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THE BLACK & WHITE OF TECHNICAL ANALYSIS

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Abstract

The Black & White of Technical Analysis is in itself an oxymoron, because technical analysis is far from Black and White. The use of technical analysis to read the market has been used for generations, however it does not exist without those who believe it doesn't work and is nothing more than a waste of time. The overarching goal of this paper is not to sway you to one side of the argument or the other, but to help you understand what is at the heart of the argument. You should be the one who decides which side to believe in, but only when presented with both sides of the debate. Through this paper we will give a brief history of what technical analysis is and where its roots stem from. We will then begin to address the question that will lead us through our journey, which is why do the majority of traders, wealthy in experience and new to the job, use this tool daily, while college professors skip it in class and tend to denounce its significance? This idea makes it pretty obvious that there is a disconnect somewhere between professional traders and the academic community. We will attack this problem by starting to break down the six most arguably used ideals in technical analysis: the three major trends, support and resistance lines, the three types of charts, reversals, continuations, and moving averages. We will not only give examples and discuss how each of these analysis techniques are used, but we also will give some light into why people believe they do not work. I would like to again point out the purpose of this paper is not to sway you in a certain direction, but to give you both sides of the argument and allow you to make an educated assessment of the situation.

After progressing through the different analysis techniques we will attack the heart of the problem, exactly why is it that universities either do not teach, or barely scratch the surface of technical analysis; what are the pro's and con's of this? I will finally provide a proposed syllabus

to help give an idea of what a typical class would like like if one was instituted at the Pennsylvania State University.

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Chapter 1: Background

Academia vs. Real word

As I sat in my Finance 406 class, Securities Analysis and Portfolio Management with Professor Tim Simin, covering what beta determines in portfolio management, Professor Simin made an interesting comment about the text book. The class was to skip the chapter on technical analysis because it “wasn’t useful”. This struck me as odd; the textbook must have a reason for having a chapter on technical analysis. This is where the topic of my thesis stemmed from. The title, The Black & White of Technical Analysis is an oxymoron in itself. This is because there is no black and white or definitive idea about technical analysis; most, if not all of it is interpretation. Some people call technical analysis an art, others a science, while some (the academic community) believe it has no scholarly weight. The disconnect that exists here is that in my research gathering many of the most successful traders and market analysts use technical analysis every day. In fact, I challenge you to go to a major website such as Yahoo Finance, Google Finance, E*Trade, Scott Trade, the list goes on; tell me they don’t give the option to use at least the bare bones of the technical analysis toolkit. On all of these websites you will find trend lines, support lines, resistance lines, and moving averages which will all be discussed in this thesis. The question then is, if this form of market analysis is so wildly used, why is it not accepted at a learning institution like Penn State.

Initially my thesis topic was going to talk about the theory behind technical analysis; however it was quickly turned down by the head of the financial honors program, Dr. James Miles. Before I left his office he said something to me which still percolates in my mind, “If you can prove it

[Technical Analysis] works at least 51% of the time, then you will have done something nobody has ever done before.” This is a lofty goal for an undergraduate student with minimal experience in the work force. That being said, if you are reading this to find out why technical analysis works and the theory behind it, then stop reading now and go buy Technical Analysis of the Financial Markets by John Murphy. If you are reading this paper to see me disprove technical analysis, again stop reading and find an academic who believes that chart analysis is nothing but a waste of time. If you are looking to get your feet wet and be introduced to the basics of technical analysis, hear from both sides of the argument, and decide for yourself whether or not you believe technical analysis works well then I beseech, read on.

My Work Experience

It is only fair that I bequeath my background to you before you enter into this argument with me. I am currently a student at The Pennsylvania State University, by the completion of this paper I will have graduated with a degree in marketing, a minor in Supply Chain Management and Information System Technologies, and Honors in Finance. I spent one summer working for Black & Decker, and two working for Shell Oil as an Intern. The later year at Shell I worked for STUSCO, Shell Trading North America. Here is where I first used Technical Analysis and watched as traders who have been with the company thirty years, and those who had been there only thirty days, rely heavily on chart analysis to make trades they believed would turn a profit. I have researched a plethora of external sources citing why technical analysis and fundamental analysis should be used together, why technical should be used over fundamental analysis, and vica versa. By the end of this journey I hope I have aided you in deciding which side you are leaning more towards, whether it be a belief technical analysis works, or the thought that it has no use.

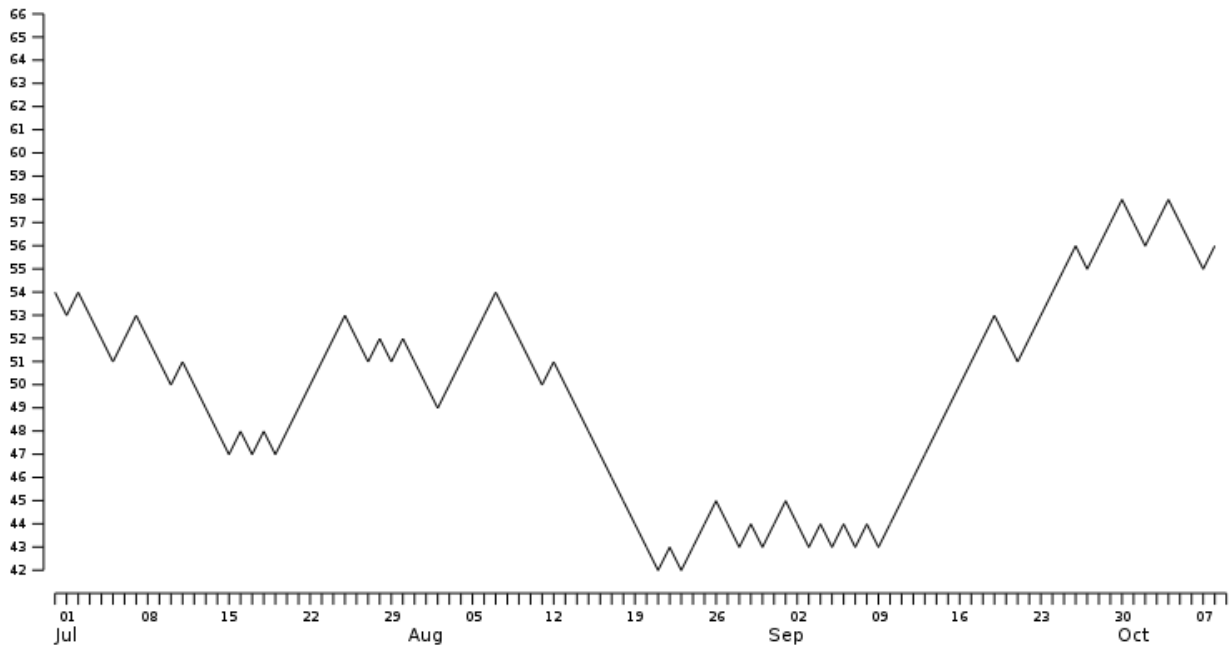
Reading a thesis written by a college student who has never had to fall asleep knowing they lost a large sum of money on one big market swing, or knows what the best sleep one has ever had feels like after making a correct prediction on the market is questionable. How can I possibly stop you, the reader, from dismissing this paper due to my lack of knowledge and experience? I would like to clarify that this thesis is not written with my biases, or information that was thrown together half hazard. I have collected data from many past market trends, industry specialists, and current traders both on Wall Street and in other industries such as energy trading and fuels trading. I have spent three months working on a trading floor observing and learning what traders look for, how they make their assumptions, and the skills they believe knowing would have helped them prior to their current position. I have spoken with traders who have been trading multiple markets for over 40 years, and traders who have been trading for less than 3 months.

I have modeled a syllabus towards the end of this paper which could be considered for a course covering the material essential to understanding the skills companies look for once you have been trained, and are ready to make live trades. Believe me, I did not sit down and write this paper in one week, I have been collecting data for well over a year and have made sure it is all from credible sources.

Common Beliefs

One of the most widely accepted, and debated for that matter, common belief is the random walk theory. Many economists believe that the market cannot be predicted, and due to the randomness of stock prices the market is efficient. Burton G. Malkiel, a university professor at Princeton did a study in one of his classes to try and prove that the market is random and charting doesn't work, thus justifying that predictions cannot be made based on the past. He and his class created

a fictional stock and started it at the price \$50. They then flipped a coin repeatedly over the course of a semester which simulated the randomness of the market. If the coin was heads the stock grew \$1, if the coin was tails the stock fell \$1. The following was the result of the project (Figure 1)¹:



Professor Malkiel took the chart seen above to a chartist and asked his opinion. The chartist strongly suggested buying the stock. Professor Malkiel claimed that the chart was formed on randomly generated information which makes it impossible to predict buying the stock would be beneficial. It is cases like this that have really hurt the credibility of both technical analysis and charting because to those who do not understand technical analysis this seems like a well performed experiment, when in actuality it has no credibility. A coin flip, and more importantly the chart above, cannot be considered the same as the market. The market has many different indicators that work hand in hand with charting to effectively give a picture of the trending

¹ "Random Walk Hypothesis." *Wikipedia, the Free Encyclopedia*. Ed. Wikipedia. 3 Nov. 2009. Web, 14 Apr, 2010. <http://en.wikipedia.org/wiki/Random_walk_hypothesis>.

market. One of the most important that will be covered in this paper is volume. The chart above that the professor gave to a chartist has no indicators for the strength of each move. The only thing that this experiment may have proven is that the chartist the professor went to had no idea what he was doing. Again, I would like to reiterated, studies like this will turn people away from technical analysis before they ever give it a chance.

I have not met a professor yet who does not teach the random walk theory in any sort of investment class. Alternatively, I have met very few professors willing to cover technical analysis in class, and have not seen a class yet dedicated solely to technical analysis. I want to correct myself at this point before we go any further, I may be painting a picture here that there are only two extremes. Either you believe the market is completely random, thus technical analysis is not creditable, or you believe that market can be predicted so technical analysis is the answer. Please do not make this comparison, and if you have get it out of your head now. There are many other ways that people try to beat the market such as fundamental analysis.

Those that believe technical analysis works will all tell you the same thing; it is not as much science as it is art. This is where I believe much the disconnect between academia and technical analysis lives. Think back with me to all those professor you had in college finance courses, they were great with numbers, and when it came to analysis and research they were brilliant, but how many of them really were completely radical outside the box thinkers? I may be able to name one, and he was in favor of technical analysis. The reason I bring this up is because it is very difficult to accept something that is not based on numbers and math when that is what you have seen work for you in the past successfully, and when it is something you are good at. That is why I believe that there is such a large disconnect.

Chapter 2: Technical Analysis

History

Technical Analysis is by no means a new phenomenon that people have just discovered in the past couple years. In actuality it can be traced back as far as the mid 1700's to a rice trader named Homma Muneshia, but it started to gain a following after articles were published by Charles H. Dow in the Wall Street Journal between 1900 and 1902. Today, many people refer to John J. Murphy as the father of technical analysis for his book Technical Analysis of the Financial Markets. Others have come onto the scene in recent years however; one of the strongest advocates is Walter J. Zimmermann Jr. These two men's theories will be used in much of this paper to describe the different uses of technical analysis.

Let us begin with a quick history lesson, as previously stated technical analysis in its current form has been around since the beginning of the 1900's. The basic concepts of this form of analysis did not begin to gain wide-spread popularity until around 1922. At this time many economists and analysts began to try and develop more analytical tools based on a simple thought, what we know today as the random walk theory is incorrect. In an article in the *Journal of the American Statistical Association*, Henry Schultz summed it up by saying, "Close study reveals the fact that the stock market is a creature of trade, and a trailer after it, and not a leader or a maker of trade conditions."² When confronted by those who did not believe past trends can be projected towards the future his response was,

² 1925 Schultz, Henry, Forecasting Security Prices, Journal of the American Statistical Association, Volume 20, Issue 150 (Jun, 1925), 245

“Many years ago it was believed that pig iron was a good forecaster for the stock market, and now many persons think that one forecast successfully just through observation of blast furnace capacity, and nothing else. There is no question that these indices are worth studying.”³

Observing the history of technical analysis illustrates that one of the biggest reasons for its lack of acceptance is the random walk theory. This is because for the random walk theory to be true, in premise technical analysis and trend analysis must be false, therefore a conclusion can be drawn that if the random walk theory is widely accepted then technical analysis can never become universally accepted. This argument has dated as far back as 1934, when Willford King tried to dispel beliefs about the random walk theory.

“In two respects at least, the movements of stock prices are different than cumulative chance phenomenon:

1. Unlike chance data, stock prices cannot go below zero
2. The fact that stock prices are tied to earnings definitely limits the altitude to which they can climb.”⁴

By the 1960’s market analysts began to try and combine theories, one of which was Sidney S. Alexander, a professor of industrial management. He believed that the two main schools of

³ 1925 Schultz, Henry, Forecasting Security Prices, Journal of the American Statistical Association, Volume 20, Issue 150 (Jun, 1925), 246

⁴ 1934 King, Willford I., Technical Methods of Forecasting Stock Prices, Journal of the American Statistical Association, Volume 29, Issue 187 (Sep, 1934), 323-325.

thought, fundamental and technical, actually agreed on a basic assumption. The only place they differed was the tools used to try and predict where the market was headed.⁵

Today, technical analysis is widely used by all those in the industry ranging from day traders to Wall Street investors. Technical analysis is a tool that no investor should turn away from before attempting to understand how it is used. There are different schools of thought on the matter. While some believe technical analysis is nothing but a short cut, and doesn't actually give a complete understanding of how the market is trading, others feel you can use technical analysis as a sole analytical tool. There is a third group which I fall under which believe that every form of analysis should be used if you believe it will help you in the end, and give you a better picture of the market.

Philosophy

Let us begin the philosophy of technical analysis with this simple theory, if everyone in the world believed technical analysis worked, than technical analysis would work. I know what you're thinking, if enough people believe anything, it becomes reality. Technical analysis however is based on two things, the first is price. Technical analysis focuses on past prices, and current prices, applies trends and patterns through the technique of charting to forecast the markets future. The second thing technical analysis is based on is psychology. Now before you roll your eyes, quit reading, and exclaim that staring at charts has nothing to do with psychology, hear me out. When you drive your car and step on the gas, what do you expect to happen? I am hoping your answer is gas is injected into the engines cylinders create an explosion propelling a

⁵ 1964' Alexander, Sidney S., Price Movements in Speculative Markets: Trends or Random Walks, 1964.

piston downward with force that is transferred to the tires propelling you onward; or a simple I go faster, would work as well. Now you would be correct, but how do you know that? Were you taught how engines work? Are you a mechanic? The odds to most of these questions are no, but you still know your car goes faster when you push down the gas pedal, how? The answer is experience. You have been driving for years now and it stands true that every time you push the gas pedal down you speed up. You expect it to happen, you know it will happen. Now look at technical analysis. If everyone in the world believes that when a certain pattern presents itself on a chart and is a signal to buy, everyone in the world is going to buy. Due to the nature of the market if everyone buys, the market is going to go up, fulfilling on the prophecy of the pattern. That being said, I am not going to argue for this situation, in fact I will actually argue this presented situation is not ideal because if everyone in the market is moving in the same direction, nothing would ever be accomplished, things would be incredibly inflated, and let's just say the situation would be bad.

One of the strongest arguments against technical analysis is that it doesn't take everything that is happening in the world into account. Despite a technician looking at charts, data, raw numbers, and mathematical formulas, they are basically studying human behavior. If you can keep this ideal in mind through the reading of this paper as a guiding light you can see why this technique appeals to so many. To try and simplify technical analysis even further we can say that two overarching emotions control all aspects of a person's decisions, fear and greed. In the simplest world fear causes people to either sell a stock before it falls too far in a downtrend or pull out of a market when it reaches what they believe to be the top of an uptrend. Greed on the other hand causes people to hold onto their stock longer during a downtrend in the market hoping for a recovery, to gain back some money, or buy more during an uptrend hoping to ride the wave.

Keeping these two emotions in mind can lead you to believe a stock's price change over time is actually an indication of a nation's emotional state. Chip Anderson of Chart Watchers says it best, "Technical Analysis at its core is a study of crowd behavior."⁶

As mentioned in the abstract, this paper would try to address some of the criticisms put forth by both sides of the argument, those that believe in, and those who do not believe in technical analysis. Another philosophy of technical analysis is that it is a tool that can and should be used by individuals to predict the market. When was the last time a weather forecast was 100% correct? They are almost never right, but if they say it is going to rain, even if it doesn't rain there are at least clouds. Technical analysis should be used similarly. If you see a reversal signal, it is not a good idea to put all your eggs in one basket and push all in hoping to see a swing in the market; this is not an intelligent move. Use everything you gather from your charting skills and apply it to everything else you have learned, such as fundamental analysis, and economics. This is what truly will give you the best results; technical analysis is a tool that should be used with discretion in the trader's tool box.

Principles

It is important to understand the most basic ideals behind technical analysis before you pass judgment on whether what is being debated on these pages are the ramblings of a mad man, or common sense that until this point has gone unnoticed. It is with this in mind, that many of the more common techniques will be described with explanations on how they are used. I also will make attempts at describing some of the reasons why people believe this technical analysis technique does not work.

⁶ Anderson, Chip. "Defining Technical Analysis." *Chart Watchers*, (25 Jan, 2009). Print

1.) The first technique is the most basic of charting tools that the typical analyst has in his tool box. In fact it isn't even a charting technique, it is a trend. There are three major trends, or phases they can also be called, that the market is known to live within. The first two are the more obvious trends; these are up, and down trends. An uptrend is a trend that is pushing the price of a stock, or market, up (higher). This is normally the trend that people associate with investors making money, which in many cases is true, except in cases where traders and investors are shorting a stock. A downtrend is by definition the opposite of an uptrend. A downtrend shows a move in the market lowering price and moving the stock, or market, downward. Look at Figure 2 below. The figure portrays what both an uptrend and a downtrend look like.



(Figure 2 above)⁷ The figure above appropriately shows three good examples of up and down trends. Example A. shows a good example of the market trending upward starting at around 800 and moving to approx 1600. Example B. shows an example of a downtrend which is started at approximately 1500 and ends at 800. Example C. shows another example of an uptrend; however, this trend is much longer than the others and actually incorporates both trends A and B as well as others. Over the long term, this is an upward trend.

As I previously stated there are three trends. We have seen up, and downtrends, where else is there to go? Anyone who follows the market knows this last trend is the hardest to make money off of, and often the most frustrating. A sideways trend is one in which the market is not going up, nor down, but seems to just be moving sideways incorporating into itself both up and downtrends that keep canceling each other out. Below is an example of the market trending sideways.



⁷ Swenlin, Carl. "Decision Point." *Chart Watchers*, (22 Feb, 2009). Print

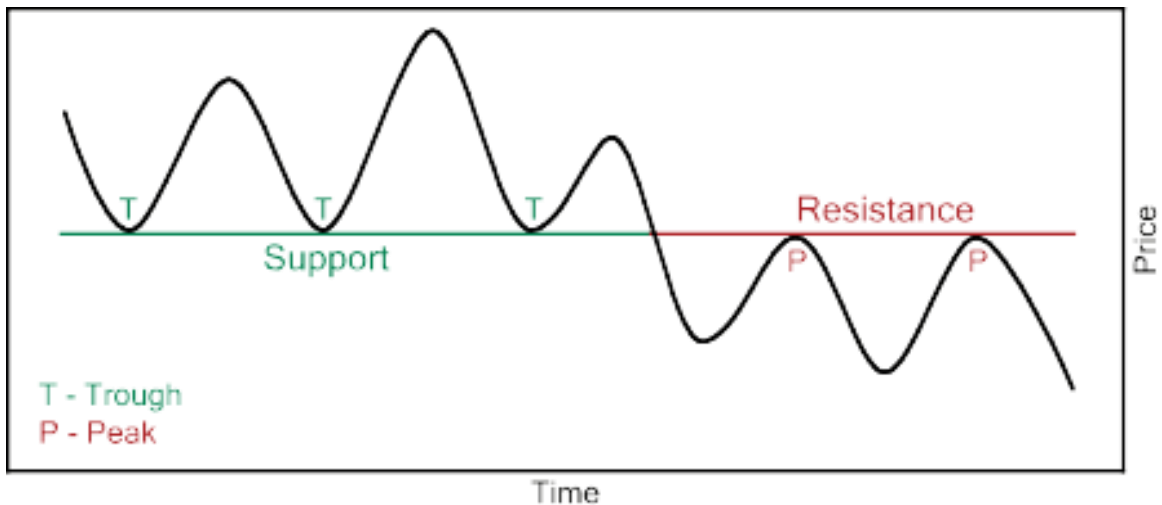
(Figure 3 above)⁸ Observe that the market is actually moving sideways here, it is not going up or down over the length of the example. It is vital to point out there can be up and downtrends in the short term while the long term could be trending sideways. It is important to keep this in mind going forward.

2.) Now that we understand trends in charting and technical analysis let's talk about those lines we saw in Figure 2 on either side of the market movements. There are two different lines which are used by technicians to aid their understanding of which way the market is trending, these are support and resistance lines. A support line is one that is placed below the market and is used to give the technician an idea of where the market will rebound each ensuing downtrend. A resistance line does that exact opposite of a support line. A resistance line is placed above the market and is used to give the technician an idea of where the market will top off with each ensuing uptrend. The part that becomes tricky is that in many situations the role of the two different lines can switch. Now if I lost you there, do not worry, psychology comes into play, and this gives us our first opportunity to discuss why people claim technical analysis does not work. Below in Figure 4 you will see examples of not only support and resistance lines, but how they can switch.

(Figure 4 below)⁹ Notice how at the beginning of the movement the trend line is actually a support line. Three times the support line is tested by a downtrend and holds, that is until it is tested a fourth time. On the fourth time the market breaks the trend line.

⁸ Pontikas, John, and Brian Dibbins. "Learn How to Trade Profitably." *Learn How To Trade Profitably*. 2006. Web, 04 Apr, 2010. <http://www.tradeprofitably.com/Trade_the_Trend.html>.

⁹ Anderson, Chip. "Chart Analysis Support & Resistance." *Chart Watchers*, (30 May, 2009). Print



Now I know what you are thinking, and yes there is an answer to it. Why does the market return to the same trend line and once broken use it as a resistance line in comparison to previously using it as a support line. This is where the psychological part of technical analysis comes into play. Those who invested in the market when the trend line was a support line believed the support line was strong enough to hold, and the market would not break through the support line. Once it did however, all those people that were still in possession of their investment want to lose as little money as possible. This desire to lose as little money as possible causes them to not sell their investment immediately, but to hold on to it until it reproaches what was previously the support line. Once the market returns to the previous support line all those still holding their investment sell, with the idea of losing as little as possible, this forces the market back down, creating what is now a resistance line.

This brings us to our first chance to debate whether or not this technique of technical analysis actually works. Those who are against the validity of technical analysis claim that many times resistance and support lines are broken, yet the current market trend continues. For me to tell you they are wrong, would involve me lying, which goes against everything I am trying to do in this

paper. Yes, let me be clear, many times your trend line will be broken yet the trend will continue, and this is why technical analysis is not only a science but an art. There are many things that go into market trending not just fictional lines that show market trends. Volatility and strength of movement are just two things that can affect it. See Figure 5 below, notice that the support line is broken turning it into a resistance line, then is broken three more times, yet it remains a resistance line.



(Figure 5 above)¹⁰ It is important to remember that the trend lines you create are fictional they are tools used to help aid you perceptually in which way the market is going to move.

Since trend lines are estimates, there is room for error. If a market is extremely volatile it only makes sense that it is less predictable. So why did I mention before that technical analysis is an art? It is because some instances allow you to make your own rules. Not every break in a trend line is what is considered a valid break. There are different rules of thumb for this so for

¹⁰ Anderson, Chip. "Chart Analysis Support & Resistance." *Chart Watchers*, (30 May, 2009). Print

simplicity I will share one of them. For long term trends a break in a trend line of 3% can constitute a valid break. In other words if a trend line is at \$300, and the market breaks the line and closes (it is important to note it most close at this price) \$9 lower, this can be used as a valid break. It can be suspected at this point, the trend line will switch from a support to a resistance line.¹¹ It is extremely important to note here that this number of 3% is nothing more than a number, the art consists of picking the right number. A volatile market may cause you to increase the number to 5% because of the nature of larger swings, while a market with little volatility could cause you to reduce the number to 2%. Finally, remember that the 3% rule is for long term trend lines. If you are going to be using support and resistance lines in the short term it is important to combine the techniques learned with those that will later be discussed in this paper and others that can be found in lengthy readings on this subject. It is also essential to mention that in the short term the 3% rule should be greatly reduced, using a rule of 1% or .75% would be more appropriate again taking volatility, and strength of movement which will be discussed later into account.

3.) If I were to tell every reader of this document to go to yahoo, and search the internet for what a technicians chart would look like, here are some of things I would get:

¹¹ Murphy, John J., and John J. Murphy. *Technical Analysis of the Financial Markets: a Comprehensive Guide to Trading Methods and Applications*. New York: New York Institute of Finance, 1999. Print.

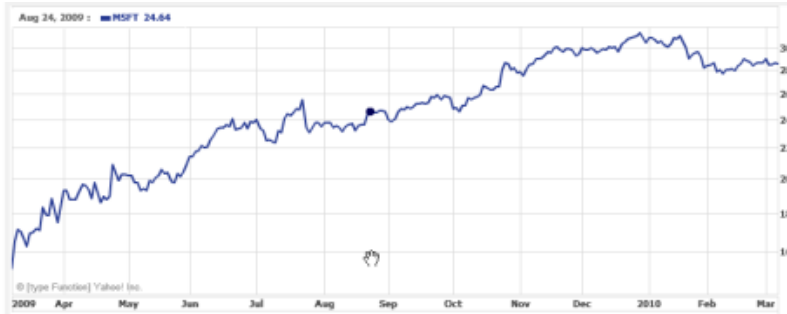


Figure 6. (Line Chart)¹²



Figure 7. (Candle Stick Chart)¹⁰

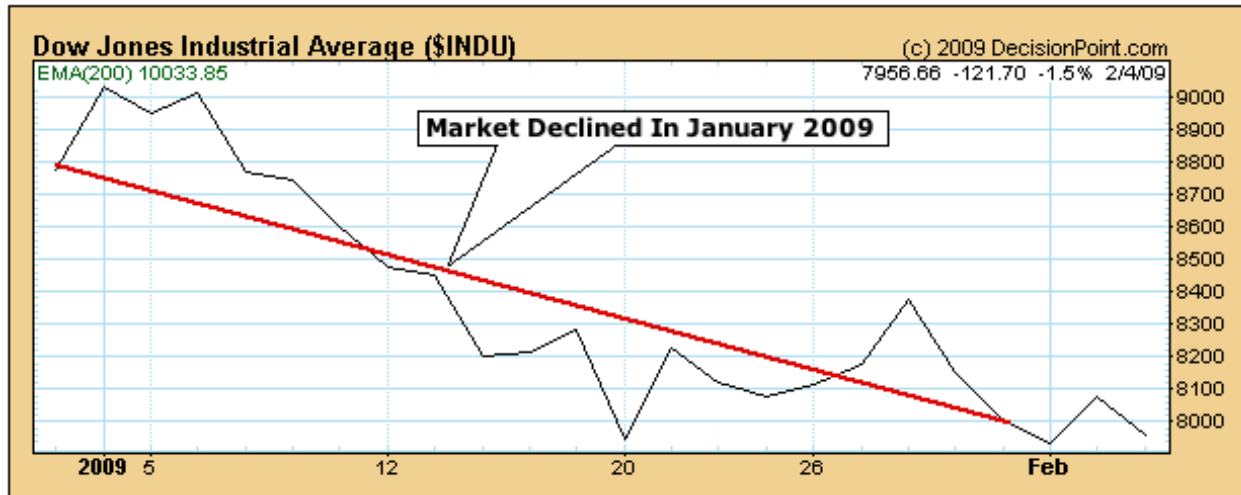


Figure8. (Bar Chart OHLC)¹⁰

Why do these three charts, all of Microsoft appear to be so different? It is because in the technician's tool box there are different types of charts that can be used to identify different indicators. The first chart is a line chart, and it is the simplest of the three charts. There is not much to be said about a line chart, other than it is the easiest to read and is good for a quick glance as to what the market is doing.

¹² "Microsoft Corporation (MSFT)." *Http://finance.yahoo.com*. Ed. Yahoo. Yahoo.com, 08 Mar, 2010. Web, 08 Mar, 2010.

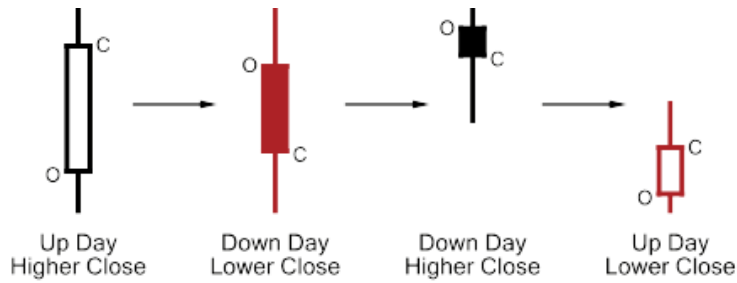
<<http://finance.yahoo.com/echarts?s=MSFT#chart12:symbol=msft;range=6m;indicator=volume;charttype=ohlc;cr osshair=on;ohlcvolumes=0;logscale=on;source=undefined>>.



(Figure 9 above)¹³ Notice the chart above has a simple line with each day's close. These charts are good to get a quick understanding of which way the market is currently trending based on the close of each day, week, or month depending on the time period of the chart.

The second type of chart that will be discussed has in recent years gathered an enormous following and has recently been the chart of choice for those advent technical analysis users. The Candle Stick Chart is extremely useful as it not only identifies the close for each period, but also identifies the high, low, and opening. The importance of this is the technician can see a day's volatility, and more importantly, can show if at any part of the day the market broke any trend lines.

¹³ Swenlin, Charles. "January Forecasts a Down Year." *Chart Watchers*, (09 Feb, 2009). Print



(Figure 10 to the left)¹⁴ These are examples of what typical candlesticks look like. If the closing price is above the opening price, the body will be

displayed hollow and black/green outlined. If the closing price is below the opening price, the body will be filled red. (The following is an exception: if the closing price is higher than the previous day's closing price, the body will then be filled black/green.)

For each individual candlestick we can understand the high, low, open, close, and whether the day was up or down. This is significantly more information than we could extract from a line chart. When we begin digging deeper into the psychological aspects of candlesticks we find the interesting part. An up day, which results in a higher close, is typically based on expectation. The length of the body is also extremely important in indicating the strength of the buying power. In other words, the longer the body the stronger the buying power was. A down day with a lower close is the exact opposite; it signals the fear of a lower close outweighs the expectation of a higher close, as before the length of the body signals significance. There are two rare candlesticks shown in Figure 10, these are the down day with a higher close, and an up day with a lower close. For these to occur there must be an opening gap in price from the previous day. (A gap is defined as a price range where no trading takes place and is the result of a significant change in demand.) The body must move in the opposite direction of the previous day, while still not passing the previous day's close. So in the case of an up day lower close, there is an opening

¹⁴ Anderson, Chip. "Candlestick Charts." *Chart Watchers*, (06 April, 2009). Print

gap down in price from the previous day with a closing higher than the days open. Figure 11 below gives an example.

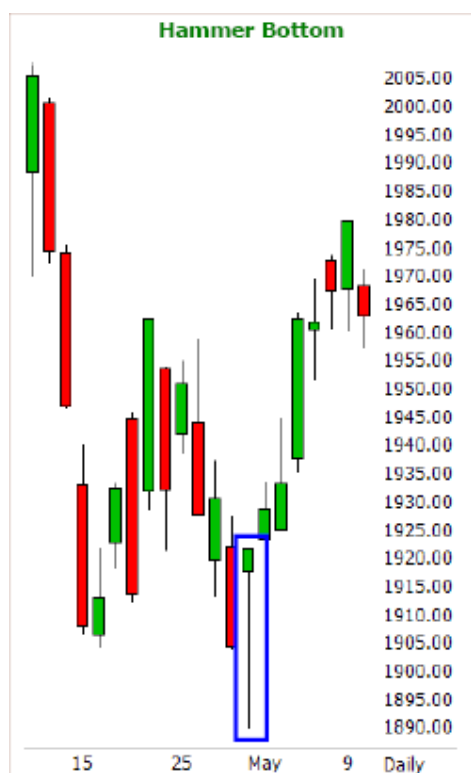


(Figure 11 above)¹⁵ Notice that the down day higher close gives a bearish signal because buying at the beginning of the day reversed but still closed higher than the previous day; this normally occurs well into a price upward movement. The up day lower close portrays a bullish signal since initial strong selling in the day becomes exhausted and buyers push the price higher at close.

Another benefit of candlestick charts are certain indicators that can be used to show reversals and continuations to help predict the direction in which the market will be moving. While there are many different reversal patterns, some more complex than others, for purposes of time and simplicity I am only going to give a brief overview and show two of the most bullish simple reversal patterns, and two of the most bearish reversal patterns. I would like to again reiterate

¹⁵ Anderson, Chip. "Candlestick Charts." *Chart Watchers*, (06 April, 2009). Print

that if you want to learn more about this area, additional research should be taken up in regards to simple reversal patterns, complex reversal patterns, and continuation patterns.



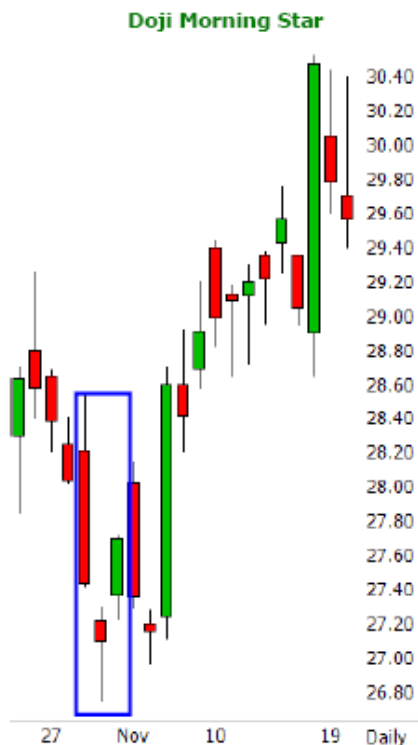
(Figure 12 to the left)¹⁶ The first simple reversal pattern is the Hammer Bottom (Nasdaq chart, April 29th, 2005). The theory behind the name stems from the highlighted candlestick. Notice the long shadow which looks like a handle leading up to the small body that looks like the head of a hammer. The hammer is a bullish reversal that appears in a down trending market. Hammers can mark good points to create support lines. In theory, the extreme drop in shadow signifies the sellers driving the price downward but at the end of the day regained their footing by driving price upward to finish on a strong mark. The Hammer Bottom by

itself is a good indication of a changing market, however many traders can be lulled into a false sense of security that the market is changing if the strength of the move is not taken into account. We will talk about volume later, but expanding volume is important if this reversal is to be sustained.¹⁷

¹⁶ Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

¹⁷ *Chart School*. StockCharts.com, 1999. Web, 8 Mar, 2010.

<http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:introduction_to_candlesticks#hammer_and_hanging_m>



(Figure 13 to the left)¹⁸ This pattern is called the Doji Morning Star, and is a little bit different than the previous reversal because this reversal encompasses three candlesticks instead of one (Brent chart, Oct. 2003). The first candlestick takes a sharp drop, the second is a gap down to the Doji Star itself, followed by the third candlestick showing a confirming rally. The first candlestick in the reversal shows a continuation of the downtrend in the market, this is followed by the candle known at the Doji Star candle, this signifies the diminishing drive of sellers in the market. Finally this reversal pattern is confirmed if

the following day there is a strong bullish single portrayed by an up day higher close with a relatively long body.¹⁹

(Figure 14 to the right)²⁰ The Shooting star top is the first bearish simple reversal we will discuss (Euro chart, Dec. 2004). It is characterized by a very long shadow above a very tiny body. This reversal also has no shadow below the body. The structure behind the Shooting Star Top begins with



¹⁸ Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

¹⁹ *Candlesticker*. Americanbulls.com. Web, 8 Mar, 2010. <<http://www.candlesticker.com/Cs60.asp>>.

²⁰ Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

opening the day bullish. Throughout the day prices continued to increase until the market eventually finds resistance and forces push the price back down often causing the day to close lower than it had started. The occurrence of this reversal is often regarded as the most significant reversal pattern used in candlesticks.²¹



(Figure 15 to the left)²² The final reversal pattern we will look at is called the Dark Cloud Cover (Dow Jones Transport Average Chart, 1999). The name signifies the almost engulfing action performed by the reversal pattern. The rule states more than half of the upper 50% of the prior green candlestick's body must be engulfed by the proceeding red candlestick's body. The theory behind this move begins with the market up trending, followed by a gap, at this point the technician should be alerted by the jump caused by the gap which normally signals that the bulls

retain control. In this case we see the market changes drastically closing at or near the day's low.

Short sellers now have the opportunity to set a stop at the following days high.²³

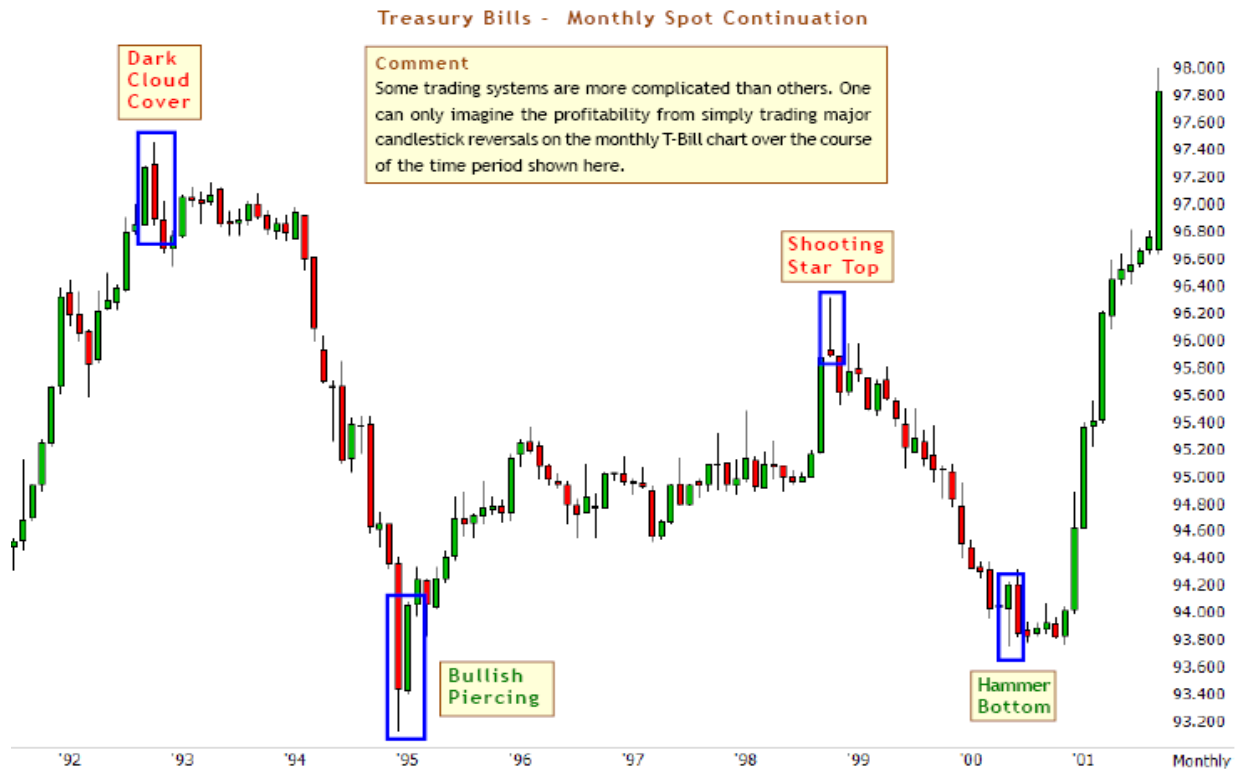
²¹ *Online Trading Concepts*. Onlinetradingconcepts.com, 2007. Web, 8 Mar, 2010.

<<http://www.onlinetradingconcepts.com/TechnicalAnalysis/Candlesticks/ShootingStar.html>>.

²² Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

²³ *Candlesticker*. Americanbulls.com. Web, 8 Mar, 2010. <<http://www.candlesticker.com/Cs48.asp>>.

Now that we have some experience with some of the reversal patterns let's take a look at how they fit together:



(Figure 16 above)²⁴ This is an actual chart of Treasury Bills from 1992-2002. Notice each of the reversal trends that were discussed earlier and how they would have preemptively notified a technician of market swings.

Since we have a basic understanding of exactly what candlesticks are and how they are used, you may be thinking to yourself why everyone doesn't use this form of technical analysis if all this information is at their finger tips. Well staying true to my promise of discussing why people feel

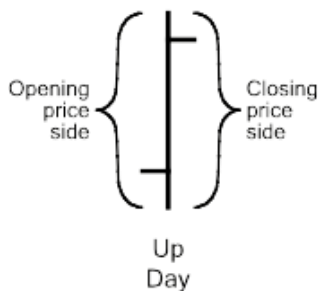
²⁴ Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

this technique doesn't work, there is a small caveat. While I can sit here and feed you, the reader, hundreds of perfect examples as to why this charting technique is so useful, you still need to have an eye to pick out these reversal patterns yourself. This however is similar to almost all real life situations, a salesperson must know the appropriate time to vie for commitment, too soon they risk pushing too hard, too late, and the sale may be made by a competitor. It comes with practice and careful study of the market. The biggest argument against the use of candlesticks in technical analysis is that the patterns are made up, and there is no actual theory behind them other than the patterns in the past have predicted future results. While this is completely true, the argument against it is rooted in the battle between fundamental analysis and candlestick analysis. In fundamental analysis there are always a wide range of variables that are actively affecting price action, however the relevance of each fundamental variable can always be debated. A Hammer Bottom leaves no room for debate or doubt. Over the course of the development of this one candlestick we can see a complete and total reversal. The time period of a Hammer Bottom begins with supply overwhelming demand and prices being pressured to new lows on the down trend. The time period ends with insufficient supply and unfulfilled demand that rallies prices to new highs on the rebound.²⁵ While this may not be the technical answer you are looking for, it is a valid argument on both sides.

Without actual data and all market forces being taken into account can we be 100% confident? Can we just use price, trend lines and candlestick patterns to give us an idea of where the market will turn next? The only thing that can be stated for sure is, doing both fundamental and candlestick analysis coupled together won't hurt.

²⁵ Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

We will be wrapping up this section with the bar chart or OHLC (Open-High-Low-Close) chart because it is arguably the most utilized chart today, although the candlestick chart is gaining a lot of acceptance. Thinking all the way back to Figure 8 the bar chart carries similar information to the candlestick chart. The easiest way to think about it is as a happy medium between candlestick charts and line charts. The bar chart, while giving more information than a line chart (high, low, open, close, and whether it was up or down for the day) does not take into account all of the special reversals that were discussed with the candlestick chart (this also includes all of the reversals and continuations not discussed). Many people start out using these charts and move to candlestick charts once they are comfortable, since all of the patterns that bar charts use can also be used in Line and candlestick charts. Figure 17 gives examples of what a bar in a bar chart looks like, and how it is read.



(Figure 17 to the left)²⁶ Notice the left side of the bar is the open, and the right side of the bar is the close. The line protruding on the left side is the days open, while the line protruding on the right side is the day's close.

The vertical line's top is the day's high, while the vertical lines bottom, is the day's low. It is important to note that in the case of color bars a down day is red, while an up day is green/black.

²⁶ Anderson, Chip. "OHLC Charts." *Chart Watchers*, (23 March, 2009). Print

An example of a bar chart can be seen below in Figure 18²⁷:



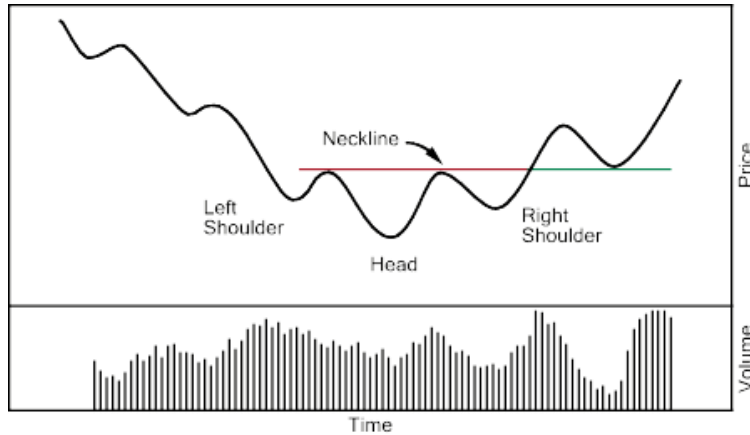
4.) A good trader knows when the market has turned and is trending in a new direction. The trader quickly changes their position to benefit from the new trend. A great trader sees the market changing before it actually does, and is a first mover on the market. These traders benefit not only because they can now ride out the full length of the new trend from the very beginning until its end, but since they made a move on the market before everyone else, the lag time of all other players in the market will then force the market in its new direction with stronger resistance, or support lines. The initial spike in share price due to second movers in the market will give the first movers a nice bonus.

So how is it that some traders know the market is going to change before it actually does? There are a lot of reasons, pick up a Wall Street Journal in the early morning before the market opens and you will find a lot of them. Company's missing or exceeding quarterly projections, companies laying off workers, or making risky business purchases. These things can all affect

²⁷ Anderson, Chip. "OHLC Color Charts." *Chart Watchers*, (23 March, 2009). Print

the market price, and seemingly create swings the market. That being said, something we need to remember can be clearly stated by comedian Jerry Seinfeld, “It’s amazing that the amount of news that happens in the world every day always just exactly fits the newspaper.” There are many beliefs out there that a stock price is based off of complete information, this idea is foolish. There is no such thing as complete information; traders are constantly making assumptions on the market, which is a lot of what technical analysis is, assumptions.

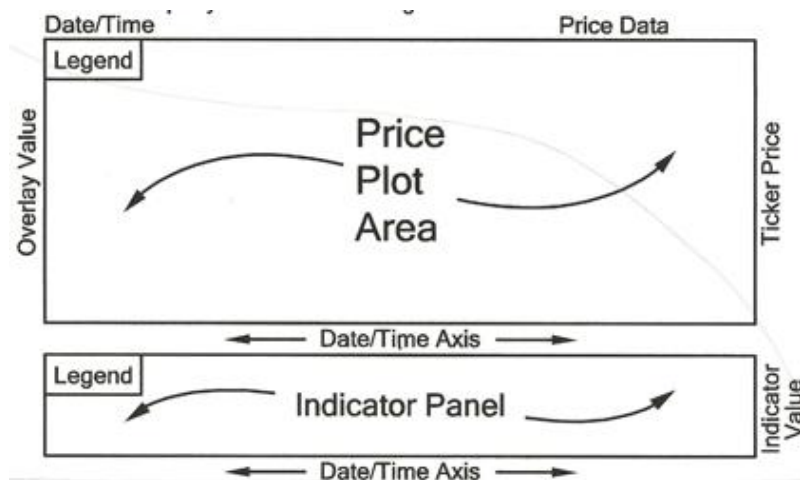
This leads into the next point, reversal patterns. A reversal pattern is a pattern that signals a change in the market. The most common is a head and shoulders reversal pattern. This pattern has existed for almost as long as technical analysis has been used. The head and shoulders pattern is characterized as a spike in price, (either direction up or down) followed by a rebound to what is known as the neckline (can be either a support or resistance line). The price then spikes again in the same direction, this time further from the neckline than the first spike. Again however it returns to the neckline on a rebound. The price then proceeds to spike one final time to approximately the same price as the first spike before rebounding one final time, only this time breaking through the neckline. To complete this reversal pattern the neckline has now switched (support is now resistance or vice versa) and the market tests the neckline once before moving away from it in the opposite direction.



(Figure 19 to the left)²⁸ Notice that the pattern forms three humps, the left shoulder, the middle head, and the right shoulder. This is where the reversal pattern gets its name. Once the neckline is broken notice its

switch from a resistance, to support line. This confirms the reversal pattern.

Now that you understand what to look for in a reversal pattern I feel it is finally appropriate to explain what I have been putting off thus far about the market confirming the move or trend. Up to this point we have been looking at only the plot price area, but that is only half the picture. To truly understand charting you need to understand if there is any strength behind the movement. Notice in Figure 19 that there are volume bars along the bottom of the chart. This area is known as the indicator panel. Figure 20²⁹ below gives a clear breakdown of the typical layout.



²⁸ Anderson, Chip. "The Infamous Head and Shoulders Reversal Pattern." *Chart Watchers*, (5 October, 2009). Print

²⁹ Anderson, Chip. "Price Chart." *Chart Watchers*, (9 March, 2009). Print

The indicator panel is used to confirm strength of movement for trends and patterns in the chart above. Notice in Figure 19 that the volume seems to increase with every rebound in the head and shoulders pattern. This means that there is increased volume in the number of positions traders are taking, it also means the strength of the movement is strong. Notice that with each reoccurring rebound volume increases as well. The strongest volume is seen on the final rebound when the neckline is broken, and the very first time the neckline supports the new trend. This is a strong signal that the market has now switched and is trending in a new direction.

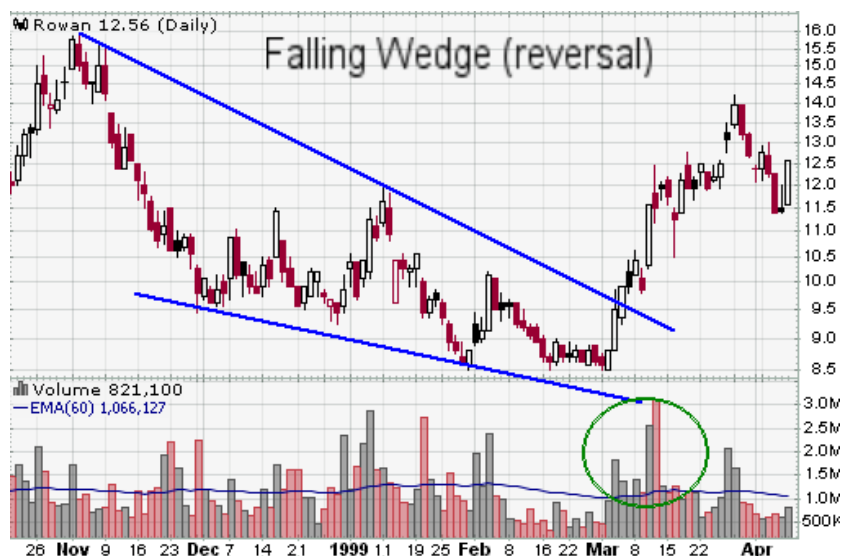
To make sure that you have a strong understanding of reversals before moving on to the next topic we will cover one more example of a reversal pattern, the falling wedge. The falling wedge is a bit more complex than the head and shoulders reversal pattern, so we will cover the basics of what to look for in a falling wedge. The falling wedge is not a pattern that happens overnight, which none of the reversal patterns are. The falling wedge takes about three-to-six months to complete itself, with an initial downtrend of approximately two-to-three months. There are two trend lines used in this pattern, unlike the one neckline in the head and shoulders reversal. The first is a resistance line which can be drawn to touch the two highest peaks over the three month downtrend. A support line should be drawn in coherence with the two lowest prices over the three months time.

At this point a chartist will notice the first giveaway that a falling wedge may be forming. In this case the two trend lines will start very far apart and over the course of time gradually get closer to each other forming a wedge. As the two trend lines near each other the chartist may see the price break the resistance line on top. If this occurs the volume should be consulted to see the strength of the movement. If the volume for this movement was strong the pattern is a reversal. If

the strength of the break in the resistance line was weak, you can expect the current downtrend to continue.

(Figure 21 to the right)³⁰

Notice the wedge forming due to the steeper slope of the resistance line compared to the support line. This is the first signal that this pattern is forming. It is important to always keep a look out for reversal patterns.



Now that we understand reversal patterns, why is it that these patterns are not used by all individuals, and are denounced by those who are not in favor of technical analysis? The reason is that these patterns do not always work well. There are continuation patterns that I will discuss next which at first glance look similar if not exactly the same as a reversal pattern. This is highly criticized, how can you have a head and shoulders reversal pattern, but also a head and shoulders continuation pattern? There are some differences, but not many. Also reversal patterns depend heavily on a strong movement in volume at the tail end of the pattern to come to fruition. A

³⁰ Chart School. StockCharts.com, 1999. Web, 3 April, 2010.
<http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:chart_patterns:falling_wedge_revers>

possible reversal that a trader can be observing over a three month period could turn out to be nothing in its final week due to lack of strength. With that being said it will never hurt you to understand reversal patterns because it could signal a reversal is coming. Anything that can be used to tip you off in regards to an impending change should not be discarded even if it doesn't always work out like an example from a textbook.

5.) The next topic we will discuss is the opposite of a reversal pattern, it is a continuation pattern. A continuation pattern is a pattern seen in the market that signals the current trend, whether it be up or down, is going to continue. There are many different kinds of continuation patterns, so we will continue our trend thus far and give two examples. The first is a very common pattern known as the flag. The flag has a couple very unique characteristics which typically make it easy to see. The first is a very long "Flag Pole" forming in the direction of whichever way the market is currently trending. The market will then attempt to balance itself out by having a relatively short trend in the opposite direction, this lasts no more than ten days. The short trend in the opposite direction is characterized by a resistance line, and support line that run almost parallel to each other. Finally after a couple days the market price breaks through the appropriate trend line and continues the long run trend it was currently in, preceding the flag pattern.

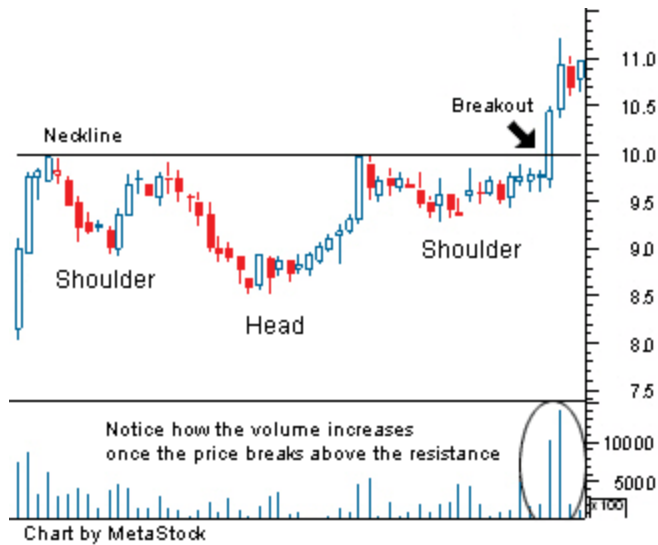
(Figure 22 below)³¹ Notice the long pole like rise in prices immediately preceding the quick six day downtrend before breaking through the upper resistance line to continue the uptrend pattern.

³¹ Investopedia Staff. "Continuation Patterns - Part 4." *Investopedia*. A Forbers Digital Comapny. Web, 04 Apr, 2010. <<http://www.investopedia.com/articles/technical/02/032602.asp>>.



It is important to note that as with everything else that has been discussed there must be strength in this movement. Volume needs to decrease slightly over each day of the flag portion of the pattern until price breaks through the upper resistance line. At this point volume should increase dramatically signaling the strength of the move and that the pattern has been completed.

The next continuation pattern I chose specifically to make a point about how similar reversal and continuation patterns can be, and why people do not believe in them because of this. The next pattern that will be discussed is the Head and Shoulders continuation pattern (also known as the Inverse Head and Shoulders). This pattern is very similar to the reversal pattern with a few key differences. See Figure 23 below.



(Figure 23 to the left)³² This head and shoulders pattern enters from the bottom left of the chart and immediately uses the neckline as a resistance line. If you look back at Figure 17, which was the reversal pattern, you will notice that the price actually crosses the imaginary plane that is the neckline before beginning the pattern. Notice now

that the rest of the pattern acts exactly the same. As with all other patterns strength of the movement at the end, when the price breaks the neckline on its fourth attempt, must confirm the movement through volume, thus completing the pattern.

Continuation patterns, as with reversal patterns have their nonbelievers for similar reasons. Look back at Figure 23, even the most skilled and experience traders may see the development of an inverse head and shoulders continuation pattern forming, but it is not confirmed until the neckline is broken with a move that shows good strength. This means that while you may be expecting the market to continue in its current direction you could be missing the fact that a triple top reversal pattern was what was actually forming. You cannot always tell what will happen until right after it has happened; this is a huge stance against technical analysis. To argue that point though, is it not better to at least have an idea of where the market is going? I am not telling you to put your life savings on a half completed head and shoulders continuation pattern,

³² Investopedia Staff. "Inverse Head and Shoulders" *Investopedia*. A Forbers Digital Comapny. Web, 04 Apr, 2010. <<http://www.investopedia.com/articles/technical/02/032602.asp>>.

but definitely keep your eyes open for the signs. Even if you are a late mover because you decided to wait for the pattern to complete itself before moving into the market you still know with high certainty the market will continue for at least a short time in its current direction.

6.) The final thing we will cover is actually something that those who are against technical analysis will agree is very important, maybe not the way we will talk about it being used here, but the data behind it. The moving average is a fantastic tool to help understand when the market is going to begin to move in another direction. Many traders use three moving averages at once, typically a short term (five day), medium term (ten day) and long term (forty day) moving average are included on a single chart. For simplicity purposes we are only going to use two moving averages. The way moving averages work are every time they cross the market will begin to trend in another direction. The reason for this is because the short term moving average will be affected quicker by changes in stock prices than the long term moving average will be. As the market trends in one direction the long term moving average over time better aligns itself with the current day price. The long term moving average catches up while the short term slightly trails the current day's price closely. At times these two moving averages will cross; this is the signal that the market is going to shift in another direction. It is important to realize this gives no timetable on how long the new trend will continue, only that there will be a new trend, at least in the short term.

(Figure 24 below)³³ Over the course of time the two moving averages cross paths 8 times. Notice that while the length of time between crosses differ in each occurrence, there is a new trend. Moving averages are a very good tool to help traders see when the market may be swinging in a new direction.



As mentioned before, moving averages are used by those that do not believe in technical analysis as well as those who do. The difference is while chartists look at the moving averages and look for intersections to know when the market will change, others use formulas and theories to understand how risky the market is and what the potential reward would be. Moving averages are important to include in any trader's toolbox, and should be used with the other tools mentioned in this paper as well as other tools that were left out of this paper due to length. The

³³ Zimmerman, Walter. "Developing a Technical Trading System." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

ability to have a moving average charted and see a head and shoulders reversal forming with a projected break in the neckline around the area where the moving average lines appear they may cross is a strong indication that there is going to be a reversal in the trend at that point.

Why should it be taught in school?

The easiest way to get this point across is for me to tell you to take out your cell phone and call the first person you know that works on Wall Street as a trader, or for that matter, anyone you know who works for a company trading stocks. Ask them if the software they use to trade on has technical analysis tools that their company trained them on how to use. I will guarantee you the answer is yes. That begs the question then, if technical analysis is something that every trader either uses, or was at least trained to understand by their employer, why are students across the country not exposed to it? Would you have a doctor proscribe a drug they do not know the benefits and side effects of, or let an architect design a building in this day and age without having any previous experience with modeling software or sketching blueprints? Schools are sending students to work every day without the proper tools in their tool boxes. This dogma that exists in the academic community that technical analysis should not be taught to students may in fact be hurting them more than protecting them. Giving students at least a taste of charting software, and what kind of patterns and trends exist could only benefit students in the workplace, and in the job search.

I mentioned above not giving the students correct tools to put into their proverbial toolbox. Technical analysis does not need to be used by students, in fact if the student sides with the academic community in the belief that technical analysis will not work, then that's fine they don't have to use it, but it's still there. The purpose of a university is to help students learn and

prepare them for their future jobs. It is to also show employers that a student can manage their time, and can adapt to new situations while excelling. Not giving students the opportunity to broaden their horizons with a new skill is a detriment to the institution.

So I have spoken a lot about the student, but what about the university, how could it benefit from walking away from this dogma, and having a section of a course cover technical analysis, or dare I say create a course entirely dedicated to technical analysis? The answer to this is quite simple, perspective employers would come to that school to recruit for their company. One of the most expensive endeavors a company has is its training of personnel. In the case of most trading firms they need to train students in technical analysis without so much as a foundation to build on. This is very time consuming and expensive. Imagine how many companies would come flocking to a school that had graduates that already understood how technical analysis works, and how to use trading software. This would diminish costs greatly for the company, meaning they would recruit more students from that particular school, in turn raising school rankings.

Why it should not be taught in school

There are plenty of reasons why technical analysis should be taught in schools, however it is not. Thus the reasons it currently is not, should obviously outweigh the reasons that it would, that would only be logical. As the theme of this paper, it is not for me to say which side presents the better argument, only to present both side of the argument. Remember back to when you were in calculus, and you were being taught derivatives for the very first time. I hope that you remember exactly how painful that was, how long it took to do an individual problem. I hope you also remember returning to class the following week and being taught the shortcut on how to quickly find the derivative of an equation. For most people right now I am stirring memories they have

placed out of memory long ago, so I'll get to the point. The reason it is taught this way is so you understand the theory and reasoning behind the shortcut. You understand why we take derivatives, and the purposes they serve. Something similar can be said for technical analysis. If you give a student something they believe to be a shortcut, an easy way to predict the future instead of running analysis and finding beta, guess which method they are going to choose 100% of the time until it comes back to bite them. By the way if you picked beta, you were wrong. I am a college student, I am in the honors college, I am supposed to be amongst the brightest college has to offer, and I can honestly say, without my understanding, which is better than most, of how important it is to look at the big picture and use different types of analysis; I know I would fall into the trap too.

Ask almost any person that works in the academic realm teaching students market analysis and they will almost all tell you that technical analysis does not provide a strong enough education for students to be successful in the market place. Trading just on technical analysis will lead to failure in predicting the market and will cost the individual and the firm a lot of money. Most professors feel that teaching a student why the market is currently in a recession is more important than showing a trend line that is acting as a resistance line so the trend is going to continue. The classroom is an environment to learn how the market works, and not how to try and beat it. Some theory states that the market takes all things into account, thus the price reflects full information. To be a successful trader you need to understand where this information comes from to properly understand how the market is currently acting and why. Charting the analysis of the close each day does not help students understand how information affects the market.

Finally, technical analysis is not proven to work more than 50% of the time. The random walk theory suggests that the market is similar to the flip of a coin. Every time the coin is flipped there

is a 50% chance it will land on heads, as there is a 50% chance it will land on tails. The past doesn't predict the future thus charting will only be correct 50% of the time. The other theory is that charting is too speculative to be taught to students. If you look at any chart long enough you will begin to see some sort of trend, whether or not it is actually there is a different story. It is because of this that the examples that can be shown in technical analysis can be handpicked for the purpose of the example, but the ability for a student to see actual trends, and use what they believe to be a trend is subject.

Proposed College Syllabus

Fin 3XX
Technical Analysis of Financial Markets
Spring 20XX

INSTRUCTOR: John H. Ryan, Ph.D.
Office: XXX Business Building

Office Telephone: XXX-XXX-XXXX
Email: JHR56@psu.edu

OFFICE HOURS: Monday and Wednesday: 9:30-11:00 & 2:30-3:30, and other times by appointment.

REQUIRED COURSE MATERIAL:

- Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications (New York Institute of Finance) by John J. Murphy (ISBN – 0735200661)
- Class assignments and other materials will be posted on the course ANGEL website.

RECOMMENDED COURSE MATERIAL:

- Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications (New York Institute of Finance) by John J. Murphy (ISBN – 0735200653)

COURSE DESCRIPTION:

The course will focus on the tools used in technical analysis and charting techniques to aid students in the enhancement of market analysis of financial markets. Students will be given the opportunity under the supervision of a faculty staff member to download an educational version of trade station to their personal computers for purposes of creating their own fictional portfolio. Students will be given the opportunity over the course of the semester to manage their portfolio with the analysis tools learned in class. Periodic papers will be submitted giving examples and describing the different analysis tools the students are using and different patterns and trends observed over the course of the project. Grades will not be assigned solely on the profit a student makes in their portfolio but instead based on their understanding of market trends and patterns.

LEARNING OBJECTIVES:

The course is designed to provide an understanding of the following concepts:

- Understanding of how to use a trading program for buying and selling
- The theory behind Technical Analysis and the Opposition to it
- Chart Construction
- Common reversal and continuation trends
- How to read Volume, open interest and understanding market movement strength
- Elliot Wave Theory

GRADING:

Student performance will be graded on the following components:

Component	Points
Examination #1	100
Examination #2	100
Examination #3	100
Create Portfolio	10
Paper #1	45
Paper #2	45
Final Paper	200
Final Presentation	<u>200</u>
Total	800

During the semester, there may be extra credit quizzes totaling no more than 25 points. There is no make-up for missed extra credit.

Course grades will be determined by the number of points earned. The course is based on a 500 point scale.

A	93% and above	B-	80% - 82.9%	F	Less than 60%
A-	90% - 92.9%	C+	77% - 79.9%		
B+	87% - 89.9%	C	70% - 76.9%		
B	83% - 86.9%	D	60% - 69%		

EXAMINATIONS:

Examinations will be in multi-choice format. Further details will be discussed in class. A *tentative schedule* for the examinations follows:

<u>Exam</u>	<u>Scheduled Date</u>
1	February 8 th
2	March 3 rd
3	April 7 th

SEMESTER ASSIGNMENTS:

The homework assignments consist of creating and managing a portfolio and writing short 3-4 page paper responses on techniques used, problems encountered, and trends noticed. The details of these assignments will be posted on the course ANGEL site. Unless otherwise specified by the instructor, these written assignments will be submitted in hard-copy **at the end of class on the due date**. Late assignments will not be accepted unless specifically coordinated **in advance** with the instructor. Late assignments will result in a grade of zero (0).

A *tentative schedule* for homework assignments follows:

<u>Homework</u>	<u>Assignment</u>	<u>Due</u>
1	Download Tradestation	January 20
2	Create Portfolio	February 1
3	Paper #1	February 22
4	Paper #2	March 15
5	Final Paper	March 31

ATTENDANCE AND IN-CLASS PARTICIPATION:

You are expected to be on time and attend each class section. You are expected to prepare for each class and contribute meaningfully to class discussions. If you miss a class, you are responsible for obtaining any missed material from fellow students.

During the course of the semester, there may be in-class work or outside class lectures or presentations that may be used as testable material during examinations.

Acceptable absences must be coordinated with the instructor in advance. Examples of excused absences include sickness, participation in University-approved events, and personal or family emergencies. In cases where advance notification is not possible, you have the responsibility to notify the instructor and document the legitimacy of the absence and reasons why advance notification was not coordinated. You have the responsibility to coordinate instructor notification of your absence. The instructor retains final authority for determining the legitimacy of excused absences.

Students are expected to adhere to standards of conduct as specified in the *Student Guide to General University Policies and Rules* (<http://www.sa.psu.edu/ja/procedures.shtml>). Disruptive behavior will not be tolerated. This includes activities such as side conversations during presentations, reading of newspapers, etc., and the use of electronic devices including cell phones, iPods, pagers, etc. Such devices will either be on silent mode or turned off during class.

ACADEMIC INTEGRITY:

According to the Penn State Principles and University Code of Conduct:

Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. According to the University's Code of Conduct, you must neither engage in nor tolerate academic dishonesty. This includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used in another course without informing the instructor, or tampering with the academic work of other students.

Any violation of academic integrity will be investigated and, where warranted, corrective academic and/or disciplinary action will be taken. For every incident where a penalty is assessed, an Academic Integrity Incident Report form must be filed. The form can be found on the Smeal College Intranet at this URL:

<https://intranet.smeal.psu.edu/students/integrity/index.html>. This form is to be used for undergraduate courses. The report must be signed and dated by both the instructor and the student, and then submitted to Gus Colangelo, Interim Associate Dean for Undergraduate Programs, 202 Business Building.

In addition, the Smeal College has adopted the following Honor Code:

We, the Smeal College of Business Community, aspire to the highest ethical standards and will hold each other accountable to them. We will not engage in any action that is improper or that

creates the appearance of impropriety in our academic lives, and we intend to hold to this standard in our future careers.

AFFIRMATIVE ACTION & SEXUAL HARASSMENT

The Pennsylvania State University is committed to a policy where all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by Commonwealth or Federal authorities. Penn State does not discriminate against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, gender, sexual orientation, or veteran status. Related inquiries should be directed to the Affirmative Action Office, 328 Boucke Building.

AMERICANS WITH DISABILITIES ACT

The Smeal College of Business welcomes persons with disabilities to all of its classes, programs, and events. If you need accommodations, or have questions about access to buildings where Smeal College activities are held, please contact us in advance of your participation or visit. If you need assistance during a class, program, or event, please contact the member of our staff or faculty in charge. Access to Supply Chain and Information Systems courses should be arranged by contacting the Department of Supply Chain and Information Systems Office: (814) 865-1866.

AN INVITATION TO STUDENTS WITH LEARNING DISABILITIES

It is Penn State’s policy to not discriminate against qualified students with documented disabilities in its educational programs. If you have a disability-related need for modifications in your testing or learning situation, your instructor should be notified during the first week of classes so that your needs can be accommodated. You will be asked to present to the Office of Disability Services (located in 116 Boucke Building (814) 863-1807) documentation that describes the nature of your disability and the recommended remedy. You may refer to the Nondiscrimination Policy in the Student Guide to University Policies and Rules.

The syllabus and course schedule are subject to revision. Students are responsible for keeping up-to-date through class attendance, regular reviews of the course ANGEL page, and communication with the instructor.

COURSE OUTLINE

<i>Week</i>	<i>Day</i>	<i>Date</i>	<i>Class #</i>	<i>Topic</i>	<i>Assignments Due</i>
1	M	1/11	1	Course Introduction	
	W	1/13	2	Philosophy of Technical Analysis & Dow Theory	
2	M	1/18		NO CLASS- MARTIN LUTHER KING, JR. Day	
	W	1/20	3	Intro To TradeStation	Download Trade station

3	M W	1/25 1/27	4 5	Chart Construction Basic Concepts of Trend	
4	M W	2/1 2/3	6 7	Major Reversal Patterns Major Reversal Patterns	Have Portfolio Created
5	M W	2/8 2/10	8 9	TEST 1 Continuation Patterns	TEST 1
6	M W	2/15 2/17	10 11	Continuation Patterns Volume and Open Interest	
7	M W	2/22 2/24	12 13	Long Term Charting Oscillators & Contrary Opinion	Paper on Techniques used thus far
8	M W	3/1 3/3	14 15	Point and Figure Charting TEST 2	TEST 2
9	M W	3/8 3/10		NO CLASS- SPRING BREAK NO CLASS- SPRING BREAK	
10	M W	3/15 3/17	16 15	Japanese Candlesticks Elliot Wave Theory	Paper on indicators and portfolio updates
11	M W	3/22 3/24	18 19	Elliot Wave Theory Elliot Wave Theory	

12	M	3/29	20	Time Cycles	
	W	3/31	21	Computers & Trading Systems	Final Paper handed in on portfolio analysis
13	M	4/5	22	Money Management & Trading Tactics	
	W	4/7	23	TEST 3	TEST 3
14	M	4/12	24	Links between Stocks and Futures	
	W	4/14	25	Stock Market Indicators	
15	M	4/19	26	Presentations	Presentations on portfolios
	W	4/21	27	Presentations	Presentations on portfolios
16	M	4/26	28	Presentations	Presentations on portfolios
	W	4/28	29	Presentations	Presentations on portfolios

Chapter 3: Conclusion

We started this journey with a simple question, that being why do so many professionals currently use technical analysis in their daily trading lives, yet college institutions that strive to enhance the knowledge of its students and broaden their horizons do not teach this skill. I have repeated throughout this paper that my goal was not to align your opinion with mine, but to put the information provided by both sides of the argument in front of you so that you can make an informed decision as to what you would like to believe. I can only hope that I have helped you to become more literate with the material, and that you now can make an informed decision on what you believe. The final thing I hope is that if you feel as passionate about this topic as I do, you don't stop here. Read more on the subject from experts in the area, find out about the other analysis techniques that were not covered in this topic, and break down the reasons why some believe they work extremely effectively, while others feel they hold no weight.

In summary, there were six principles that we covered in this paper, these were; the three major trends, support and resistance lines, the three types of charts, reversals, continuations, and moving averages. We discussed how each of these tools were used to aid the trader in reacting to the market, and in some cases gaining an understanding in which way the market was heading. We quickly touched upon the theories pertaining to why these analysis techniques should work, and why those against technical analysis feel that these techniques will not work. Summaries were given as to why technical analysis should not be taught in academic institutions for reasons such as it promotes the use of short cuts. We also acknowledged the benefits of teaching this form of analysis to college students because it only adds to the tools they can use to understand market trends in their tool box. Finally we gave an example of what a college syllabus would look like

and the topics that should be covered in a class that looked to teach technical analysis. I hope that this journey has left you better informed about what technical analysis is and how it is used.

Bibliography

- Alexander, Sidney S., *Price Movements in Speculative Markets: Trends or Random Walks*, 1964.
- Anderson, Chip. "Candlestick Charts." *Chart Watchers*, (06 April, 2009). Print
- Anderson, Chip. "Candlestick Charts." *Chart Watchers*, (06 April, 2009). Print
- Anderson, Chip. "Chart Analysis Support & Resistance." *Chart Watchers*, (30 May, 2009). Print
- Anderson, Chip. "Chart Analysis Support & Resistance." *Chart Watchers*, (30 May, 2009). Print
- Anderson, Chip. "Defining Technical Analysis." *Chart Watchers*, (25 Jan, 2009). Print
- Anderson, Chip. "OHLC Charts." *Chart Watchers*, (23 March, 2009). Print
- Anderson, Chip. "OHLC Color Charts." *Chart Watchers*, (23 March, 2009). Print
- Anderson, Chip. "Price Chart." *Chart Watchers*, (9 March, 2009). Print
- Anderson, Chip. "The Infamous Head and Shoulders Reversal Pattern." *Chart Watchers*, (5 October, 2009). Print
- Candlesticker*. Americanbulls.com, Web. 8 Mar, 2010.
<<http://www.candlesticker.com/Cs48.asp>>.
- Candlesticker*. Americanbulls.com, Web. 8 Mar, 2010.
<<http://www.candlesticker.com/Cs60.asp>>.
- Chart School*. StockCharts.com, 1999, Web. 3 April, 2010.
<http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:chart_patterns:falling_wedge_revers>
- Chart School*. StockCharts.com, 1999. Web, 8 Mar, 2010.
<http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:introduction_to_candlesticks#hammer_and_hanging_m>.
- Investopedia Staff. "Continuation Patterns - Part 4." *Investopedia*. A Forbes Digital Company. Web, 04 Apr, 2010. <<http://www.investopedia.com/articles/technical/02/032602.asp>>.
- Investopedia Staff. "Inverse Head and Shoulders" *Investopedia*. A Forbes Digital Company. Web, 04 Apr, 2010. <<http://www.investopedia.com/articles/technical/02/032602.asp>>.

King, Willford I., Technical Methods of Forecasting Stock Prices, Journal of the American Statistical Association, Volume 29, Issue 187 (Sep, 1934), 323-325.

"Microsoft Corporation (MSFT)." *Http://finance.yahoo.com*. Ed. Yahoo. Yahoo.com, 08 Mar. 2010. Web, 08 Mar, 2010.
<<http://finance.yahoo.com/echarts?s=MSFT#chart12:symbol=msft;range=6m;indicator=volume;charttype=ohlc;crosshair=on;ohlcvolumes=0;logscale=on;source=undefined>>.

Murphy, John J., and John J. Murphy. *Technical Analysis of the Financial Markets: a Comprehensive Guide to Trading Methods and Applications*. New York: New York Institute of Finance, 1999. Print.

Online Trading Concepts. Onlinetradingconcepts.com, 2007. Web, 8 Mar, 2010.
<<http://www.onlinetradingconcepts.com/TechnicalAnalysis/Candlesticks/ShootingStar.html>>

Pontikas, John, and Brian Dibbins. "Learn How to Trade Profitably." *Learn How To Trade Profitably*. 2006. Web, 04 Apr, 2010.
<http://www.tradeprofitably.com/Trade_the_Trend.html>.

"Random Walk Hypothesis." *Wikipedia, the Free Encyclopedia*. Ed. Wikipedia, 3 Nov, 2009. Web, 14 Apr, 2010. <http://en.wikipedia.org/wiki/Random_walk_hypothesis>.

Schultz, Henry, Forecasting Security Prices, Journal of the American Statistical Association, Volume 20, Issue 150 (Jun, 1925), 245

Schultz, Henry, Forecasting Security Prices, Journal of the American Statistical Association, Volume 20, Issue 150 (Jun, 1925), 246

Swenlin, Carl. "Decision Point." *Chart Watchers*, (22 Feb, 2009). Print

Swenlin, Charles. "January Forecasts a Down Year." *Chart Watchers*, (09 Feb, 2009). Print

Zimmerman, Walter. "Developing a Technical Trading System." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

Zimmerman, Walter. "Japanese Candlestick Charts." Lecture. *Maximum Information From Minimum Data*. United Energy. Web, 08 Mar, 2010.

Schreyer Honors College
ACADEMIC VITA

Academic Vita of Daniel C. Sturman

Name: Daniel C. Sturman
Address: 24 Pennsylvania Ave Shillington Pa, 19607
E-Mail Id: Daniel.C.Sturman@gmail.com

Education

Major: B.S. in Marketing
Minor: Supply Chain Management and Information System Technologies
Honors: Finance

Thesis Title: The Black & White of Technical Analysis
Thesis Supervisor: Jingzhi Huang

Work Experience

Date: Summer 2009

Title: Marine Scheduling Intern

Description:

- Trained and became efficient in the usage of scheduling programs and handling transactions from contract completion to receipt of product ranging in value of up to \$25 million per transaction
- Benefited the company by filling in for long time tenured employees and handling their entire desk in their leave
- Revised and restructured the group desk manual to include a contact list which will save \$1,000's per year in transaction costs due to accuracy in contact notification.

Institution/Company: Shell Trading

Supervisor: Michele Rizzo

- Michele.Rizzo@shell.com
- Phone:713-230-3076

Date: Summer 2008

Title: Marketing Intern

Description:

- Developed an affinity program recommendation designed to attract new customers from partnering companies to increase market share and create incremental visits to stores
- Developed promotional campaigns for 2009 designed to increase support and rejuvenate the Jiffy Lube brand
- Researched and presented a recommendation to increase franchisee participation for wave 2 advertising

- materials, including a partnership with the American Heart Association
- Institution/Company: Jiffy Lube
Supervisor: Eric Eurich
- Eric.Eurich@shell.com
 - Phone: 713-5464854

Date: Spring 2009

Title: Street Team Marketing Intern

Description:

- Acted as Penn State Representative for OneRiot's national launch campaign for Microsoft's Internet Explorer 8 General Audience Release.
- Assisted in the planning and execution of OneRiot's nationwide 240K campaign through execution of grassroots marketing events specific to Penn State Culture.
- Executed social media marketing and was responsible for increasing social media audiences on multiple channels

Institution/Company: OneRiot.com

Supervisor: Carmel Hagen

- CHagen@oneriot.com
- Phone: 928-853-0174

Date: Summer 2007

Title: Product Marketing Intern

Description:

- Developed a Business Plan describing the expansion or introduction of products for the Baldwin Hardware Corporation, the hardware leader in quality and style for the twelfth straight year. The business plan is in the process of being accepted, but should go into effect this year.
- Took business trips to showrooms and B&D Corporate for marketing research and training purposes

Institution/Company: Black & Decker

Supervisor: Steve Chmielewski

- Steve.chmielewski@bdhhi.com
- Phone: 610-796-4476

Date: Fall 2006 - Present

Title: Video Production Assistant

Description:

- Filmed intercollegiate sporting events
- Assisted in the production of highlight reels and promotional videos for use on gopsusports.com, and scoreboards during advertisements for other Penn State athletic events such as "Rally in the Valley"

Institution/Company: Penn State

Supervisor: Mike Koslap

- Mak339@psu.edu
- Phone: 814-880-3600

Date: Fall 2006 – Fall 2007

Title: Teaching Intern Management Information Systems

Description:

- Held office hours for students, aided professors in teaching material, and reviewed, revised and created assignments
- As a side project, created the recruiting database for The Supply Chain Management department using MS Access

Institution/Company: Penn State

Supervisor: Kitty Riley

- KRiley@psu.edu
- Phone: 814-863-7125

Date: Fall 2008

Title: Teaching Assistant for Intro to Marketing

Description:

- Developed a primary thesis and tested it by creating in-class assignments that were used to develop research on the consumer approach and psychological buying habits of “Generation Y” individuals

Institution/Company: Penn State

Supervisor: Franklin Carter

- FJC11@psu.edu
- 814-865-1518

Date: April 2005 – December 2008

Title: Inventory Assistant and Sales Associate

Description:

- Promoted from a media sales specialist to an inventory assistant based on performance
- Developed plan-o-grams to determine product placement to increase sales
- Managed inventory from receiving to sales floor

Institution/Company: Best Buy

Supervisor: Jen Jenuzzi

- 732-801-8981

Date: Fall 2007 - Spring 2010

Title: Resident Assistant

Description:

- In charge of creating floor activities, enacting disciplinary procedures, and aiding students who are in need of help

Institution/Company: Penn State

Supervisor: Jason Cassidy

- Jmc428@psu.edu
- Phone: 814-865-5182

Grants Received:

- Class of 1934 Reunion Fund Scholarship
- University Trustee Scholarship Recipient
- Stumpo Trustee Scholarship Recipient
- Academic Competitiveness Grant Recipient
- Student Leader Scholarship Recipient, *Three Times*
- Schreyer College Scholarship Recipient
- Marlboro Pop Warner Scholarship Recipient
- Dean's Fund Award

Awards:

- 2009 Northwestern Mutual National Sales competition 1st place
- 2009 Altria National Team Sales Competition 3rd place
- Students Engaging Students Founding Father
- Leadershape Institute Graduate
- Dean's List, 7:7 Semesters

Professional Memberships:

- American Marketing Association
- Beta Gamma Sigma

Community Service Involvement:

- THON
- Second Mile
- Easter Seals Reading
- Teens for Jeans
- Multiple Sclerosis 5K
- Pop Warner
- United Way
- Into the Streets
- MLK Day of Service
- Curing Autism 5K
- Operation Smile

Language Proficiency:

- English