figure 4.11.1. Yahoo Dow Dec 6 - Dec 11

Figure 4.11.2. Yahoo Nasdaq Dec 6 - Dec 11

Figure 4.11.3. Yahoo S&P 500 Dec 6 - Dec 11

4.12 Week 12

This week I decided to cut my losses. The results are shown in Table 4.12.1 below. Originally I had hoped for my investments to recover, but it seems unlikely that they will rise back up. It is unfortunate because the total loss equates to $35,564. This is a significant loss especially since the total profit over 10 weeks had been at $48,653 or approximately 9.73% of the starting budget. Over the course of 2 weeks, the total profit dropped to $13,089. This is about a 7.11% loss which puts a major dent in the record of trades. Generally, stocks do better during the end of the year. However, this appears not to be the case from what I have gathered from these results.

Table 4.12.1. Transactions for Week 12 Algorithm 3

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/18/2015	KAI	Sell	$39.75	1500	$59,618	-$4,064	$78,382	$44,589
12/18/2015	LOW	Sell	$73.89	800	$59,105	-$2,294	$137,487	$42,295
12/18/2015	MKL	Sell	$862.35	70	$60,358	-$3,886	$197,844	$38,409
12/18/2015	MSA	Sell	$42.12	1400	$58,961	-$5,096	$256,805	$33,313
12/18/2015	TEVA	Sell	$65.26	900	$58,727	-$428	$315,532	$32,885
12/18/2015	TPH	Sell	$12.50	4000	$49,993	-$4,974	$365,525	$27,911
12/18/2015	TSS	Sell	$51.01	1000	$51,003	-$5,234	$416,528	$22,677
12/18/2015	UHT	Sell	$49.15	1000	$49,143	-$1,774	$465,671	$20,903
12/18/2015	WGO	Sell	$18.97	2500	$47,418	-$7,814	$513,089	$13,089

I still believe that this algorithm should produce good results. It may have been just the timing that was wrong. New candidates were found this week using a modified iteration of the algorithm with an additional indicator, Bollinger Bands.

Using its characteristics, one addition to the code could be to look for securities where the prices have gone over the upper bands indicating the continuation of the current trend given that it is an uptrend. Another method would be to look out for securities that have "bottomed" because it indicates a trend reversal to move back up. The candidates are shown in Table 4.12.2.

Table 4.12.2. Transactions for Week 12 Algorithm 4

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/18/2015	BMY	Buy	$67.70	900	$60,937		$452,152	$13,089
12/18/2015	CI	Buy	$143.95	400	$57,587		$394,565	$13,089
12/18/2015	CLX	Buy	$127.05	450	$57,180		$337,386	$13,089
12/18/2015	CST	Buy	$38.58	1500	$57,877		$279,509	$13,089
12/18/2015	DBL	Buy	$25.54	2100	$53,641		$225,868	$13,089
12/18/2015	GDDY	Buy	$34.13	1700	$58,028		$167,840	$13,089
12/18/2015	LLY	Buy	$84.77	700	$59,346		$108,494	$13,089
12/18/2015	NSP	Buy	$46.43	1200	$55,723		$52,771	$13,089

Stock symbols NSP and BMY are shown below in Figure 4.12.1 and Figure 4.12.2. The graphs for NSP indicate that it is currently in an uptrend. The moving average shows a sharp rise and the RSI value is within the stable bounds. Another factor to consider is that the volume is higher than average which implies that the price will be less likely to fall. Volume precedes price.
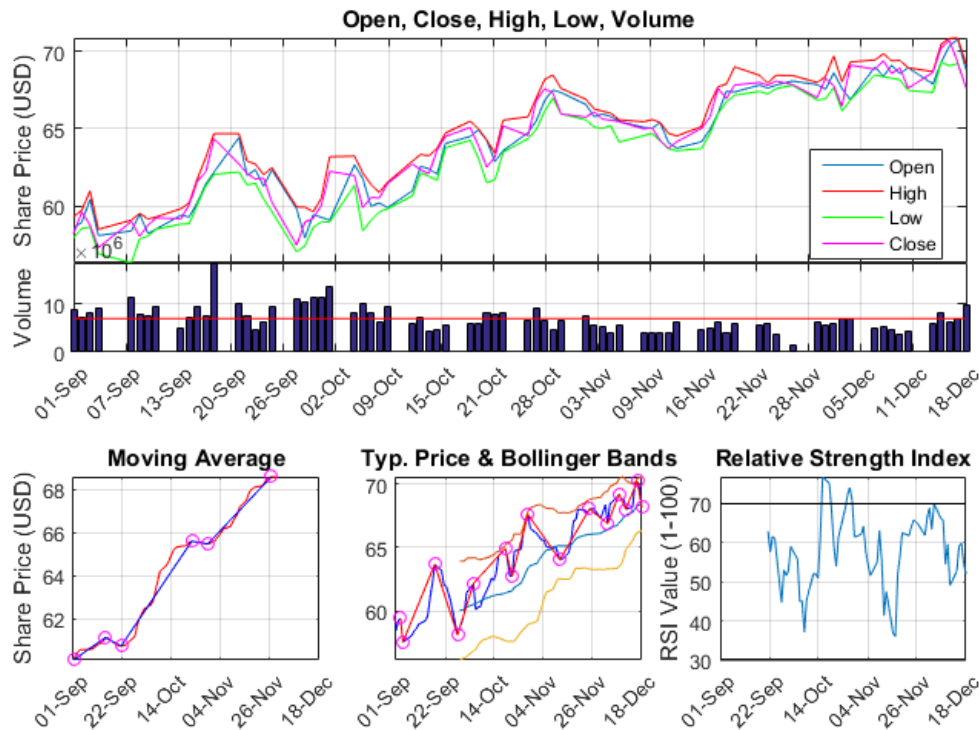
Figure 4.12.1. Matlab NSP Sep 1 - Dec 18

BMY shows similar traits to NSP. However, there is a little more oscillation in the graph. The current state for moving average, RSI, and volume are favorable which is why this stock was a considered candidate. Another detail to make note of is the period around the beginning of November. The price rose beyond the upper band limit and "bottomed" at the lower band which signals a trend reversal. The graph is also consistent because the security transitions from an uptrend to a downtrend where it occurs. The price also rises above the upper limit again in the month of December and does not bottom. This indicates a continuation of the current uptrend.
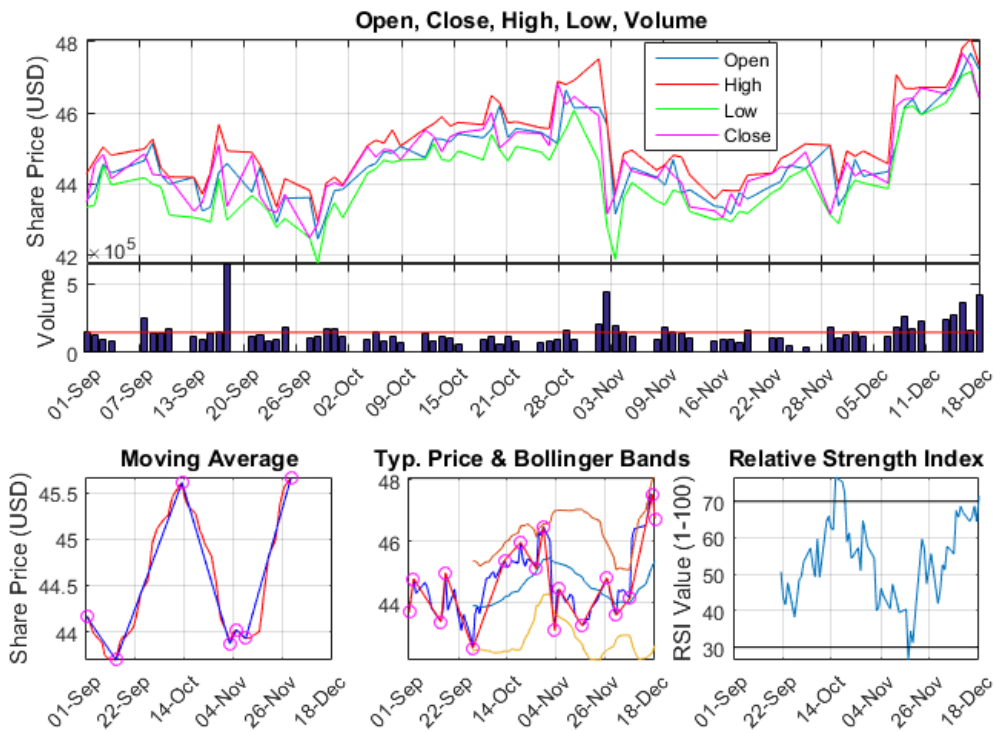
Figure 4.12.2. Matlab BMY Sep 1 - Dec 18

4.13 Week 13

The trades for this week were satisfactory. A percent 75 of the candidates resulted in a profit. The net profit for this week was $4,607.00 which is approximately 0.921% of the original budget. This is definitely a large improvement from the previous week after losing 7.11% of my starting budget. Although the profit does not completely mitigate the losses, the iteration for this

week serves as good data to back up the algorithm's effectiveness. So far, it seems that the addition of the Bollinger Band indicator helps the candidate search. However, the overall effectiveness of the search cannot be fully evaluated yet. More data will be needed to make a judgment.

Table 4.13.1 shows all the transactions for this week. New candidates were found using the same algorithm and were recorded below. Another point to note is that the trades were completed Thursday. The reason for this was because the stock market closes on Christmas.

Table 4.13.1. Transactions for Week 13 Algorithm 4

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/24/2015	BMY	Sell	$68.97	900	$62,066	$1,129	$114,837	$14,218
12/24/2015	CI	Sell	$146.46	400	$58,577	$990	$173,414	$15,208
12/24/2015	CLX	Sell	$127.86	450	$57,530	$351	$230,944	$15,559
12/24/2015	CST	Sell	$39.67	1500	$59,498	$1,621	$290,442	$17,180
12/24/2015	DBL	Sell	$25.10	2100	$52,703	-$938	$343,145	$16,242
12/24/2015	GDDY	Sell	$33.98	1700	$57,759	-$269	$400,904	$15,973
12/24/2015	LLY	Sell	$85.85	700	$60,088	$742	$460,992	$16,715
12/24/2015	NSP	Sell	$47.75	1200	$57,293	$1,570	$518,285	$18,285
12/24/2015	AGM	Buy	$32.34	1600	$51,751		$466,534	$18,285
12/24/2015	CPAC	Buy	$7.05	7500	$52,882		$413,652	$18,285
12/24/2015	CRI	Buy	$89.65	600	$53,797		$359,855	$18,285
12/24/2015	CST	Buy	$39.67	1300	$51,578		$308,277	$18,285
12/24/2015	ENZ	Buy	$4.69	11000	$51,597		$256,680	$18,285
12/24/2015	EQS	Buy	$1.67	30000	$50,107		$206,573	$18,285
12/24/2015	LCI	Buy	$40.67	1300	$52,878		$153,695	$18,285
12/24/2015	PSA	Buy	$248.25	200	$49,657		$104,038	$18,285
12/24/2015	TRP	Buy	$33.75	1500	$50,632		$53,406	$18,285

4.14 Week 14

In the last week of the algorithm development, the results from the fourth iteration will be discussed. The day the transactions occurred was on New Year's Eve because the stock market

will be closed on New Year's Day. Taking a look at Table 4.14.1, it is clear that the inverse occurred from the previous week. About 22% of the selected companies resulted in a profit. However, although the previous statement is true, there was a net profit. The total profit was $1,026 which is slightly over 0.2% of the starting budget. This was the case because the losses were rather small in magnitude compared to the positive trades.

Table 4.14.1. Transactions for Week 14 Algorithm 4

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/31/2015	AGM	Sell	$31.57	1600	$50,505	-$1,246	$103,911	$17,039
12/31/2015	CPAC	Sell	$7.65	7500	$57,368	$4,486	$161,279	$21,525
12/31/2015	CRI	Sell	$89.03	600	$53,411	-$386	$214,690	$21,139
12/31/2015	CST	Sell	$39.14	1300	$50,875	-$703	$265,565	$20,436
12/31/2015	ENZ	Sell	$4.50	11000	$49,493	-$2,104	$315,058	$18,332
12/31/2015	EQS	Sell	$1.79	30000	$53,693	$3,586	$368,751	$21,918
12/31/2015	LCI	Sell	$40.12	1300	$52,149	-$729	$420,900	$21,189
12/31/2015	PSA	Sell	$247.70	200	$49,533	-$124	$470,433	$21,065
12/31/2015	TRP	Sell	$32.59	1500	$48,878	-$1,754	$519,311	$19,311

The trade that produced the most profit was from CPAC. Figure 4.14.1 shows the graphs for CPAC. In the bottom center sub-graph, Typ. Price and Bollinger Bands, I had bought at the last local minimum before the price had a sudden increase. It appears that the indicators were consistent with the behavior. The price had touched the upper band within the last few weeks which indicates that the uptrend should continue. It could have gone and touched the lower band, but I believe that with its momentum (above average volume, uptrend, and post-oversold period) that it was more likely to have continued upward.
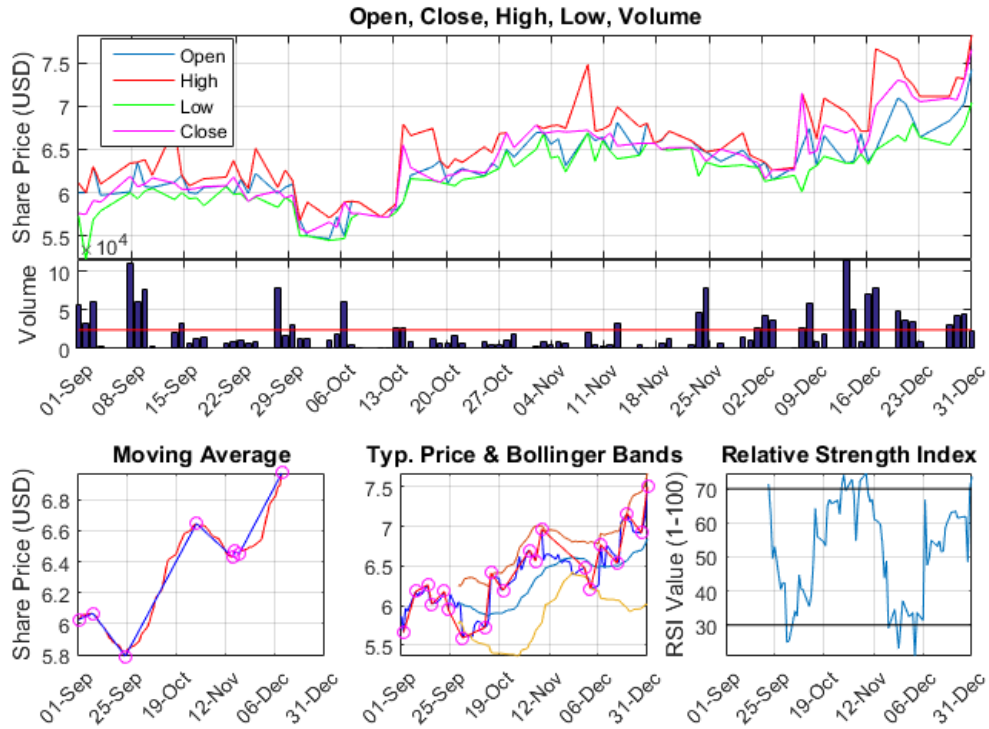
Figure 4.14.1. Matlab CPAC Sep 1 - Dec 31

The trade with TRP was one of the trades that resulted in a significant loss this week. Figure 4.14.2 shows the performance of TRP. The indicators were not alarming because the RSI curve appeared contained within the 30 and 70 limit lines. It had just gone from an oversold period and the volume appeared to be average. In fact, the indicators still show little signs of trend change. If I had held onto the stocks for a longer period, I might have been able to turn it into profit.
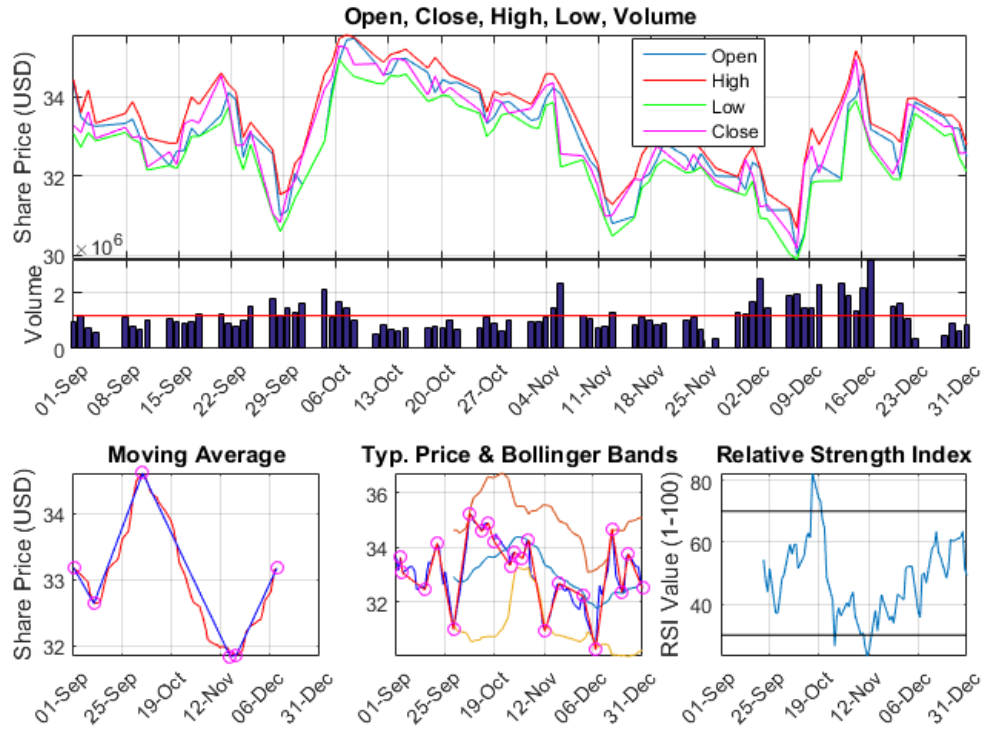
Figure 4.14.2. Matlab TRP Sep 1 - Dec 31

One of the candidates that produced the least change was PSA with a loss of $124. Upon an initial inspection of its graphs, it seemed like a promising candidate to make an investment. Figure 4.14.3 shows the graphs for PSA. The general trend of PSA has been moving upwards for the last few months. According to the RSI sub-graph, it has been overbought for two periods within the analysis period but does not appear to drop below the 30 limit line. This company clearly has powerful momentum almost seemingly resisting a trend change. Similarly to TRP above, if I had held onto the stocks for this company, the price seems likely to continue rising.
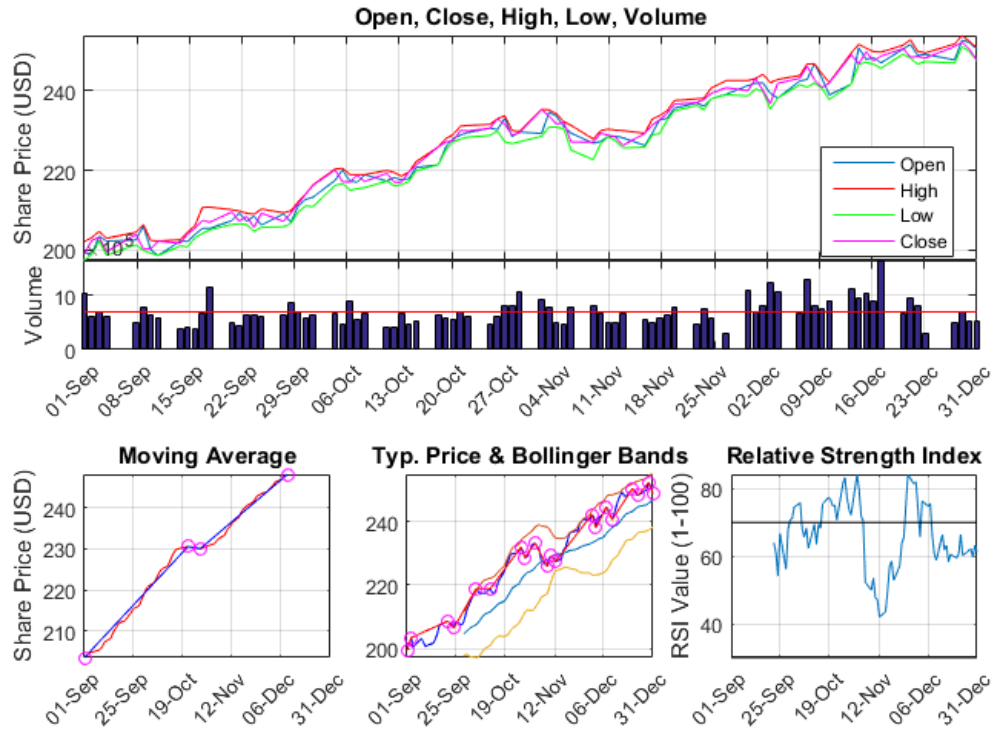
Figure 4.14.3. Matlab PSA Sep 1 - Dec 31

5.   Simulation 2 Swing Trading

Chapter 5 consists of group member Yulun He's simulation in the fashion of swing trading. The companies selected for the simulation come from the results of the observation period depicted below:

With the visit of the Chinese president Xi to the United States, the two main forces of internet are now discussing and making progress on the internet security and many other related topics which will leave some influence on the internet world. The stock market for Baidu showed some increase after the influence of the recent poor performance of the Chinese stock market.

Till the end of the week, especially on Friday, Boeing's stock has been showing some confidence for the company is building a production facility factory in China as part of the bundled $38 billion deal of selling 300 aircrafts to China also thanks to the visit of the Chinese president Xi. This step helps the company to increase the weight it carries in the well-known competition with Airbus in the larger jet airliner industry in which the latter one, Boeing's European rival, has been the main supplier of the Chinese airline companies is building its second facility factory in China besides its current one in Tianjin [31].

With the visit of the Chinese president Xi to the United States, the two main forces of internet are now discussing and making progress on the internet security and many other related topics which will leave some influence on the internet world. The stock market for Baidu showed some increase after the influence of the recent poor performance of the Chinese stock market.

Till the end of the week, especially on Friday, Boeing's stock has been showing some confidence for the company is building a production facility factory in China as part of the bundled $38 billion deal of selling 300 aircrafts to China also thanks to the visit of the Chinese president Xi. This step helps the company to increase the weight it carries in the well-known

competition with Airbus in the larger jet airliner industry in which the latter one, Boeing's European rival, has been the main supplier of the Chinese airline companies is building its second facility factory in China besides its current one in Tianjin [32].

The oil industries had a better performance on Friday. Both stocks of Alon USA Partners and Chevron have made up to increase more than 2 percent. According to Figure 5.1, Amazon has been keeping dropping so I decided that I would invest less in Amazon but more in Chevron and Exxon Mobile.

Figure 5.1. AMZN Behavior during the Preparation Week

As I arbitrarily invested in the stocks by buying certain number of shares, the proposed stock selection for week 1 is shown by Table 5. below.

Table 5.1. Proposed Stock Selection for Week 1

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL % CHG	GAIN & % GAIN	
AAPL	114.71	114.54	500	-0.29	-0.25%	114.02	116.69	112.99	123.14	-0.25%	$+78.00	+0.14%
ALDW	25.19	24.68	2,030	+0.20	+0.80%	24.86	25.49	24.67	21.52	+0.80%	$+1,028.30	+2.05%
AMZN	524.25	536.4	50	-9.50	-1.78%	521.40	542.80	519.5	450.99	-1.78%	$-614.50	-2.29%
BA	131.01	131.82	350	+1.26	+0.97%	129.28	131.73	135.44	143.64	+0.97%	$-290.50	-0.63%
BIDU	134.34	132.46	350	+1.75	+1.32%	133.05	135.84	150.29	188.42	+1.32%	$+651.00	+1.40%
CBI	40.84	41.01	1,200	-0.10	-0.24%	40.49	41.62	44.84	49.08	-0.24%	$-211.00	-0.43%
CVX	77.70	76.05	800	+0.81	+1.05%	76.92	78.16	78.87	96.03	+1.05%	$+1,313.00	+2.16%
JPM	61.47	60.57	820	+1.25	+2.08%	60.87	61.86	63.83	64.98	+2.08%	$+731.00	+1.47%
PSX	77.94	77.9	640	+0.29	+0.37%	77.26	78.80	78.97	79.29	+0.37%	$+18.60	+0.04%
XOM	73.23	72.51	850	+0.50	+0.69%	72.76	73.53	74.2	82.01	+0.69%	$+605.00	+0.98%
Total										0.60%	$ 3,308.90	0.66%

5.1 Week 1

The purchase of stocks for the first week is recorded in Table 5.1.1 below.

Table 5.1.1. Transaction Sheet for Week 1 Sep. 21 – Sep. 25

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
9/23/2015							$500,000	
9/23/2015	AAPL	Buy	$114.54	500	$57,277		$442,723	
9/23/2015	ALDW	Buy	$24.68	2030	$50,107		$392,616	
9/23/2015	AMZN	Buy	$536.40	50	$26,827		$365,789	
9/23/2015	BIDU	Buy	$132.46	350	$46,368		$319,421	
9/23/2015	CBI	Buy	$41.01	1200	$49,219		$270,202	
9/23/2015	CVX	Buy	$76.05	800	$60,847		$270,202	
9/23/2015	JPM	Buy	$60.57	820	$49,674		$159,681	
9/23/2015	PSX	Buy	$77.90	640	$49,863		$109,818	
9/23/2015	XOM	Buy	$72.51	850	$61,641		$48,177	

The performance of the portfolio over this week is recorded in Table 5.1.2. The overall performance of the week is surprisingly good as my portfolio has almost a $10,000 gain in the stock value. The main contributors to the gain are BIDU, CVX and XOM. However, CBI has

demonstrated some decrease in the stock value. I decided not to perform any trading in this week.

Table 5.1.2. Week 1 Overall Performance

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL CHG & %		GAIN & % GAIN	
AAPL	110.38	114.54	500	+0.80	+0.73%	107.55	111.01	112.34	122.76	$+400.00	+0.73%	$-2,087.00	-3.64%
ALDW	24.81	24.68	2,030	+0.66	+2.73%	23.66	24.85	24.44	21.66	$1,339.80	2.73%	$256.90	0.51%
AMZN	532.54	536.4	50	+11.82	+2.27%	508.10	532.60	517.58	454.94	$+591.00	+2.27%	$-200.00	-0.75%
BA	132.56	131.82	350	+1.95	+1.49%	128.56	132.60	133.83	143	$+682.50	+1.49%	$+252.00	+0.55%
BIDU	148.51	132.46	350	+10.98	+7.98%	136.31	149.09	146.38	186.44	$+3,843.00	+7.98%	$+5,610.50	+12.10%
CBI	38.78	41.01	1,200	+1.20	+3.19%	36.75	38.85	43.14	48.84	$1,440.00	3.19%	$-2,683.00	-5.45%
CVX	81.55	76.05	800	+3.21	+4.10%	77.31	81.55	77.93	95.31	$+2,568.01	+4.10%	$+4,393.00	+7.22%
JPM	60.81	60.57	820	-0.17	-0.28%	58.53	60.86	62.97	64.98	$-139.40	-0.28%	$+189.80	+0.38%
PSX	79.48	77.9	640	+1.55	+1.99%	76.45	79.48	78.21	79.34	$+992.00	+1.99%	$+1,004.20	+2.01%
XOM	75.88	72.51	850	+1.82	+2.46%	73.03	75.90	73.69	81.71	$+1,547.00	+2.46%	$+2,857.50	+4.64%
Total										$ +13,255.60	2.68%	$ 9,585.60	1.92%

As stated in the preparation analysis, China is going to collaborate with the United States on the Internet business as President Xi just finished his one-week long visit to the states. Not surprisingly enough, as one of the major Internet giants in China, Baidu's stock has shown a lot of confidence and increased by 12.10% since Monday. Figure 5.1.1 below shows the performance of BIDU over the week.

Figure 5.1.1. Week 1 Performance of BIDU Sep. 28 – Oct. 2

73

Chevron's stock has shown some confidence over the past week. One of the evidence that contributed to the strength is that the company's low debt-to-equity ratio is currently below that of the industry average. This indicates that the company has successfully managed its debt levels. However some analysis points out that there are hidden weaknesses. With its decline in revenue, Chevron slightly underperformed the industry average of 34.6%. Such languid performance of the company's revenue caused a decrease in its earnings per share. Equity return is lower than its Return On Equity (ROE) from the same quarter one-year prior, which is again a clear sign of weakness within the company. In comparison to the other companies in the Oil, Gas & Consumable Fuels industry and the overall market, Chevron's return on equity is significantly below that of the industry average and is below that of the S&P 500. The weaknesses of stock remain to be clarified from the upcoming trading weeks [33].

Figure 5.1.2 below demonstrates CVX's performance of this week.

Figure 5.1.2. Week 1 Performance of CVX Sep. 28 – Oct. 2

The biggest loss originates from CBI as my total shares have dropped 5.45%. However news on Wednesday stated that the company was granted a one-million-dollar contract by the U.S. Federal Government as to provide fuel services at the military installations throughout the world.

74

This reflects my strong confidence in CBI. Therefore I decided to keep the stock for a long period as I predict the oil industry will eventually come back.

The biggest shocking news of the week's goes to the emission testing of Volkswagen. It has been reported that the company has took advantage of Bosch's device on the emission testing for the diesel vehicles of Volkswagen and Audi, one of the many daughter companies of VW. Both Volkswagen and Audi's stocks have dropped significantly as the result of the scandal. This can be seen from Figure 5.1.3 and Figure 5.1.4 below.

Figure 5.1.3. Week 1 Performance of VOW3.DE Sep. 28 – Oct. 2

Figure 5.1.4. Week 1 Performance of AUDI Sep. 28 – Oct. 2

As I was observing the stock market I learned that often times the price of a stock does not stay still after the trading period of day has passed. This phenomenon is called After-Hours Trading, and the reason why it exists is that major market participants are free to exchange trading information at any occasion as they will and they are motivated to encourage price discovery at any hour and across the globe. Therefore large institutions and investors will always continue to negotiate large share blocks at any hour of the day and across time zones. Even though the amount of AHT usage has not been as great as it was anticipated to be when the U.S. government decided to allow such type of trading to happen, it is showing great advantages and will continue to grow [31].

5.2   Week 2

I didn't trade any stocks this week. Under the influence of the strong market, the overall performance of my portfolio in the second week has been good with some stocks gaining smoothly and others experiencing minor fluctuations. Table 5.2.1 shows the screenshot of the current portfolio with the second last column indicating the changes in Friday.

Table 5.2.1. Week 2 Overall Performance

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL CHG & %		GAIN & % GAIN	
AAPL	112.12	114.54	500	+2.62	+2.39%	109.49	112.28	111.56	122.07	$+1,310.00	+2.39%	$-1,217.00	-2.12%
ALDW	24.78	24.68	2,030	-0.71	-2.79%	24.24	25.72	24.49	21.91	$-1,441.30	-2.79%	$+196.00	+0.39%
AMZN	539.80	536.4	50	+6.64	+1.25%	530.27	541.79	518.96	461.95	$+332.00	+1.25%	$+163.00	+0.61%
BA	139.70	131.82	350	+0.66	+0.47%	138.36	140.24	132.43	142.25	$+231.00	+0.47%	$+2,751.00	+5.96%
BIDU	144.22	132.46	350	+2.96	+2.10%	141.31	144.77	143.5	183.68	$+1,036.00	+2.10%	$+4,109.00	+8.86%
CBI	44.08	41.01	1,200	-0.33	-0.74%	43.70	44.95	41.89	48.69	$-396.00	-0.74%	$+3,677.00	+7.47%
CVX	89.57	76.05	800	-0.34	-0.38%	88.67	90.40	78.22	94.55	$-272.00	-0.38%	$+10,809.00	+17.76%
JPM	61.93	60.57	820	-0.20	-0.32%	61.58	62.54	62	65.01	$-164.00	-0.32%	$+1,108.20	+2.23%
PSX	83.52	77.9	640	-1.06	-1.25%	82.51	84.79	78.15	79.52	$-678.40	-1.25%	$+3,589.80	+7.20%
XOM	79.26	72.51	850	-0.77	-0.96%	78.62	80.17	73.82	81.42	$-654.50	-0.96%	$+5,730.50	+9.30%
Total										$ -697.19	-0.13%	$ 30,916.50	6.21%

As the screenshot shows, the portfolio has gained more than $30,000 with a 6.21 percent gain since the beginning of the simulation. APPL went down 2.12% over the entire time frame and it is the only stock in the portfolio that did not increase its value. ALDW and AMZN have been staying relatively stable with less than a 1% gain, and JPM has demonstrated a slightly larger gain with a 2.23% gain in total. The rest of the stocks have all managed to gain more than 5% among which CVX stands out as the most contributor as it has increased in 17.76% and the value gain weights 1/3 of the total gain of the portfolio.

Because APPL is the only stock that did not go up over the period, I started to question whether it is appropriate to sell the stock to prevent further decrease. Figure 5.2.1 below shows the stock's performance in the week. It can be seen that the short-term moving average over the past 15 days crosses above the long-term moving average of the past 50 days on Thursday. Because the moving average trend line is objective in its nature as it removes all emotion, this crossover indicates a shift in the stock's momentum as a strong move is likely to approach thus generating a buy signal. Because till this moment, I have only acquired some knowledge about how to determine the time to buy in or sell a stock, this indicator serves as the main signal to me rather than a confidence builder to back up my investment decisions.

Figure 5.2.1. Week 2 Performance of APPL Oct. 5 – Oct. 9

CVX has experienced a huge increase in its value after the down drop the oil industry has experienced over the past year. As the reason why I chose the energy stocks at the beginning of the simulation when the price was low, I think it is wise to not sell the shares until the end of this year as many analysts predict, the energy stocks will eventually go back up. It can be seen from Figure 5.2.2 that the asset just had the crossover in early October where the 15-day MA crossed above the 50-day MA, and the slope of the short-term MA is relatively steep. This suggests that I hold the shares as the momentum will push the price to even higher.

Figure 5.2.2. CVX Performance of 2015

78

5.3   Week 3

It is the last week of the first term and the portfolio has only a $3000 gain. The overall performance of the portfolio is shown in Table 5.3.1 below.

Table 5.3.1. Overall Performance of Week 3

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL CHG & %		GAIN & % GAIN	
AAPL	111.04	114.54	500	-0.82	-0.73%	110.53	112.00	112.16	121.59	$-410.00	-0.73%	$-1,757.00	-3.07%
ALDW	24.32	24.68	2,030	-0.26	-1.06%	24.10	24.60	24.62	22.1	$-527.80	-1.06%	$-737.80	-1.47%
AMZN	570.76	536.4	50	+8.32	+1.48%	560.31	570.94	528.5	468.52	$+416.00	+1.48%	$+1,711.00	+6.38%
BA	137.60	131.82	350	+0.21	+0.15%	136.52	138.73	133.91	141.81	$+73.50	+0.15%	$+2,016.00	+4.37%
BIDU	151.00	132.46	350	+0.76	+0.51%	147.86	152.38	143.82	181.49	$+266.00	+0.51%	$+6,482.00	+13.98%
CBI	40.75	41.01	1,200	-3.93	-8.80%	40.25	44.59	42.11	48.51	$-4,716.00	-8.80%	$-319.00	-0.65%
CVX	91.29	76.05	800	+0.57	+0.63%	90.02	91.66	80.84	93.96	$+456.00	+0.63%	$+12,185.00	+20.03%
JPM	62.43	60.57	820	+0.54	+0.87%	62.09	62.65	61.89	65.04	$+442.80	+0.87%	$+1,518.20	+3.06%
PSX	84.12	77.9	640	+0.63	+0.75%	83.44	84.77	79.6	79.69	$+403.20	+0.75%	$+3,973.80	+7.97%
XOM	82.48	72.51	850	+1.00	+1.23%	81.45	82.50	75.13	81.27	$+850.00	+1.23%	$+8,467.50	+13.74%
Total										$ -2,746.30	-0.51%	$ 33,539.71	6.74%

APPL still hasn't shown a strong come back from the slight drop after the company released its new iPhone and iPad lines.

Figure 5.3.1. Week 3 Performance of AAPL Oct. 12 – Oct. 16

The MAs of the stock appear to swing up and down and tangling each other therefore the application of MA in determining the trend of the stock is in its disadvantage stage and the technique should not be hold as the major indicator.

CBI and ALDW are still not showing a strong trend and whether I need to trade them out will be determine in next week's performance as swing trading really should be focusing on the momentum of the stocks rather than the fundamental and intrinsic factors that the stocks are related to and affected by.

5.4   Week 4

I have eanred about $3,000 over the past week with Apple, AlDW and CBI still experiencing some decrease. I decided to sell latter two. The overall performance of this week is caputred in Table 5.4.1 below.

Table 5.4.1. Overall Performance of Week 4 Oct. 19 – Oct. 23

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL CHG & %		GAIN & % GAIN	
AAPL	115.28	114.54	500	-3.80	-3.19%	114.92	118.13	112.83	121.14	$-1,900.00	-3.19%	$+363.00	+0.63%
AMZN	608.61	536.4	50	+9.58	+1.60%	596.29	609.85	540.49	477.86	$+479.00	+1.60%	$+3,603.50	+13.43%
BA	146.70	131.82	350	0.00	0.00%	145.55	147.23	136.07	141.47	$0.00	0.00%	$+5,201.00	+11.27%
BIDU	166.24	132.46	350	+8.64	+5.48%	165.83	172.99	145.21	178.96	$+3,024.00	+5.48%	$+11,816.00	+25.48%
CVX	88.77	76.05	800	-2.47	-2.71%	88.58	90.88	82.79	93.28	$-1,976.00	-2.71%	$+10,169.00	+16.71%
JPM	63.90	60.57	820	+0.03	+0.05%	63.41	63.99	61.93	65.14	$+24.60	+0.05%	$+2,723.60	+5.48%
PSX	83.00	77.9	640	-0.35	-0.42%	82.41	83.68	80.43	79.9	$-224.00	-0.42%	$+3,257.00	+6.53%
XOM	81.22	72.51	850	-1.76	-2.12%	81.17	82.73	76.48	81.13	$-1,496.00	-2.12%	$+7,396.50	+12.00%
Total										$ -2,068.40	-0.46%	$ 44,529.60	11.17%

Apple's stock has been staying relatively stable with a slight momentum to rise up as Apple Music, the company's new method of the music industry launched by the end of this June, demonstrates a stronger start than expected with the streaming music service retaining 6.5 million subscribers after their three-month free trial expired which will bring the company an

annual revenue run rate of at least $780 million. The service costs $9.99 a month for an individual account and $14.99 a month for a family plan with up to six users [34].

The performance of CBI over the past month has been shown in Figure 5.4.1. I sold all the shares at $40.97. Accordingly, I have lost $48.

Figure 5.4.1. Week 4 Performance of CBI Oct. 19 – Oct. 23

The second stock I have traded is ALDW which has been taking an opposite route as the other energy stocks in the portfolio. This result ascribes to the low production of crude oil in the U.S. due to oversupply concerns. This fall in crude oil prices is forcing high-cost U.S. shale oil producers to decrease the production in the U.S., which could push U.S. crude oil prices higher in the long run. However, the global oversupply concerns will pull Brent crude oil, the global benchmark of crude oil, lower due to record production from the Middle East [35].

To conclude, Table 5.4.2 shows the transaction sheet for week 4.

Table 5.4.2. Transaction Sheet for Week 4 Oct. 19 – Oct. 23

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/20/2015	CBI	Sell	$40.97	1200	$49,157	-$62	$97,334	-$62
10/21/2015	ALDW	Sell	$23.09	2030	$46,866	-$3,241	$144,200	-$3,303

5.5   Week 5

The overall performance of the portfolio in this week is shown in Table 5.5.1 below.

Table 5.5.1. Overall Performance of Week 5 Oct. 16 – Oct. 30

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL CHG & %		GAIN & % GAIN	
AAPL	119.50	119.27	100	-1.03	-0.85%	119.45	121.22	113.55	120.94	$-103.00	-0.85%	$+16.00	+0.13%
AAPL	119.50	114.54	500	-1.03	-0.85%	119.45	121.22	113.55	120.94	$-515.00	-0.85%	$+2,473.00	+4.32%
AMZN	625.90	536.4	50	-0.65	-0.10%	625.28	630.72	551.14	483.25	$-32.50	-0.10%	$+4,468.00	+16.65%
BA	148.07	131.82	350	+0.89	+0.60%	147.09	149.60	137.61	141.4	$+311.51	+0.60%	$+5,680.50	+12.31%
BIDU	187.47	132.46	350	+18.48	+10.94%	175.90	189.55	148.34	178.36	$+6,468.00	+10.94%	$+19,246.50	+41.51%
CVX	90.88	76.05	800	+0.99	+1.10%	89.41	91.98	84.12	92.88	$+792.00	+1.10%	$+11,857.00	+19.49%
JPM	64.25	60.57	820	-0.96	-1.47%	64.13	65.34	62.17	65.2	$-787.20	-1.47%	$+3,010.60	+6.06%
KO	42.35	42.73	500	-0.44	-1.03%	42.35	42.86	40.82	40.57	$-220.00	-1.03%	$-197.00	-0.92%
PSX	89.05	77.9	640	+2.62	+3.03%	87.30	90.82	81.04	80.1	$+1,676.80	+3.03%	$+7,129.00	+14.30%
XOM	82.74	72.51	850	+0.51	+0.62%	81.26	83.88	77.42	81.07	$+433.50	+0.62%	$+8,688.50	+14.10%
Total										$ +8,024.10	1.65%	$ 62,372.10	14.44%

I increased the holdings of APPL by 100 shares as the company's fourth quarter report of the year demonstrated strong and satisfying sales results. According to the company's press news that states a quarterly revenue of $51.5 billion, gross margin of 39.9 percent, and a quarterly net profit of $11.1 billion, or $1.96 per diluted share, compared to the gross margin of 38 percent, revenue of $42.1 billion and net profit of $8.5 billion, or $1.42 per diluted share, in the same quarter a year ago. International sales contributed to 62 percent of the quarter's revenue. The growth was stoked by the sales of iPhone, Apple Watches, Macs, as well as revenue from services [36].

At the meantime, I looked at some other big name companies such as GoPro and Walmart but none of their MAs demonstrated a clear up trend as both of their short-term Mas just experienced a death cross where it either crosses below the long-term MA or the stock value crawls underneath the short-term MA as shown in Figure 5.5.1 and Figure 5.5.2. GoPro is losing

its domestic business as the company has been suffering from the sales loss of their newly released camera Hero4 for the high price tag of $399 [37].

Figure 5.5.1. 3-Month Performance of GoPro Jul. 29 – Oct. 28

Figure 5.5.2. 1-Month Performance of Walmart Sep. 29 – Oct. 28

I then bought Coca-Cola at $42.73 as there is a recent golden cross where the short term MA crosses above the long term MA and the short term MA continues to approach the price line even though the 15-day MA seems to be close to its relative maximum relative to the 50 moving average, shown in Figure 5.5.3.

Figure 5.5.3. 1-Month Performance of KO Sep. 29 – Oct. 28

To conclude, the transaction sheet of Week 5 is demonstrated below in Table 5.5.2.

Table 5.5.2. Transaction Sheet for Week 5 Oct. 26 – Oct. 30

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/28/2015	AAPL	Buy	$119.27	100	$11,934		$132,266	
10/28/2015	KO	Buy	$42.73	1,000	$42,737		$89,529	

5.6   Week 6

The portfolio has been continuing to grow and the overall performance of this week is captured in Table 5.6.1 below.

Table 5.6.1. Overall Performance of Week 6

SYMBOL	PRICE	PRICE PAID	SHARES	CHG & % CHG		DAY'S LOW & HIGH		50-DAY MA	200-DAY MA	DAY'S VAL CHG & %		GAIN & % GAIN	
AAPL	121.06	119.27	100	+0.14	+0.12%	120.62	121.81	114.43	120.77	$+14.00	+0.12%	$+172.00	+1.44%
AAPL	121.06	114.54	500	+0.14	+0.12%	120.62	121.81	114.43	120.77	$+70.00	+0.12%	$+3,253.00	+5.68%
AMZN	659.37	536.4	50	+3.72	+0.57%	652.00	662.26	566.98	492.4	$+186.00	+0.57%	$+6,141.50	+22.89%
BA	147.94	131.82	350	-0.03	-0.02%	146.01	148.17	139.29	141.26	$-10.50	-0.02%	$+5,635.00	+12.21%
BIDU	200.30	132.46	350	+1.39	+0.70%	196.50	200.39	155.59	177.89	$+486.50	+0.70%	$+23,737.00	+51.19%
CVX	94.03	76.05	800	-0.52	-0.55%	91.76	94.07	86.66	92.38	$-416.00	-0.55%	$+14,377.00	+23.63%
JPM	68.46	60.57	820	+2.02	+3.04%	68.10	69.03	62.64	65.31	$+1,656.40	+3.04%	$+6,462.80	+13.01%
PSX	92.75	77.9	640	-0.93	-0.99%	92.04	93.72	82.88	80.59	$-595.20	-0.99%	$+9,497.00	+19.05%
ROBO	24.3801	24.36	2,000	+0.11	+0.45%	24.17	24.42	25.7734	26.2181	$+220.20	+0.45%	$+40.20	+0.08%
XOM	84.47	72.51	850	-0.34	-0.40%	83.22	84.47	79.1	81.01	$-289.00	-0.40%	$+10,159.00	+16.48%
Total										$ +1,322.39	0.25%	$ 79,474.50	17.30%

I sold Coca-Cola at $41.98 immediately after a death cross took place and the price line crossed below the 15-day moving average line in red and I have lost $340. The 1-month performance of KO is demonstrated in Figure 5.6.1 below.

Figure 5.6.1. 1-Month Performance of KO Oct. 4 – Nov. 3

My holdings in Baidu have finally reached 50% gain. The company has shown a strong future from the company's Q3 earnings report and the fast growing user base of its mobile wallet service, Baidu Wallet, demonstrating its competitive potentials against Alipay and Tenpay, the two major online payment solutions in China. I plan on keeping it for a longer period to see what

will eventually happen to such a quick and fast comeback from the Chinese market crisis during this summer. I am also determined to step up and sell the majority of stocks in my portfolio to cash out with the estimated $70,000 profit the portfolio has made from the beginning of the trading period and possibly distribute the money in Baidu, Exxon Mobile and Chevron.

After I sold Coca-Cola, I found the stock of Global Robotics & Automation ETF (ROBO) and bought 2,000 shares. The stock has yet to drop, only increasing slightly with a profit of $40.

Figure 5.6.2. 1-Month Performance of ROBO Oct. 4 – Nov. 3

From the trading experiences so far, I have grasped a bit of the essence of swing trading. If an investor applies swing trading in taking advantage of the stocks' up-rising trend within a short period of time, i.e. one week, s/he needs to invest in multiple stocks altogether as one or two stocks alone will not bring in a significant amount of increase in the total gain unless the stock has a great potential in the favorable market environment and the majority of the rest of the investors are in the long position, i.e. Tesla in 2013 and Baidu in the recent trading period. Only investing in a few stocks with the method of swing trading increases the risk factors considering the investor is not truly interested in or analyzing the fundamental factors that influence the

performance of the stock. Therefore if the investor made not-so-good decisions on stock selection, it would be highly probable that the portfolio would experience not enough gain or even loss plus the time and effort wasted over the period of holding the stocks. Coca-Cola in my case can serve as an example although there is only a loss of $340.

To conclude, Table 5.6.2 shows the transaction sheet for week 6.

Table 5.6.2. Transaction Sheet for Week 6 Nov. 2 – Nov. 6

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/3/2015	KO	Sell	$42.36	1000	$42,353	-$384	$131,882	-$3,687
11/3/2015	ROBO	Buy	$24.36	2000	$48,727		$83,155	-$3,687

5.7   Week 7

This week's market has been relatviely weak and the entire portfolio from earlier of the term and a term has dropped. Among the all the holdings, my shares in Baidu just reached 50% gain on Saturday, November 6th, and it had finally dropped down. On Tuesday, November 10th I sold all the previous held stocks.

Recent news about graphene has caught my attention. The material is said to revolutionise almost every part of everyday life and many groups and companies are investing their research into developing a way to commercialize the material for many applications: batteries, light bulbs, artificial human skin, 3D Printing 'ink', etc. Aixtron (NASDAQ: AIXG) is one of the leading companies in developing such a material and its stock just experienced a gold cross shown by the following Figure 5.7.1 that signals a strong movement of the price. I invested in 5000 shares.

Figure 5.7.1. 1-Month Performance of AIXG Oct. 14 – Nov. 13

I then bought 400 shares of IHG at $40.01 hoping to catch up on the last up swing before the price dropped but by the end of the week the market value dropped to $37.94 from a death cross and I lost approximately $840 in the stock value. The performance of the past one-month period of IHG is demonstrated in Figure 5.7.2 below.

Figure 5.7.2. 1-Month Performance of IHG Oct. 14 – Nov. 13

Two Chinese online video giants Youku and Tudou merged into Youku Tudou Inc. (NYSE: YOKU) in 2012 and the company just went public and the trend graph and the high

expectations of the analysists make me confident that the stock will continue to rise. I will purchase the stock at the beginning of next week's trading cycle. The performance of YOKU is shown in Figure 5.7.3 below.

Figure 5.7.3. 1-Month Performance of YOKU Oct. 14 – Nov. 13

To conclude, I traded all the stocks in the portfolio and bought in 5000 shares of AIXG and 400 shares of IHG. I will mainly keep following CVX, BIDU and XOM for this upcoming week's market while searching for other stocks with strong momentum. The transactions are documented in Table 5.7.1.

Table 5.7.1. Transaction Sheet for Week 7 Nov. 9 – Nov. 13

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/10/2015	AAPL	Sell	$117.83	100	$11,776	-$158	$94,931	-$3,845
11/10/2015	AAPL	Sell	$117.83	500	$58,908	$1,631	$153,839	-$2,214
11/10/2015	AMZN	Sell	$658.14	50	$32,900	$6,073	$186,739	$3,859
11/10/2015	BIDU	Sell	$192.42	350	$67,340	$20,972	$254,079	$24,831
11/10/2015	CVX	Sell	$92.23	800	$73,777	$12,930	$327,856	$37,761
11/10/2015	JPM	Sell	$67.40	820	$55,261	$5,587	$383,117	$43,348
11/10/2015	PSX	Sell	$91.16	640	$58,335	$8,472	$441,452	$51,820
11/10/2015	ROBO	Sell	$24.11	2000	$48,213	-$514	$489,665	$51,306
11/10/2015	XOM	Sell	$82.00	850	$69,693	$8,052	$559,358	$59,358
11/11/2015	AIXG	Buy	$6.74	5000	$33,707		$525,651	$59,358
11/11/2015	IHG	Buy	$40.01	400	$16,011		$509,640	$59,358

5.8   Week 8

Overall, the market of this week has gone up from the previous week. Even though the mass terror attack in Paris shook the globe, the market stayed relativity stable so there is not much to worry about for most of the traders. The tech stocks recovered from last week's drop the most compared to the rest of the stocks in the portfolio. AIXG, AAPL and AMZN have gone up more than 13%, 2% and 2% respectively since the most recent purchases. AIXG has increased the share value by 13.5%, and according to Figure 5.8.1 below the price is predicted to be continuing increasing.

Figure 5.8.1. 1-Month Performance of AIXG Oct. 21 – Nov. 20

Similarly, I am also keeping my shares of AR as Figure 5.8.2 shows, a golden cross between the short-term MA and the long-term MA just took place and most likely the price will keep increasing. Even though the price has dropped overall since the purchase time the stocks still have potential.

Figure 5.8.2. 1-Month Performance of AR Oct. 19 – Nov. 18

On Wednesday, the price of FORD has been observed that the short-term MA will not reach long-term MA because it can be observed from Figure 5.8.3 below that the tail of the short-term MA has the tendency to drop down. It looks like the red line will cross above but the

MA collects the info after the trends add up so the information lags. Thus I decided to sell my shares.

Figure 5.8.3. 1-Month Performance of FORD Oct. 19 – Nov. 18

SPWR is the first stock that I traded within the same day period. As Figure 5.8.4 shows, on Nov 18, I managed to ride the stock's upward momentum of the day. The reason for selling on the same day of purchase also resulted from the trend that both short-term and long-term MAs show downward tendencies. At the end, I purchased 5000 shares of SPWR at the price of $22.88 and sold all at $23.66 making $3,900 profit. This is a fairly successful momentum trading.

Figure 5.8.4. 1-Month Performance of SPWR Oct. 19 – Nov. 18

To conclude, the transactions of week 8 are recorded in Table 5.8.1 below. The portfolio has gained about $520 after the trades and this is not sufficient as real profit. Contrast to the previous weeks' profit, this week's low performance indicates that trading within a shorter period of time such as 5 days produces leaner profit.

Table 5.8.1. Transaction Sheet for Week 8 Nov. 16 – Nov. 20

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/16/2015	FORD	Buy	$1.40	10000	$14,007		$495,633	$59,358
11/16/2015	AR	Buy	$24.52	1000	$24,527		$471,106	$59,358
11/17/2015	IHG	Sell	$37.47	400	$14,981	-$1,030	$486,087	$58,328
11/17/2015	YOKU	Buy	$26.51	5000	$132,557		$353,530	$58,328
11/18/2015	SPWR	Buy	$22.88	5000	$114,407		$239,123	$58,328
11/18/2015	AAPL	Buy	$116.86	200	$23,379		$215,744	$58,328
11/18/2015	AMZN	Buy	$653.58	200	$130,723		$85,021	$58,328
11/18/2015	SPWR	Sell	$23.66	5000	$118,293	$3,886	$203,314	$62,214
11/18/2015	FORD	Sell	$1.34	10000	$13,393	-$614	$216,707	$61,600
11/20/2015	AR	Sell	$22.77	1000	$22,763	-$1,764	$239,470	$59,836

5.9 Week 9

This week is Thanksgiving's week so as millions of Americans swipe their banking cards to participate in the deals the market especially for retailers has been fairly stable.

Best Buy (NYSE: BBY) has been dropping recently but as one of the major stores that participate deeply in the Black Friday and Cyber Weekend deals, the company will attract a tremendous amount of customer visits either to their online website or local stores. Hence, I decided to invest in the stock and I will remove my holdings on Friday as the upcoming week arrives the price may continue to drop. As Figure 5.9.1 below shows, it turns out that the price did rise to its highest of the week on Thanksgiving Day and dropped down on Friday. This fluctuation is close to what I predicted. I sold the stock at $31.55 on Friday. I successfully rode the upward trend of the stock.

Figure 5.9.1. Performance of BBY Nov. 19 - Nov. 27

Driven by a similar reason, I also invested in Wal-Mart (NYSE: WMT) hoping to catch a boost of the stock price as I purchased the stock on the same day with Best Buy. According to the company's Chief Merchandising Officer Steve Bratspies, "tens of millions of customers visited the company's digital and physical aisles to pick up video games and systems, televisions, movies and toys." However, as Figure 5.9.2 illustrates, the stock has not shown any turning back from the decreasing trend. Therefore, I am holding the stock.

Figure 5.9.2. 1-Month Performance of WMT Oct. 28 - Nov. 27

I bought Netflix (NASDAQ: NFLX) on Wednesday. By the end of the trading week, the performance of NTFLX is illustrated in Figure 5.9.3. I miss the concave period last week where the price was increasing dramatically but it is can be interpreted from the graph that the price will continue to grow as the short-term MA is experiencing a deep increasing momentum.

Figure 5.9.3. One-Month Performance of NFLX Aug. 28 - Nov. 27

I sold AAPL because as Figure 5.9.4 shows a death cross happened on Nov. 25 and the price will most likely continue to drop for next week.

Figure 5.9.4. One-Month Performance of AAPL Oct. 28 - Nov. 27

To conclude, the transaction sheet of this week is documented as Table 5.9.1 below. The total profit has increased over $2,000 and this is much better compared to Week 9's performance even though the portfolio consisted of more trades.

Table 5.9.1. Transaction Sheet for Week 9 Nov. 23 – Nov. 27

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/23/2015	FSLR	Buy	$53.83	200	$10,773		$482,544	$66,564
11/24/2015	BBY	Buy	$30.29	600	$18,181		$257,357	$66,564
11/24/2015	WMT	Buy	$60.08	250	$15,027		$240,034	$66,564
11/25/2015	NFLX	Buy	$122.53	200	$24,513		$232,477	$66,564
11/27/2015	BBY	Sell	$31.55	600	$18,923	$742	$201,934	$66,564
11/27/2015	AAPL	Sell	$117.98	200	$23,589	$210	$161,687	$66,564
11/27/2015	YOKU	Sell	$26.76	5000	$133,793	$1,236	$199,980	$71,150

5.10 Week 10

By Monday, the Amazon (NASDAQ: AMZN) had been on the rise for more than two months and as Figure 5.10.1 demonstrates, the price seems to finally flatten out since late last week. As a result, I decided to sell my shares of AMZN, and, accordingly a profit of $4,540 has been acquired.

Figure 5.10.1. 3-Month Performance of AMZN Sep. 8 – Dec. 5

Netflix is still demonstrating a strong momentum thus I increased the number of shares in the portfolio to 2,000 total in hoping to ride the upward momentum trend demonstrated by Figure 5.10.2. Similarly, the number of shares of FSLR was increased to 500 total.

Figure 5.10.2. 1-Month Performance of NFLX Nov. 5 – Dec. 4

Forward Industries Inc. (NASDAQ: FORD) demonstrated a turn-back from the previous decreasing trend and considering the low share price. As a result, 20,000 shares have been added to the portfolio.

Activision Blizzard Inc. (NASDAQ: ATVI) is one of the largest international gaming companies headquartered in Santa Monica. The recent performance of the stock has been demonstrating a strong momentum according to Figure 5.10.3. Therefore, I purchased 800 shares.

Figure 5.10.3. 1-Month Performance of ATVI Nov. 5 - Dec. 4

Wal-Mart (NYSE: WMT) has dropped 0.70% over the course of the holding; however, I decided to keep the stocks as Figure 5.10.4 demonstrates, the red short-term MA line is rising with the price line in blue and a golden cross between the two MAs is going to take place soon.

Figure 5.10.4. 1-Month Performance of WMT Nov. 5 - Dec. 4

Kroger. Co (NYSE: KR), the Cincinnati based supermarket giant and one strong competitor of Wal-Mart, just had their third-quarter earnings report on Dec 3 with earnings of 43 cents per share that beat many analysts' expected values. Figure 5.10.5 shows that the stock price has risen by a large fraction since then and the price tells it will keep rising as well. 1,000 shares have been added to the portfolio.

Figure 5.10.5. 1-Month Performance of KR Nov. 5 - Dec. 4

Shown in Figure 5.10.6, Aixtron just had the death cross on Friday so the action of selling all the stocks was carried out.

Figure 5.10.6. 1-Month Performance of AIXG Nov. 5 - Dec. 4

To conclude, the U.S. stock market experienced a great increase on Dec. 3 after the government announced a strong job gain over the past month. Many stocks such as Verizon Communications Inc. (NYSE: VZ) and AT&T Inc. (NYSE: T) all experienced a sharp jump in their sharing prices with the Dow Jones industrial average rose 2.1 percent and the Nasdaq

composite 2.1 percent. The portfolio at the end experienced all profit gains accompanied by no

loss. The transaction sheet of this week is documented in

Table 5.10.1 below.

Table 5.10.1. Transaction Sheet of Week 10 Nov. 30 – Dec. 4

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/30/2015	AMZN	Sell	$676.35	200	$135,263	$4,540	$322,000	$66,774
12/1/2015	NFLX	Buy	$125.10	1800	$225,187		$96,813	$66,774
12/1/2015	FSLR	Buy	$57.72	300	$17,323		$79,490	$66,774
12/2/2015	FORD	Buy	$1.51	5000	$7,557		$71,933	$66,774
12/3/2015	ATVI	Buy	$38.17	800	$30,543		$41,390	$66,774
12/4/2015	KR	Buy	$40.24	1000	$40,247		$1,143	$66,774
12/4/2015	AIXG	Sell	$7.66	5000	$38,293	$4,586	$39,436	$71,360

5.11 Week 11

The portfolio has made over $2,000 over the week, a slower gain from last week.

On December 1, Netflix has dropped by a large percent and according to Figure 5.11.1, a

death cross is likely to happen. Therefore I traded the shares in NFLX out.

Figure 5.11.1. 1-Month Performance of NFLX Nov. 8 – Dec. 7

Based on the trend demonstrated in Figure 5.11.2 it is likely that the price line will cross below the short-term MA but it is also possible that it will bounce back up but I decided to take out the shares before the first scenario were to occur. As a result, I sold the stocks at $58.34 and the overall profit gain is only $172.

Figure 5.11.2. 1-Month Performance of FSLR Nov. 9 – Dec. 8

On December 8, the short-term MA of WMT has been slowly approaching the long-term MA. Therefore even though the current share price is still lower than the purchase price, I decided to hold the stocks and wait to see whether the golden cross would take place. However, as the circled area shows in Figure 5.11.3, on December 9 the price kept dropping and the short-term MA turned its direction to curve below the long-term MA. As a result, the portfolio lost $164 through the selling of the stocks.

Figure 5.11.3. 1-Month Performance of WMT Nov. 10 – Dec. 9

The price of KR finally flattened out and sank down from the significant price boost the end of the past week according to Figure 5.11.4. Online analysis reports that the market to the stock is still favorable but I decided to sell the stocks to perform conserved trading.

Figure 5.11.4. 1-Month Performance of KR Nov. 10 – Dec. 9

Aixtron SE had a deep drop in the stock price over December 8 as the company cut its 2015 revenue outlook after trimming down its partnership with Chinese client Sanan Optoelectronics Co Ltd. Illustrated in Figure 5.11.5, the stock receipts dropped 14 percent from $7.54 to $6.48, the biggest one-day decline since 2009. Surprisingly, on December 11, news

came about that Rosen Law Firm, a global investor rights law firm, announces that it will investigate potential securities claims on behalf of shareholders of Aixtron SE resulting from allegations that certain statements issued by Aixtron were "false and misleading and/or failed to disclose material information regarding the Company's financial performance" [38].

Figure 5.11.5. 1-Month Performance of AIXG Nov. 10 – Dec. 9

On December 10 I bought 1,000 shares of Bank of Commerce Holdings (NASDAQ: BOCH). I then sold the shares of ATVI as the increasing momentum has died down. The performances of the two stocks over one month are shown in Figure 5.11.6 and Figure 5.11.7, respectively.

Figure 5.11.6. 1-Month Performance of ATVI Nov. 11 – Dec. 10

Figure 5.11.7. 1-Month Performance of ATVI Nov. 11 – Dec. 10

I also invested most of the available cash into YuMe, Inc. (NYSE: YUME) because of the clear uptrend that is shown in Figure 5.11.8.

Figure 5.11.8. 1-Month Performance of YUME Nov. 11 – Dec. 10

The final trading of the week was carried out on December 11 on FORD. The price of the stock was experiencing a downtrend so I sold the shares. To conclude, the transaction sheet of this week is documented as Table 5.11.1 below. The current total profit is $72,249.

Table 5.11.1. Transaction Sheet of Week 11 Dec. 7 – Dec. 11

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/7/15	NFLX	Sell	$124.29	2000	$248,573	-$1,127	$448,553	$70,023
12/8/15	FSLR	Sell	$58.34	300	$17,495	$172	$466,048	$70,195
12/9/15	WMT	Sell	$59.47	250	$14,861	-$167	$480,909	$70,029
12/9/15	KR	Sell	$41.30	1000	$41,293	$1,046	$522,202	$71,075
12/10/15	BOCH	Buy	$7.07	1000	$7,077		$515,125	$71,075
12/10/15	ATVI	Sell	$38.61	800	$30,881	$338	$546,006	$71,413
12/10/15	YUME	Buy	$3.14	100000	$314,007		$231,999	$71,413
12/11/15	FORD	Sell	$1.68	5000	$8,393	$836	$240,392	$72,249

5.12 Week 12

The performance of the portfolio for week 12 is $5,840 in profit gain. I purchased five stocks and traded out two stocks.

On December 14th, I purchased 2000 shares of SunEdison, Inc. (NYSE: SUNE) at $4.18. is a global renewable energy company headquartered in the U.S. The performance over the month is documented in Figure 5.12.1 below.

Figure 5.12.1. 1-Month Performance of SUNE Nov. 15 – Dec. 14

On December 15th, I then bought 800 shares of Bank of America Corporation (NYSE: BAC). The performance of the stock over the past month is recorded in Figure 5.12.2 below.

Figure 5.12.2. 1-Month Performance of BAC Nov. 16 – Dec. 15

On December 16th, I traded out all my share of YUME at $3.20 as short-term moving average is flattening out with the share price line having a tendency to cross below the short-term

moving average. As a result, the portfolio gained $5,986. The performance of YUME over the past month is shown in Figure 5.12.3 below.

Figure 5.12.3. 1-Month Performance of YUME Nov. 17 – Dec. 16

I then bought 500 shares of Finisar Corp. (NYSE: FNSR) at $14.65 whose performance of the past month is documented in Figure 5.12.4 below, indicating a potential to keep increasing its share value.

Figure 5.12.4. 1-Month Performance of FNSR Nov. 17 – Dec. 16

On December 17th, I sold my shares of BOCH at $6.9389 and lost $145.

On December 18th, I bought 500 shares of Applied Materials, Inc. (NASDAQ: AMAT) at $18.45 as even the short-term moving average appears to drop down, the share price line is demonstrating a tendency of increase. The stock price over the past month is shown in Figure 5.12.5 below.

Figure 5.12.5. 1-Month Performance of AMAT Nov. 19 – Dec. 18

I also bought 500 shares of iKang Healthcare Group, Inc. (NASDAQ: KANG) at $20.40 for its ongoing uptrend over a month. The Performance of the stock over the past month is shown in Figure 5.12.6 below.

Figure 5.12.6. 1-Month Performance of KANG Nov. 19 – Dec. 18

To conclude, the transaction sheet of this week is documented as Table 5.12.1 below. The current total profit is $78,089.

Table 5.12.1. Transaction Sheet of Week 12 Dec. 14 – Dec. 18

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/14/15	SUNE	Buy	$4.18	2000	$8,367		$232,025	$72,249
12/15/15	BAC	Buy	$17.27	800	$13,823		$218,202	$72,249
12/16/15	YUME	Sell	$3.20	100000	$319,993	$5,986	$538,195	$78,235
12/16/15	FNSR	Buy	$14.65	500	$7,332		$530,863	$78,235
12/17/15	BOCH	Sell	$6.94	1000	$6,932	-$145	$537,794	$78,089
12/18/15	AMAT	Buy	$18.45	500	$9,232		$528,562	$78,089
12/18/15	KANG	Buy	$20.40	500	$10,207		$518,355	$78,089

5.13 Week 13

Week 13 is the second last trading week of the stock market simulation, and because of the Crhistmas Day, the market was close on the Friday of the week. At the start of this trading week, the total profit broke through $80,000.

On the first day of the week, I sold my share of FSLR whose performance over the past month is documented in Figure 5.13.1 below. Over the period of posession, the share price has rised over $10, and, as a result, the portfolio managed to have a gain of $2,220. This seccessful investment again indicated that when the overall condition of a stock market is on an increasing trend, a long-term investment demonstrates an advantage in contributing to a net profit gain.

Figure 5.13.1. 1-Month Performance of FSLR Nov. 22 – Dec. 21

I purchased 300 shares of WMT. As Figure 5.13.2 shows, the stock just experienced a deep increase in its value and a golden cross between the short-term MA and the long-term MA.

Figure 5.13.2. 1-Month Performance of WMT Nov. 23 – Dec. 22

On the next day, I sold my shares of BAC. As Figure 5.13.3 shows, two death crosses with the share price line crossing below the short-term MA and the short-term MA crossing below the long-term MA were shown to be about to take place. Therefore, as a result, the portfolio only gained $18.

Figure 5.13.3. 1-Month Performance of BAC Nov. 24 – Dec. 23

I then bought 500 shares of FSLR (shown in Figure 5.13.4) as the stock seemed to be on an uptrend. Likewise, I also purchased 1,000 shares of YUME (shown in Figure 5.13.5) that was on a similar trend.

Figure 5.13.4. 1-Month Performance of FSLR Nov. 24 – Dec. 23

Figure 5.13.5. 1-Month Performance of YUME Nov. 24 – Dec. 23

Finally, I purchased 300 shares of ATVI on December 24th as, according to Figure 5.13.6, the stock was exhibiting a tendency to stay on an uptrend.

Figure 5.13.6. 1-Month Performance of ATVI Nov. 25 – Dec. 24

To conclude, over the week, the three major indexes S&P 500, NASDAQ Composite, and Dow Jones Industrial Average all have climbed up, leaving investors a smooth Christmas break. The transaction sheet of this week is documented as Table 5.13.1 below. The current total profit is $80,327.

Table 5.13.1. Transaction Sheet of Week 12 Dec. 21 – Dec. 24

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/21/15	FSLR	Sell	$65.00	200	$12,993	$2,220	$531,348	$80,309
12/22/15	GE	Buy	$30.50	500	$15,257		$516,091	$80,309
12/22/15	WMT	Buy	$60.31	300	$18,100		$497,991	$80,309
12/23/15	BAC	Sell	$17.31	800	$13,841	$18	$511,832	$80,327
12/23/15	FSLR	Buy	$66.16	200	$13,239		$498,593	$80,327
12/23/15	YUME	Buy	$3.34	1000	$3,347		$495,246	$80,327
12/24/15	ATVI	Buy	$38.90	300	$11,677		$483,569	$80,327

5.14 Week 14

Week 14, the last trading week of the year of 2015 and also the final week of the stock market simulation, is also short one day due to the New Year's Day. Over this period, the portfolio managed to have a total gain of $3,841.

I sold my shares of SUNE. As Figure 5.14.1 shows, the blue line indicating share price crossed below the short-term moving average line. The next day the stock experienced a massive sell-off triggered by the diluting of the stock.

Figure 5.14.1. 1-Month Performance of SUNE Nov. 29 – Dec. 28

On the next day, I purchased 500 shares of AMAT as the stock just experienced a golden cross with the price line crossing above the short-term moving average. The performance of the stock over the past month is recorded in Figure 5.14.2 below.

Figure 5.14.2. 1-Month Performance of AMAT Nov. 30 – Dec. 29

On Dec. 30, I sold my shares of GE at $31.19 as the price line appeared to drop down, shown in Figure 5.14.3.

Figure 5.14.3. 1-Month Performance of GE Dec. 1 – Dec. 30

I then sold FSLR and WMT whose performances over the past month are shown in Figure 5.14.4 and Figure 5.14.5, respectively.

Figure 5.14.4. 1-Month Performance of FSLR Dec. 1 – Dec. 30

Figure 5.14.5. 1-Month Performance of WMT Dec. 1 – Dec. 30

On the last day of the trading week, I traded out my shares of KANG that was still on uptrend as well as those of AMAT. As a result, the net profit of the day can be calculated to be $717. The performance of the two stocks over the past month can be analyzed in Figure 5.14.6 and Figure 5.14.7 below, respectively. Finally, I traded out FSLR, YUME, and ATVI.

Figure 5.14.6. 1-Month Performance of KANG Dec. 2 – Dec. 31

Figure 5.14.7. 1-Month Performance of FNSR Dec. 2 – Dec. 31

To conclude, the transaction sheet of this week is documented as Table 5.14.1 below. The final total profit is $84,168.

Table 5.14.1. Transaction Sheet of Week 12 Dec. 28 – Dec. 31

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/28/15	SUNE	Sell	$5.18	2000	$10,353	$1,986	$493,922	$82,313
12/29/15	AMAT	Sell	$19.34	500	$9,663	$431	$503,585	$82,744
12/30/15	GE	Sell	$31.19	500	$15,588	$331	$519,173	$83,075
12/30/15	WMT	Sell	$61.65	300	$18,488	$388	$537,661	$83,463
12/31/15	KANG	Sell	$22.02	500	$11,003	$796	$548,664	$84,259
12/31/15	FNSR	Sell	$14.52	500	$7,253	-$79	$555,917	$84,180
12/31/15	FSLR	Sell	$66.01	200	$13,195	-$44	$569,112	$84,136
12/31/15	YUME	Sell	$3.43	1000	$3,423	$76	$572,535	$84,212
12/31/15	ATVI	Sell	$38.80	300	$11,633	-$44	$584,168	$84,168

6.   Simulation 3 Position Trading

In simulation 3, position trading strategy was applied by team member - Zhijie Wang. As previously mentioned, position trading is a type of trade that involves long-term investment. The traders expect to participate in major trend and see short-term fluctuations are minor since they believe that it will all even out in the future. One of the risks of position trading is that minor can result in a full trend reversal and result in a significant loss.

Because that the simulation only had 14 weeks of duration, my trading frequency was higher than normal position trader who can hold a stock for months. I would hold most of the stocks for at least a month, which was a lower frequency compared to swing trading. Therefore, the comparison among different trading method could be generalized at the end of this simulation.

In this part of the simulation, the total investment available at the beginning was USD$500,000. In the weekly reports below, I would show my transactions for that specific week first, and then indicate the market overview for the week, explain some critical news happened during that week and how it would influence the market. Lastly, I would introduce the performance of stocks that behave extraordinarily, and my responses to them.

6.1   Week 1

In week 1, at the beginning of the week, I started by splitting the total asset available ($500,000) evenly to 10 company, and each company received $50,000. The detailed transactions are shown in Table 6.1.1. I would adjust my holding based on the long-term tendency of the stocks and experience I would gain from the initial experimental weeks.

Table 6.1.1. Transaction Sheet for Week 1 (Sep. 28 – Oct. 2)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
9/28/2015							$500,000	
9/28/2015	AMZN	Buy	$520.00	96	$49,927		$450,073	$0
9/28/2015	BA	Buy	$132.09	379	$50,069		$400,004	$0
9/28/2015	GE	Buy	$25.17	1,900	$47,830		$352,174	$0
9/28/2015	HON	Buy	$94.51	529	$50,003		$302,171	$0
9/28/2015	IHG	Buy	$34.93	1436	$50,166		$252,005	$0
9/28/2015	JNJ	Buy	$93.07	538	$50,079		$201,926	$0
9/28/2015	JPM	Buy	$60.69	825	$50,076		$151,850	$0
9/28/2015	MCD	Buy	$97.58	513	$50,066		$101,784	$0
9/28/2015	TSLA	Buy	$260.11	192	$49,948		$51,836	$0
9/28/2015	XOM	Buy	$72.75	687	$49,986		$1,850	$0

At the end of the week, the unrealized capital gain for this week is $5801, the detail is shown in Table 6.1.2. By its definition, the unrealized capital gain on investment is calculated by comparing the market price of stock to the original purchase price. Gains or losses only become realized when the stock is sold. We can generalize the general market acted positively since stock prices of 90% companies I selected increased. This could also be generalized by looking at the benchmark index in the following parts.

Table 6.1.2. Week 1 Detailed Performance (Sep. 28 – Oct. 2)

SYMBOL	PRICE	CHG & % CHG		52-WK RANGE		SHARES	MKT VALUE	GAIN & % GAIN	
AMZN	532.54	+11.82	+2.27%	284	580.57	96	$51,123.84	$+1,196.84	+2.40%
BA	132.56	+1.95	+1.49%	115.14	158.83	379	$50,240.24	$+171.13	+0.34%
GE	25.47	+0.28	+1.11%	19.37	28.68	1,900	$48,393.00	$+563.00	+1.18%
HON	96.54	+1.83	+1.93%	82.89	107.41	529	$51,069.66	$+1,066.87	+2.13%
IHG	35.91	+1.00	+2.86%	33.34	44.72	1,436	$51,566.76	$+1,400.28	+2.79%
JNJ	93.93	+0.76	+0.82%	81.79	109.49	538	$50,534.34	$+455.68	+0.91%
JPM	60.81	-0.17	-0.28%	50.07	70.61	825	$50,168.25	$+92.00	+0.18%
MCD	99.79	+1.01	+1.02%	87.5	101.88	513	$51,192.27	$+1,126.73	+2.25%
TSLA	247.57	+7.69	+3.21%	181.4	286.65	192	$47,533.44	$-2,414.68	-4.83%
XOM	75.88	+1.82	+2.46%	66.55	97.2	687	$52,129.56	$+2,143.31	+4.29%
Total							$ 503,951.36	$ 5,801.16	1.16%

In general, although the S&P 500 Index and Dow Jones Index fell sharply at the start of the week as shown in Figure 6.1.1 and Figure 6.1.2. They still ended up as an increment at the end of the week, which indicated that small fluctuation could be even out by looking at a larger time scale. I didn't alter my holdings and decided to spectate how the stock price would change in the following week.
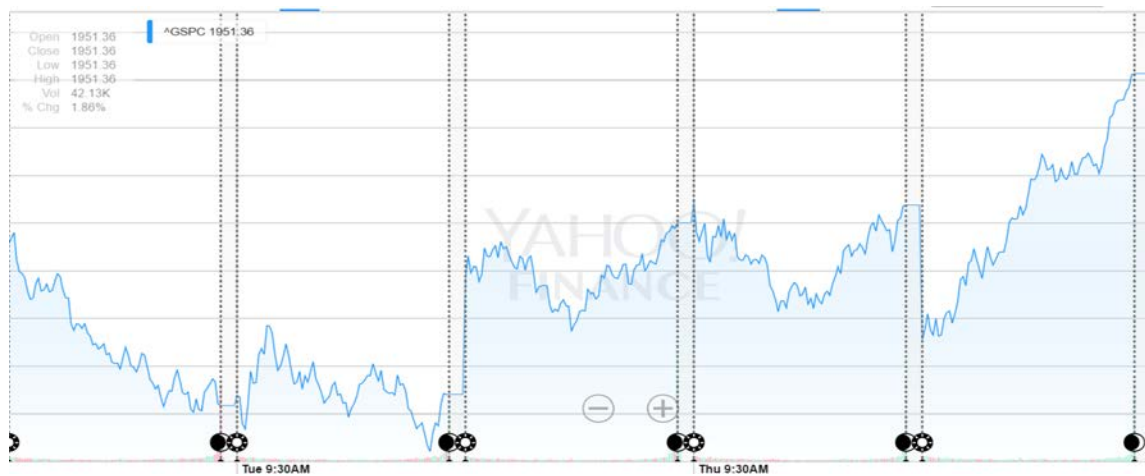
Figure 6.1.1. Week 1 S&P 500 Performance (Sep. 28 – Oct. 2)

Figure 6.1.2. Week 1 Dow Jones Performance (Sep. 28 – Oct. 2)

There are some major events influenced the stock market this week: Last Friday, Sept 18th, the Environmental Protection Agency said Volkswagen uses "defeat device" and emits 40 times more pollution than allowed by law. The United States federal may punish the company by collecting fines ranging up to US$18 billion, and possibly criminal charges. The diesel emissions scandal has an enormous impact on automobile stocks. The stock prices for Volkswagen go down more than 7 percent this week. Another event was that Chinese President Xi visited the US early this week; he also meets with the chief executives of America's top 10 technology companies. The visit indicates a better relationship between US and China, especially in cyber security negotiation addressed earlier this year. Xi's visit benefits both Chinese and US stock market by showing confidence in trading between US and China.

More specifically, among all, the major profit was contributed by ExxonMobil with 2143.3 dollars. The performance is presented in Figure 6.1.3. Even though the range of changing over the week is not as much as Amazon, but I luckily bought the stock at the lowest point of the week, and the price reached the maximum when market close on Friday. The increment might be

caused by crude oil price has reached an expected bottom, and was likely to start bouncing later this year.
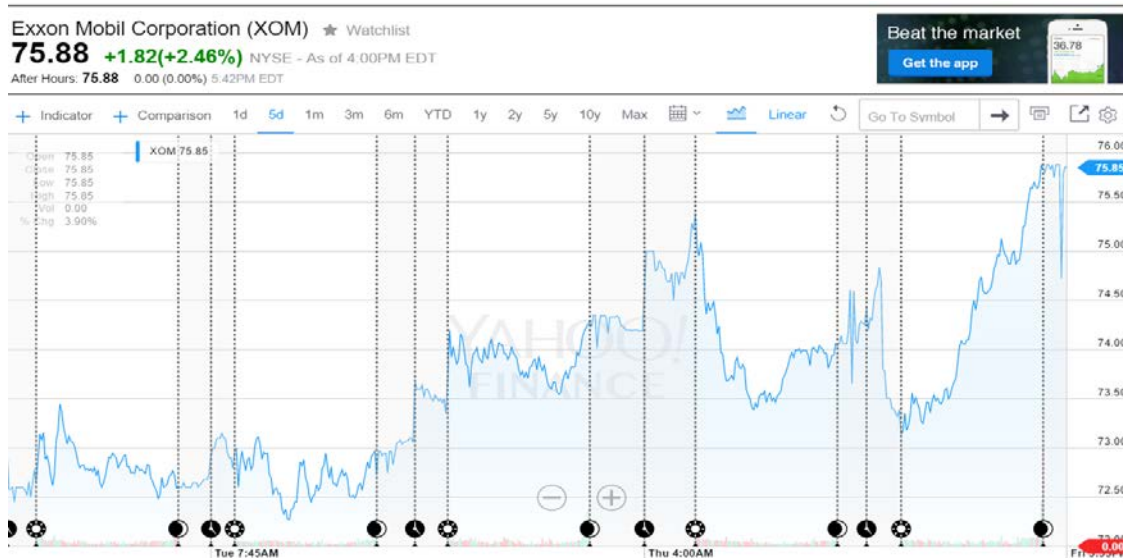
Figure 6.1.3. Week 1 Performance of Exxon Mobil (Sep. 28 – Oct. 2)

The only company shows a loss this week was Tesla Motors. The decrement of Tesla could be caused by Volkswagen Diesel Emission Scandal addressed earlier. The performance of Tesla Motor this week is shown in Figure 6.1.4. Considering Tesla Motor is an environment-friendly car business, the influence should not be continuing. And as a decision, I would keep holding this stock and expect a better performance next week. This week, Amazon.com Inc. showed the biggest fluctuation as shown in Figure 6.1.5. The price went down 6% and then raised up 7%. The reason might be that Chinese chairman Xi's visit earlier this week brought an enormous amount of investment in some major IT companies.

Tesla Motors, Inc. (TSLA) ★ Watchlist
247.57 +7.69(+3.21%) NASDAQ - As of 4:00PM EDT
After Hours: 248.12 +0.55 (+0.22%) 5:39PM EDT

Figure 6.1.4. Week 1 Performance of Tesla Motor (Sep. 28 – Oct. 2) Week 2

Amazon.com, Inc. (AMZN) ★ Watchlist
532.54 +11.82(+2.27%) NASDAQ - As of 4:00PM EDT
After Hours: 532.72 +0.18 (0.03%) 7:59PM EDT

Figure 6.1.5. Week 1 Amazon Performance (Sep. 28 – Oct. 2)
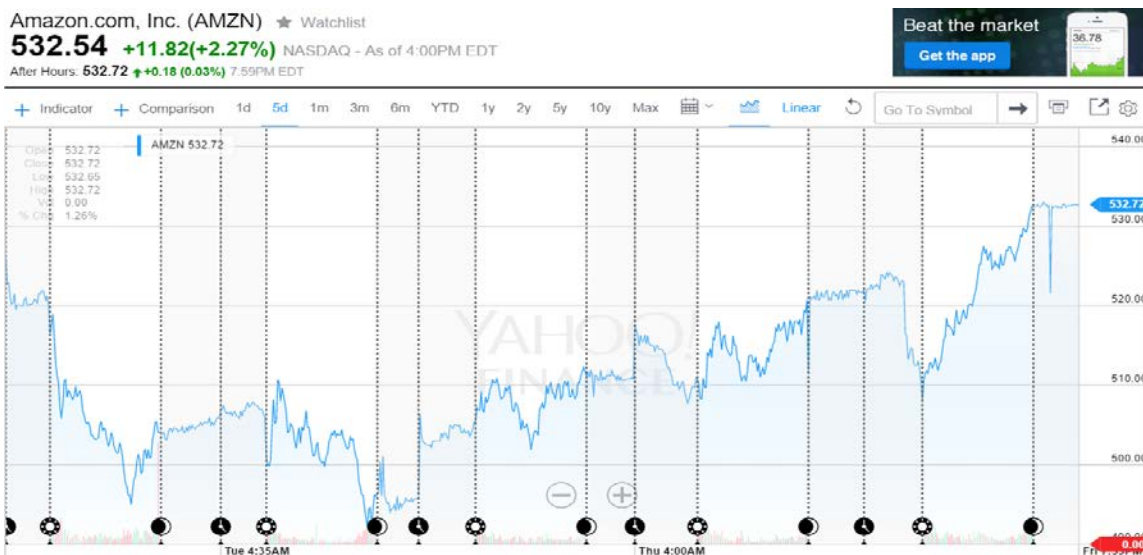
6.2   Week 2

In week 2, I decided to sell all of my holding for the Tesla and GE because of their disappointing performance and tendency to keep decreasing. On the other hand, I added my holding onto Boeing and Amazon because their tendency to keep rising. The detailed

transactions are shown in Table 6.2.1. The table indicates I resulted in a loss of $2,087 in total this week.

Table 6.2.1. Transection Sheet for Week 2 (Oct. 5 – Oct. 9)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/9/2015	TSLA	Sell	$220.69	192	$42,365	-$7,583	$44,215	-$7,583
10/9/2015	GE	Sell	$28.07	1900	$53,326	$5,496	$97,541	-$2,087
10/9/2015	BA	Buy	$139.70	337	$47,086		$50,455	-$2,087
10/9/2015	AMZN	Buy	$539.80	93	$50,208		$247	-$2,087

As a result, the unrealized capital gain for this week was $12,910. The detailed performance of each stock is shown in Table 6.2.2. We can conclude that the general performance of the companies I selected was positive.

Table 6.2.2. Week 2 Detailed Performance (Oct. 5 – Oct. 9)

SYMBOL	PRICE	CHG & % CHG		52-WK RANGE		SHARES	MKT VALUE	GAIN & % GAIN	
AMZN	539.80	+6.64	+1.25%	284	580.57	96	$51,820.80	$+1,893.80	+3.79%
BA	139.70	+0.66	+0.47%	115.14	158.83	379	$52,946.30	$+2,877.19	+5.75%
GE	28.07	+0.04	+0.14%	19.37	28.68	1,900	$53,333.00	$+5,503.00	+11.51%
HON	101.16	+0.09	+0.09%	82.89	107.41	529	$53,513.64	$+3,510.85	+7.02%
IHG	37.17	-0.32	-0.85%	33.34	44.72	1,436	$53,376.12	$+3,209.64	+6.40%
JNJ	95.37	+0.29	+0.31%	81.79	109.49	538	$51,309.06	$+1,230.40	+2.46%
JPM	61.93	-0.20	-0.32%	50.07	70.61	825	$51,092.25	$+1,016.00	+2.03%
MCD	102.76	-0.19	-0.18%	87.5	103.47	513	$52,715.88	$+2,650.34	+5.29%
TSLA	220.69	-6.03	-2.66%	181.4	286.65	192	$42,372.48	$-7,575.64	-15.17%
XOM	79.26	-0.77	-0.96%	66.55	97.2	687	$54,451.62	$+4,465.37	+8.93%
Total							$ 516,931.15	$ 18,780.95	3.77%

In general, the performance of U.S. stock market this week was optimal. The Standard & Poor's 500 Index recorded its strongest weekly gain in several months as shown in Figure 6.2.1, as investors appeared to grow more confidence that the Federal Reserve would not raise interest

rates in 2015. Some weakness in technology shares was partly responsible for the NASDAQ Composite lagging the other benchmarks.

Figure 6.2.1. Week 2 Performance for S&P 500 (Oct. 5 – Oct. 9)

The primary loss this week came from Tesla Motor. Tesla's stock price kept going down with small fluctuation as shown in Figure 6.2.2. The stock price went down almost 12% this week and 15.17% in the whole 2-week interval. The dramatic drop might come from Apple announced their electric car plan earlier last week, which might cause Tesla to lose a significant part of their market share. As a response, I decided to sell all my holding for Tesla on Friday. The majority of profit was contributed by General Electric Company. The stock price of GE increased more than 10% this week from $25.25 per share to $28.03 per share as shown in Figure 6.2.3. The performance is constant with minor fluctuation. The rising might be caused by GE's announcement of earnings for the quarter would take place next week.

Figure 6.2.2. Week 2 Performance for Tesla Motors (Oct. 5 – Oct. 9)

Figure 6.2.3. Week 2 Performance for General Electric (Oct. 5 – Oct. 9)

As the performance chart indicates, GE's stock price seemed to reach the upper limit at this point and shows the tendency to decrease. The derivative of the performance seemed to become negative. So I decided to sell all my holding of GE on Friday.

The biggest fluctuation came from Amazon as shown in Figure 6.2.4. It bounced back and forth from $525 to $550 per share. Despite the fluctuation, the long-term tendency showed that Amazon should increase for the rest of the year, so I decided to invest by buying more stocks from Amazon. The moving average is displayed in the following figure. We can observe that the SMA was bouncing above and below the stock price, which indicated that the momentum is unstable short-term speaking.

Figure 6.2.4. Week 2 Performance for Amazon (Oct. 5 – Oct. 9)

6.3   Week 3

Because my trading method is position trading, so I won't make any transaction if the stock shows the tendency to keep increasing long-term speaking. And the performance of all my stocks indicates the trend towards continue to rise, so I decided not to alter my holdings this week.

For a market overview, the Dow Jones Index showed that the stock market performed generally well in the third week of simulation. The detailed performance chart is shown in Figure 6.3.1.

Figure 6.3.1. Week 3 Performance for Dow Jones Index (Oct. 12 – Oct. 16)

The NASDAQ Index the technology-heavy industries showed significant fluctuation. The index started to drop on Wednesday and rose back on Friday. The performance of it is shown Figure 6.3.2. We can observe from these indices that NASDAQ's drop on Wednesday was a rather "individual" movement because it is unique for NASDAQ itself. But increment on Friday was rather "universal" since both S&P 500 and NASDAQ showed this trend.

Figure 6.3.2. Week 3 Performance for NASDAQ (Oct. 12 – Oct. 16)

Even with the significant fluctuation showed in NASDAQ Index, Amazon proved my prediction of keeping increasing sustained for this week as shown in Figure 6.3.3. It had been growing for over two weeks. The trader made the prediction that it had not reached the peak yet, and predicted that the stock will keep going up for next couple of weeks.
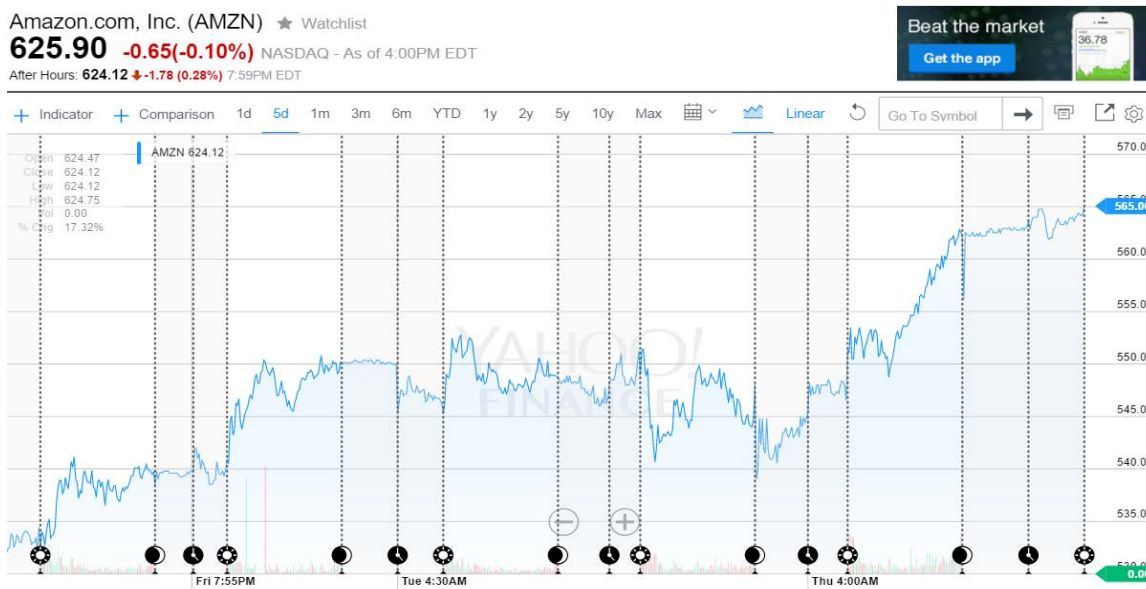
Figure 6.3.3. Week 3 Performance for Amazon (Oct. 12 – Oct. 16)

130

6.4   Week 4

In general, the U.S. stock market was growing in Week 4. From T. Rowe Price Weekly Market Wrap-Ups, "U.S. stocks followed global stocks higher this week after European Central Bank President Mario Draghi signaled that the bank is ready to increase its bond-buying program, possibly as soon as December. A further loosening of monetary policy in China added to the gains. The Bank of China announced a 25 basis-point cut in its one-year lending rate to 4.35% and a 50 basis-point cut in the required reserve ratio for qualifying investors." [39]

The NASDAQ Composite and Dow Jones's detailed performances were listed in Figure 6.4.1 and Figure 6.4.2. We can observe a significant increment at the end of the week. Many of my stocks also indicated the momentum to keep rising. As a position trader, I decided to keep my holding, so I didn't make transactions or alter my holdings this week.

Figure 6.4.1. Week 4 Performance for NASDAQ Index (Oct. 19 – Oct. 23)

Figure 6.4.2. Week 4 Performance for Dow Jones (Oct. 19 – Oct. 23)

The most of the profit are contributed by Amazon, the performance of Amazon this week is shown in the Figure 6.4.3. It raised from 570 dollars per share to 625 dollars per share. The movement on Thursday evening was unusual, it rose vertically when the market close. This might be the result of company released significant financial document near the end of trading day.
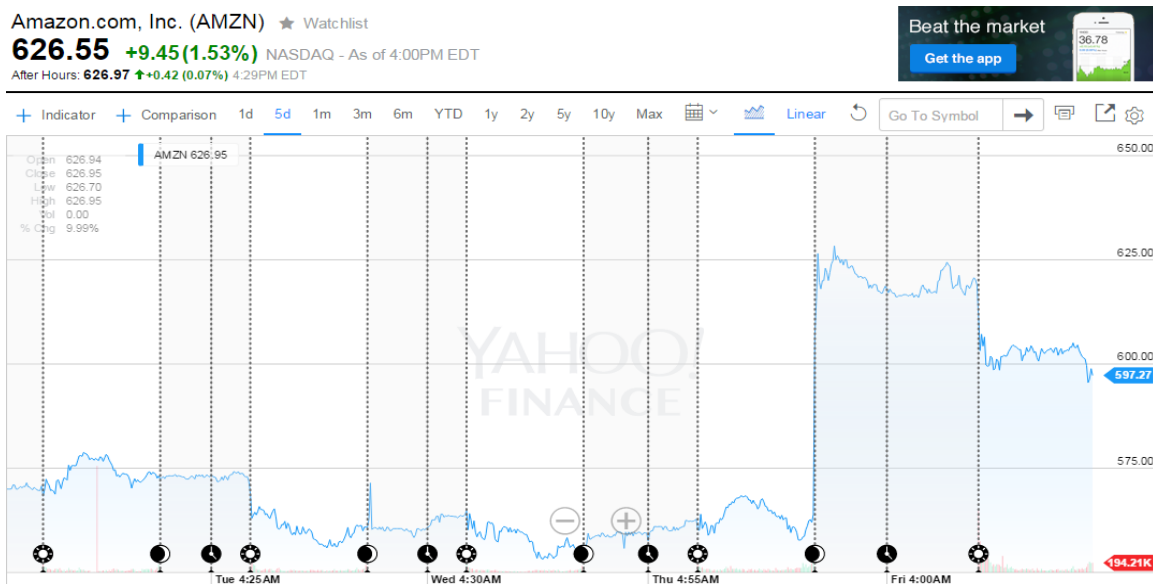
Figure 6.4.3. Week 4 Performance for Amazon (Oct. 19 – Oct. 23)

The Boeing Airline also increased from 137 dollars per share to 147 dollars per share, which is 7% increment. The performance of Boeing is shown in Figure 6.4.4.
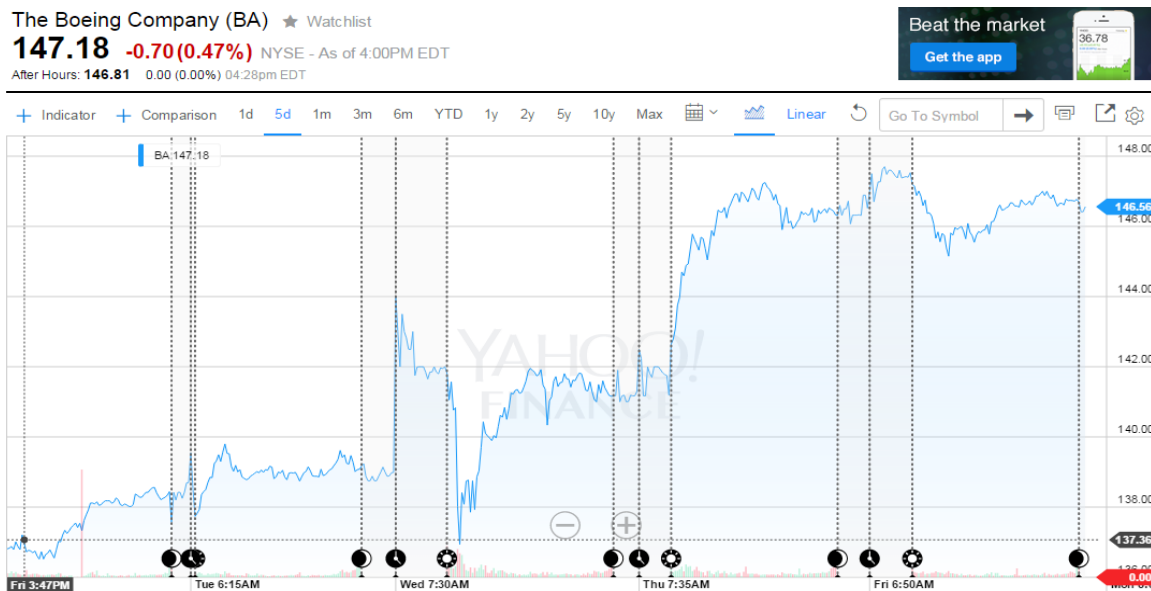
Figure 6.4.4. Week 4 Performance for Boeing (Oct. 19 – Oct. 23)

6.5   Week 5

In week 5 of the simulation, some stocks showed the tendency to stop increasing. They were ExxonMobil, Boeing Airline, Intercontinental Hotel Group and J.P. Morgens. I sold my holdings in these companies and the total profit from the trading of these 4 companies was $24,590, which counteracted the loss generated in previous transactions; and the total profit at this point was $22,503. Since Amazon and McDonalds show the tendency to increase depends on their history and moving average, I decided to increase the holding of both these two stocks. The details of the transactions for this week were shown in Table 6.5.1.

Table 6.5.1. Transaction Sheet for week 5 (Oct. 26 – Oct. 30)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
10/29/2015	XOM	Sell	$82.22	687	$56,478	$6,492	$56,725	$4,405
10/29/2015	BA	Sell	$147.10	716	$105,317	$8,162	$162,042	$12,567
10/29/2015	IHG	Sell	$39.27	1436	$56,385	$6,232	$218,426	$18,799
10/29/2015	JPM	Sell	$65.18	825	$53,767	$3,704	$272,193	$22,503
10/29/2015	AMZN	Buy	$626.55	131	$82,085		$190,108	$22,503
10/29/2015	MCD	Buy	$112.62	1262	$142,133		$47,974	$22,503

For a market overview, the most of stocks' prices increased modestly in week 5 of the simulation. The large-cap indexes registered modest gain as a strong rally on Wednesday compensated for losses much of the rest of the week, and the technology-heavy Nasdaq Composite posted somewhat higher returns. The S&P 500 Index reached a two-month high by the middle of the week and ended with almost 2.6% of the all-time highs it established earlier in the year. Many companies release their third-quarter financial report, which drove much of the week's stock market action. Another factor influenced the market this week was the Federal Reserve softening its reference to the risk of international economic and financial developments threatening U.S. Economic growth. Many investors believed that the slowdown in China wouldn't be likely to spread out to other regions. These factors were likely to drive the market into a good shape.

More specifically, the performance of the stocks for week 5 was shown in Table 6.5.2 below. All of the stocks were increasing this week and generate an unrealized capital gain of $54,655, which is almost 11% of the total investment.

Table 6.5.2. Week 5 Performance (Oct. 26 – Oct. 30)

SYMBOL	PRICE	CHG & % CHG		52-WK RANGE		SHARES	MKT VALUE	GAIN & % GAIN	
AMZN	625.77	+8.67	+1.40%	285.25	627.54	189	$118,270.53	$16,241.33	15.92%
BA	147.08	-0.80	-0.54%	115.14	158.83	716	$105,309.28	$5,277.08	5.28%
GE	29.33	-0.06	-0.20%	19.37	29.83	-	-	-	-
HON	102.91	-0.67	-0.65%	87	107.41	529	$54,439.39	$4,436.60	8.87%
IHG	39.24	+0.17	+0.44%	33.34	44.72	1,436	$56,348.64	$+6,182.16	+12.32%
JNJ	101.35	+0.87	+0.87%	81.79	109.49	538	$54,526.30	$4,447.64	8.88%
JPM	65.19	-0.31	-0.47%	50.07	70.61	825	$53,781.75	$3,705.50	7.40%
MCD	112.75	-0.19	-0.17%	87.5	113.96	513	$57,840.75	$7,775.21	15.53%
TSLA	212.33	-0.63	-0.30%	181.4	286.65	-	-	-	-
XOM	82.37	+0.09	+0.11%	66.55	97.2	687	$56,588.19	$6,601.94	13.21%
Total							$ 557,099.70	$ 54,655.46	10.88%

The Amazon was still doing great this week. It rose from roughly 595 dollars per share to 630 dollars per share, which was almost 6% increment without fluctuation. As a result, Amazon contributed most of the profit for this week. The performance for Amazon is shown in Figure 6.5.1.

Figure 6.5.1. Week 5 Performance for Amazon (Oct. 26 – Oct. 30)

The IHG was the dark horse of this week. It was chosen as an "insurance stock" with a prediction of slow increasing at beginning when I purchased it. But it resulted in an about 5% increment this week. The performance for it was shown in Figure 6.5.2. What we can conclude from the chart was that the increment was more discrete than continuous. Major rose happened on Tuesday, which might be traders' reaction of releasement of the third quarter financial report.
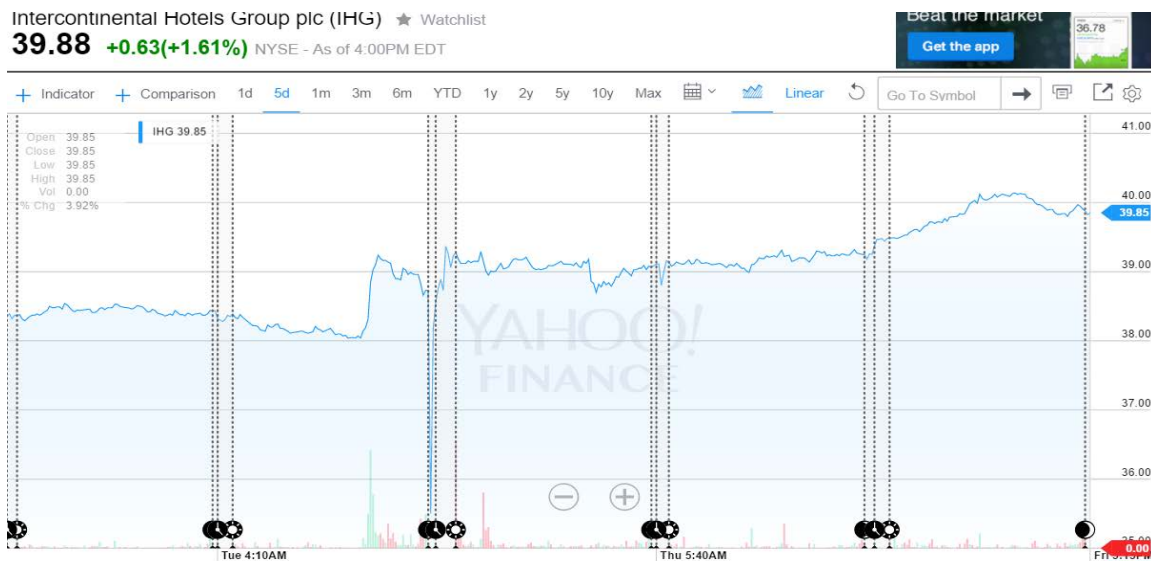
Figure 6.5.2. Week 5 Performance for IHG (Oct. 26 – Oct. 30)

At the end of the week, I sold IHG because it was at a high price, which is likely to be its peak; and it is reasonable to predict that it would decrease for next couple of weeks. More investment was added to Amazon and McDonald's due to their good performance and momentum to keep rising.

6.6   Week 6

According to T. Rowe Price Chief U.S. Economist Alan Levenson, "U.S. stocks gained even as conviction grew that the U.S. Federal Reserve would raise rates in December. The S&P 500 Index logged its sixth straight weekly advance, its longest winning streak of the year while the Dow Jones Industrial Average moved back into positive territory for 2015. Throughout the

week, market volume was light ahead of Friday's jobs report, which provided the clearest evidence to date that the U.S. economy remains on a moderate expansion path" [40]

All the indexes showed increment this week. Dow Jones has 1.2 % increase, NASDAQ has 1.7% increase, and S&P 500 has 0.7% increase. The general market showed the tendency of positive growing.

Specifically, the most profit this week was contributed by Amazon as shown in Figure 6.6.1, which equals to $10495, for about 5.23% increment since last week. Amazon's stock price has kept increasing for 4 weeks on a strike. I would keep holding Amazon's stock until it shows the tendency to drop.

Figure 6.6.1. Week 6 Performance for Amazon (Nov. 2 – Nov. 6)

One interesting stock this week was IHG as shown in Figure 6.6.2. The stock price jumped from $39.5 per share to $41.5 per share, which was almost a 6% increment. The performance of IHG contradicted my prediction last week.

Figure 6.6.2. Week 6 Performance for IHG (Nov. 2 – Nov. 6)

Since I applied position trading method in this simulation, I would only sell the stock if it indicates the tendency to fall. As the general stock market is going up, and all my stocks show the tendency to keep increasing, there wasn't any transaction made for this week.

6.7 Week 7

The detailed transaction for week 7 is shown in Table 6.7.1. In the week 7 of simulation, some companies finally started to show the tendency to decrease. Especially for Amazon, it has increased brutally for 6 weeks and might have reached its maximum point and start to decrease, along with Johnson & Johnson and Honeywell. MacDonald's was sold because of its disappointing performance. The trading of Amazon contributed most of the profit, which equals to $23,293. And the total profit at this point was $56,008. Some companies were invested because that there is a tendency for energy and retail business's stocks to increases at the end of the year.

138

Table 6.7.1. Transaction Sheet for Week 7 (Nov. 9 – Nov. 13)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/Loss	Total Cash	Total Profit
11/13/2015	AMZN	Sell	$642.25	320	$205,513	$23,293	$253,487	$45,796
11/13/2015	HON	Sell	$101.08	529	$53,464	$3,462	$306,952	$49,257
11/13/2015	JNJ	Sell	$99.88	538	$53,728	$3,650	$360,680	$52,907
11/13/2015	MCD	Sell	$109.97	1776	$195,300	$3,101	$555,980	$56,008
11/13/2015	M	Buy	$39.10	511	$19,987		$535,993	$56,008
11/13/2015	JWN	Buy	$53.96	365	$19,702		$516,290	$56,008
11/13/2015	WMT	Buy	$56.42	350	$19,754		$496,536	$56,008
11/13/2015	RDS-A	Buy	$48.34	413	$19,971		$476,565	$56,008
11/13/2015	SUN	Buy	$33.13	604	$20,018		$456,547	$56,008
11/13/2015	XOM	Buy	$78.10	255	$19,923		$436,625	$56,008

For the market overview, after six consecutive weekly gains, the stock market fell sharply this week. The Standard & Poor's 500 Index fell on some disappointing economic data and worries that the Federal Reserve would raise short-term interest rates in mid-December. The week's losses pushed every major benchmark. The Dow Jones Index fell from 17,800 points to 17,245 points as shown in Figure 6.7.1.

Figure 6.7.1. Week 7 Performance of Dow Jones (Nov. 9 – Nov. 13)

The technology-heavy NASDAQ performed worse than the large-cap benchmarks for the week as shown in Figure 6.7.2, however, dragged lower by a disappointing forecast from networking giant Cisco. [41]

Figure 6.7.2. Week 7 Performance of NASDAQ (Nov. 9 – Nov. 13)

Amazon, the major component of my investment, raised to the peak on Wednesday night and dropped sharply after that as shown in Figure 6.7.3. This might indicate the rising had finally come to an end, so I sold all Amazon stocks on Friday.

Figure 6.7.3. Week 7 Performance of Amazon (Nov. 9 – Nov. 13)

As Thanksgiving holiday approaching, the retail sales stocks were very likely to rise for the following week. Therefore, some investment went to retail company's stocks: Nordstrom Inc. (JWN), Wal-Mart Stores Inc. (WMT), Macy's, Inc. (M).

There was also increasing the need for energy during the winter season, so some investment went to energy stocks: Royal Dutch Shell plc (RDSB.L), Sunoco LP (SUN).

The investment for next will be conservative due to the depressing performance of the general stock market. I will pay close attention next week and conduct actions along the way.

6.8   Week 8

The strategies of buying retail and energy companies paid off. In week 8 of the simulation. The majority of companies I invested last week went up. Especially for Sunoco, its stock rose nearly 10% in 2 days so I followed up added more holding of Sunoco. On Friday, the performance of Sunoco's stocks started to decrease, so I decided to sell them. And as a result, I

made $7,629 profit in Sunoco. Also, I started to invest in General Electric and Amazon again. The detailed transaction sheet is shown in Table 6.8.1.

Table 6.8.1. Transaction Sheet for Week 8 (Nov. 16 – Nov. 20)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/ Proceeds	Profit/Loss	Total Cash	Total Profit
11/17/2015	SUN	Buy	$35.25	1418	$49,992		$386,633	$56,008
11/17/2015	WMT	Buy	$60.44	826	$49,930		$336,703	$56,008
11/18/2015	AMZN	Buy	$654.82	153	$100,194		$236,509	$56,008
11/18/2015	GE	Buy	$30.27	1652	$50,013		$186,496	$56,008
11/20/2015	SUN	Sell	$38.40	2022	$77,638	$7,629	$264,133	$63,636

For the market overview for this week, although there was mass shooting happened last Friday at Paris, France, the stock market didn't show any negative response as shown in Figure 6.8.1. In general, the market was rising this week. Compare to the 17% drop happened at 2001, as shown in Figure 6.8.2, we can see that investors didn't show any worries about terrorism.

According to traders at T. Rowe Price, "A week of robust gains helped stocks nearly offset the previous week's sharp losses and brought the large-cap Standard & Poor's 500 Index back into positive territory for 2015. The smaller-cap indexes lagged a bit and finished the week modestly lower for the year to date." [40]

Figure 6.8.1. Week 8 Performance for S&P 500 (Nov. 16 – Nov. 20)

Figure 6.8.2. S&P 500 Performance at 9/11/2001

As previously mentioned, the Sunoco's performance showed an increment of up to 8% this week, as shown in Figure 6.8.3. The big jump up might indicate that the stock price for Sunoco would start to fall. Also, the moving average was above the stock price which indicated the momentum to decrease. So I sold the holdings for Sunoco on Friday.

Figure 6.8.3. Week 8 Performance for Sunoco (Nov. 16 – Nov. 20)

After a series of days of decreasing, the Amazon rebounded from \$642.35 per share to \$668.45 per share this week. And I invested 153 shares of Amazon at \$654.82 per share at the middle of the week. The performance for Amazon is shown in Figure 6.8.4. The increment of Amazon would be a result of continued positive momentum. According to Investopedia, studies have found that mutual fund inflows are positively correlated with market returns. Momentum plays a part in the decision to invest and when more people invest, the market goes up, encouraging even more people to buy. It's a positive feedback loop [11].
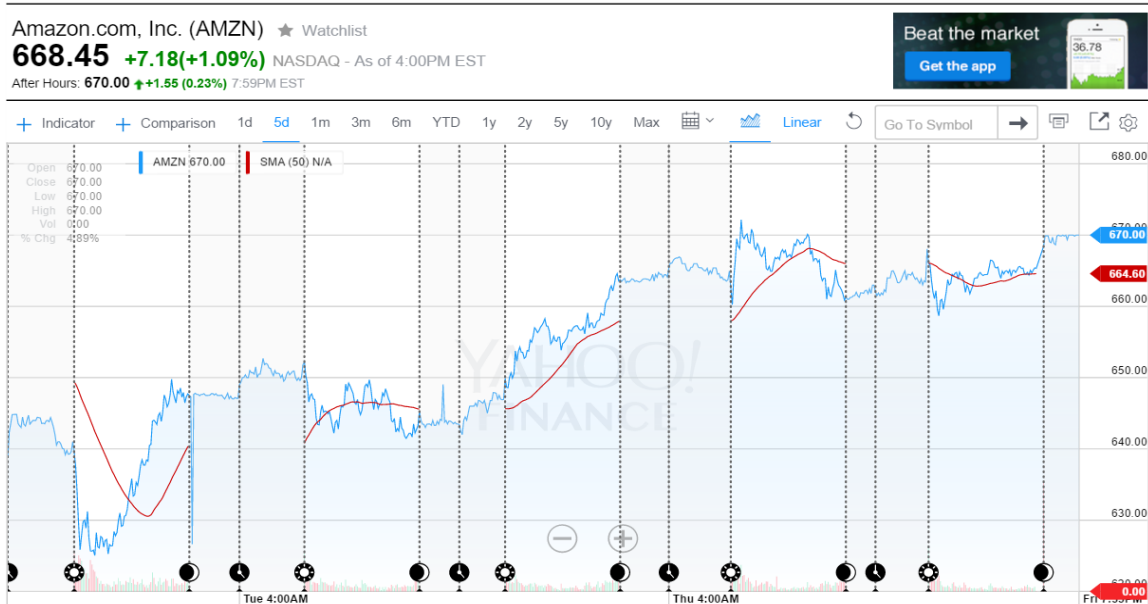
Figure 6.8.4. Week 8 Performance for Amazon (Nov. 16 – Nov. 20)

As Thanksgiving holiday would take place in the 9th week of the simulation. The effect of the holiday season to the stock market is investigated. According to the studies, stocks generally fall on the holidays because traders offload their holdings in order to avoid the risk of significant news appearing while the markets are closed. Longer-term investors who are willing to ride out any short-term news are rewarded with lower entry prices [41]. As the thanksgiving holiday approaching, and since there have been multiple threats from ISIS, I would sell some of the stocks next week to avoid significant loss caused by negative news during the holiday season when the market is closed.

6.9   Week 9

The transaction sheet for week 9 is shown in Table 6.9.1 below. Two stocks were sold on Monday to prevent any negative incidents happening during a thanksgiving holiday when the market is closed, and I can't respond. I reduced the holding of Amazon by 100 shares because it obtained the most of my investment now. I also sold all shares of Shell because energy

companies could be easily influenced by any terror activity relates to Middle East area. I made a total profit of $2876 for this week's transaction.

Table 6.9.1. Transaction Sheet for Week 9 (Nov.23 – Nov. 27)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/23/2015	AMAZ	sell	$678.75	100	$67,868	$2,386	$332,001	$66,023
11/23/2015	RDS-A	sell	$49.56	413	$20,461	$490	$352,463	$66,512

As a summary for this week, the major market benchmarks were relatively stable in a holiday-shortened week of thin trading. The S&P 500 performance for this week is shown in Figure 6.9.1. The technology-heavy Nasdaq Composite performed better than the large-cap benchmarks, and the smaller-cap indices managed to record solid returns. To be noted that there is a modest spike in volumes on Tuesday morning as shown in Figure 6.9.1. This could be traders' reactions toward the news that Turkish forces had shot down a Russian jet near the Syrian border. However, the incident didn't cause many negative sequences in the following days.

Figure 6.9.1. Week 9 Performance of S&P Index (Nov.23 – Nov. 27)

The retail companies have modest increment during the thanksgiving holiday as expected. The performance of Macy's and Nordstrom's performances is shown in Figure 6.9.2 and Figure 6.9.3 below. Because the year-end sale could last until New Year, both of these retail stocks would be kept until 2016 unless there is major decrement.

Figure 6.9.2. Week 9 Performance for Macy's (Nov.23 – Nov. 27)

Figure 6.9.3. Week 9 Performance for Nordstrom (Nov.23 – Nov. 27)

The holiday effect didn't really show any influence in the stock market during Thanksgiving. Even though there was some incident happening during the holiday season, the majority of the stock remained stable. This indicated that the majority of traders were confident in the US stock market. More specifically, the sold of Amazon is not a good move because the Amazon's stock price almost reached its highest point of all time during Thanksgiving Holiday. The performance of Amazon is shown in Figure 6.9.4. In the rest of the simulation, the holiday effect will be taken less consideration.

Figure 6.9.4. 3-Month Performance for Amazon (Aug. 29 - Nov. 29)

6.10 Week 10

At the beginning of the week 10, 4 stocks were invested, they were Amazon, ExxonMobil, JP Morgan and Boeing Airline. The total transaction value for this week was $278,132. The detailed transaction table is listed in .

Table 6.10.1.

Table 6.10.1. Transaction Sheet for Week 10 (Nov. 30 – Dec. 4)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
11/30/2015	AMAZ	buy	$673.37	150	$101,013		$251,450	$66,512
11/30/2015	XOM	buy	$82.29	500	$41,152		$210,298	$66,512
11/30/2015	JPM	buy	$66.96	500	$33,487		$176,811	$66,512
11/30/2015	BA	buy	$146.39	700	$102,480		$74,331	$66,512

For the general overview of the stock market this week, some factors might influence the general market's performance include:

1.) The U.S. Government adds 211,000 jobs to payrolls.

2.) The U.S. manufacturing, service sectors weaken.

3.) China's manufacturing sector contracts in November.

4.) India's GDP grows 7.4%. [24]

The large-cap benchmark, S&P 500, was roughly flat at the beginning of the week, then fell sharply on Wednesday, then increased on Friday. The performance of S&P 500 is shown in Figure 6.10.1.

Figure 6.10.1. Week 10 Performance for S&P500 (Nov. 30 - Dec. 4)

I added 150 shares of holding for Amazon at the beginning of the 10th week of simulation. The reason is that Amazon's performance was robust and stable over last 3 month as discussed in the previous section. I assumed Amazon would keep its tendency for increment in a long term. The performance of Amazon for week 10 is shown in Figure 6.10.2. We can observe that there was some fluctuation. But as a position trader, I believe that the small fluctuation would be even out in long term speaking.

Figure 6.10.2. Week 10 Performance for Amazon (Nov. 30 - Dec. 4)

500 shares were invested for ExxonMobil this week because the current crude oil price was at a relatively low point, which is about $39.97 per barrel for WTI Crude Oil, and the oil price is likely to rebound in 2016. Therefore, the price of ExxonMobil stock was also likely to go up in long term speaking. The statistical data for WTI Crude Oil Price is shown in Figure 6.10.3.
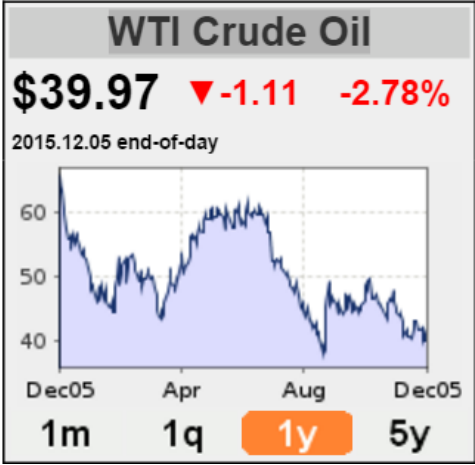
Figure 6.10.3. Historical Price for WTI Crude Oil [42]

Furthermore, I invested 500 shares of JP Morgan & Chase due to its robust performance for last 3 month. The performance of JP Morgan & Chase for last three month is shown in Figure 6.10.4. Based on the moving average and historical performance, I believed that JP Morgan & Chase will keep increasing for a long term in the future.

Figure 6.10.4. 3-Month Performance for JP Morgan & Chase (Sep. 1 – Dec. 1)

The performance of JP Morgan for this week is shown in Figure 6.10.5. The decline could be caused by the general market; I believe that the long-term performance would even out the fluctuation in small scale because I applied position trading strategy.

Figure 6.10.5. Week 10 Performance for JP Morgan & Chase (Nov. 30 - Dec. 4)

700 shares of Boeing was invested because of its robust performance in last 3 month. The performance of Boeing Airline for last 3 month was shown in Figure 6.10.6. Based on moving average and historical data, I believe that Boeing Airline's stock price would increase for a long term in the future.

Figure 6.10.6. 3-Month Performance for Boeing Airline

6.11 Week 11

This week, the stock market's performance was disappointing. Despite the fact that I apply the position trading method that should ignore the short-term fluctuation, I sold some stocks due to their bad performance, which was out of acceptable range. The stocks I sold this week are ExxonMobil, Amazon, and JP Morgan. As shown in Table 6.11.1, the total loss from this week's transaction was $6027, which equal to 1.2% of the total cash available for trading. And the total profit decreased from $63,118 to $60,486.

Table 6.11.1. Transaction Table for Week 11 (Dec. 7 – Dec. 11)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/8/2015	XOM	Sell	$75.53	500	$37,758	-$3,394	$112,089	$63,118
12/9/2015	AMZN	Sell	$662.42	203	$134,464	-$1,254	$246,553	$61,865
12/9/2015	JPM	Sell	$64.23	500	$32,108	-$1,379	$278,661	$60,486

For a stock market overview, the majority of the stocks went low this week, primarily led by falling oil prices. While the price of oil was the major market driver, it's noted that the

154

connection isn't as negative as last week might suggest. In fact, since the beginning of September, oil prices and the stock market moved in opposite directions in 10 of those 14 weeks.

The performance of S&P 500 Index is shown in Figure 6.11.1. We can observe that there was a 3.4% decrement over the week.

Figure 6.11.1. Week 11 Performance of S&P 500 (Dec. 7 – Dec. 11)

The technology-heavy index, Nasdaq Composite, also performed disappointingly this week, as shown in Figure 6.11.2.
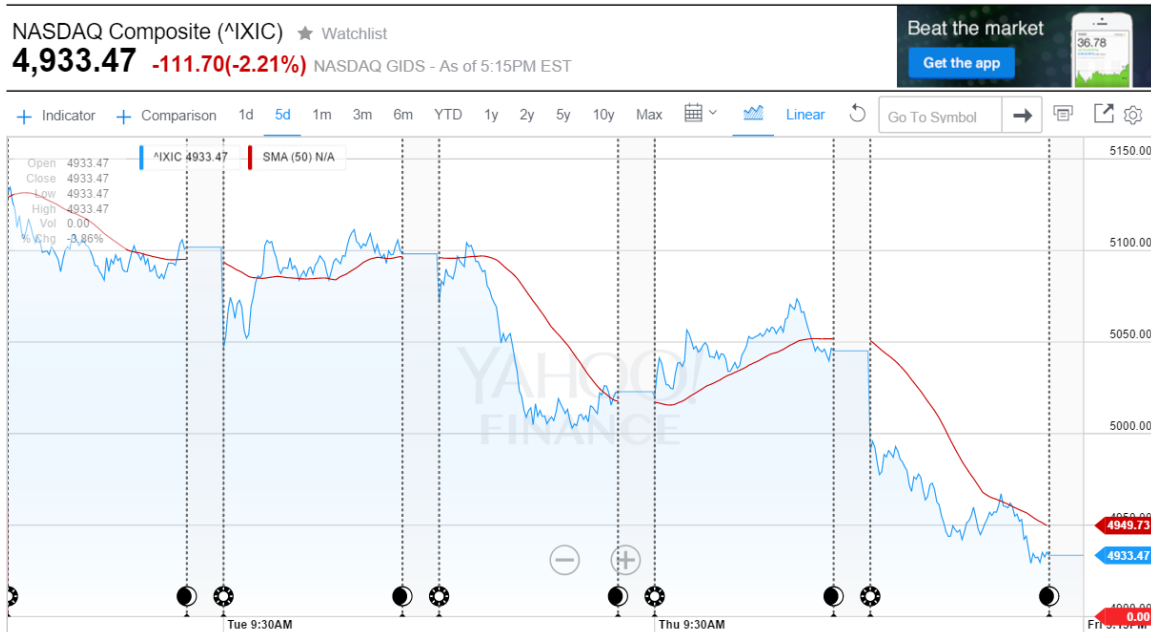
Figure 6.11.2. Week 11 Performance for NASDAQ Composite (Dec. 7 – Dec. 11)

I sold all of my holdings on Amazon this week on Wednesday while it was $662.42 per share. The price has fall from maximum price $680 for about 2.6%, which is out of my expectation. This might indicate that Amazon has reached its max point and start to decline. As a result, I sold all of my holdings. This action is proven to be helpful considering that the price falls another 3% in the rest of week.

Figure 6.11.3. Week 11 Performance for Amazon (Dec. 7 – Dec. 11)

I also sold all my holdings on ExxonMobil and JP Morgan because of their disappointing performances as shown in Figure 6.11.4 and Figure 6.11.5. Correspondingly, they have 1.8% and 2.8% drop compare to the max price when I sold them. Both stocks contradicted the expectation of keeping growth I made last week. So to avoid further loss, I sold them all. These transactions were proved to be helpful since there was further dropping in the rest of the week.
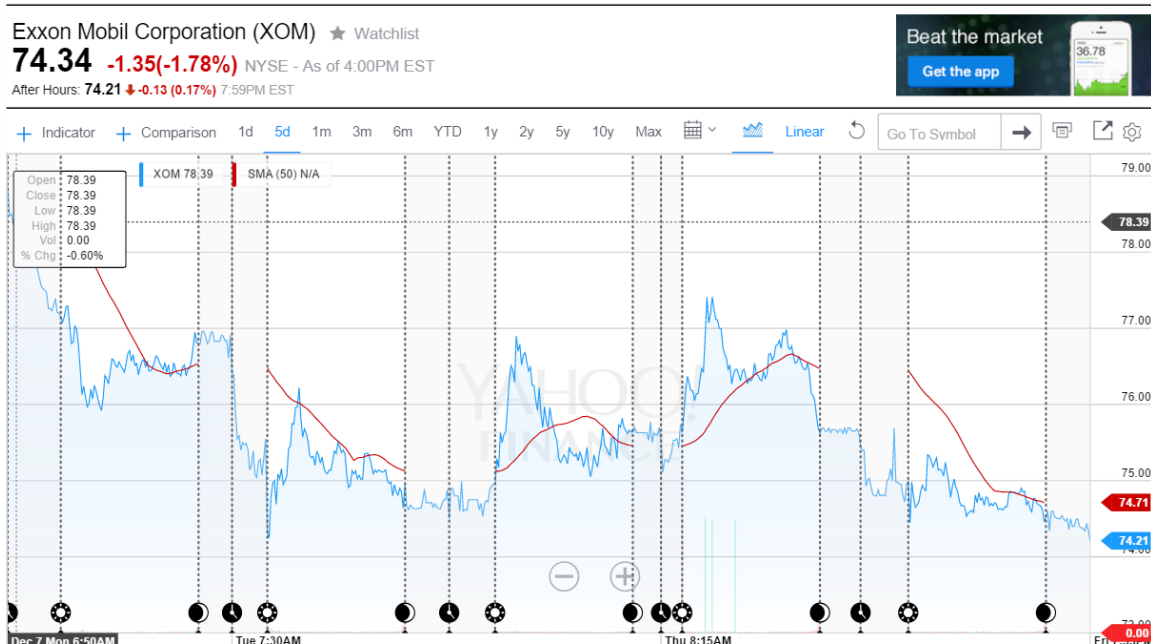
Figure 6.11.4. Week 11 Performance for ExxonMobil (Dec. 7 – Dec. 11)

Figure 6.11.5. Week 11 Performance for JP Morgan (Dec. 7 – Dec. 11)

The lessons I drew from this week's trading were: 1.) the stocks had a historically good performance can drop sharply. For example, Amazon went up for 3 months but fell sharply this week. 2.) The stocks' performances could usually correlate with each other. For example, not

158

only some but the majority of the stocks went down this week. These two lessons will be kept in mind in the rest of simulation.

Since the general market performed negatively, I will not make any transactions until the market shows the signals of a rebound.

6.12 Week 12

In the week 12, the stock market performed more robust than Week 11, 4 transactions were made. The transaction table is shown in Table 6.12.1. After considered historical performance and moving average, I invested in Amazon, Walmart, Shell Oil Company and Boeing Airline. As a result, the net proceeds for this week is $278,618 which almost equal to half of my total asset. At this point, I invested all of my asset available. Because I am applying the position trading method, I will keep holding these stocks until the end of this simulation unless an unusual incident occurs.

Table 6.12.1. Transaction Table for Week 12 (Dec. 14 – Dec. 18)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/15/2015	AMZN	buy	$663.53	150	$99,537		$179,125	$60,486
12/17/2015	WMT	buy	$58.98	834	$49,196		$129,929	$60,486
12/17/2015	RDS-A	buy	$43.51	2000	$87,027		$42,902	$60,486
12/18/2015	BA	buy	$139.58	307	$42,858		$44	$60,486

For a market overview, we can observe a rebound from depressing performance in the stock market last week at the beginning of the week. As a result, the stock market ended a volatile week on a defensive note. The Dow Jones Industrial Average paced the Friday slide, falling 2.1% while the S&P 500, which equal to a -1.8% drop, and Nasdaq Composite, which equal to a -1.6% drop, registered slimmer losses. The performance of S&P 500 is shown in Figure 6.12.1.

Figure 6.12.1. . Week 12 Performance for S&P500 (Dec. 14 - Dec. 18)

Amazon was performing well this week. After last week's disappointing performance, Amazon started to rebound this week. The stock price increased to 5% this week. This is a positive signal of keep growing, so I invested 150 shares on December 15th. The performance of Amazon this week is shown in Figure 6.12.2.

Figure 6.12.2. Week 12 Performance for Amazon (Dec. 14 - Dec. 18)

6.13 Week 13

As the market was performing well, I decided to keep my holdings as last week. For the market overview, the stock market completed an abbreviated trading week on a flat note as the sleepy Thursday session produced a slightly lower finish for the S&P 500 while the Nasdaq Composite settled just above its flat line. For the week, the S&P 500 gained 2.8%, and the Nasdaq advanced 2.6%. The performance of S&P500 is shown in Figure 6.13.1. The general market performed well before the Christmas.

Figure 6.13.1. Week 13 Performance for S&P500 (Dec 21 - Dec. 24)

Different from the general market, Amazon doesn't have significant change this week. After last week's good performance, Amazon kept its stock price at $663 per share. The performance of Amazon is shown in Figure 6.13.2. Wal-Mart performed well this week. Since I

kept 2010 shares of the hold of Wal-Mart Company, I could gain 3.4%, about $4000, for profit if I sold my hold this week. But since the price keeps going up, I would keep my holdings for a longer time. The detailed performance of Wal-Mart this week is shown in Figure 6.13.3.

Figure 6.13.2. Week 13 Performance for Amazon (Dec 21 - Dec. 24)
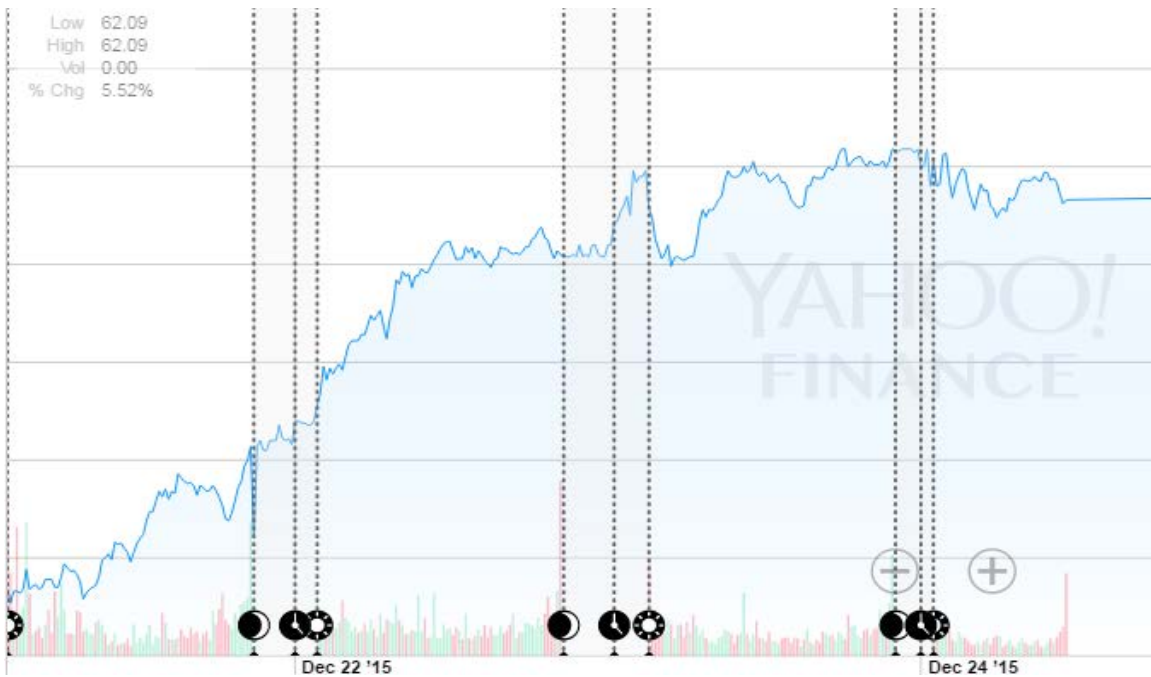
Figure 6.13.3. Week 13 Performance for Wal-Mart (Dec 21 - Dec. 24)

6.14 Week 14

On the last day of the year and last day of the simulation, I sold all of my holdings. As a result, I received $69,193 as profit in total. The greatest gain from transactions this week is Wal-Mart, which had a $4,325 for profit, equals to almost 5% of my investment on it. This could be a result of a year-end effect, which means that as holiday approaching, some retail companies could have good performances. But this effect wasn't universal since I had $3,648 as a loss for my investment in Macy's and Nordstrom.

Table 6.14.1. Transaction Table for Week 14 (Dec. 14 – Dec. 18)

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
12/31/2015	AMZN	Sell	$675.89	150	$101,377	$1,840	$101,454	$62,326
12/31/2015	WMT	Sell	$61.30	2010	$123,206	$4,325	$224,660	$66,651
12/31/2015	RDS-A	Sell	$45.79	2000	$91,573	$4,546	$316,233	$71,197
12/31/2015	GE	Sell	$31.15	1652	$51,453	$1,440	$367,686	$72,636
12/31/2015	XOM	Sell	$77.95	255	$19,870	-$52	$387,556	$72,584
12/31/2015	BA	Sell	$144.59	1007	$145,595	$257	$533,151	$72,841
12/31/2015	M	Sell	$34.98	511	$17,868	-$2,119	$551,019	$70,722
12/31/2015	JWN	Sell	$49.81	365	$18,174	-$1,529	$569,193	$69,193

For the market overview this week, according to the Briefing Investors, "the stock market ended its last session of the year under broad-based selling pressure, which pushed the S&P 500 (-0.9%) into negative territory for the year (-0.7%). The benchmark index outperformed the NASDAQ (-1.2%) today as the technology sector paced today's retreat. On the year, though, the Nasdaq outperformed with a year-to-date return of 5.7%" [43].

As we count down to the end of 2015, U.S. stocks seem headed for a flat to finish down. That innocuous result belies a roller coaster year, to which many investors will likely say "good riddance" [43].

Amazon became the main contributor for the profit of this week; its stock price increased more than 3% at the beginning of the last week of the year. The performance of Amazon is shown in Figure 6.14.1.

Figure 6.14.1. Week 14 Performance for Amazon (Dec. 28 - Dec. 31)

The fourteen-week simulation had finished. I had made over 60 transactions, and the total profit from these was $69,193. The major reason of the profit was that the general market grew impressively in past 5 months. I am satisfied with this result. Detailed analysis will be carried out in the following chapter.

7.   Analysis and Comparison

7.1   Profit/loss for Each Company

Since there were too many companies to condense into a single graph for technical trading, a filter was first applied. Companies that did not result in an absolute change of $2,000 were dropped from the graph. The graph is shown below in Figure 7.1.1 with the most profitable trades on the left and the largest losses on the right.
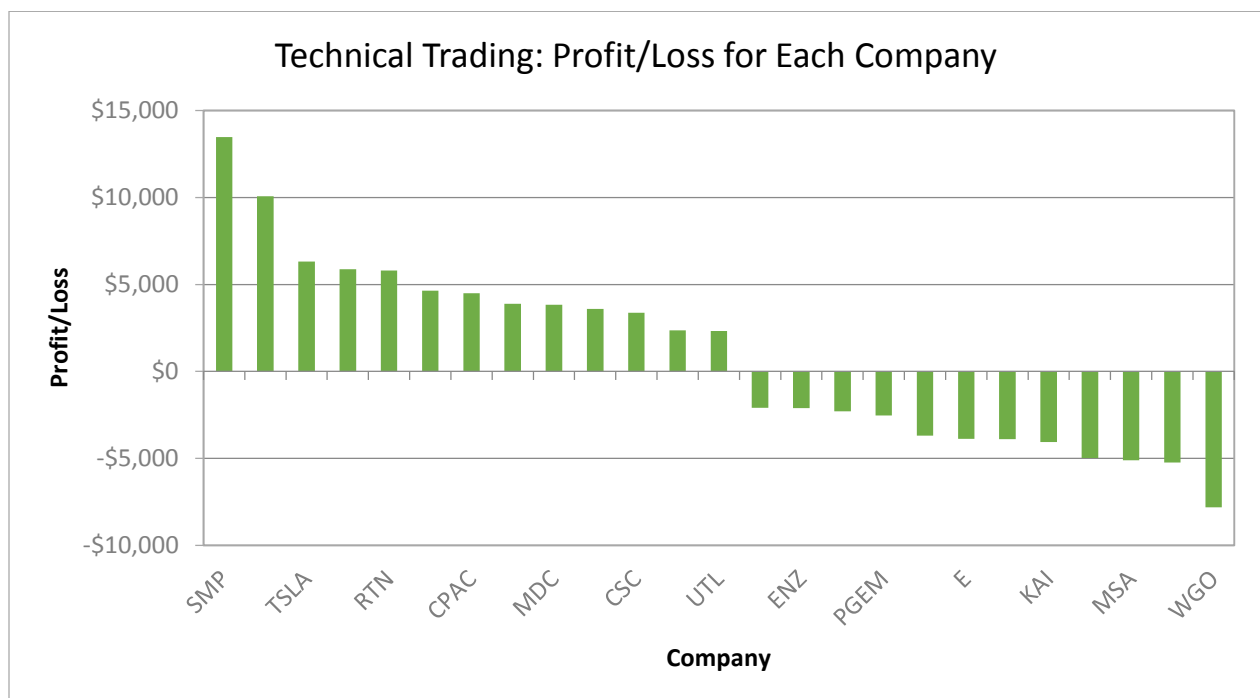
Figure 7.1.1. Technical Trading Profit/Loss for Each Company

From the graph, the trade that generated the most return was with SMP with close to $14,000 which was measured within a week. Another surprising trade was with TSLA, which was also on the left end of the spectrum. The general trend of TSLA seems to have been falling for the period of the simulation, but it was sold at a time right before it descended. Another thing to notice are the companies at the right end which represent the cluster of trades during the one

165

week that the all the trades resulted in a major loss. Although these companies showed promise during the time they were bought, it led the trader into a trap. Since the general market was in a temporary declining period, the performance of stocks, in general, would fall.

One of the satisfactory results from the technical simulation was that the overall magnitude of profit was greater than losses. It also reflects in the total profit because during the course of the simulation a positive net profit was made. Nonetheless, bad trades were more frequent than good ones which are understandable because trading requires a lot more experience. Although almost %4 profit was made, the total could have easily gone negative especially since %7 was lost in just one week. It had taken weeks to reap slowly profit just to have much of it lost so easily.

The final profit/loss of each company selected into the portfolio of swing trading is documented in Figure 7.1.2 below. Note that they are arranged in descending order as in from the most gain to the most loss, and companies with the value of the profits/losses less than $100 are not included.
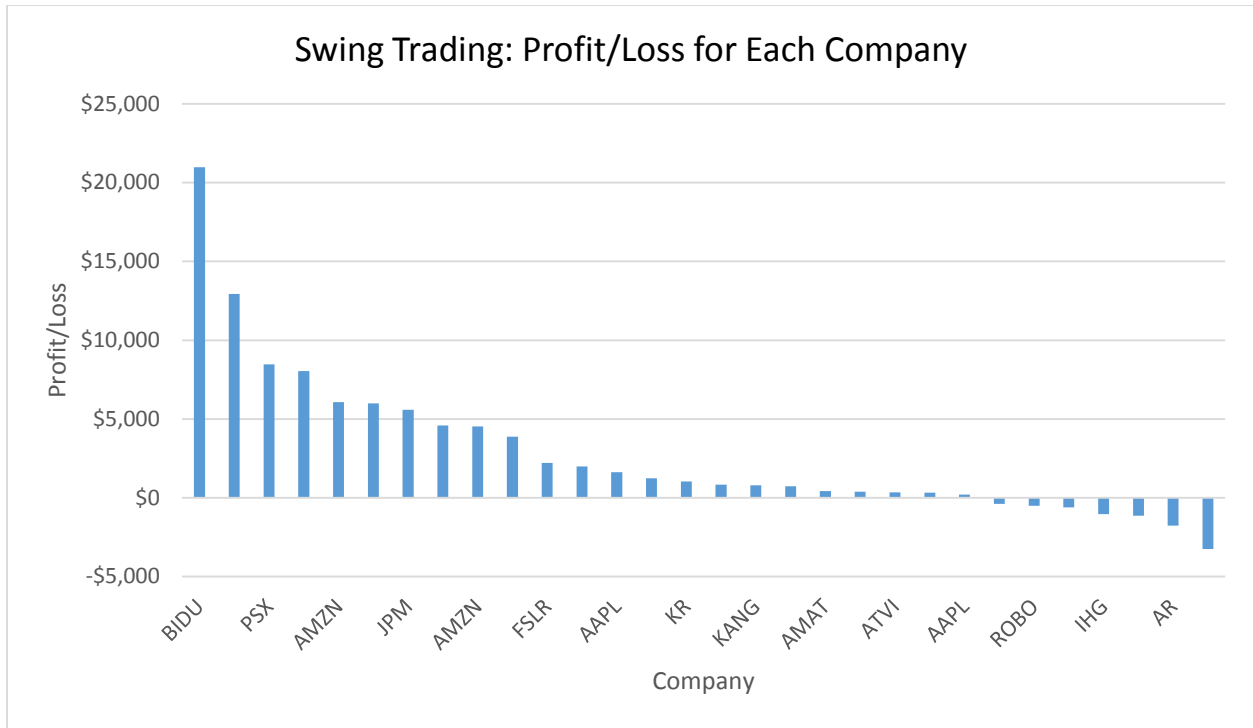
Figure 7.1.2. Swing Trading: Profit/Loss for Each Company

It can be viewed from the graph that BIDU produced the most profit, contributing over $20,000, almost a quarter of the total profit gain. The initial investment of the stock is $46,361, making a turnaround of 45.23%. The stocks of the succeeding six companies, CVX, PSX, XOM, AMZN, YUME, and JPM, all managed to produce gains above $5,000. Among these companies, the investment in YUME reflected a timely and successful buying and selling technique when the market remained fluctuating and more capricious. The trader saw a potential of a steady increase in the share price from the preceding performance of the stock and then traded out the stock after he saw a satisfying increase in the value.

As for losses, no company exceeded $5,000. During the second half and especially towards the end of the simulation, the portfolio experienced more unsuccessful trades. This reflects the high flexibility of swing trading. When the market is highly unstable, swing trading

is able to respond more appropriately than many other trading methods to perform selling before the loss exacerbated, thanks to its intrinsic freedom of the duration of possession.

It can be inferred from the results that the best time to perform swing trading is when the market demonstrates a strong trend such as a bull market and the market laying in between the two extremes are not considered to be suitable as when the market is strongly carried in one direction, the stock price tends to stay stable thus benefiting swing traders who ride on the wave.

For position trading, the total profit or loss for each company is shown in Figure 7.1.3. Amazon contributed the most of the profit, for above 40% of the total profit. Tesla was the biggest loss. In 2 weeks of trading, I lost over $7,000.
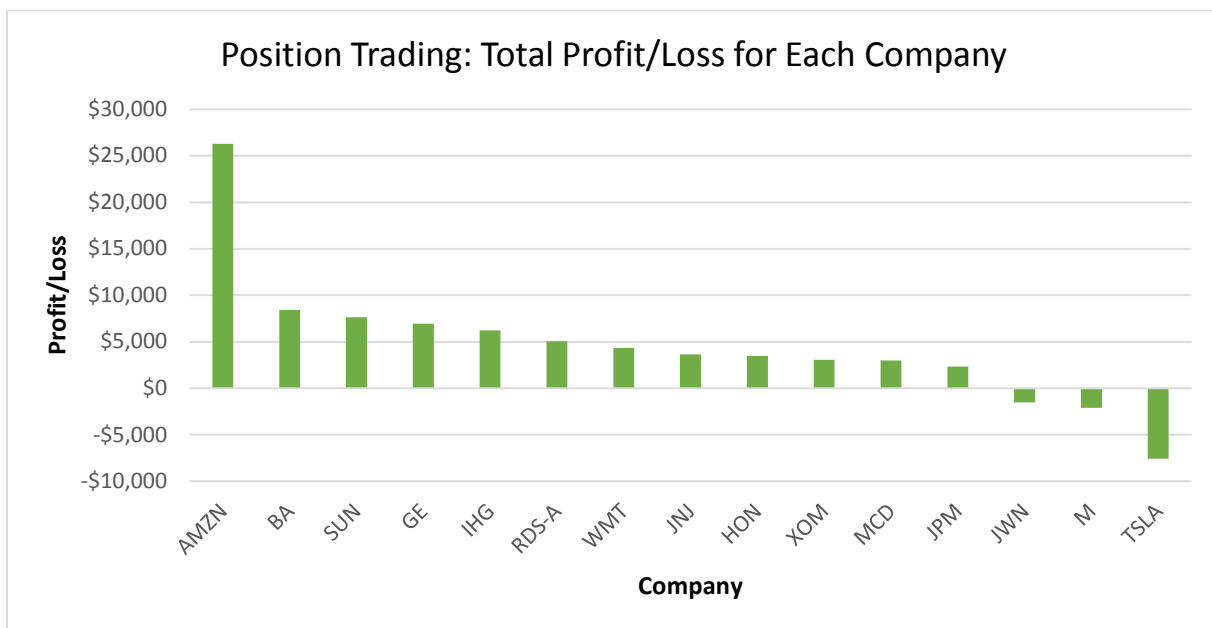
Figure 7.1.3. Position Trading: Total Profit/Loss for Each Company

From the figure, we can observe that the innovative companies could result in a lot of profit (like Amazon) or big loss (like Tesla). But on the other hand, the huge industrial companies' performances were more stable. So it might be more suitable to invest in an innovative company with swing trading method, and big industrial companies with position trading method.

Figure 7.1.4 shows the critical transactions I made with Amazon during the simulation. As a position trader, I hold the majority of a stock for a extended period of time with some adjustment along the way. From the graph we can see clearly I bought the stock at great timing, the stock price went up more than 30% when I sold them. Also, I exited the market at a great time when the general market started to decrease. As we can see from the figure, there is three major temporary loss, the stock price went down sharply for almost 5% and rebound afterward. This shows a great characteristic of position trading: the loss could cancel out in a relatively long period of time.

Figure 7.1.4. Amazon Performance for 6 month showing significant transactions

7.2   Total Profit vs. Time Comparison

In order to compare the results of the three trading methods, we generalized the performance in terms of the profit over time to the general market performance using S&P500 Index. Figure 7.2.1 shows the overlay of our profit over time and S&P500 Index in the same simulation trading period.
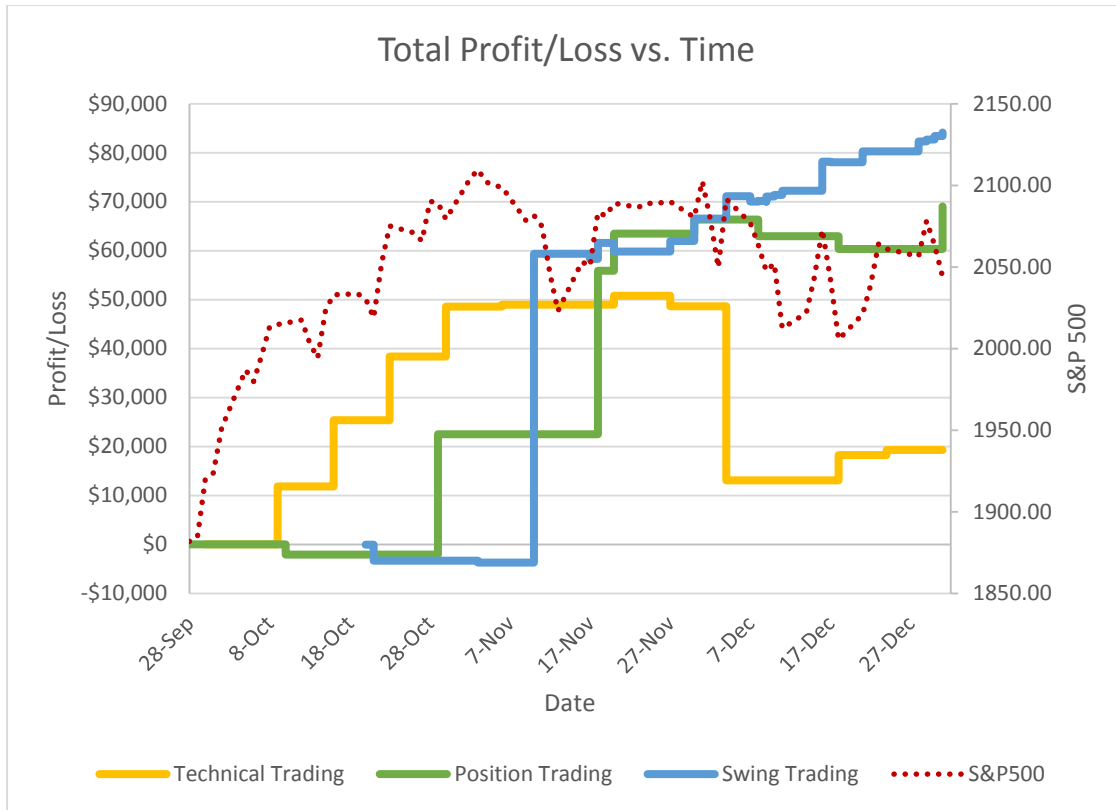
Figure 7.2.1. Total Profit or Loss vs. Time

To begin our analysis of the total profit, we can assess the individual performance from the graph. Swing trading gained the most profit among three trading methods, yielding a net total profit of $84,168. Position trading gained $69,083 as total profit. Technical trading netted $19,311 in profit.

Compared with the general market benchmark, S&P500 Index, we can observe that technical trading followed its general trends because the trading occurred more frequently and each trading period had different selected company than the previous period companies. This allowed less variance because more companies used would be more representative of the market as a whole. Investing in fewer stocks would be more likely to result in deviation from the general market's trends.

From the beginning of the simulation to the end of the October, there was a consistent uptrend, and it is reflected by our profit curves in the same time interval. Another critical point to take note is at the start of November; there was a trend change in the general market and our profit curves also changed as well. Another interesting period is the start of December to the middle. The general market appeared to drop, and two of the trading method, position and technical, followed suit, but surprisingly, swing trading kept increasing during that period of simulation. The reason behind it might be that the swing trading is more flexible than position trading but less reliant on indicators than technical trading. Other reasons may lie in lucky companies' selection.

For swing trading, the market started off as an up-trend, and when the market started to show signs of a trend change around the start of November, the trader decided that it was the time to sell his stocks. In retrospect, he made a good decision because the market had continued to drop and the general trend became a down trend. In fact, he sold near the peak of the trading period, which is reflected in his profit because there is a significant gain in the first period during the up-trend.

For position trading, we can observe that the trading intervals is longer than other two method, which is representative of position trading method. We can observe that the position trading slope doesn't follow the market's performance as the market goes up or moderately down since position trading intended to holding the stock for a relatively longer time than other methods. But it follows the market when the market goes down sharply, like mid-December, since the trader sold some of the stock to prevent from losing more money.

For technical trading, the trading happens at a regular interval weekly. In the first period of the uptrend during the first few weeks, the profit is rather consistent which is reflect in the

general market which increased at a relatively stable slope. However, when the market shows uncertainty, the profit curve shows more unstable behaviors. The trade near December 7th, in particular, was a bad decision although the indicators were showing otherwise. It can be observed that almost 4/5 of the profit was lost in that trade. The general market did not seem to change too much in that period, but the stocks that were bought had a significant price drop.

The total change in percentage for each trading method and the performance of the market are shown in Table 7.2.1. From the table below, we can conclude that all three trading methods were profitable, but only the technical trading method did not manage to exceed the general market's performance. This suggests that investment in the stock market could result in a big deviation.

Table 7.2.1. Net Change % for Each Trading Method and Benchmark

Trading Method	Position	Technical	Swing	S&P500 Index
Net Change %	13.82%	3.86%	16.83%	8.62%

8.   Conclusion

The team based the IQP on a 14-week U.S. stock market simulation that ran over A, B, and C terms of 2015-16 school year.

From the project, the team gained experience with the means to understand and interpret the behavior of the stock market. By experimenting with position, swing, and technical trading, the team acquired the basic skills to analyze stocks using a variety of different tools and techniques. During the project, the team member did research on the companies along the way, being aware of the news of the company, and conducted a fundamental analysis of the correlation between the general media and the performance of the company and effects on the stock prices.

Overall, the team was satisfied with the result of their trades. In the end, all three members made a profit. In the period of trading, the general market had an 8.62% increment, which implies that this was a great period for trading. The majority of the team even beat general market's performance.

To sum up, this Interdisciplinary Qualification Project was a very rewarding experience. What we have learned from this project is very valuable and could be extremely beneficial to our financial application in the future. This project equipped us with the basic techniques and knowledge to build a foundation if we wish to pursue stock market investment in the real world.

Reference

[1] A. Beattie, "The Birth Of Stock Exchanges," 2007. [Online]. Available: http://www.investopedia.com/articles/07/stock-exchange-history.asp.

[2] "Market Price Definition | Investopedia," 2007. [Online]. Available: http://www.investopedia.com/terms/m/market-price.asp.

[3] "The basics: stock fundamentals - buying and selling stocks, and other descriptions," 2015. [Online].

[4] "Stocks Basics: What Causes Stock Prices To Change?," 2003. [Online]. Available: http://www.investopedia.com/university/stocks/stocks4.asp.

[5] B. Baden, "5 Factors That Drive Stock Prices," 2011. [Online]. Available: http://money.usnews.com/money/personal-finance/mutual-funds/articles/2011/07/14/5-factors-that-drive-stock-prices.

[6] "Factors that can affect stock prices," 2015. [Online]. Available: http://www.getsmarteraboutmoney.ca/en/managing-your-money/investing/stocks/Pages/Factors-that-can-affect-stock-prices.aspx#.Vex58fnBzGc.

[7] "Dow Jones Industrial Average Fact Sheet," 4 September 2015. [Online]. Available: http://www.djindexes.com/mdsidx/downloads/fact_info/Dow_Jones_Industrial_Average_Fact_Sheet.pdf.

[8] "Components NASDAQ Composite," 2015. [Online]. Available: https://finance.yahoo.com/q/cp?s=%5EIXIC+Components.

[9] "S&P 500," 2015. [Online]. Available: file:///C:/Users/zwang5/Downloads/fs-sp-500.pdf.

[10] I. Staff, "Stocks Basics: How to Read A Stock Table/Quote | Investopedia," [Online]. Available: http://www.investopedia.com/university/stocks/stocks6.asp.

[11] "Investopedia," 2015. [Online]. Available: http://www.investopedia.com/terms/m/macd.asp.

[12] C. Murphy, "Moving Averages: Strategies | Investopedia," 2006. [Online]. Available: http://www.investopedia.com/university/movingaverage/movingaverages4.asp.

[13] C. Janssen, C. Langager and C. Murphy, "Technical Analysis: The Importance of Volume | Investopedia," 2 September 2015. [Online]. Available: http://www.investopedia.com/university/technical/techanalysis5.asp.

[14] S. B. Achelis, "Technical Analysis from A to Z," 2015. [Online]. Available: http://www.metastock.com/Customer/Resources/TAAZ/?p=36.

[15] M. Ranganatham and R. Madhumathi, Investment Analysis and Portfolio Management, Pearson India, 2005.

[16] J. V. Bergen, "Introduction to Types of Trading: Technical Traders," 20 September 2015. [Online]. Available: http://www.investopedia.com/articles/trading/02/091802.asp.

[17] "Swing Trading," 13 9 2015. [Online]. Available: http://www.investopedia.com/terms/s/swingtrading.asp.

[18] J. V. Bergen, "Introduction To Swing Trading," 13 9 2015. [Online]. Available: http://www.investopedia.com/articles/trading/02/101602.asp.

[19] "Trend Line Break," Stock Trading Infocentre, [Online]. Available: http://www.stock-

trading-infocentre.com/trend-line-break2.html.

[20] "Position Trader," 13 9 2015. [Online]. Available: http://www.investopedia.com/terms/p/positiontrader.asp.

[21] T. N. Bulkowski, Fundamental analysis and position trading: evolution of a trader, 2012.

[22] "Evaluating a Stock - Personal Finance - WSJ.com," 2015. [Online]. Available: http://guides.wsj.com/personal-finance/investing/how-to-evaluate-a-stock/.

[23] N/A, "Balance Sheet for Amazon," MorningStar, 01 09 2015. [Online]. Available: http://financials.morningstar.com/balance-sheet/bs.html?t=AMZN.

[24] "Stock Quotes & Company News | Reuters.com," 20 September 2015. [Online]. Available: http://www.reuters.com/finance/stocks.

[25] "AAPL - Apple Company Profile - CNNMoney.com," 2015. [Online]. Available: http://money.cnn.com/quote/profile/profile.html?symb=AAPL.

[26] A. Fitzpatrick and J. Linshi, "Apple Is Now Worth Over $700 Billion," 2015. [Online]. Available: http://time.com/3704014/apple-700-billion/.

[27] "PSX - Phillips 66 Company Profile - CNNMoney.com," 2015. [Online]. Available: http://money.cnn.com/quote/profile/profile.html?symb=PSX.

[28] "Company Profile | About Chevron | Chevron," 2015. [Online]. Available: http://www.chevron.com/about/leadership/.

[29] "Chicago Bridge & Iron Company N.V.: NYSE:CBI quotes & news - Google Finance," 2015. [Online]. Available: https://www.google.com/finance?cid=660375.

[30] "CBI Profile | Chicago Bridge & Iron Company N Stock - Yahoo! Finance," 2015. [Online]. Available: http://finance.yahoo.com/q/pr?s=CBI+Profile.

[31] R. C. Fuhrmann, "Why does after-hours trading (AHT) exist?," 2014. [Online]. Available: http://www.investopedia.com/ask/answers/081314/why-does-afterhours-trading-aht-exist.asp#ixzz3msU1D800. [Accessed 28 September 2015].

[32] M. Yglesias, "How China is playing Boeing against Airbus to build its own airplane industry," 2015. [Online]. Available: http://www.vox.com/2015/9/24/9389767/boeing-china-deal. [Accessed 28 September 2015].

[33] T. Owusu, "Chevron (CVX) Stock Reverses Some Gains in After-Hours Trading," 2015. [Online]. Available: http://www.thestreet.com/story/13311144/1/chevron-cvx-stock-reverses-some-gains-in-after-hours-trading.html?puc=yahoo&cm_ven=YAHOO. [Accessed 4 October 2015].

[34] P. Seitz, "Apple Music growth a wake-up call for Spotify," 2015. [Online]. Available: http://news.investors.com/102015-776439-apple-music-reports-initial-paying-subscribers.htm?ven=yahoocp&src=aurlled&ven=yahoo. [Accessed 20 October 2015].

[35] G. Kristopher, "Slowing US Crude Oil Output Could Impact US Refiners - Market Realist," 23 10 2015. [Online]. Available: http://marketrealist.com/2015/10/slowing-us-crude-oil-output-impact-us-refiners/?utm_source=yahoo&utm_medium=feed&utm_content=graph-1&utm_campaign=slowing-us-crude-oil-output-impact-us-refiners#754335.

[36] K. Huguet, "Apple - Press Info - Apple Reports Record Fourth Quarter Results," 27 10 2015. [Online]. Available: http://www.apple.com/pr/library/2015/10/27Apple-Reports-Record-Fourth-Quarter-Results.html.

[37] P. Thomas, "Why Did GoPro Perform below the Estimates for 3Q15?," 30 10 2015. [Online]. Available: http://finance.yahoo.com/news/why-did-gopro-perform-below-104351281.html.

[38] "IMPORTANT SHAREHOLDER ALERT: Lundin Law PC Announces an Investigation of Aixtron SE and Urges Investors to Contact the Firm," 11 December 015. [Online]. Available: http://www.businesswire.com/news/home/20151211005798/en/.

[39] "U.S. Stock Market Weekly Wrap-Ups," 23 Oct 2015. [Online]. Available: http://individual.troweprice.com/public/Retail/Planning-&-Research/T.-Rowe-Price-Insights/Market-Analysis/Weekly-Wrap-Ups.

[40] A. Levnson, "Weekly summary and commentary on U.S. stock market performance - T. Rowe Price," 2015. [Online]. Available: http://individual.troweprice.com/public/Retail/Planning-&-Research/T.-Rowe-Price-Insights/Market-Analysis/Weekly-Wrap-Ups.

[41] "The Pre-Holiday Effect [ChartSchool]," 2015. [Online]. Available: http://stockcharts.com/school/doku.php?id=chart_school:trading_strategies:the_pre-holiday_effect.

[42] "Crude Oil and Commodity Price," 2015. [Online]. Available: http://www.oil-price.net/.

[43] V. J. Racanelli, "2015 Stock Market in Review," 2015. [Online]. Available: http://www.barrons.com/articles/2015-stock-market-in-review-1450511098.

[44] "DOW Jones Average," 2015. [Online]. Available: https://www.djaverages.com/?go=about-overview.

[45] "Day Trading Strategies For Beginners," 2006. [Online]. Available: http://www.investopedia.com/articles/trading/06/daytradingretail.asp?performancelayout=true.

[46] L. A. Gomez Steve, "Change is the only constant," in *The StockTwits Edge: 40 Actionable Trade Set-Ups from Real Market Pros*, Wiley Trading, 2011, p. 65.

[47] "SEC.gov | Day Trading," 13 9 2015. [Online]. Available: http://www.sec.gov/answers/daytrading.htm.

[48] D. Peters-Wright, "Top 5 Popular Trading Strategies," 29 5 2013. [Online]. Available: http://www.tradingmarkets.com/featured_contributors/top-5-popular-trading-strategies-1584260.html/2.

[49] J. V. Bergen, "Introduction To Momentum Trading," 13 9 2015. [Online]. Available: http://www.investopedia.com/articles/trading/02/090302.asp.

[50] J. Kell, "The 10 Most Profitable Companies in the Fortune 500," June 2015. [Online]. Available: http://fortune.com/2015/06/11/fortune-500-most-profitable-companies/.

[51] "AMZN Profile | Amazon.com, Inc. Stock - Yahoo! Finance," 2015. [Online]. Available: http://finance.yahoo.com/q/pr?s=AMZN+Profile.

[52] "About Us | JPMorgan Chase & Co.," 2015. [Online]. Available: http://www.jpmorganchase.com/corporate/About-JPMC/about-us.htm.

[53] "Big Spring Refinery-Community Relations," 2015. [Online]. Available: http://www.alonpartners.com/.

[54] "XOM Profile | Exxon Mobil Corporation Common Stock - Yahoo! Finance," 2015. [Online]. Available: https://finance.yahoo.com/q/pr?s=XOM+Profile.

[55] "Boeing: Our Company," 2015. [Online]. Available: http://www.boeing.com/company/.

[56] I. Authors, "4 Ways To Predict Market Performance," 2007. [Online]. Available: http://www.investopedia.com/articles/07/mean_reversion_martingale.asp.

Appendix

Table A-1. Complete Transaction Sheet for Yu-sen Wu

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
9/23/2015							500000	
9/25/2015	AMZN	Buy	524.25	100	$52,432		$447,568	$0
9/30/2015	AAPL	Buy	111.10	100	$11,117		$436,451	$0
9/30/2015	OPGN	Buy	2.78	5000	$13,907		$422,544	$0
9/30/2015	BAC	Buy	15.46	350	$5,418		$417,126	$0
9/30/2015	C	Buy	48.53	200	$9,713		$407,413	$0
10/9/2015	TSLA	Buy	220.69	1000	$220,697		$186,716	$0
10/16/2015	OPGN	Sell	2.76	5000	$13,793	-$114	$200,509	-$114
10/16/2015	C	Sell	52.69	200	$10,531	$818	$211,040	$704
10/16/2015	TSLA	Sell	227.01	1000	$227,003	$6,306	$438,043	$7,010
10/16/2015	AMZN	Sell	570.73	100	$57,066	$4,634	$495,109	$11,644
10/16/2015	AAPL	Sell	111.04	100	$11,097	-$20	$506,206	$11,624
10/16/2015	BAC	Sell	16.12	350	$5,635	$217	$511,841	$11,841
10/16/2015	ACE	Buy	108.95	1000	$108,957		$402,884	$11,841
10/16/2015	PKY	Buy	16.97	5000	$84,857		$318,027	$11,841
10/16/2015	RTN	Buy	111.30	900	$100,177		$217,850	$11,841
10/16/2015	CSC	Buy	64.32	1700	$109,351		$108,499	$11,841
10/16/2015	TRC	Buy	23.87	4000	$95,487		$13,012	$11,841
10/23/2015	ACE	Sell	114.83	1000	$114,823	$5,866	$127,835	$17,707
10/23/2015	PKY	Sell	17.09	5000	$85,443	$586	$213,278	$18,293
10/23/2015	RTN	Sell	117.77	900	$105,986	$5,809	$319,264	$24,102
10/23/2015	CSC	Sell	66.31	1700	$112,720	$3,369	$431,984	$27,471
10/23/2015	TRC	Sell	23.35	4000	$93,393	-$2,094	$525,377	$25,377
10/23/2015	ASR	Buy	158.01	600	$94,813		$430,564	$25,377
10/23/2015	JTA	Buy	12.20	7500	$91,507		$339,057	$25,377
10/23/2015	SMP	Buy	38.86	2500	$97,157		$241,900	$25,377
10/23/2015	STI	Buy	41.75	2500	$104,382		$137,518	$25,377
10/23/2015	ESD	Buy	14.37	7000	$100,597		$36,921	$25,377
10/30/2015	ASR	Sell	154.74	600	$92,837	-$1,976	$129,758	$23,401
10/30/2015	JTA	Sell	12.17	7500	$91,268	-$239	$221,026	$23,162
10/30/2015	SMP	Sell	44.25	2500	$110,618	$13,461	$331,644	$36,623
10/30/2015	STI	Sell	41.52	2500	$103,793	-$589	$435,437	$36,034
10/30/2015	ESD	Sell	14.71	7000	$102,963	$2,366	$538,400	$38,400
10/30/2015	EVR	Buy	54.00	2000	$108,007		$430,393	$38,400
10/30/2015	DGX	Buy	67.95	1500	$101,932		$328,461	$38,400

10/30/2015	MCY	Buy	54.01	2000	$108,027		$220,434	$38,400
10/30/2015	CST	Buy	35.93	3000	$107,797		$112,637	$38,400
10/30/2015	TEI	Buy	10.26	7000	$71,827		$40,810	$38,400
11/6/2015	EVR	Sell	59.04	2000	$118,073	$10,066	$158,883	$48,466
11/6/2015	DGX	Sell	68.20	1500	$102,293	$361	$261,176	$48,827
11/6/2015	MCY	Sell	52.17	2000	$104,333	-$3,694	$365,509	$45,133
11/6/2015	CST	Sell	37.23	3000	$111,683	$3,886	$477,192	$49,019
11/6/2015	TEI	Sell	10.20	7000	$71,393	-$434	$548,585	$48,585
11/6/2015	E	Buy	32.38	3500	$113,337		$435,248	$48,585
11/6/2015	HSY	Buy	86.16	1100	$94,783		$340,465	$48,585
11/6/2015	MDC	Buy	25.51	4000	$102,047		$238,418	$48,585
11/6/2015	RIO	Buy	34.72	3000	$104,167		$134,251	$48,585
11/6/2015	UTL	Buy	34.83	3000	$104,497		$29,754	$48,585
11/20/2015	E	Sell	$31.28	3500	$109,473	-$3,864	$139,227	$44,721
11/20/2015	HSY	Sell	$84.59	1100	$93,042	-$1,741	$232,269	$42,980
11/20/2015	MDC	Sell	$26.47	4000	$105,873	$3,826	$338,142	$46,806
11/20/2015	RIO	Sell	$34.68	3000	$104,033	-$134	$442,175	$46,672
11/20/2015	UTL	Sell	$35.61	3000	$106,823	$2,326	$548,998	$48,998
11/20/2015	BFS	Buy	$54.85	1000	$54,857		$494,141	$48,998
11/20/2015	BR	Buy	$55.85	850	$47,480		$446,662	$48,998
11/20/2015	CNL	Buy	$49.40	900	$44,467		$402,195	$48,998
11/20/2015	D	Buy	$69.00	800	$55,207		$346,988	$48,998
11/20/2015	GPI	Buy	$81.54	600	$48,931		$298,057	$48,998
11/20/2015	KF	Buy	$36.55	1300	$47,522		$250,535	$48,998
11/20/2015	PGR	Buy	$31.58	1500	$47,377		$203,158	$48,998
11/20/2015	PNK	Buy	$32.91	1600	$52,663		$150,495	$48,998
11/20/2015	MO	Buy	$57.13	900	$51,424		$99,071	$48,998
11/20/2015	SFE	Buy	$16.25	3010	$48,920		$50,151	$48,998
11/25/2015	CNL	Sell	$50.26	900	$45,227	$760	$95,378	$49,758
11/26/2015	GPI	Sell	$82.89	600	$49,727	$796	$145,105	$50,554
11/26/2015	PNK	Sell	$33.28	1600	$53,241	$578	$198,346	$51,132
11/27/2015	BFS	Sell	$55.76	1000	$55,753	$896	$254,099	$52,028
11/27/2015	BR	Sell	$55.10	850	$46,828	-$652	$300,927	$51,377
11/27/2015	D	Sell	$67.37	800	$53,889	-$1,318	$354,816	$50,059
11/27/2015	KF	Sell	$37.10	1300	$48,223	$701	$403,039	$50,760
11/27/2015	PGR	Sell	$31.12	1500	$46,673	-$704	$449,712	$50,056
11/27/2015	MO	Sell	$57.75	900	$51,968	$544	$501,680	$50,600
11/27/2015	SFE	Sell	$16.32	3010	$49,116	$197	$550,796	$50,796
11/27/2015	AIZ	Buy	$84.90	700	$59,437		$491,359	$50,796
11/27/2015	BWXT	Buy	$30.15	1700	$51,262		$440,097	$50,796
11/27/2015	CUZ	Buy	$9.65	5000	$48,257		$391,840	$50,796

11/27/2015	FFG	Buy	$68.34	900	$61,513		$330,327	$50,796
11/27/2015	PGEM	Buy	$13.32	4500	$59,947		$270,380	$50,796
11/27/2015	PSF	Buy	$24.95	2500	$62,382		$207,998	$50,796
11/27/2015	TAP	Buy	$93.31	560	$52,261		$155,738	$50,796
11/27/2015	TOWR	Buy	$30.46	1800	$54,835		$100,903	$50,796
11/27/2015	WR	Buy	$42.42	1500	$63,637		$37,266	$50,796
12/4/2015	AIZ	Sell	$86.56	700	$60,585	$1,148	$97,851	$51,944
12/4/2015	BWXT	Sell	$31.21	1700	$53,050	$1,788	$150,901	$53,732
12/4/2015	CUZ	Sell	$9.31	5000	$46,543	-$1,714	$197,444	$52,018
12/4/2015	FFG	Sell	$68.12	900	$61,301	-$212	$258,745	$51,806
12/4/2015	PGEM	Sell	$12.76	4500	$57,413	-$2,534	$316,158	$49,272
12/4/2015	PSF	Sell	$24.85	2500	$62,118	-$264	$378,276	$49,008
12/4/2015	TAP	Sell	$95.14	560	$53,271	$1,011	$431,547	$50,019
12/4/2015	TOWR	Sell	$30.00	1800	$53,993	-$842	$485,540	$49,177
12/4/2015	WR	Sell	$42.08	1500	$63,113	-$524	$548,653	$48,653
12/4/2015	KAI	Buy	$42.45	1500	$63,682		$484,971	$48,653
12/4/2015	LOW	Buy	$76.74	800	$61,399		$423,572	$48,653
12/4/2015	MKL	Buy	$917.66	70	$64,243		$359,329	$48,653
12/4/2015	MSA	Buy	$45.75	1400	$64,057		$295,272	$48,653
12/4/2015	TEVA	Buy	$65.72	900	$59,155		$236,117	$48,653
12/4/2015	TPH	Buy	$13.74	4000	$54,967		$181,150	$48,653
12/4/2015	TSS	Buy	$56.23	1000	$56,237		$124,913	$48,653
12/4/2015	UHT	Buy	$50.91	1000	$50,917		$73,996	$48,653
12/4/2015	WGO	Buy	$22.09	2500	$55,232		$18,764	$48,653
12/18/2015	KAI	Sell	$39.75	1500	$59,618	-$4,064	$78,382	$44,589
12/18/2015	LOW	Sell	$73.89	800	$59,105	-$2,294	$137,487	$42,295
12/18/2015	MKL	Sell	$862.35	70	$60,358	-$3,886	$197,844	$38,409
12/18/2015	MSA	Sell	$42.12	1400	$58,961	-$5,096	$256,805	$33,313
12/18/2015	TEVA	Sell	$65.26	900	$58,727	-$428	$315,532	$32,885
12/18/2015	TPH	Sell	$12.50	4000	$49,993	-$4,974	$365,525	$27,911
12/18/2015	TSS	Sell	$51.01	1000	$51,003	-$5,234	$416,528	$22,677
12/18/2015	UHT	Sell	$49.15	1000	$49,143	-$1,774	$465,671	$20,903
12/18/2015	WGO	Sell	$18.97	2500	$47,418	-$7,814	$513,089	$13,089
12/18/2015	BMY	Buy	$67.70	900	$60,937		$452,152	$13,089
12/18/2015	CI	Buy	$143.95	400	$57,587		$394,565	$13,089
12/18/2015	CLX	Buy	$127.05	450	$57,180		$337,386	$13,089
12/18/2015	CST	Buy	$38.58	1500	$57,877		$279,509	$13,089
12/18/2015	DBL	Buy	$25.54	2100	$53,641		$225,868	$13,089
12/18/2015	GDDY	Buy	$34.13	1700	$58,028		$167,840	$13,089
12/18/2015	LLY	Buy	$84.77	700	$59,346		$108,494	$13,089
12/18/2015	NSP	Buy	$46.43	1200	$55,723		$52,771	$13,089

12/24/2015	BMY	Sell	$68.97	900	$62,066	$1,129	$114,837	$14,218
12/24/2015	CI	Sell	$146.46	400	$58,577	$990	$173,414	$15,208
12/24/2015	CLX	Sell	$127.86	450	$57,530	$351	$230,944	$15,559
12/24/2015	CST	Sell	$39.67	1500	$59,498	$1,621	$290,442	$17,180
12/24/2015	DBL	Sell	$25.10	2100	$52,703	-$938	$343,145	$16,242
12/24/2015	GDDY	Sell	$33.98	1700	$57,759	-$269	$400,904	$15,973
12/24/2015	LLY	Sell	$85.85	700	$60,088	$742	$460,992	$16,715
12/24/2015	NSP	Sell	$47.75	1200	$57,293	$1,570	$518,285	$18,285
12/24/2015	AGM	Buy	$32.34	1600	$51,751		$466,534	$18,285
12/24/2015	CPAC	Buy	$7.05	7500	$52,882		$413,652	$18,285
12/24/2015	CRI	Buy	$89.65	600	$53,797		$359,855	$18,285
12/24/2015	CST	Buy	$39.67	1300	$51,578		$308,277	$18,285
12/24/2015	ENZ	Buy	$4.69	11000	$51,597		$256,680	$18,285
12/24/2015	EQS	Buy	$1.67	30000	$50,107		$206,573	$18,285
12/24/2015	LCI	Buy	$40.67	1300	$52,878		$153,695	$18,285
12/24/2015	PSA	Buy	$248.25	200	$49,657		$104,038	$18,285
12/24/2015	TRP	Buy	$33.75	1500	$50,632		$53,406	$18,285
12/31/2015	AGM	Sell	$31.57	1600	$50,505	-$1,246	$103,911	$17,039
12/31/2015	CPAC	Sell	$7.65	7500	$57,368	$4,486	$161,279	$21,525
12/31/2015	CRI	Sell	$89.03	600	$53,411	-$386	$214,690	$21,139
12/31/2015	CST	Sell	$39.14	1300	$50,875	-$703	$265,565	$20,436
12/31/2015	ENZ	Sell	$4.50	11000	$49,493	-$2,104	$315,058	$18,332
12/31/2015	EQS	Sell	$1.79	30000	$53,693	$3,586	$368,751	$21,918
12/31/2015	LCI	Sell	$40.12	1300	$52,149	-$729	$420,900	$21,189
12/31/2015	PSA	Sell	$247.70	200	$49,533	-$124	$470,433	$21,065
12/31/2015	TRP	Sell	$32.59	1500	$48,878	-$1,754	$519,311	$19,311

Table A-2. Complete Transaction Sheet for Yulun He

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
9/23/2015							$500,000	
9/23/2015	AAPL	Buy	$114.54	500	$57,277		$442,723	
9/23/2015	ALDW	Buy	$24.68	2030	$50,107		$392,616	
9/23/2015	AMZN	Buy	$536.40	50	$26,827		$365,789	
9/23/2015	BIDU	Buy	$132.46	350	$46,368		$319,421	
9/23/2015	CBI	Buy	$41.01	1200	$49,219		$270,202	
9/23/2015	CVX	Buy	$76.05	800	$60,847		$209,355	
9/23/2015	JPM	Buy	$60.57	820	$49,674		$159,681	
9/23/2015	PSX	Buy	$77.90	640	$49,863		$109,818	
9/23/2015	XOM	Buy	$72.51	850	$61,641		$48,177	
10/20/2015	CBI	Sell	$40.97	1200	$49,157	-$62	$97,334	-$62
10/21/2015	ALDW	Sell	$23.09	2030	$46,866	-$3,241	$144,200	-$3,303
10/28/2015	AAPL	Buy	$119.27	100	$11,934		$132,266	
10/28/2015	KO	Buy	$42.73	1,000	$42,737		$89,529	
11/3/2015	KO	Sell	$42.36	1000	$42,353	-$384	$131,882	-$3,687
11/3/2015	ROBO	Buy	$24.36	2000	$48,727		$83,155	-$3,687
11/10/2015	AAPL	Sell	$117.83	100	$11,776	-$158	$94,931	-$3,845
11/10/2015	AAPL	Sell	$117.83	500	$58,908	$1,631	$153,839	-$2,214
11/10/2015	AMZN	Sell	$658.14	50	$32,900	$6,073	$186,739	$3,859
11/10/2015	BIDU	Sell	$192.42	350	$67,340	$20,972	$254,079	$24,831
11/10/2015	CVX	Sell	$92.23	800	$73,777	$12,930	$327,856	$37,761
11/10/2015	JPM	Sell	$67.40	820	$55,261	$5,587	$383,117	$43,348
11/10/2015	PSX	Sell	$91.16	640	$58,335	$8,472	$441,452	$51,820
11/10/2015	ROBO	Sell	$24.11	2000	$48,213	-$514	$489,665	$51,306
11/10/2015	XOM	Sell	$82.00	850	$69,693	$8,052	$559,358	$59,358
11/11/2015	AIXG	Buy	$6.74	5000	$33,707		$525,651	$59,358
11/11/2015	IHG	Buy	$40.01	400	$16,011		$509,640	$59,358
11/16/2015	FORD	Buy	$1.40	10000	$14,007		$495,633	$59,358
11/16/2015	AR	Buy	$24.52	1000	$24,527		$471,106	$59,358
11/17/2015	IHG	Sell	$37.47	400	$14,981	-$1,030	$486,087	$58,328
11/17/2015	YOKU	Buy	$26.51	5000	$132,557		$353,530	$58,328
11/18/2015	SPWR	Buy	$22.88	5000	$114,407		$239,123	$58,328
11/18/2015	AAPL	Buy	$116.86	200	$23,379		$215,744	$58,328
11/18/2015	AMZN	Buy	$653.58	200	$130,723		$85,021	$58,328

Date	Symbol	Action	Price	Qty	Amount	P/L	Col1	Col2
11/18/2015	SPWR	Sell	$23.66	5000	$118,293	$3,886	$203,314	$62,214
11/18/2015	FORD	Sell	$1.34	10000	$13,393	-$614	$216,707	$61,600
11/20/2015	AR	Sell	$22.77	1000	$22,763	-$1,764	$239,470	$59,836
11/23/2015	FSLR	Buy	$53.83	200	$10,773		$228,697	$59,836
11/24/2015	BBY	Buy	$30.29	600	$18,181		$210,516	$59,836
11/24/2015	WMT	Buy	$60.08	250	$15,027		$195,489	$59,836
11/25/2015	NFLX	Buy	$122.53	200	$24,513		$170,976	$59,836
11/27/2015	BBY	Sell	$31.55	600	$18,923	$742	$189,899	$60,578
11/27/2015	AAPL	Sell	$117.98	200	$23,589	$210	$213,488	$60,788
11/27/2015	YOKU	Sell	$26.76	5000	$133,793	$1,236	$347,281	$62,024
11/30/2015	AMZN	Sell	$676.35	200	$135,263	$4,540	$482,544	$66,564
12/1/2015	NFLX	Buy	$125.10	1800	$225,187		$257,357	$66,564
12/1/2015	FSLR	Buy	$57.72	300	$17,323		$240,034	$66,564
12/2/2015	FORD	Buy	$1.51	5000	$7,557		$232,477	$66,564
12/3/2015	ATVI	Buy	$38.17	800	$30,543		$201,934	$66,564
12/4/2015	KR	Buy	$40.24	1000	$40,247		$161,687	$66,564
12/4/2015	AIXG	Sell	$7.66	5,000	$38,293	$4,586	$199,980	$71,150
12/7/2015	NFLX	Sell	$124.29	2000	$248,573	-$1,127	$448,553	$70,023
12/8/2015	FSLR	Sell	$58.34	300	$17,495	$172	$466,048	$70,195
12/9/2015	WMT	Sell	$59.47	250	$14,861	-$167	$480,909	$70,029
12/9/2015	KR	Sell	$41.30	1000	$41,293	$1,046	$522,202	$71,075
12/10/2015	BOCH	Buy	$7.07	1000	$7,077		$515,125	$71,075
12/10/2015	ATVI	Sell	$38.61	800	$30,881	$338	$546,006	$71,413
12/10/2015	YUME	Buy	$3.14	100000	$314,007		$231,999	$71,413
12/11/2015	FORD	Sell	$1.68	5000	$8,393	$836	$240,392	$72,249
12/14/2015	SUNE	Buy	$4.18	2000	$8,367		$232,025	$72,249
12/15/2015	BAC	Buy	$17.27	800	$13,823		$218,202	$72,249
12/16/2015	YUME	Sell	$3.20	100000	$319,993	$5,986	$538,195	$78,235
12/16/2015	FNSR	Buy	$14.65	500	$7,332		$530,863	$78,235
12/17/2015	BOCH	Sell	$6.94	1000	$6,932	-$145	$537,794	$78,089
12/18/2015	AMAT	Buy	$18.45	500	$9,232		$528,562	$78,089
12/18/2015	KANG	Buy	$20.40	500	$10,207		$518,355	$78,089
12/21/2015	FSLR	Sell	$65.00	200	$12,993	$2,220	$531,348	$80,309
12/22/2015	GE	Buy	$30.50	500	$15,257		$516,091	$80,309
12/22/2015	WMT	Buy	$60.31	300	$18,100		$497,991	$80,309
12/23/2015	BAC	Sell	$17.31	800	$13,841	$18	$511,832	$80,327
12/23/2015	FSLR	Buy	$66.16	200	$13,239		$498,593	$80,327
12/23/2015	YUME	Buy	$3.34	1000	$3,347		$495,246	$80,327

12/24/2015	ATVI	Buy	$38.90	300	$11,677		$483,569	$80,327
12/28/2015	SUNE	Sell	$5.18	2000	$10,353	$1,986	$493,922	$82,313
12/29/2015	AMAT	Sell	$19.34	500	$9,663	$431	$503,585	$82,744
12/30/2015	GE	Sell	$31.19	500	$15,588	$331	$519,173	$83,075
12/30/2015	WMT	Sell	$61.65	300	$18,488	$388	$537,661	$83,463
12/31/2015	KANG	Sell	$22.02	500	$11,003	$796	$548,664	$84,259
12/31/2015	FNSR	Sell	$14.52	500	$7,253	-$79	$555,917	$84,180
12/31/2015	FSLR	Sell	$66.01	200	$13,195	-$44	$569,112	$84,136
12/31/2015	YUME	Sell	$3.43	1000	$3,423	$76	$572,535	$84,212
12/31/2015	ATVI	Sell	$38.80	300	$11,633	-$44	$584,168	$84,168

Table A-3. Complete Transaction Sheet for Zhijie Wang

Date	Symbol	Buy/Sell	Price	Shares	Net Cost/Proceeds	Profit/Loss	Total Cash	Total Profit
9/28/2015							$500,000	
9/28/2015	AMZN	Buy	$520.00	96	$49,927		$450,073	$0
9/28/2015	BA	Buy	$132.09	379	$50,069		$400,004	$0
9/28/2015	GE	Buy	$25.17	1,900	$47,830		$352,174	$0
9/28/2015	HON	Buy	$94.51	529	$50,003		$302,171	$0
9/28/2015	IHG	Buy	$34.93	1436	$50,166		$252,005	$0
9/28/2015	JNJ	Buy	$93.07	538	$50,079		$201,926	$0
9/28/2015	JPM	Buy	$60.69	825	$50,076		$151,850	$0
9/28/2015	MCD	Buy	$97.58	513	$50,066		$101,784	$0
9/28/2015	TSLA	Buy	$260.11	192	$49,948		$51,836	$0
9/28/2015	XOM	Buy	$72.75	687	$49,986		$1,850	$0
10/10/2015	TSLA	Sell	$220.69	192	$42,365	-$7,583	$44,215	-$7,583
10/10/2015	GE	Sell	$28.07	1900	$53,326	$5,496	$97,541	-$2,087
10/10/2015	BA	Buy	$139.70	337	$47,086		$50,455	-$2,087
10/10/2015	AMZN	Buy	$539.80	93	$50,208		$247	-$2,087
10/29/2015	XOM	Sell	$82.22	687	$56,478	$6,492	$56,725	$4,405
10/29/2015	BA	Sell	$147.10	716	$105,317	$8,162	$162,042	$12,567
10/29/2015	IHG	Sell	$39.27	1436	$56,385	$6,232	$218,426	$18,799
10/29/2015	JPM	Sell	$65.18	825	$53,767	$3,704	$272,193	$22,503
10/29/2015	AMZN	Buy	$626.55	131	$82,085		$190,108	$22,503
10/29/2015	MCD	Buy	$112.62	1262	$142,133		$47,974	$22,503
11/14/2015	AMZN	Sell	$642.25	320	$205,513	$23,293	$253,487	$45,796
11/14/2015	HON	Sell	$101.08	529	$53,464	$3,462	$306,952	$49,257
11/14/2015	JNJ	Sell	$99.88	538	$53,728	$3,650	$360,680	$52,907
11/14/2015	MCD	Sell	$109.97	1775	$195,190	$2,991	$555,870	$55,898
11/15/2015	M	Buy	$39.10	511	$19,987		$535,883	$55,898
11/15/2015	JWN	Buy	$53.96	365	$19,702		$516,180	$55,898
11/15/2015	WMT	Buy	$56.42	350	$19,754		$496,426	$55,898
11/15/2015	RDS-A	Buy	$48.34	413	$19,971		$476,455	$55,898
11/15/2015	SUN	Buy	$33.13	604	$20,018		$456,438	$55,898
11/15/2015	XOM	Buy	$78.10	255	$19,923		$436,515	$55,898
11/17/2015	SUN	Buy	$35.25	1418	$49,992		$386,524	$55,898
11/17/2015	WMT	Buy	$60.44	826	$49,930		$336,593	$55,898
11/18/2015	AMZN	Buy	$654.82	153	$100,194		$236,399	$55,898
11/18/2015	GE	Buy	$30.27	1652	$50,013		$186,386	$55,898
11/20/2015	SUN	Sell	$38.40	2022	$77,638	$7,629	$264,023	$63,527
11/23/2015	AMZN	Sell	$678.75	100	$67,868	$2,386	$331,891	$65,913
11/23/2015	RDS-A	Sell	$49.56	413	$20,461	$490	$352,353	$66,402
11/30/2015	AMZN	Buy	$673.37	150	$101,013		$251,340	$66,402
11/30/2015	XOM	Buy	$82.29	500	$41,152		$210,188	$66,402
11/30/2015	JPM	Buy	$66.96	500	$33,487		$176,701	$66,402
11/30/2015	BA	Buy	$146.39	700	$102,480		$74,221	$66,402

12/8/2015	XOM	Sell	$75.53	500	$37,758	-$3,394	$111,979	$63,008
12/9/2015	AMZN	Sell	$662.42	203	$134,464	-$1,254	$246,443	$61,755
12/9/2015	JPM	Sell	$64.23	500	$32,108	-$1,379	$278,551	$60,376
12/15/2015	AMZN	Buy	$663.53	150	$99,537		$179,015	$60,376
12/17/2015	WMT	Buy	$58.98	834	$49,196		$129,819	$60,376
12/17/2015	RDS-A	Buy	$43.51	2000	$87,027		$42,792	$60,376
12/18/2015	BA	Buy	$139.58	307	$42,858		-$66	$60,376
12/31/2015	AMZN	Sell	$675.89	150	$101,377	$1,840	$101,310	$62,216
12/31/2015	WMT	Sell	$61.30	2010	$123,206	$4,325	$224,516	$66,541
12/31/2015	RDS-A	Sell	$45.79	2000	$91,573	$4,546	$316,089	$71,087
12/31/2015	GE	Sell	$31.15	1652	$51,453	$1,440	$367,542	$72,527
12/31/2015	XOM	Sell	$77.95	255	$19,870	-$52	$387,412	$72,474
12/31/2015	BA	Sell	$144.59	1007	$145,595	$257	$533,007	$72,732
12/31/2015	M	Sell	$34.98	511	$17,868	-$2,119	$550,875	$70,612
12/31/2015	JWN	Sell	$49.81	365	$18,174	-$1,529	$569,049	$69,083