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Stock Market Simulation

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Stock Market Simulation

An Interactive Qualifying Project Report:

Submitted to the faculty

of the

Worcester Polytechnic Institute

in partial fulfillment of the requirements for

the Degree of Bachelor of Science

by

Sean Thulin

Date:

Thursday, August 09, 2007

Approved:

Professor Dalin Tang

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Abstract

Using tools and information available on the internet, as well as text from other tangible sources, a six-week stock-market simulation was conducted to investigate and observe different methods of investing money in stocks of well-selected companies. The experience gained from this project will be helpful for one to become a wiser investor in the future.

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Chapter 1: Introduction

This Interactive Qualifying Project (IQP) in the Stock Market has several goals. The first goal, and the most important one, is for me to learn the basics of the stock market. This includes researching the basics about stocks, how they are traded, and the risks involved with investing. Along with the background research, the second goal is for me to gain valuable experience by completing a six-week mock investment in several selected companies. In addition, the learning experience will be rounded out by researching on how industry and the stock market share a symbiotic relationship.

Achieving the first goal simply comes down to research. I use the internet as well as the library to find out the history behind stocks and how the stock market was formed. I will also learn how to spot trends and what global forces affect the market and drive stock prices up and down. The IQP is organized as follows: Chapter 1 states the objectives and my general plan. In Chapter 2, I discuss the history behind stocks and the market in great detail. This background information will help me in chapter 3, where I choose what companies I want to invest in, and how much. Since this is just a simulation, no money will be exchanged. However, I plan to run this as if I were really investing my own funds. Chapters 4 and 5 will comprise of my weekly logs about my investments as well as my results. I will determine if any profit was made or if I suffered a loss. Finally, chapter 6 will discuss my experience with this project and share my ideas as to what I might do differently in the future.

Chapter 2: Research about the Stock Market

In this chapter, I give a brief review of the basic concepts of stock and the stock market. I also cover how to start investing .

2.1 What is a Stock?

A stock is a certificate that indicates that you own a small percentage of a company. Companies issue stock to raise capital or to offset losses. In return for purchasing the stock, the stockholder gets the right to vote in how the company is run. When stock is issued, the control of that company is determined by the total amount of the stock. Thus the founder and high ranking members of the company try to hold on to at least 51% of the company so that no one else can control it. The person or group owning over 51% of the company is referred to as the principle share holder.

Another benefit of owning stock is known as dividends. When a company earns a profit, it pays each shareholder a percentage of that profit. Dividends are most commonly paid in the form of cash or in more stock. The downside to this is that often, the amount of money paid is subject to double taxation in many countries including the United States of America. However, if the company pays in stock, the shareholder only has to pay tax when the stock is sold and it is usually at a lower rate than standard income tax.

In the beginning, stocks used to be represented by a physical paper certificate. A person would have a certificate for each share he/she owned in a company. In today's information age, this is all done electronically and the shares are held onto at the different brokerage firms to make it easier.

There are two different kinds of stock: Common and Preferred. Common Stock is what the majority of stock is. I have gone over the benefits of a common stock in the last few paragraphs. They give you the right to ownership in a company and the right to vote as to how the company is run. Preferred Stock is higher priority than common stock. The dividends are paid to preferred stockholders first. However, Preferred Stock has a fixed dividend amount while Common Stock varies with the performance of the company.

When a price of a stock becomes very high, the company will usually split the stock. This simply involves issuing double the stock, but cutting the price is half. There is no immediate monetary benefit or loss from this. It is the same idea as trading in a ten-dollar bill for two five-dollar bills.

2.2 The Stock Market

Now that a stock has been explained, the stock market is where they exist and transfer ownership. The stock market started in 1792. At the time, the American Revolution was in full swing and the government needed a way to offset the massive debt they had. To do this, the government issued bonds. People would give the government money in return for a promise that they could get the money back later,

with interest. At this same time, the different banks were thought that they would raise money too by selling off parts of their companies to anyone who would buy it. These were the first “stocks” and soon the founding 24 men signed an agreement that started the New York Stock Exchange.

The industrial revolution brought with it a surge and soon everyone wanted to start trading. However, the NYSE was very selective of which company would be allowed to sell or trade stock, so many literally traded them on the curb outside on Wall Street. Today there are hundreds of stock exchanges besides the well known NYSE, American Stock Exchange, and the NASDAQ.

2.3 How to Invest

While trading stocks sounds very simple, it is usually a bit more complicated. Only brokers are allowed to trade stocks, and they usually charge a fee. These fees can usually cost more than the actual share is worth. In the past, the trading was done face to face between a few people, but today’s trend is to get everyone into the market. The internet has turned even the most remedial and lazy person into a power trader by cutting costs and performing all the actions electronically. This has its drawbacks as you have to do the research yourself and you incur any loss as well as fees.

Other people have brokers to help them pick the right stocks to invest in. This is usually for people that are investing a lot more money or doing a long term investment as the fees generally cost more. However, you don’t have to do as much

work because you are paying someone to research for you. For the purposes of this simulation, we will not be using brokerage recommendations but rather researching things on their own.

2.4 How to read a performance history chart

The future of a stock can often be predicted from its history. Analysts often use recent and long term performance history of a company to determine trends and weather to buy, sell, or hold. Below is a graph of a sample company to illustrate some of the features of looking at a performance history.

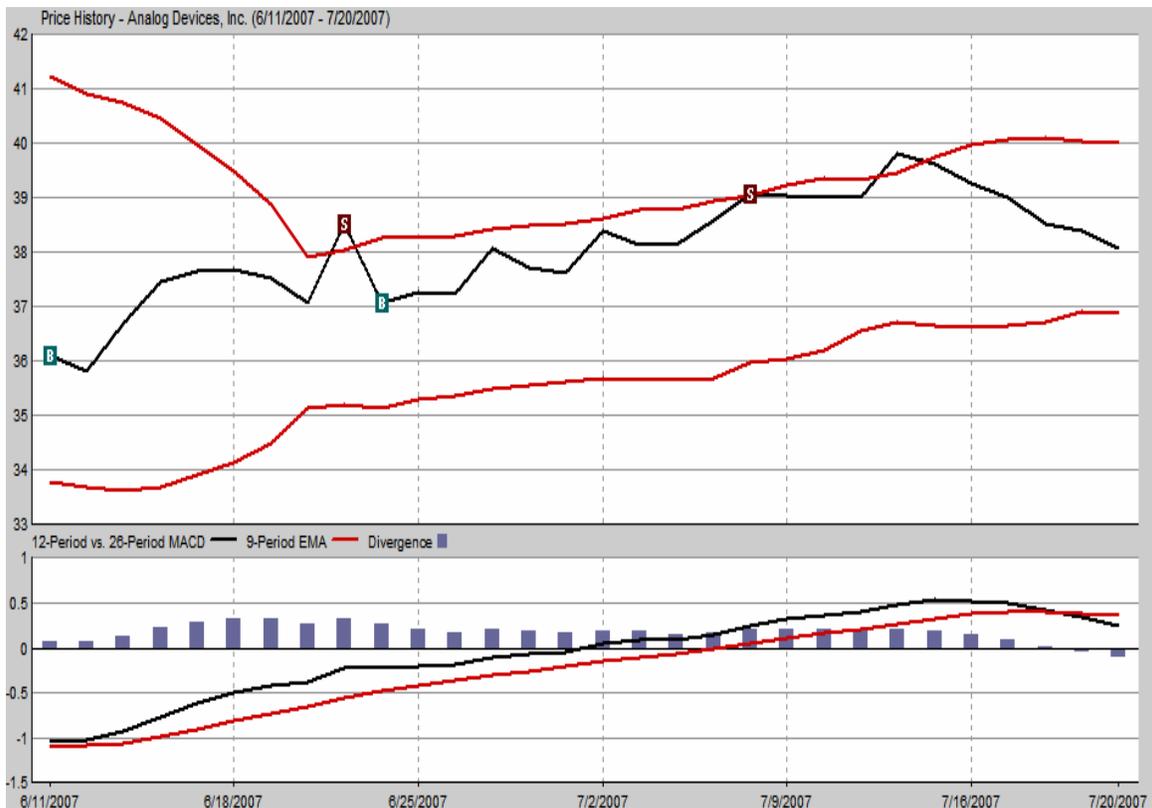


Figure 1 - ADI Sample Graph

We will start with the upper graph. The black line marks the closing price of the stock each day. As you can see with this particular company, there is a general upward trend until the end. The green blocks marked “B” is an indication of when I purchased shares, and the red “S” is where I sold shares.

The red lines above and below the black performance history line are called Bollinger bands. These bands were created in the 1980s as an analysis method by John Bollinger. The upper and lower bands are determined by taking twice the standard deviation over a 20 day period. Analysts use this to help determine when is a good time to buy and sell. A common indication to buy is when the stock price is around the bottom band. A common point to sell is when the stock price is near the upper band. It is commonly believed that a stock price will not stay outside of the bands for very long, so it is considered to buy/sell as soon as it jumps out of the bands. This method was most commonly used to choose when to buy and sell shares during the simulation.

The bottom part of the graph is the MACD, EMA, and divergence data. The black line is 12 day vs. 26 day Moving Average Convergence / Divergence line. When this line is positive, it means that the 12 day moving average is higher than the 26 day moving average. This indicates that the stock has been more volatile recently than in the longer term. The red line is the 9 day Exponential Moving Average. This is calculated by weighting the different days of a moving average differently of each other and that the most recent day counts more than the one before it. The blue bars indicate the divergence between the MACD and the EMA.

Chapter 3: Investment Strategies

This chapter covers different strategies for investing in the market. Later on in the report, you will see some of these methods put to use.

3.1 Penny Stocks

Penny Stocks are stocks that trade for below \$1 per share. Being this low in value makes these stocks a high risk and high reward type of investment. Very little change can yield a large percentage shift. There are countless possible reasons for a share to be so little in value but most common reasons is that the company is brand new or that the company has performed very poorly over a period of time.

Penny stocks make the investment process easier, you can buy large amount of shares for very little price and lots of money can be made from a simple \$2 increase. A lot of investors believe that most penny stocks will rise soon after an investment is made. This comes from the idea that the stock price can't get any lower. Unfortunately, this does not hold true as often as one would like. The SEC warns:

“Penny stocks may trade infrequently, which means that it may be difficult to sell penny stock shares once you own them. Because it may be difficult to find quotations for certain penny stocks, they may be impossible to accurately price. *Investors in penny stocks should be prepared for the possibility that they may lose their whole investment*”
[2].

Because of the volume of shares one needs to buy in order to see a reasonable profit, a commission will be higher on the trade. Penny stocks need to be watched closely and it is advised that one should not hold onto them for longer than two to three weeks. A good amount of research should be used when choosing your penny stocks so that you aren't investing in a company that is on its way out. Also, be aware of fraud. Scams like the pump and dump are ways firms make money off of penny stocks. The SEC explains "A company's web site may feature a glowing press release about its financial health or some new product or innovation. Newsletters that purport to offer unbiased recommendations may suddenly tout the company as the latest "hot" stock. Messages in chat rooms and bulletin board postings may urge you to buy the stock quickly or to sell before the price goes down. Or you may even hear the company mentioned by a radio or TV analyst. Unwitting investors then purchase the stock in droves, creating high demand and pumping up the price. But when the fraudsters behind the scheme sell their shares at the peak and stop hyping the stock, the price plummets, and investors lose their money. Fraudsters frequently use this ploy with small, thinly traded companies because it's easier to manipulate a stock when there's little or no information available about the company." [1]

Penny stocks do not often meet the requirements to be listed on the NASDAQ or NYSE. Because of this, they are usually listed in something called the pink sheets or OTC Bulletin Board. While not all these stocks are fraud, it is speculated that more than half of them are and thus one should exercise caution when investing in them.

3.2 Day trading and Short Term Investing

Day trading is exactly what it implies. A person will buy up large amounts of stock and sell them in the same day. This has a lot of the same risk as penny stocks do because a simple change in price can net huge a huge gain or loss. Day trading is often very impulsive and a person doing this kind of investing must be able to keep a level head at all times and not let themselves get carried away.

Short Term investing is on a slightly longer time period than day trading. Typically, short term investing holds onto stocks for only a few days. In general, this is a safe option as this method of investing hasn't yielded wide scale negative results in years. Also, an investor does not need to know a lot about how the market is acting to invest in this manner. However, the gains will not be as great as with the high risk investment options. This is considered a safe way for beginners to start in the market.

3.3 Swing Trading

Swing trading is all about trends. An investor will watch the price of the stock and look for a general upward or downward trend. This particular method of investing is perfect for my simulation as the typical time to invest in this manner is 6 to 10 weeks. Research into trends and companies are critical to make this form of investment a success.

The way this works is you monitor a stock's performance over a few months. In this, you will create a general channel. The stock price should fluctuate inside the channel and even if it drops a little, the price should rebound and continue in its trend.

If it does not rebound, you should get out right away before it gets worse. Watching these trends is important as large amounts of money can be made by purchasing on a down trend and selling on an uptrend.

Chapter 4: Research Possible Candidate Companies

The research period had proved very challenging. The NYSE lost over 400 points this week, throwing all stock performance off. I had to look at several different companies and check recommendations from other analysts. I chose several companies to invest in that have a wide variety of stock prices. They mostly revolve around the technology sector. I have set a realistic investment amount of \$60,000 and divided it up evenly per company. This is a standard amount that a person would invest in a company to try and make some short term gains.

4.1 Apple Incorporated

The first company I chose to invest in is Apple Incorporated (APPL). Apple Incorporated, designs, manufactures and markets personal computers and related software, services, peripherals and networking solutions. They also sell a line of portable digital music players along with accessories, including the online sale of third-party audio and video products. Apple Inc.'s products and services include the Macintosh line of desktop and notebook computers; the iPod line of portable digital music players; the Xserve line of inexpensive disks (RAID) storage products, the Mac OS X operating system, the iTunes Store, devices that support and enhance the Macintosh and iPod product lines, and a variety of other service and support

offerings. It sells its products worldwide through its online stores, its retail stores, its direct sales force, and third-party wholesalers, resellers and value-added resellers [7].

With the return of Steve Jobs as CEO of Apple, the company's stock has doubled over a year and gone up 10x over the course of 3 years. Recent news about the release of the iPhone has sent a surge in stock and analysts expect this trend to continue once the phone goes on sale at the end of June. Just about everyone has a strong buy recommendation on Apple because they want to be there for the next big idea.

The graph below shows the company's performance over the last month along with Bollinger Bands. Below that is 12 period Vs. 24 period MACD graph.

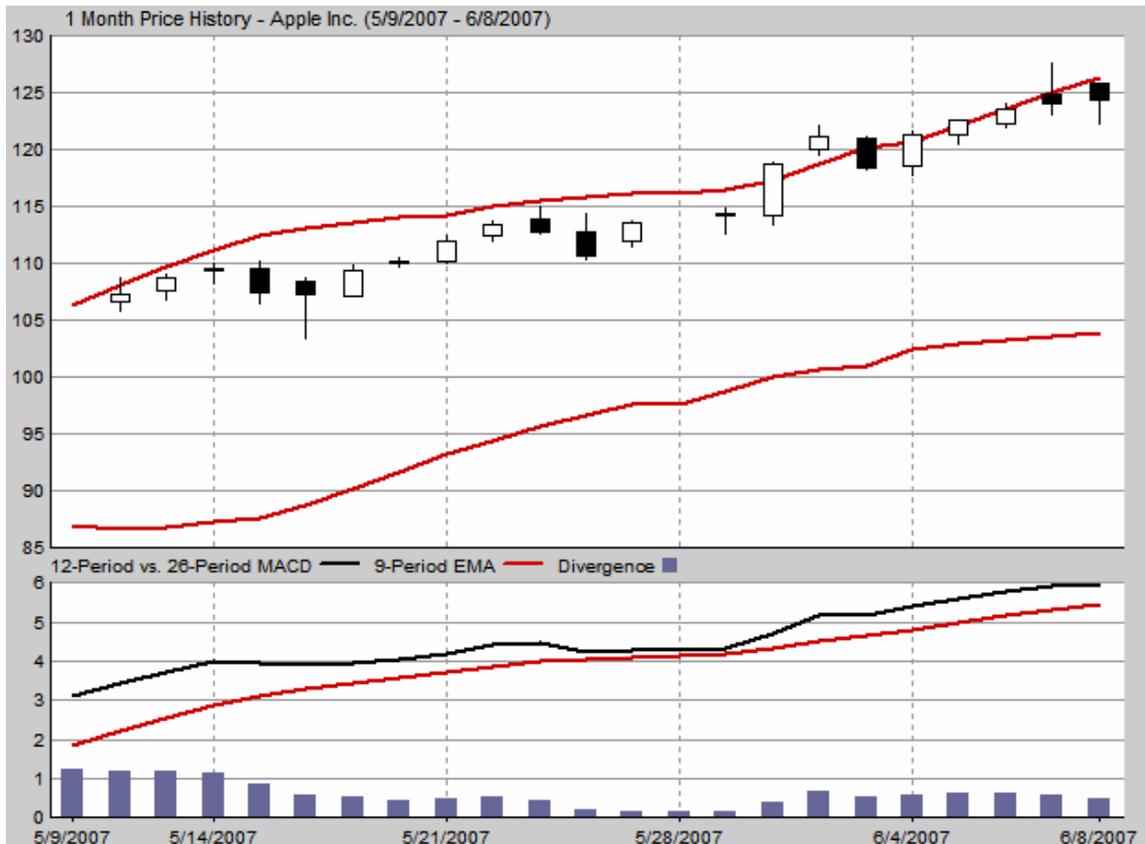


Figure 2 – Apple 30 Day

This next graph is a 3 year performance history.

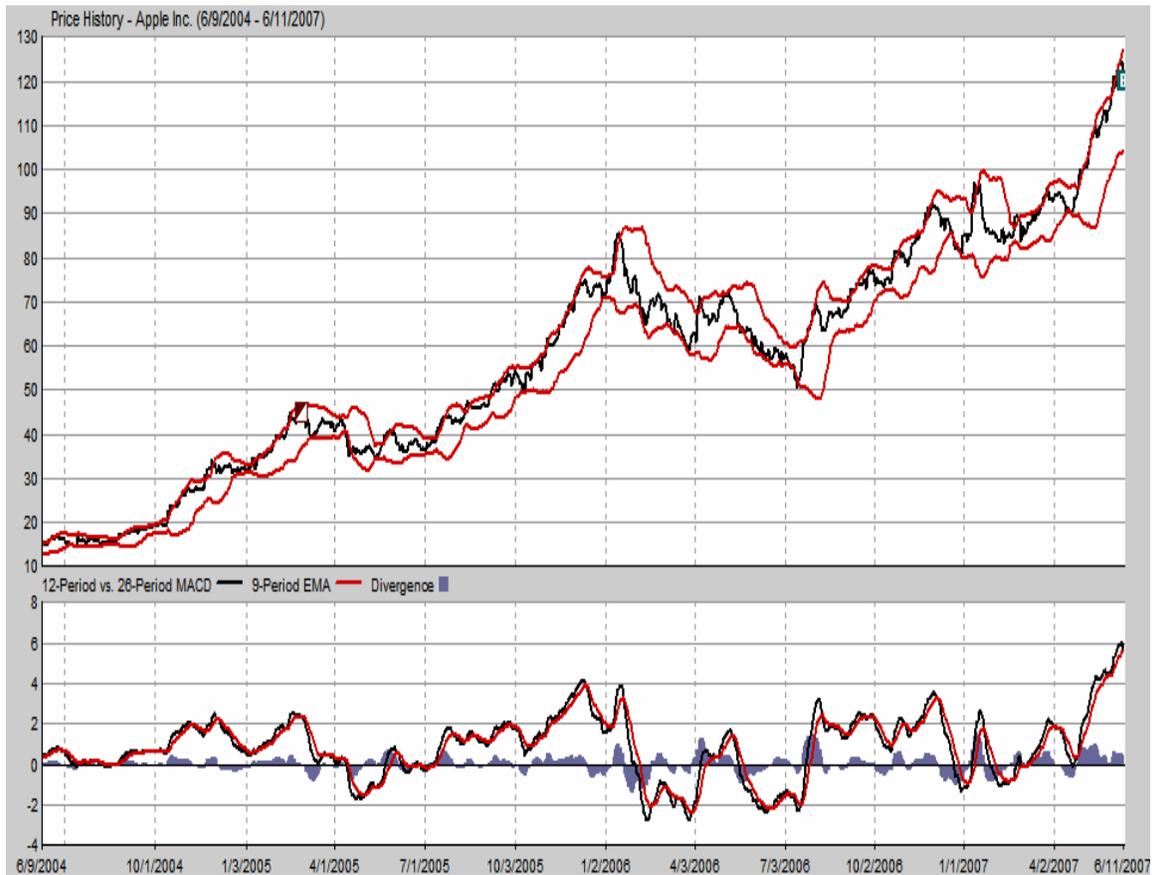


Figure 3 - Apple 3 Year

As you can see, there is a general upward trend with the company. I have chosen to purchase 80 shares in this company at Friday's closing price of \$124.49.

4.2 Oakley Incorporated

Oakley, Inc. (OO) is engaged in the design, development, manufacture, distribution and worldwide marketing of consumer products, including eyewear, footwear, watches and accessories. They sell products to retail accounts, through

Oakley-owned stores, through more than 100 mall-based sunglass specialty stores in the United States, and through a mix of independent distributors and licensees in more than 100 countries. Oakley manufactures and assembles its eyewear at their manufacturing facility located at its headquarters in Foothill Ranch, California. Oakley utilizes third-party manufacturers located in the United States and abroad to produce its internally designed apparel, electronically enabled eyewear, footwear, watches, certain goggles and accessories [8].

The graph below shows a 3 year performance history of Oakley.

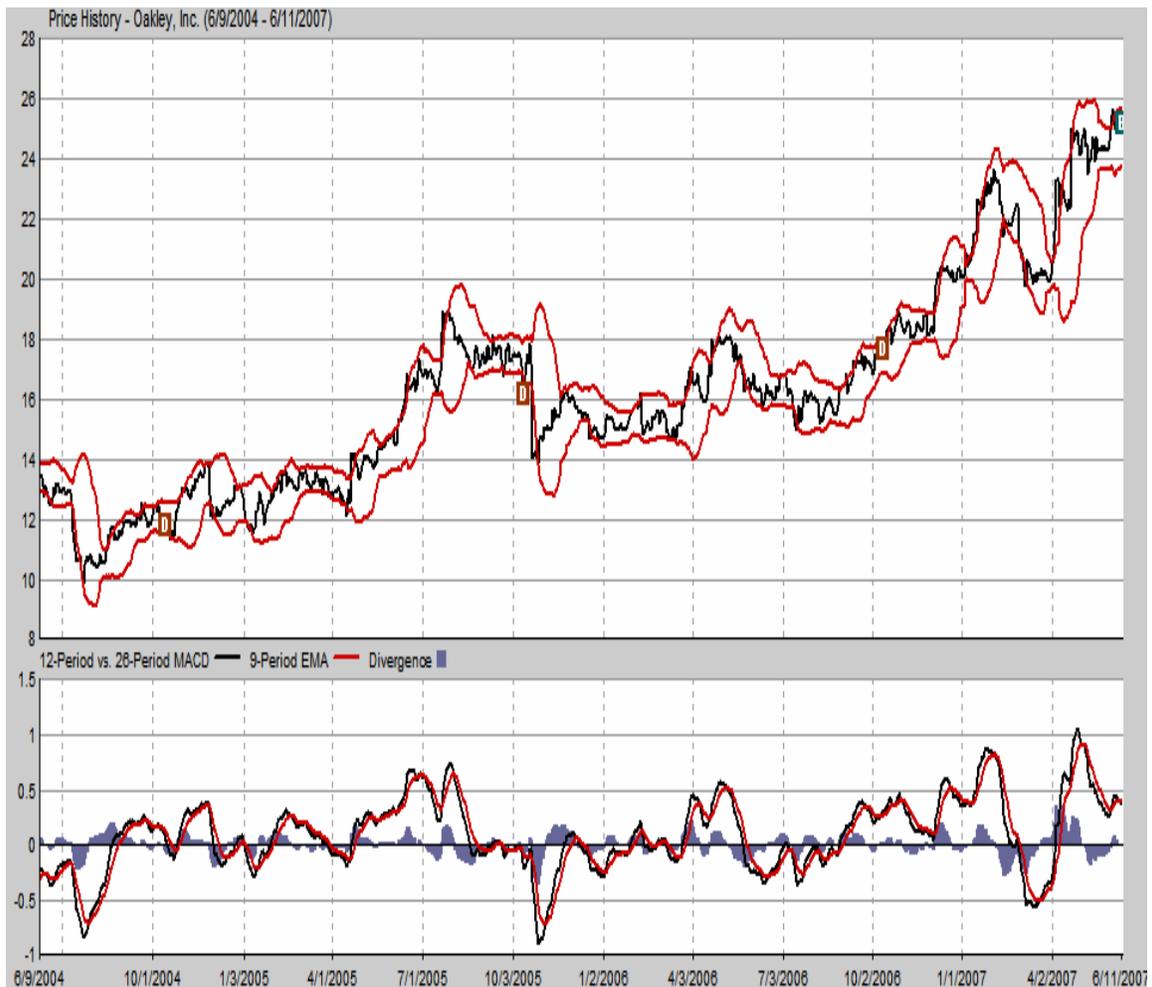


Figure 4 - Oakley 3 Year

The following chart shows a 30 day performance of the stock as well as the MACD graph.



Figure 5 – Oakley 30 Day

The company performance recently has been relatively neutral. On June 5th, the company released two new sunglasses designs. This caused the stock to rise briefly. With summer time starting, Oakley will be sponsoring a large amount of extreme sports events as well as coming up with new sunglasses for the market.

A few weeks ago, I visited their world headquarters in southern California. Their artistic design is everywhere including the gunmetal design of their building. Their manufacturing process was on par with current technology and they seem to be

doing well with their marketing. I personally have invested close to \$1000 in several pairs of glasses from them over the years. For these reasons, I have decided to purchase 401 shares at the closing Friday price of \$25.20.

4.3 Google Incorporated

Google Incorporated maintains a large amount of websites as well as other content, and makes this information freely available to anyone with an internet connection. Its search technology allows people to obtain nearly instant access to relevant information from its online index. Google generates revenue through online advertising. Businesses use its AdWords program to promote their products and services with targeted advertising. In addition, the other websites that comprise the Google Network use the company's AdSense program to deliver relevant advertisements that generate revenue. In August of 2006, it acquired Neven Vision, an online photographic search company. On October 10 of 2006, it acquired the online video company YouTube. In March 2007, the Company acquired Adscape Media Incorporated, a company that created technology to deliver advertising over the Internet for placement within videogames [9].

Below is a 3 year performance history chart.

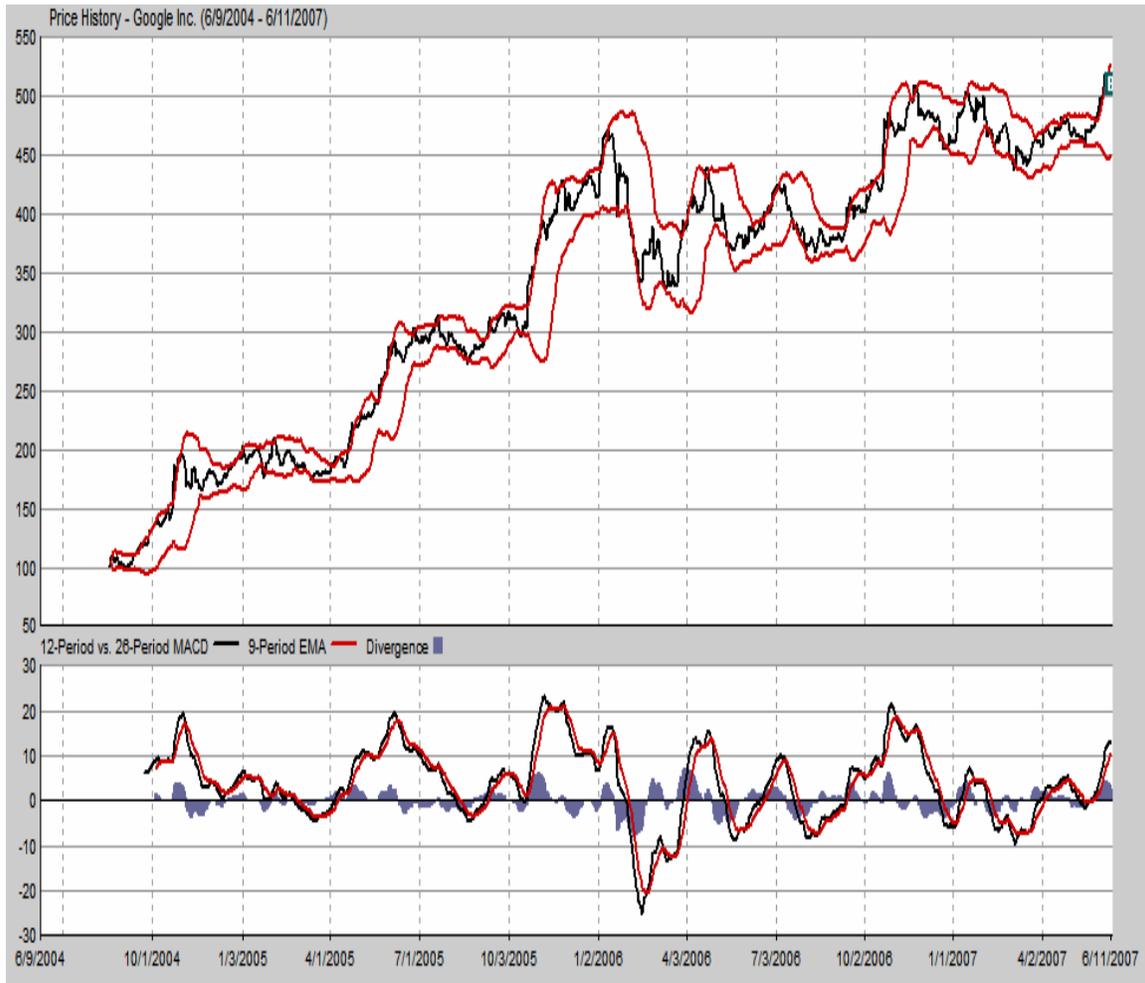


Figure 6 - Google 3 Year

The chart below shows a 30 performance history as well as MACD graph.



Figure 7 – Google 30 Day

Google has had a recent upward trend. This is probably due to the release of Apple's iPhone. Google designed most of the software and will probably improve on the product after its release at the end of June. Google also seems to be coming out with new software or ideas each month and investors usually jump at the chance to get on board before the next one is announced. For these reasons, have chosen to purchase 20 shares at Friday's closing price of \$515.49

4.4 Solectron Corporation

Solectron Corporation provides electronics manufacturing and supply chain services to original equipment manufacturers worldwide. As a contracted manufacturing partner to OEMs, the company's customers contract with it to build their products or to obtain services related to product design or. Solectron designs, builds, repairs and services products that carry the brand names of its clients. One such client is Microsoft. Much of its business is related to products, such as computing, storage equipment, networking equipment, communications equipment, consumer products, automotive electronics systems, industrial products, medical products, and other electronics equipment and products [10].

The graph below is a 3 year performance history of Solectron.



Figure 8 - Solectron 3 Year

The chart below shows a 30 performance as well as the MACD graph.

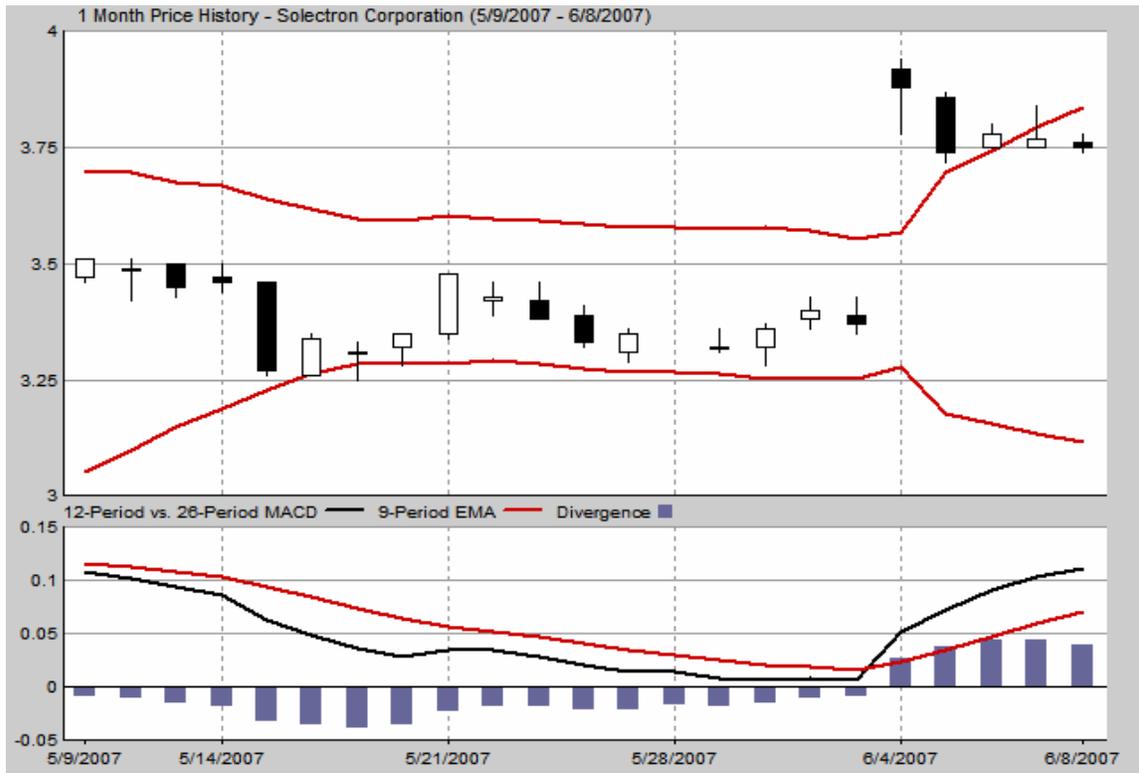


Figure 9 – Solectron 30 Day

The company had been looking relatively neutral until last week when Flextronics announced that they were going to be purchasing Solectron for 3.9 billion dollars. This caused a surge in stock price and now we will see how it does once the buy goes through. This stock has a very low share price and will be counting as my penny stock for this simulation. For these reasons, I chose to purchase 2665 shares at the Friday closing price of \$3.75.

4.5 Analog Devices Incorporated

Analog Devices Incorporated designs, manufactures and markets analog, mixed-signal, and digital signal processing integrated circuits used in industrial, communication, computer and consumer applications. Its ICs are designed to address a range of signal processing applications. The company's products convert realistic data, such as temperature, motion, pressure, light and sound into electrical signals to be used in electronic equipment ranging from industrial process control, factory automation systems, defense electronics, portable wireless communications devices, cellular base stations, central office networking equipment, computers, automobiles, medical imaging equipment, digital cameras and digital televisions. During the fiscal year of 2006, it acquired Integrand Technologies Incorporated [11].

Below is a 3 year performance history graph for ADI.



Figure 10 - Analog Devices 3 Year

Below is a graph of the 30 day performance along with the MACD graph.

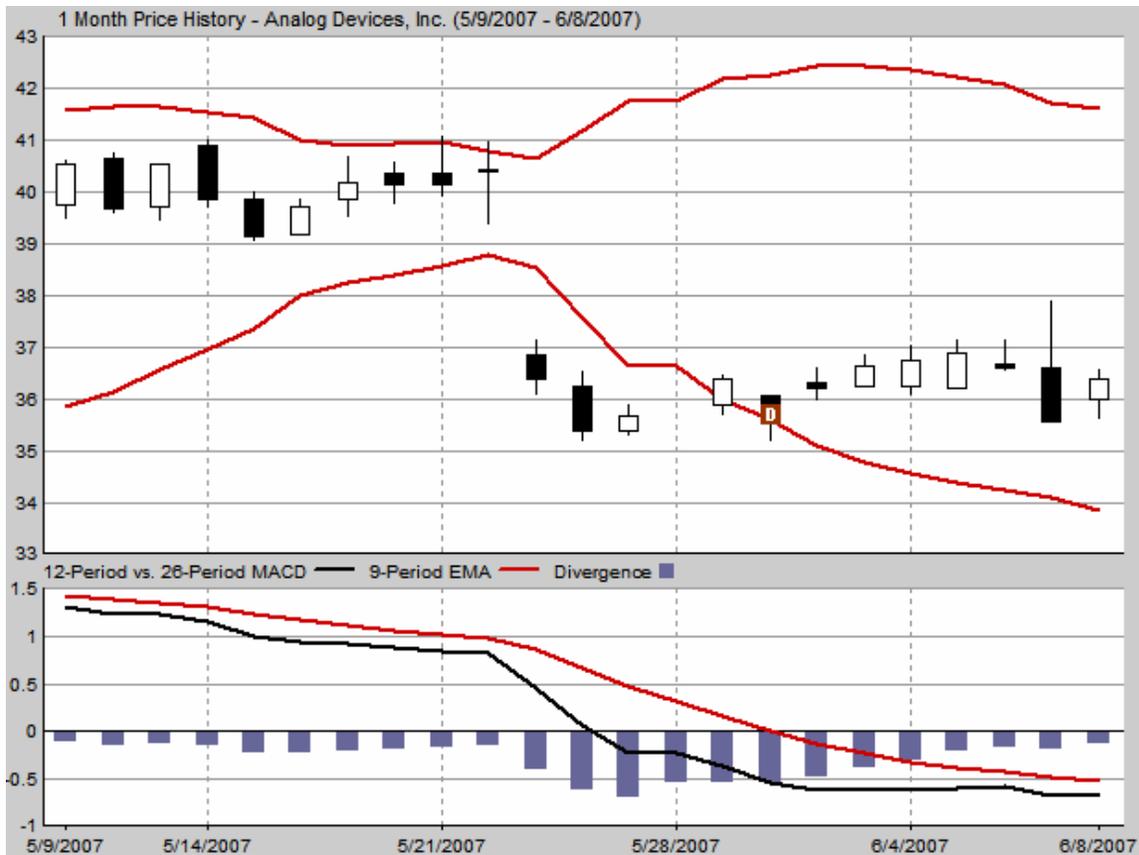


Figure 11 - Analog Devices 30 day

Despite a recent drop in share prices, most analysts have a strong buy recommendation on this stock. On May 30th, ADI paid out a \$0.18 per share dividend. A few days ago, ADI was featured in an article on Motley Fool.

“When a company is (a) getting a lot of press for making a product with expanding market potential, and (b) spending freely to buy back its own shares, it gets my attention. Those factors tell me that there may be more to this story than just a lone journalist considering the technology "interesting." It also tells me the company may think it's not just interesting, but profitable -- and that it wants to keep as much of those profits as possible to itself” [3].

I agree with the recommendations to buy and thus I have acquired 270 shares in Analog Devices at Friday's closing price of \$36.37.

4.6 ENSCO International Incorporated

ENSCO International Incorporated is an international offshore drilling company. Its offshore drilling operations are necessary for the exploration, development and production of oil and natural gas. As of February 15, 2007, its offshore rig fleet included 43 jackup rigs, one ultra-deepwater semi-submersible rig and a barge rig. In addition to this, they have three ultra-deepwater semi-submersible rigs. Its operations are concentrated in the geographic regions of Asia Pacific, Europe, Africa, and North and South America. The ENSCO 8500 Series ultra-deepwater semi-submersibles are the enhanced versions of the ENSCO 7500 and are capable of drilling in up to 8,500 feet of water, and can readily be upgraded to 10,000 feet water-depth capability if the need arises. In January of 2006, ENSCO accepted delivery of the ENSCO 107, an ultra-high specification jackup rig. During the year ended December 31, 2006, the Company entered into agreements to construct ENSCO 8501 and ENSCO 8502 [12].

The graph below is of 3 years of performance of EnSCO.

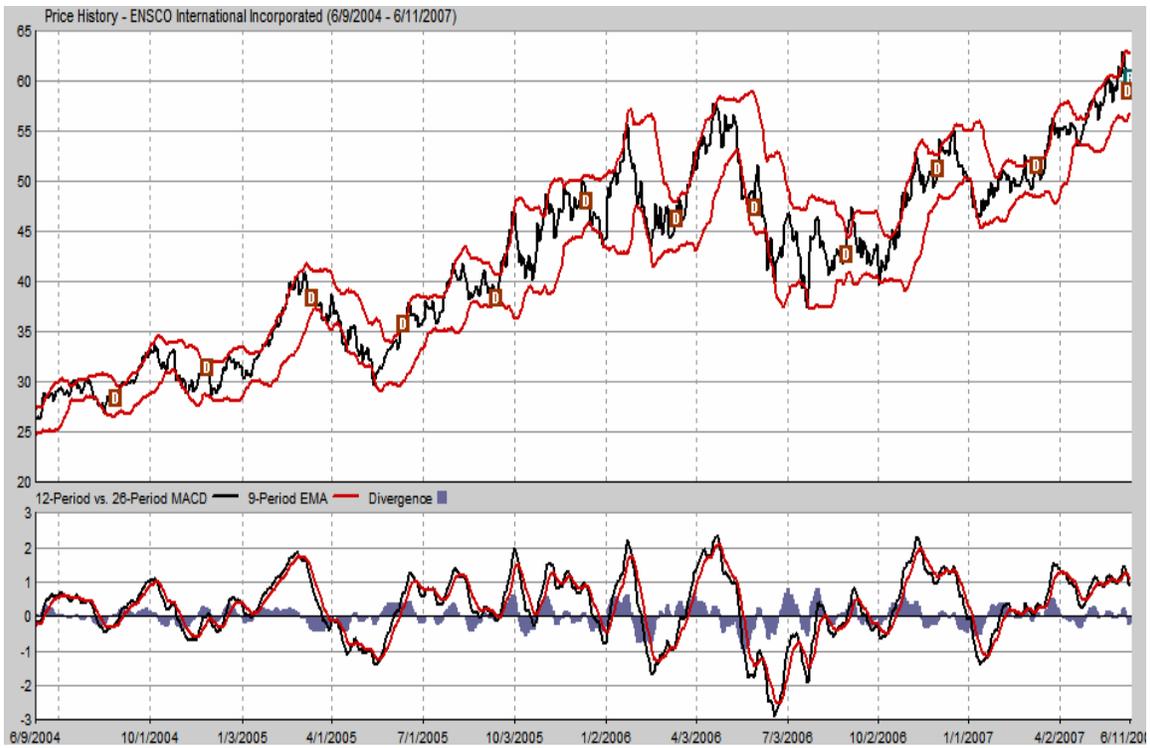


Figure 12 - ENSCO 3 Year

The chart below shows the 30 day performance along with the MACD graph.

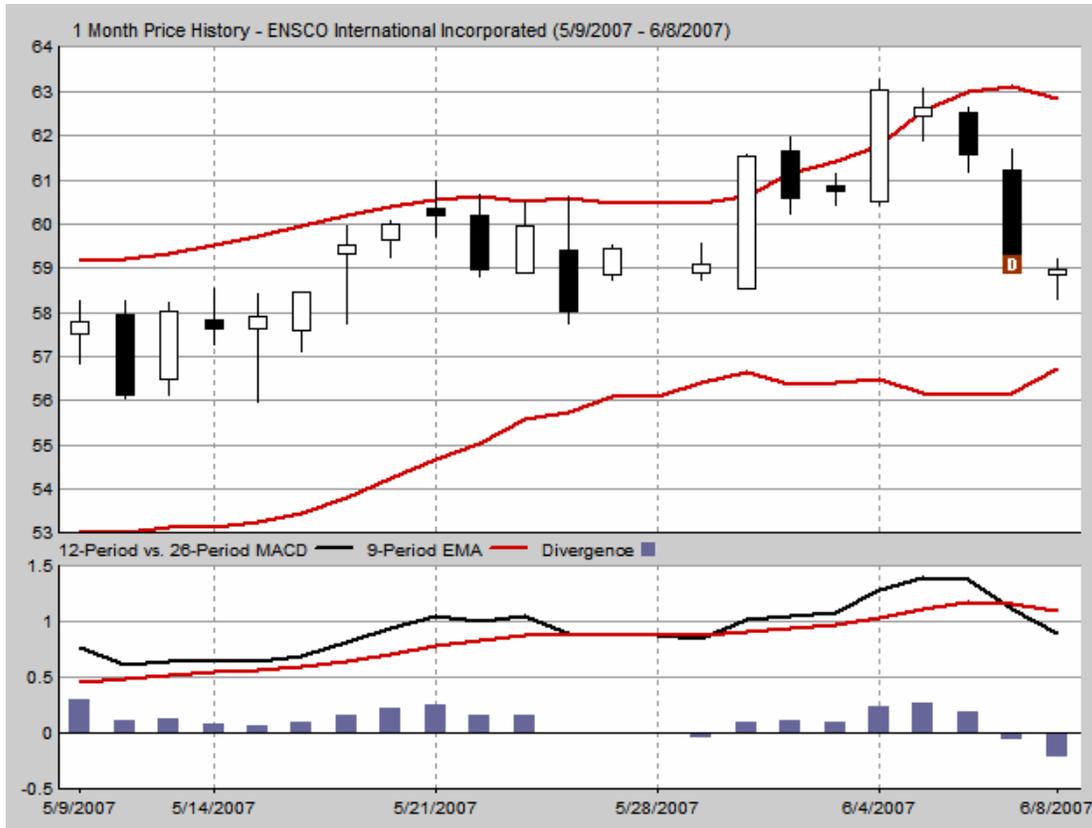


Figure 13 – ENSCO 30 Day

As you can see from the graph, there is a general upward trend. On June 7th, the company paid out a \$0.02 per share dividend. With ESV being involved in offshore drilling, they were contracted to help rebuild the destroyed rigs in the Gulf of Mexico. With the demand for foreign oil on the rise, the push for local oil is even greater. This summer will require large amounts of oil, and every rig ESV can setup will spell profits for them. For these reasons, I decided to purchase 165 shares at the Friday closing price of \$58.99.

4.7 Summary

I have chosen 6 different companies to invest in for this 6 week simulation. The total cost of the initial investment is \$59,770.00 with a total purchase 3,595 shares. 66% of this invested in large-cap stocks and 33% in mid-cap stocks. All the stocks are considered high risk stocks, with the exception of ESV which is only considered a medium risk.

Chapter 5: Log of stock performance and transactions

This chapter will detail the way my portfolio changes each week during the simulation. Graphs and charts are used as well as news about the different companies and my choices to buy and sell.

Week 1

This week started off bad but finished strong. The NYSE lost over 400 points in the first few days, but gained most of it back. All stocks combined; there is a profit of \$517.20 which is around a 1% gain. The table below shows the breakdown of the individual stocks.

Name	Symbol	News	Chart	Last tran.	Last price	Quantity	Cost basis	Market value	Gain	TR wk
Analog Devices, Inc.	adi			6/10/2007	37.65	270.000	9,829.90	10,165.50	335.60	3.5%
Apple Inc.	AAPL	news		6/10/2007	120.50	80.000	9,969.20	9,640.00	(329.20)	-3.2%
ENSCO International Incorpor...	ESV			6/10/2007	62.75	165.000	9,743.35	10,353.75	610.40	6.4%
Google Inc.	GOOG	news		6/10/2007	505.89	20.000	10,319.80	10,117.80	(202.00)	-1.9%
Oakley, Inc.	oo			6/10/2007	25.24	395.000	9,964.00	9,969.80	5.80	0.2%
Solectron Corporation	SLR			6/10/2007	3.79	2,665.000	10,003.75	10,100.35	96.60	1.1%
Total Account Value (\$)		news					\$59,830.00	\$60,347.20	\$517.20	1.0%

Figure 14 - Week 1 Performance

This week's biggest gainer is the offshore drilling company ENSCO. With a gain of 6.4% it offset all the losses from Google and Apple. The chart below shows the week long performance of the stock itself.

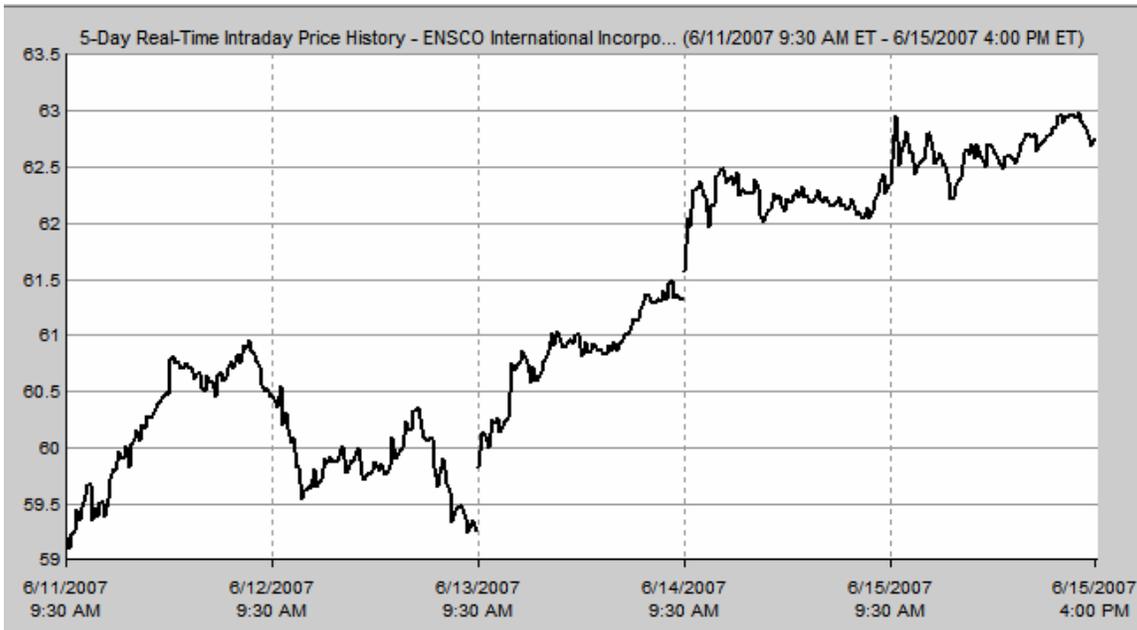


Figure 15 - ENSCO Week 1

With the release of apple's iPhone coming soon, I am debating purchasing extra stock in the company. No one has been able to give proper reviews of the product, on top of this apple is closing in on getting a European carrier to support the iPhone in the same way that Cingular is in the United States. Pending good reviews, this should push apple's stock even higher.

The chart below shows the 1st weeks activity (buy/sell).

Date	Transaction	Quantity	Company	Price	Gain/Loss	Accumulated Gain/Loss
6/10/2007	Buy	80	Apple	124.49	0	0
6/10/2007	Buy	401	Oakley	25.20	0	0
6/10/2007	Buy	20	Google	515.49	0	0
6/10/2007	Buy	2665	Solectron	3.75	0	0
6/10/2007	Buy	270	ADI	36.37	0	0
6/10/2007	Buy	165	ENSCO	58.99	0	0

Table 1 - Week 1 Activity

Week 2

This week is where prices really changed and a lot more trading happens. The biggest performer this week has to be Oakley Incorporated (OO). On Thursday it was announced that they were going to be bought by the same company that owns Ray-Ban. This sent the price up several dollars for a profit of \$1,283.25. This is roughly a 12.5% gain that happened overnight [6].

The graph below shows the stock's performance since I purchased it along with Bollinger bands and a 10 and 50 day moving average lines.

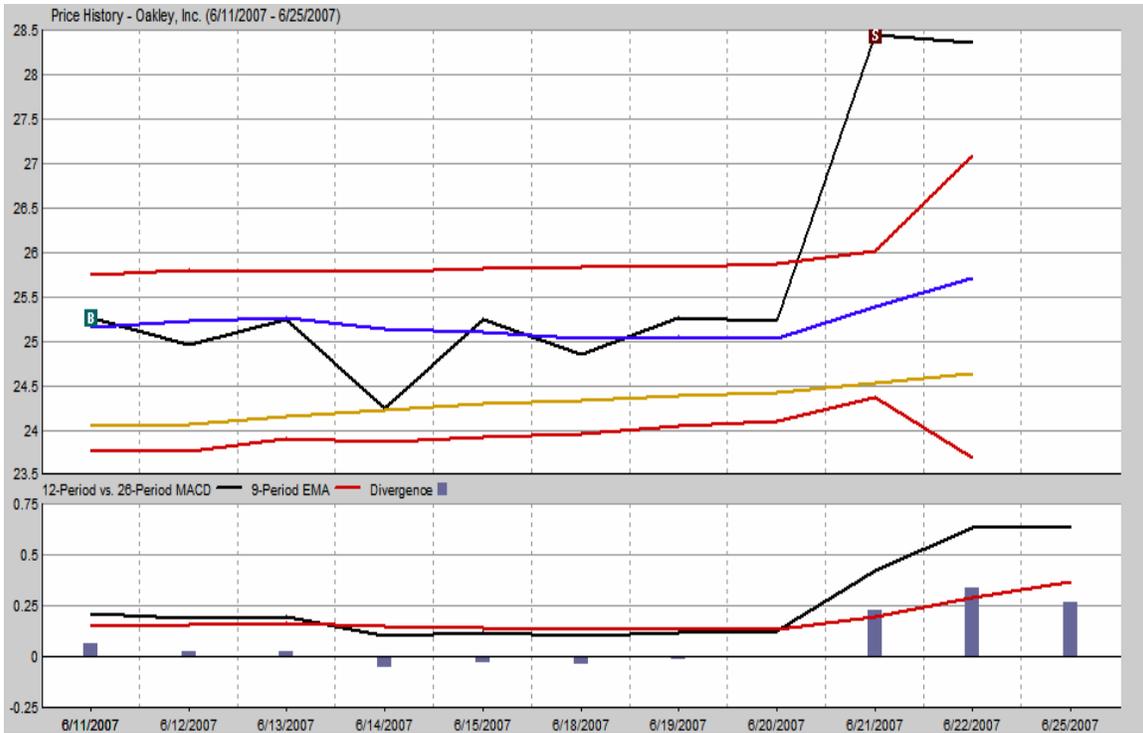


Figure 16 - Oakley Week 2

Next on this week's list of performers is ENSCO. In the two weeks that I have held onto the stock, it has gained 4.9%. This has made me just over \$600 and I thought it would be good to sell and see if I can't buy more when the price drops. Below is a graph of the performance since I purchased the stock.

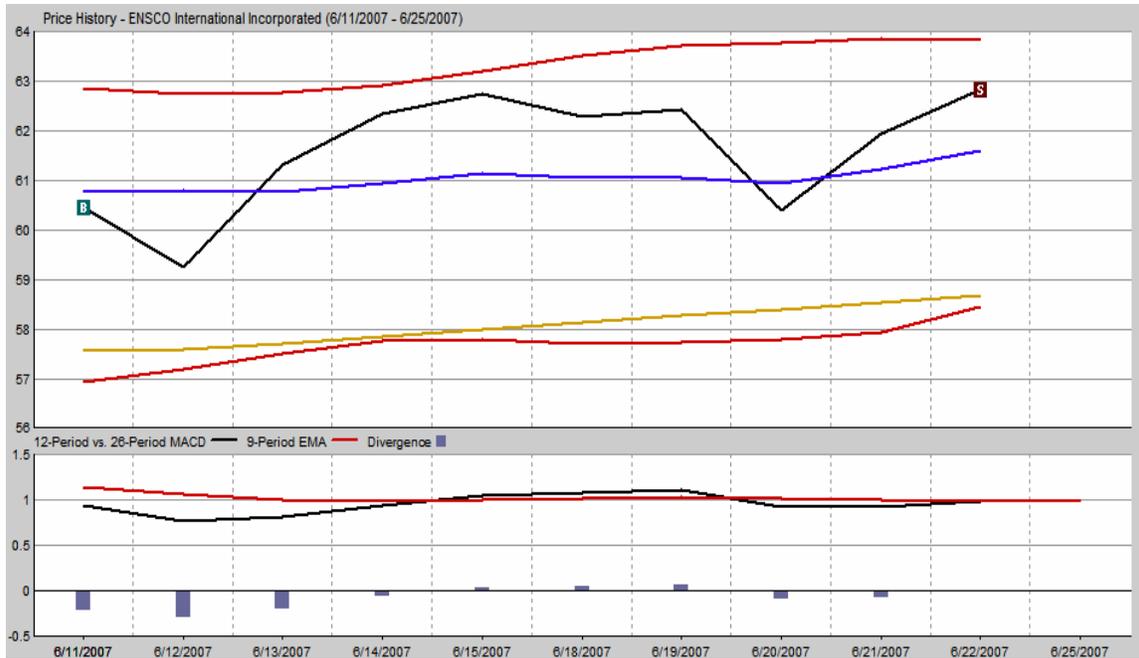


Figure 17 - ENSCO Week 2

On Thursday I decided to sell my stake in Analog Devices. Over the past week and a half, the stock has increased 5.3%. The day after, it dropped around 2.5% so I repurchased the stock at a lower price and pocketed the difference. The graph below shows the stock's performance, including when it broke out of the Bollinger bands and helped me decide to sell.

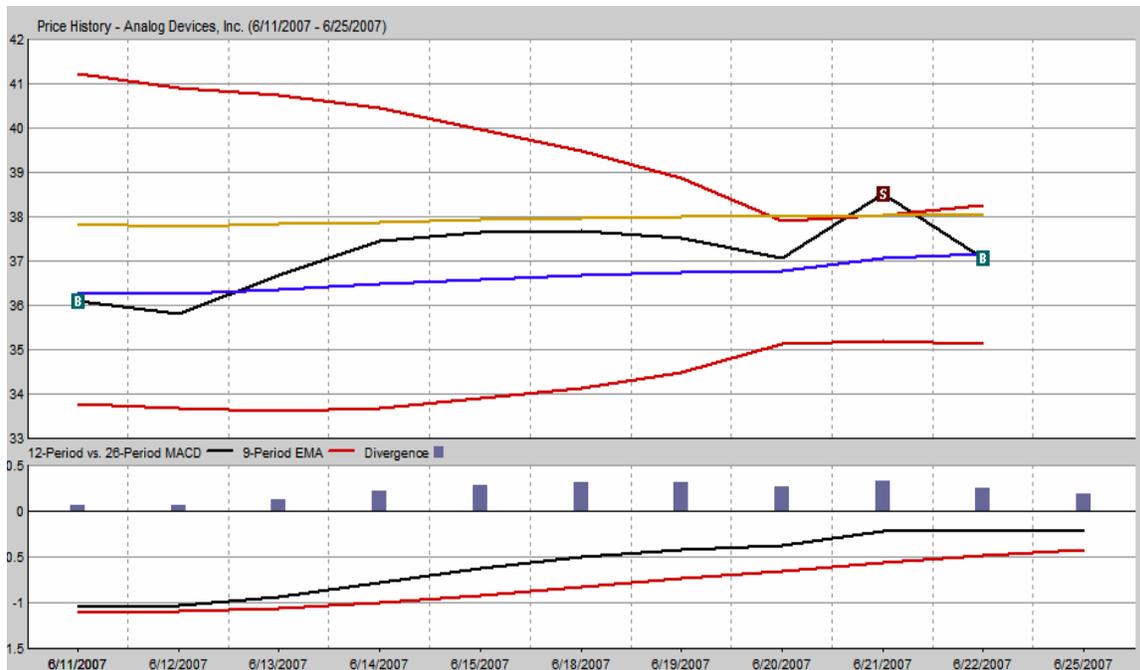


Figure 18 - Analog Devices Week2

Finally, this week I also sold my stake in Google. The stock had stayed steady for a while but recently started going up. It is right on the edge of breaking out of the Bollinger band so I decided to sell. Below is a graph of the performance of the stock over the past 2 weeks.

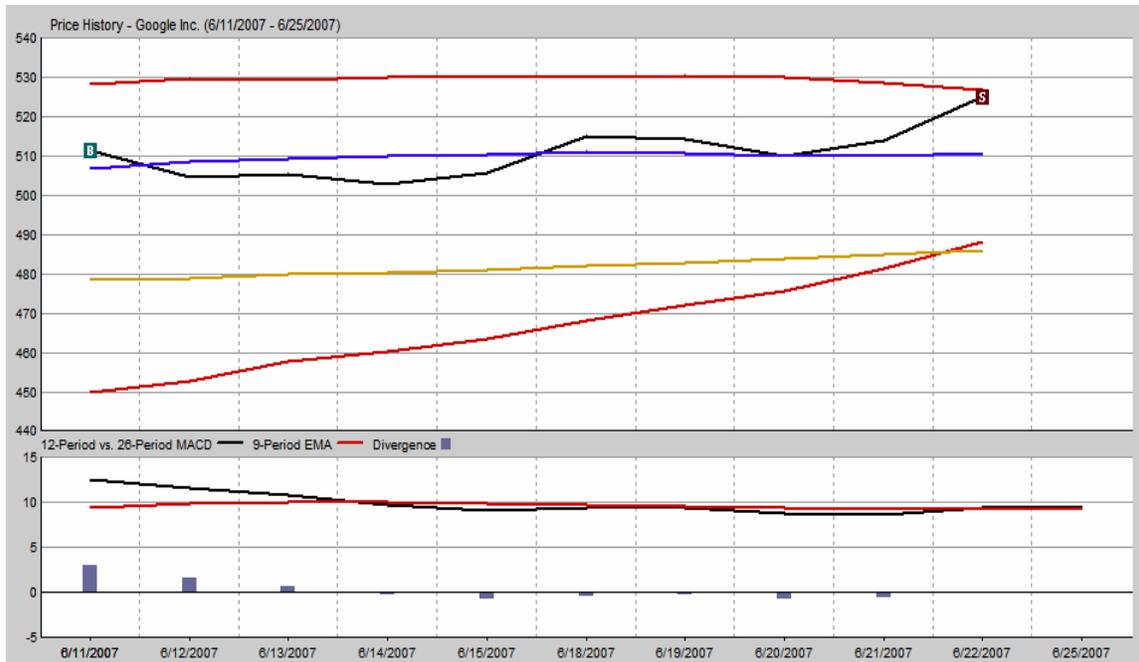


Figure 19 - Google Week 2

All in all, with the sales recorded, and a \$10 commission on each trade, I have made \$2,360.45 in 2 weeks. That is a 4.38% gain overall. Next week should spell interesting with the release of the iPhone in just a few days. The table below shows the individual breakdown of my gains so far.

The chart below shows the activity for week 2.

Date	Transaction	Quantity	Company	Price	Gain/Loss	Accumulated Gain/Loss
6/21/2007	Sell	401	Oakley	28.45	1283.25	1,283.25
6/21/2007	Sell	270	ADI	38.52	560.50	560.50
6/22/2007	Buy	270	ADI	37.09	0	560.50
6/22/2007	Sell	165	ENSCO	62.85	616.90	616.90

Table 2 - Week 2 Activity

Week 3

Not much happened this week. The iPhone craze did not spell well for apple's stock price. Shares dropped midweek as investors sold off shares. Below is the graph of Apple's performance [5].

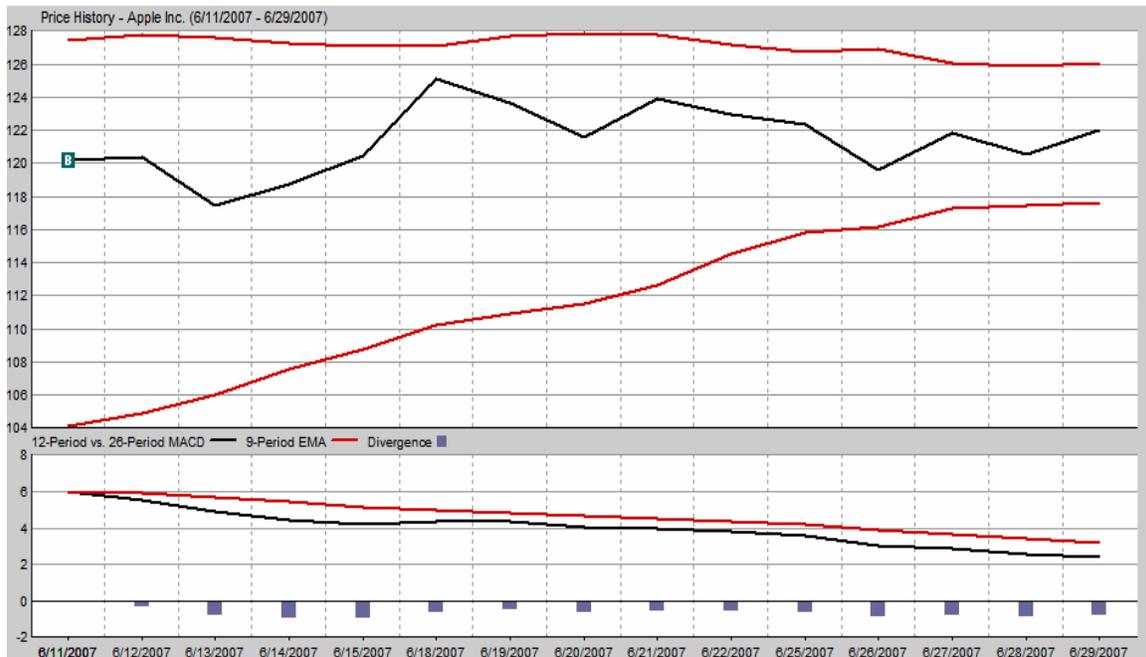


Figure 20 - Apple Week 3

Enesco and Analog Devices are starting to have an upward trend again. I repurchased shares in Enesco this week after the stock price dropped again. The price rose up to the top of the Bollinger Band and I might sell again if the price goes a little higher. I also sold my stake in Google as it hit the top of the Bollinger Band. The graph below shows the 3 week performance history of the stock.

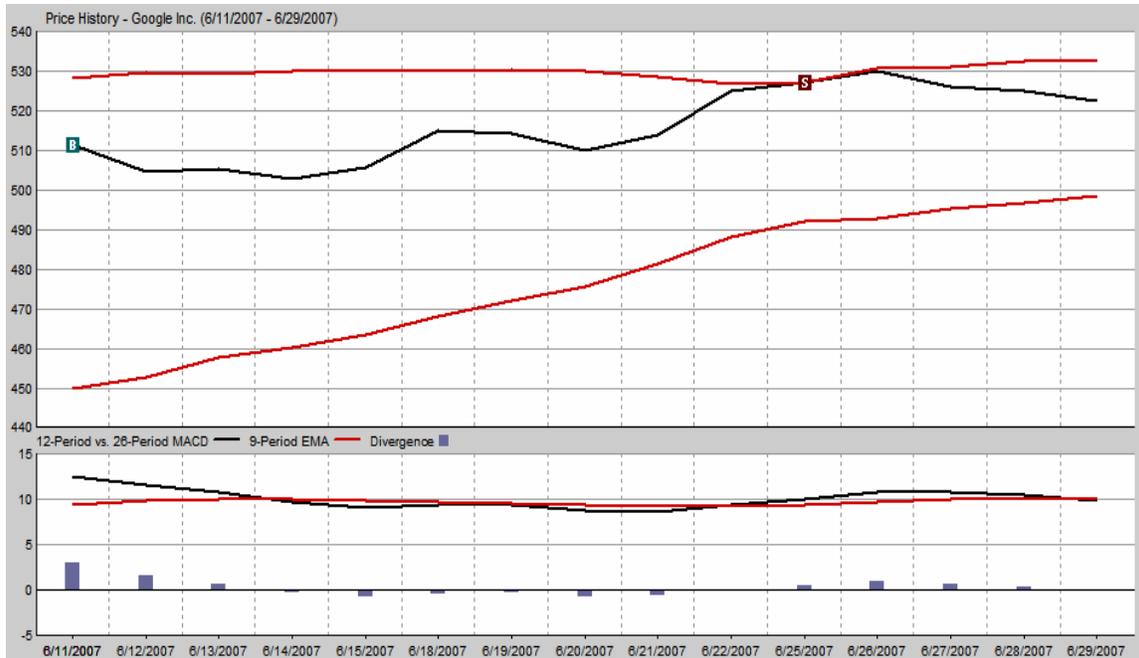


Figure 21 - Google Week 3

The chart below shows the activity for week 3.

Date	Transaction	Quantity	Company	Price	Gain/Loss	Accumulated Gain/Loss
6/25/2007	Sell	20	Google	534.00	350.20	350.20
6/26/2007	Buy	165	ENSCO	60.24	0	616.90

Table 3 - Week 3 Activity

Week 4

There were big gains this week. On July 5th, I sold my 20 shares of Google again at a price of \$541 for a gain of \$205. I also sold my stake in EnSCO on July 5th. Then on July 6th, I sold all my shares of Apple and Analog Devices. This has brought

my total profit for this simulation up to \$4,780.20 before taxes. As you can see from the 4 graphs below, the value of these stocks has been going up and up.

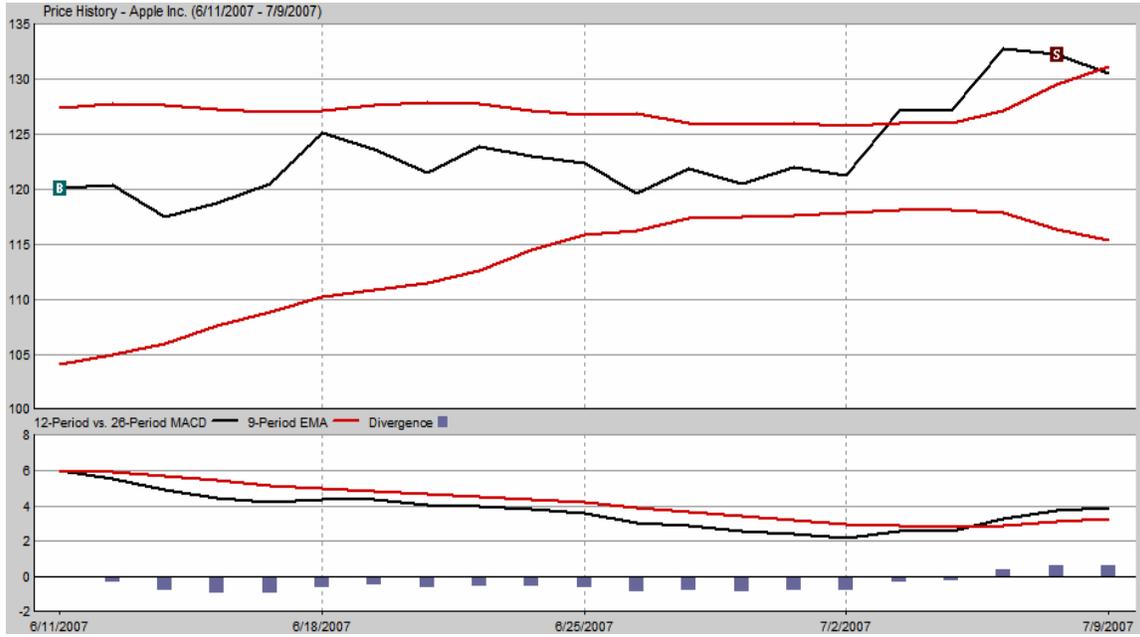


Figure 22 - Apple Week 4

It looks as though the iPhone started to pay off for apple. It took a few days to start to see it in their stock price, but it has still been a general upward trend ever since they announced the availability date of their latest gadget.

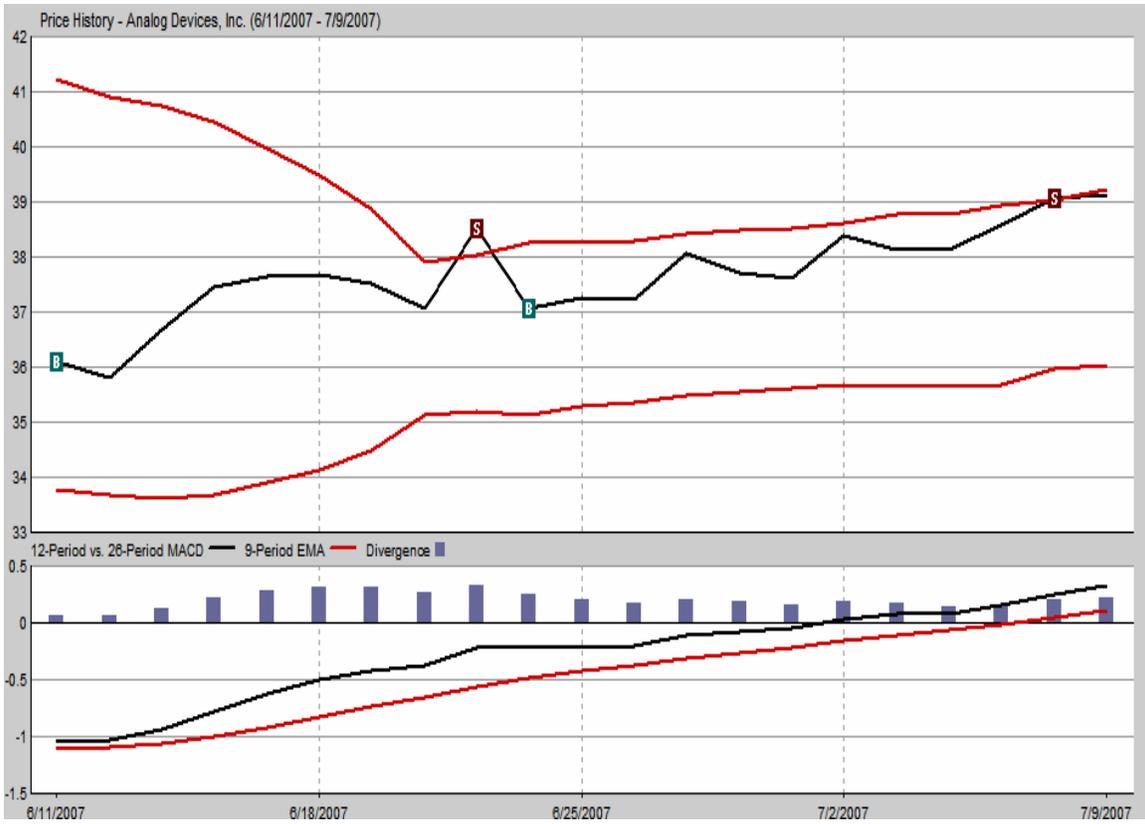


Figure 23 - Analog Devices Week 4

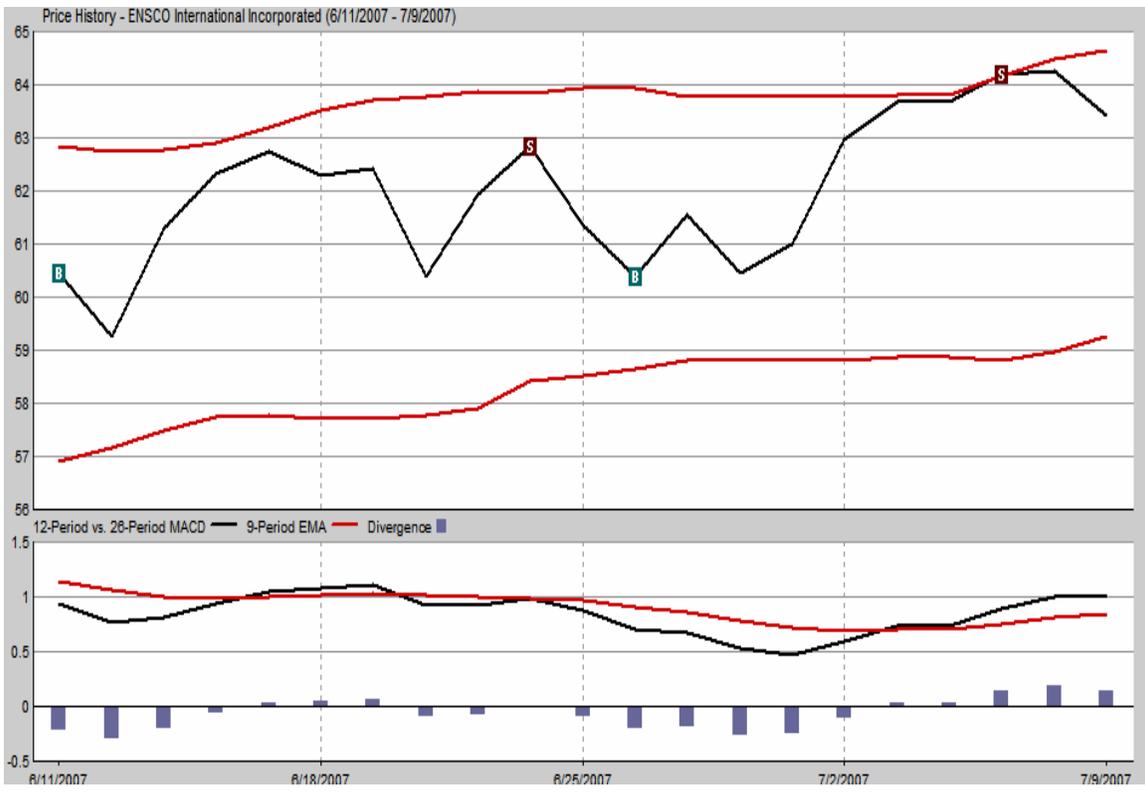


Figure 24 - ENSCO Week 4

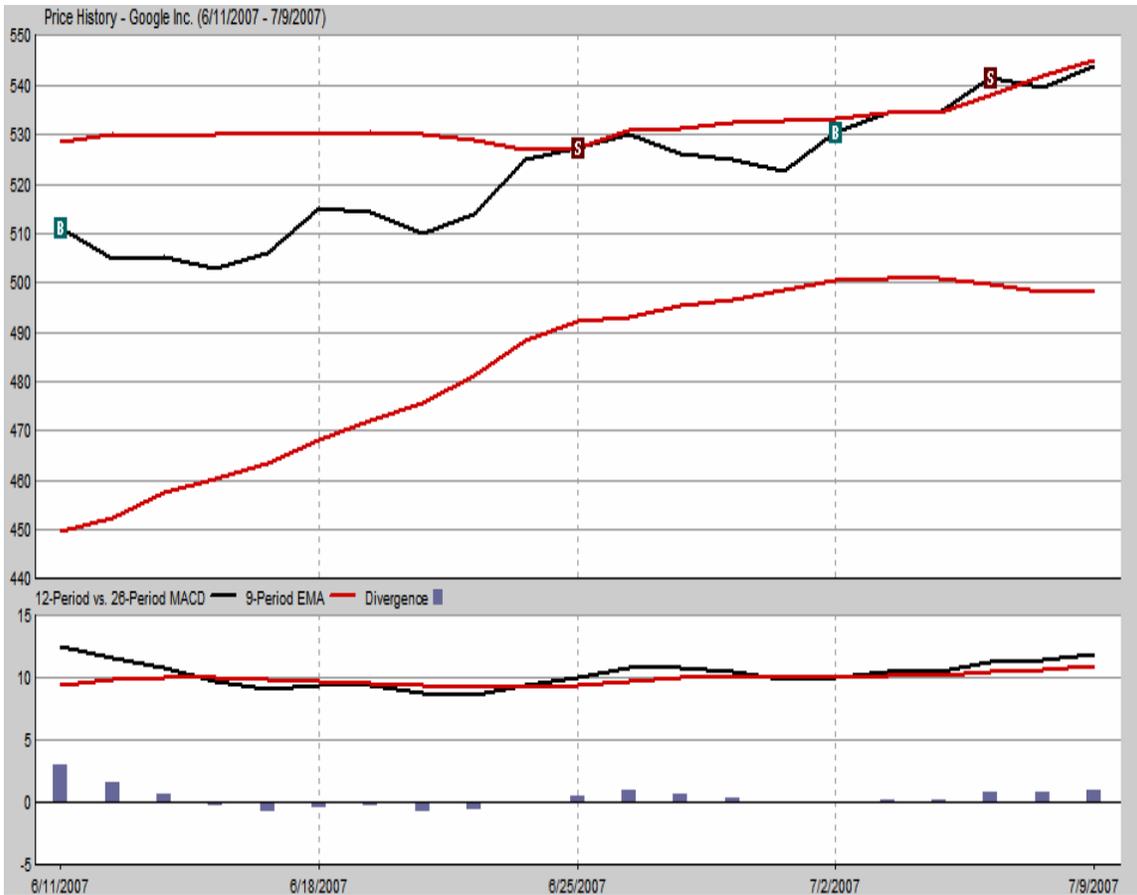


Figure 25 - Google Week 4

I sold these purely on the Bollinger Band effect. The price hit the upper edge and that was an indication to sell. These trends have netted almost an 8% gain. The chart below shows the activity for week 4.

Date	Transaction	Quantity	Company	Price	Gain/Loss	Accumulated Gain/Loss
7/2/2007	Buy	20	Google	530.38	0.00	350.20
7/5/2007	Sell	165	ENSCO	64.20	205.00	1,250.30
7/5/2007	Sell	20	Google	541.63	633.40	555.20
7/6/2007	Sell	270	ADI	39.07	514.60	1,075.10
7/6/2007	Sell	80	Apple	132.30	604.80	604.80

Table 4 - Week 4 Activity

Week 5

This week did not show much change. Apple Inc. was on a constant uptrend, and as soon as I saw that, I bought and sold it in the same week. This netted me a quick \$400. As you can see from the graph below, Apple still has a strong upward trend yet I think it's going to level out this week.

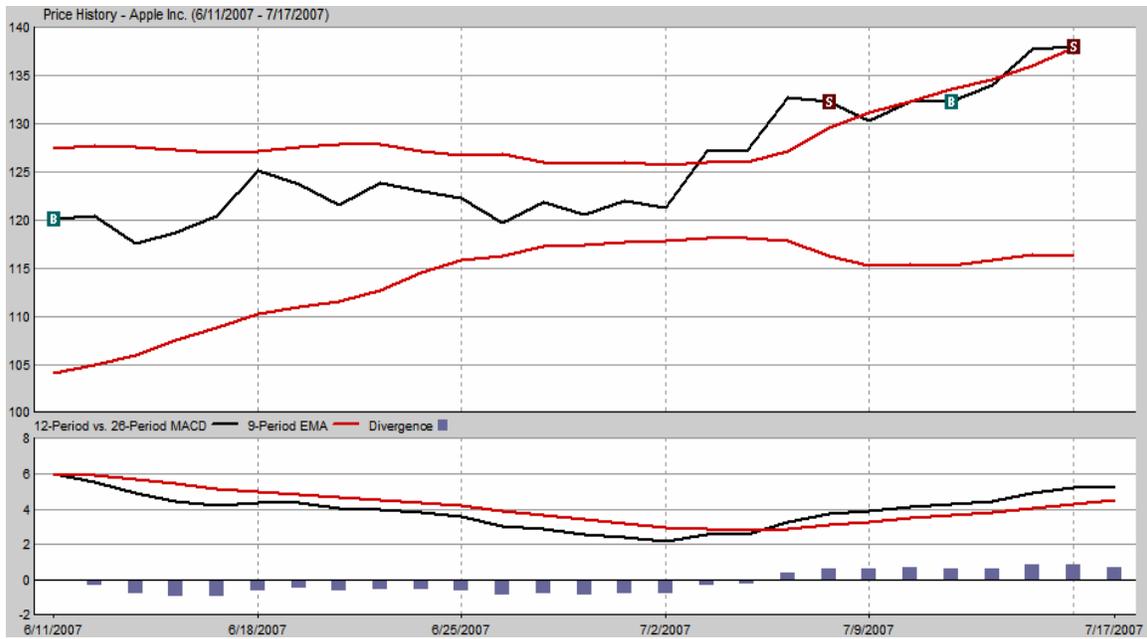


Figure 26 - Apple Week 5

I also purchased shares of ESV as it has dropped well back in between the Bollinger Bands. So far, I have made \$5185.85 from this simulation. The chart below shows the activity for week 5.

Date	Transaction	Quantity	Company	Price	Gain/Loss	Accumulated Gain/Loss
7/11/2007	Buy	165	Apple	132.40	0.00	604.80
7/13/2007	Buy	80	ENSCO	61.53	0.00	1,250.30
7/13/2007	Sell	165	Apple	137.73	417.20	1,022.00

Table 5 - Week 5 Activity

Week 6

This is the final week of the simulation. By this point, I only had shares in two companies. One of these companies, Solectron, I kept from the beginning until the end. The chart below shows the activity for week 6.

Date	Transaction	Quantity	Company	Price	Gain/Loss	Accumulated Gain/Loss
7/11/2007	Sell	165	ENSCO	63.26	265.45	1,515.75
7/13/2007	Sell	2665	Solectron	3.83	193.20	193.20

Table 6 - Week 6 Activity

Chapter 6: Simulation Results

The total gain for the simulation is \$5,644.50 over the course of 6 weeks. With a \$60,000 investment, this is a 9.4% gain. The chart below shows all activity (buy/sell) over the 6 week period.

Investment	Quantity	Date		Sale	Purchase	Gain /
		Bought	Date Sold	Proceeds	Cost	Loss
Oakley	401	6/10/2007	6/21/2007	11,398.45	10,115.20	1,283.25
ADI	270	6/10/2007	6/21/2007	10,390.40	9,829.90	560.50
ENSCO	165	6/10/2007	6/22/2007	10,360.25	9,743.35	616.90
Google Inc.	20	6/10/2007	6/25/2007	10,670.00	10,319.80	350.20
Google Inc.	20	7/2/2007	7/5/2007	10,822.60	10,617.60	205.00
ENSCO	165	6/26/2007	7/5/2007	10,583.00	9,949.60	633.40
ADI	270	6/22/2007	7/6/2007	10,538.90	10,024.30	514.60
Apple Inc.	80	6/10/2007	7/6/2007	10,574.00	9,969.20	604.80
Apple Inc.	80	7/11/2007	7/13/2007	11,018.40	10,601.20	417.20
Solectron	2,665	6/10/2007	7/20/2007	10,196.95	10,003.75	193.20
ENSCO	165	7/13/2007	7/20/2007	10,427.90	10,162.45	265.45
Grand						
Total				116,980.85	111,336.35	5,644.5

Table 7 - Simulation Totals

The chart below shows the total profit from each company and the percentage gain.

Company Name	Total Profit	Percentage Gain
Oakley Inc.	1,283.25	12.69%
Google Inc.	555.20	5.38%
Analog Devices Inc.	1,075.10	10.93%
ENSCO	1,515.75	15.56%
Apple Inc.	1,022.00	10.25%
Solectron	193.20	1.93%

Table 8 - Total Profit

Apple Inc

Apple netted me a total gain of \$1,022.00 in two groups of trades. I would have made more money if I had held onto the stock for the full 6 weeks, but I based a lot of my trading decisions on the Bollinger Band method. The graph below shows the activity of the stock over the past 6 weeks.

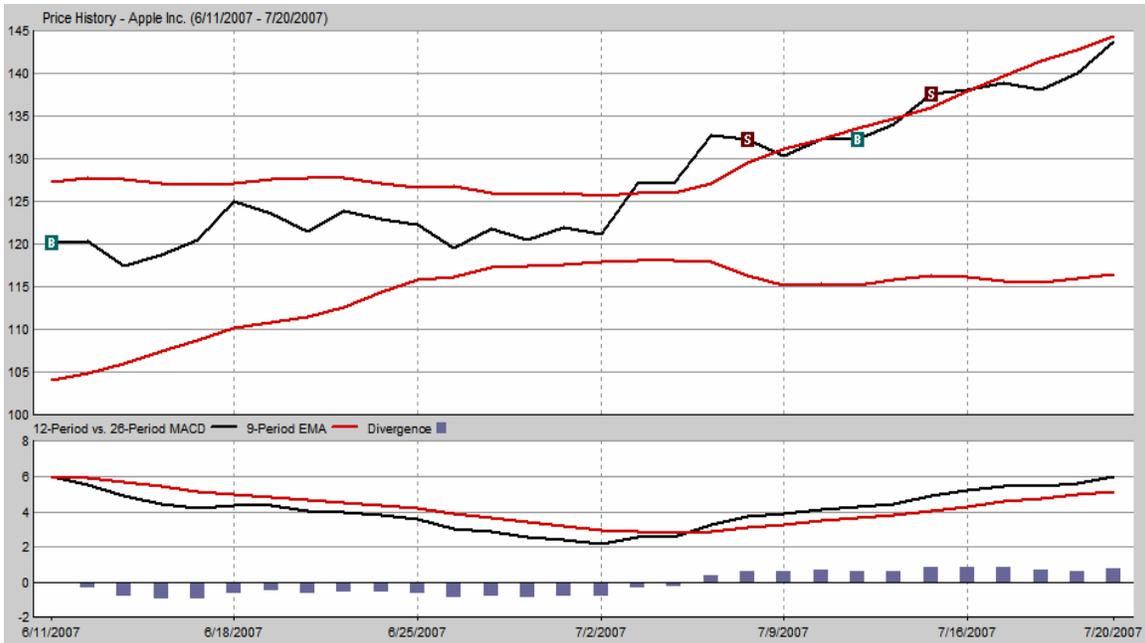


Figure 27 - Apple 6 Week History

Analog Devices

ADI did not change in price that much. The stock stayed between \$36 and \$39 the entire time. However, because it was constantly going up or down, I was able to make \$1,075.10 on two sets of trades. The graph below shows the 6 week history of ADI.



Figure 28 - Analog Devices 6 Week History

ENSCO International Incorporate

This stock, while it did not shift much from its starting point, but it was constantly going up and down every week. With its constant volatility, I was able to complete 3 groups of trades that made me \$1515.75 in profit. The graph below shows the 6 week performance history of ENSCO.

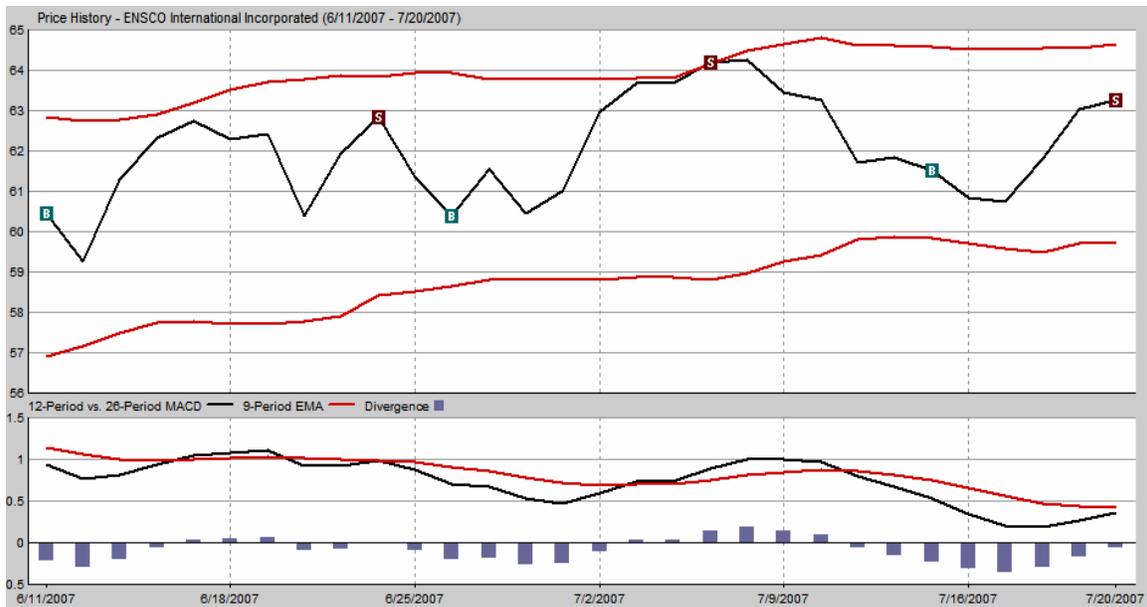


Figure 29 - ENSCO 6 Week History

Google Inc

Google's stock is extremely expensive. At over \$500 a share, I wasn't sure I was going to see much gains with it. However, the iPhone spelled good news for Google's stock until it announced that it didn't meet its 2nd quarter earnings [4]. With 2 sets of trades, I was able to make \$555.20 profit. I would have been able to make more, but I sold early. The graph below shows the stock's 6 week Activity.

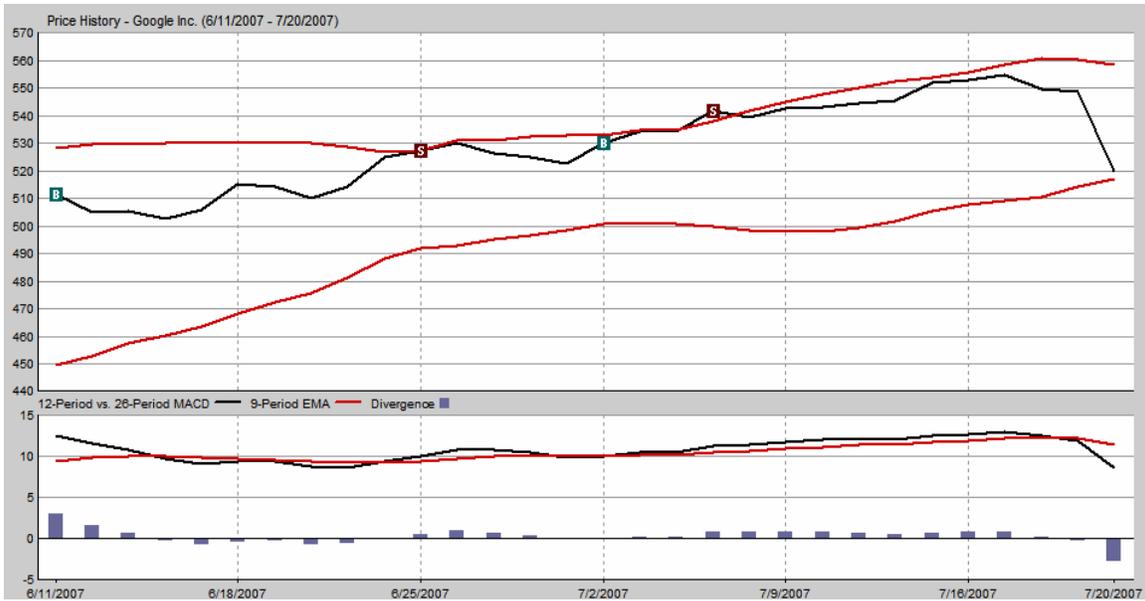


Figure 30 - Google 6 Week History

Oakley Incorporated

Oakley was an interesting stock to watch. I lucked out and purchased shares just before it was announced that the company was to be bought. After that, the stock price barely changed at all, so I was only able to make the one trade for a \$1,283.25 profit. The graph below shows the activity of Oakley's stock over the past 6 weeks.

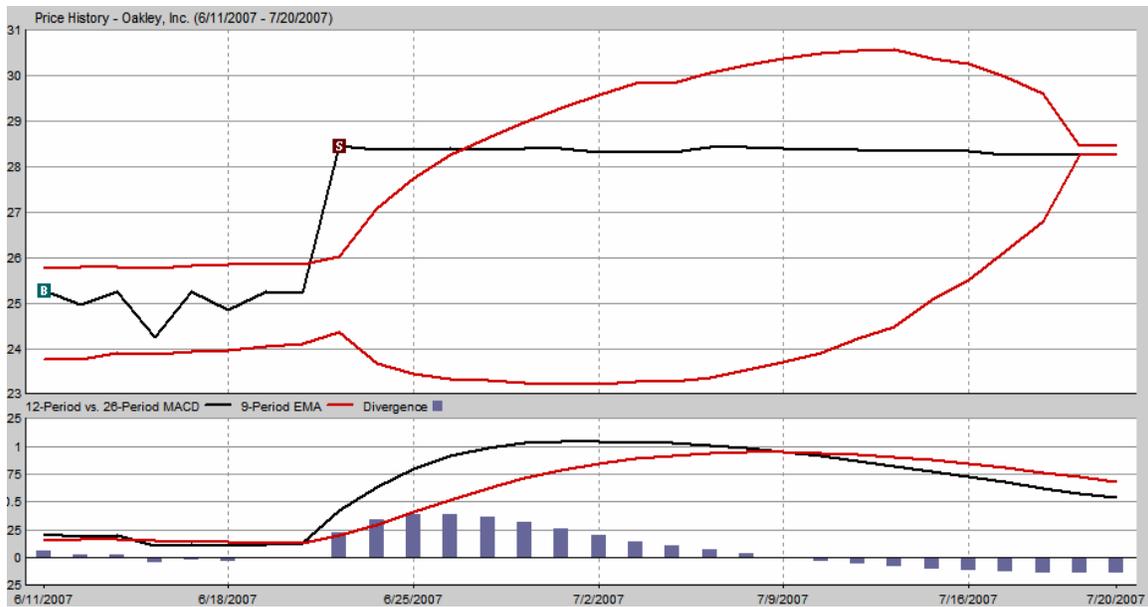


Figure 31 - Oakley 6 Week History

Solectron Corporation

Solectron was my penny stock. The stock price barely deviated more than a few pennies from my initial purchase price. In the end, I never saw enough gain to justify selling it early, so I just ended up with a small profit of \$265.45 after 6 weeks. The graph below shows the 6 week history of the stock.

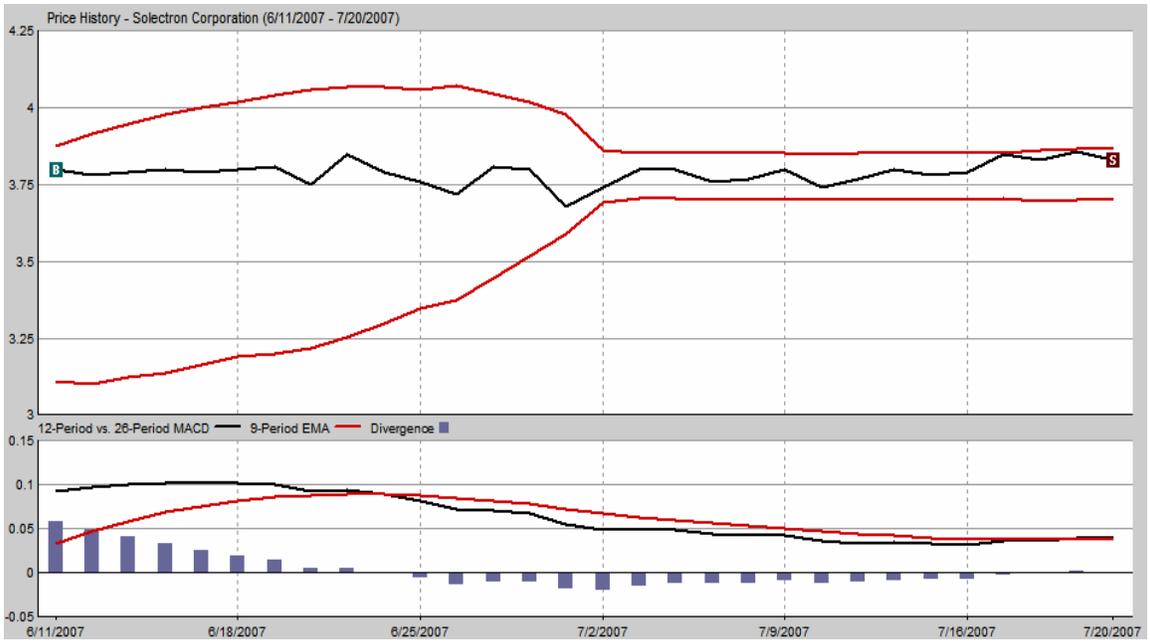


Figure 32 - Solectron 6 Week History

Chapter 7: Conclusion

This was a summer long project that ended with an IQP report. The project was designed to teach me about how to trade in the stock market. Judging from the profit I made, it seems like it was a success. I started off by researching different trading methods. I then used the best method for making money with a particular company. The most important thing I learned was to pay close attention to the trends.

Buying and selling shares based on the price vs. the Bollinger Bands seemed to work very well. Using them as indicators, I was able to sell before the stock price went down again and buy before the price went up again. The weekly graphs show the trends in exactly the same manner I used to govern my actions.

This project has been a great learning experience for me. I will use the tips and straggles later in life if I chose to invest my personal money in the stock market.

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Appendix: Proposed Timetable

WK1 May 21st – May 27th

Begin preliminary research about stock market

Write Chapters 1,2

WK2 May 28th – June 3rd

Research investment strategies

Write Chapter 3

WK3 Jun 4th – 10th

Research potential companies to invest in

Write Chapter 4

WK4-8 June 11th – July 22nd

Invest and monitor investment for 6 weeks

Write Chapters 5, 6

WK 9-11 July 23rd – August 6th

Analyze results and write up IQP report

Write Chapter 7, Finalize.