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# LIMITATIONS AND INCONSISTENCIES OF STANDALONE USAGE OF STOCHASTICS INDICATOR IN STOCK TRADING

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**Abstract**

*Due to the huge popularization of the stock trading amongst youth, in the recent years more and more of trading and brokerage houses are trying to find a one 'easy to understand' tool for the novice traders. The purpose of this study is to analyze one of the 'magic tools' of trading called Slow Stochastics. Authors plan to examine limitations and inconsistencies when using Stochastics as a sole determinant of investment decisions. Slow Stochastics or simply Stochastics indicator seems to be the one of the main picks and unfortunately inexperienced traders are relying on this one tool for analysis and trading of various securities. Secondary data will be used to analyze the signal strength and profit relation using regression and paired sample t-test. The outcome of the study was that Stochastics indicator is highly unreliable due to a very weak coefficient of determination hence the tool should be used only when coupled with other technical analysis indicators. The main limitation of this study is that it could be used more widely across industries and various sizes of companies, funds, and other trading instruments. On the other side, future researches could use this study as a base line for deeper analyses of Stochastics as well as creation of the custom made or industry specific indicators.*

*Keywords: Slow Stochastics, Technical Analysis, Signal and Profit relation, Stock Market Trading, Profitability*

## INTRODUCTION

Is it because technical analysis doesn't have good coverage in academia or because most of the traders follow fundamental analysis superstars such as Warren Buffet, but technical analysis has been getting very little attention. In recent years, fueled with non-fundamental base commodities trading, technical analysis picks up on popularity. In certain markets technical analysis can provide much more input than fundamental analysis, and it is usually said that where fundamental stops, technical analysis continues as it is based purely on the relationship between supply and demand and not so much on the financial character of the traded instrument.

The purpose of this study is to analyze one of the 'magic tools' of trading called Slow Stochastics. Study plan to examine limitations and inconsistencies when using Stochastics as a sole determinant of investment decisions.

## LITERATURE REVIEW

What technicians claim is that indicating ratios, dividend growth model, Black and Scholes model and other popular financial models mean nothing if there is no supply and demand (Stoft, 2002; Edwards and Magee 2007). One of the many available tools of technical trading is something popularly called Stochastics or Slow Stochastics Indicator. Stochastic indicator is known as one of the most valuable tool and without it most of technical analyses would be impossible. Stochastic indicator was developed by George Lane in late 1950's who turned his obsession for so called momentum indicators into a Stochastic indicator as we know it today (Sykora, 2003). This indicator basically depicts the relationship between the close price to the lowest low and highest high over the set time period. Stochastic indicator is the type of oscillator that doesn't necessarily follow the price and it also doesn't follow volume spikes, but actually tracks the speed, inertia or momentum of the price. What make Stochastic indicator the top of the line tool is the fact that it can depict the key event and that is the moment when momentum changes direction even before the price does. This is what causes signal to happen. Stochastic indicator actually consists of two lines called %K and %D. The %K is determined by the relation between close price, highest high and lowest low. The formula for %K is as follows:

%K= [(Current Close – Lowest Low) / (Highest High – Lowest Low)] * 100 (1)

The %D line is simply calculated as the 3 day simple moving average of %K. Hence,

%D = 3day (rolling) simple moving average of %K (2)

The most common setting for Stochastic indicator is 14day for %K and of course 3day for %D. This can be customized and changed according to the length of the analysis, but vast

majority of technicians always use 14/3 rule (Ee Hwa, 2007). In the real-life setting %K is often called fastK, while %D is called slow D and that is because %K inherently moves slower than %D line so %K line is more jittery and more volatile while %D line is more stable.

The shear nature of Stochastic indicator and the fact that it is a range bound oscillator, it is used to identify something called overbought and oversold conditions. Overbought conditions happen when the financial instrument experiences a rise in price to such extent that it has gone 'over' a certain limit on a scale. When that happens and overbought condition has occurred and what follows (by the trading 'rule') is a reverse in direction, hence in this situation and investor should sell or short sell the securities. Opposite stands for oversold conditions and similarly when the price has gone so far down (basically hitting the price floor) it penetrated certain bottom level that is 'over' the limit, we call that oversold condition or the condition where the upward price reversal is expected (Halilbegovic 2015). The Stochastic indicator is an oscillator that always ranges from 0 to a 100, a no matter what happens with the price movements the oscillator will always stay within these limits. Most of the technicians use preset levels of 80/20 so that everything above 80 is consider overbought and everything below 20 is considered oversold. It is very important to say that if the financial security goes into overbought region that does NOT necessarily mean that the prices will start going down (Palicka, 2011). The oscillator can go into overbought/oversold region and stay there for longer period of time. So investors should be cautious about this since it is more important to track and follow larger trend rather than relying on Stochastic indicator only. Graph 1 depicts price movements of Yahoo Corp while under the price graph, stochastic is shown where red areas are overbought and green areas are oversold conditions.

Graph 1: Yahoo 6 months trading with Stochastic Indicator


Source: http://bigcharts.marketwatch.com

Sometimes (as seen on Graph 1) the %K and %D lines can cross below the important areas of 80 and 20 and those areas may still generate the buy/sell signal but that signal has a lower 'strength' than the crossover in shaded areas (Dharamveer, 2014). Also depicted on the Graph 2, sometimes there will be one or multiple crossovers of %K and %D lines after they had entered the shaded 80/20 areas (shown by arrows). Such cases in the example of Nike Crop occurred in the beginning of March 2015 and in January 2016. This occurrence is called wedging and the %K and %D lines may crossover multiple times in just 4-5 days. This should not be confused with a buy (January 2016) and sell (March 2015) signal as these crossovers are simply market 'noise' and not actual signals. Wedging often happens when the stock has gone into an overbought or oversold area but the investors can't decide which way the stock will continue (Edwards R; Magee J, 2007). This is often accompanied with the very narrowly traded days when stock prices just tightly oscillate at some base level. Oftentimes wedging produce contra-logical direction and from the overbought condition (such as March 2015) where the general expectancy is for the stock price to start going down, the stock prices do just the opposite and start going up. In the example of Nike, wedging occurred in March 2015, the stochastic clearly showed overbought conditions at the price of $48 per share and after a while the price and stochastic went separate ways  and while stochastic went down, stock price went up to about $51 per share.

Graph 2:  Nike 1 year stochastic indicator showing wedging

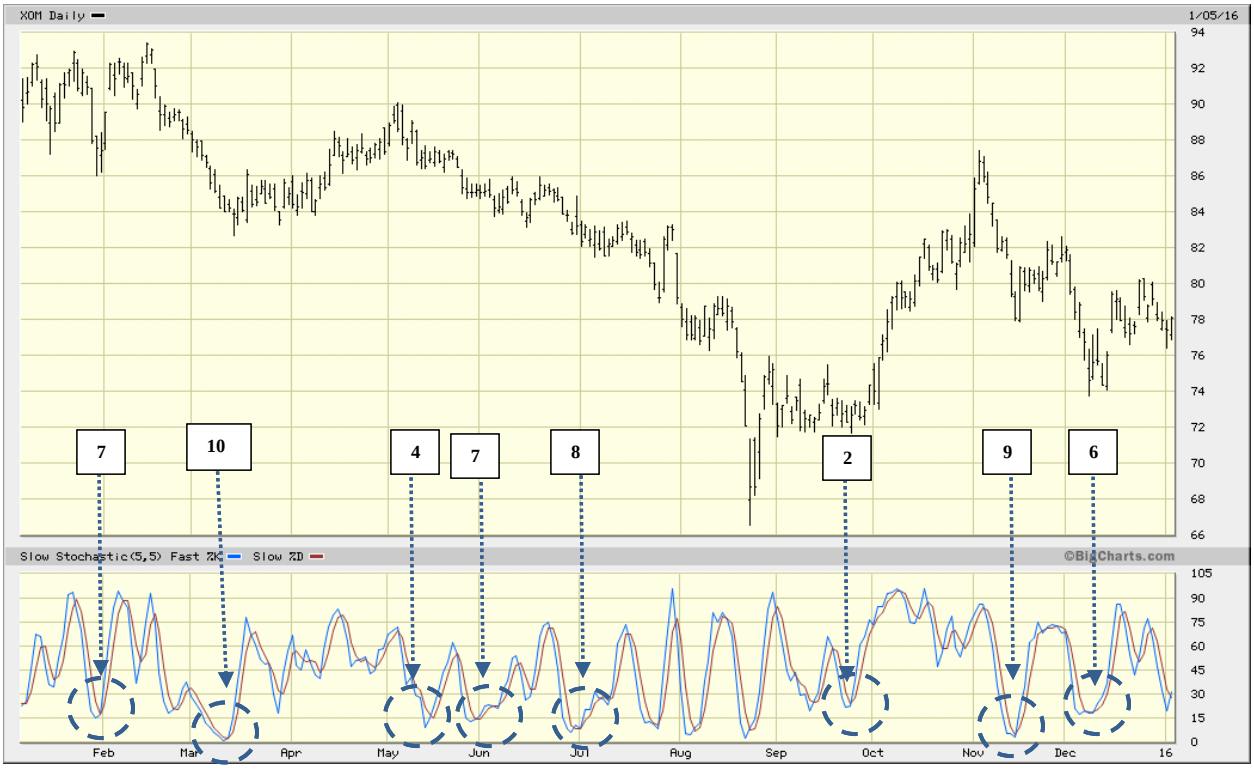
Source: http://bigcharts.marketwatch.com

For the purposes of this research the signal strength will be measured from 1-10, weakest to strongest respectively. Deeper below the 20 line the crossover happen, the stronger the buy signal is.

As an example Graph 3 shows stochastic oscillator with price movements of Exxon-Mobile Corp. As it is shown in Graph 3 in one year period (Jan 2015-Jan 2016) we had multiple buy signals based on Stochastics oscillator.

They generated different strengths ranging from 2 to 10 of course depending on the depth of crossover.

Graph 3: Exxon Mobile price/stochastic movements with strength level depiction




Source: http://bigcharts.marketwatch.com

Very interesting one is the crossover that occurred in mid March 2015 that was so low that it basically occurred at the zero level & of course generated signal strength of 10. Contrary in late September 2015 the crossover occurred at level 30 and generated a rather weak signal of 2.

## Hypothesis

The research title alone dictates the logical hypothesis. Key point is to prove or disprove that a standalone usage of Stochastics indicator is quite risky and dangerous: *"…With Stochastic*

*oscillator usage as a standalone stock investment indicator, it is not possible to generate a consistent, considerable and sustainable profit…"* This basically means that if the relation between generated profit yield and a signal strength derived by Stochastics, is not in direct proportion, it means that Stochastics when used as a standalone investment decision maker, does not produce consistent or sizeable profit. The validity of the hypothesis will be determined by the correlation coefficient (*'r'*) or Pearson's *'r'*, as well as *'$r^2$'* which is the coefficient of determination. If it proofs that the above-mentioned coefficients are rather high or much closer to 1 than to 0, then we can conclude that the hypothesis 'stands', while if opposite happens, the hypothesis 'falls'.

## METHODOLOGY

The reason why this study has even been initiated, is to try and prove that using so called 'magic want' indicators is very dangerous to an investor. The goal of this study is to show that usage of a single indicator such as Stochastic Oscillator is very inconsistent and not at all profitable.

One main way of testing the above mentioned hypothesis is through the analysis of a long term trading of three world famous companies over the period of 5 years. Tracking of the trading history will be done and important stochastic events will be recorded. Those events will materialize in the form of signals ranging from 1 to 10. These signals are the typical example of ordinal data used on an arbitrary numerical scale where the exact numerical quantity of a particular value has no significance beyond its ability to establish a ranking over a set of data points. The percent profit yield will be calculated based on the signal of the Stochastics and the yield will be compared to the strength of the signal given by Stochastics, so in effect the analysis will portray yield as a dependable variable while Stochastics signal strength will be depicted as an undependable variable and in the end the connection between those variables will be used to do an inferential data analysis.

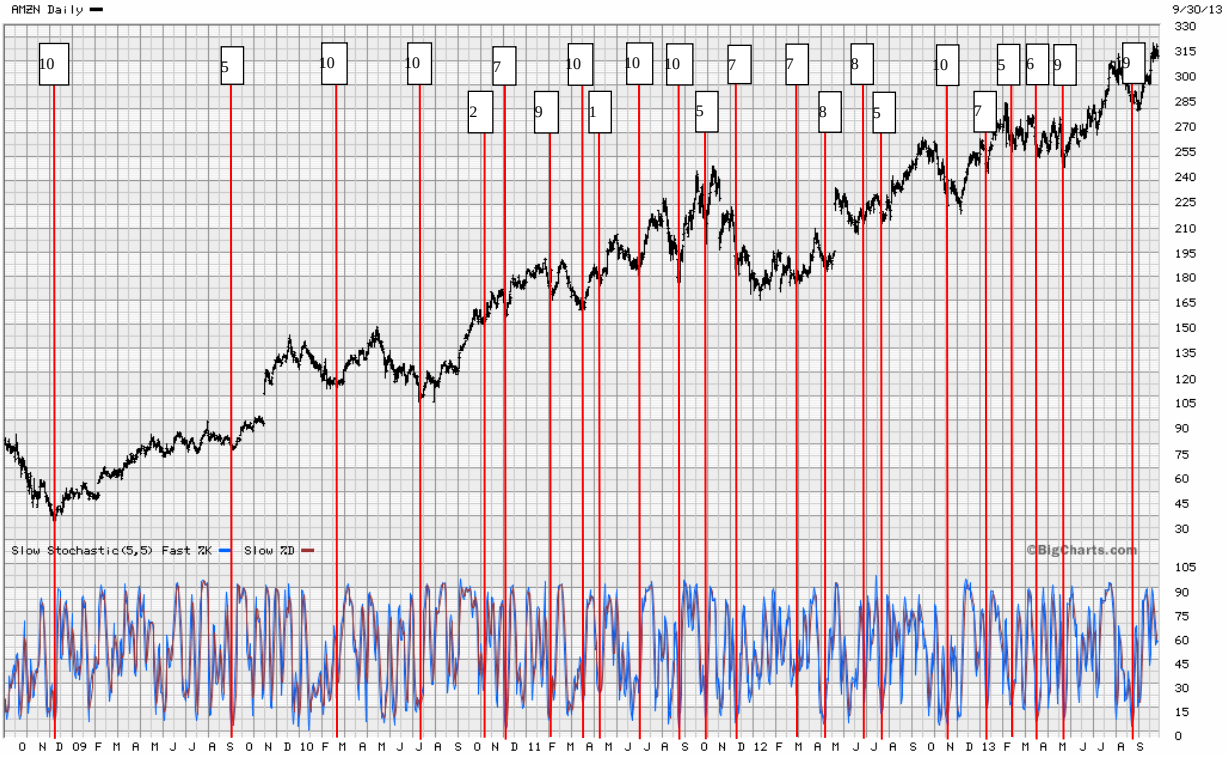
With the main postulate of Stochastics, being that with the x signal strength one can expect to generate x profit, the relationship is assumed to be linear and the relation between signal strength and profit yield will be analyzed by statistical regression and paired sample t-test. Statistical regression will focus on the relationship between profit yield and the signal strength as a predicting variable in order to estimate the conditional expectation of profit yield given the particular signal strength.

## ANALYSIS AND DISCUSSION

As mentioned before for each generated Stochastics signal, a strength level will be assigned from 1-10 (weakest – strongest). On the graph 4, shown below we have the depiction of the price movements of Amazon Inc., and below the price movements, Stochastic indicator is plotted out. In the given period of 5 years (from 2008-2013), Amazon's Stochastic oscillator generated a total of 23 signals that are shown on the graph 2. The price movement generally has a positive slope with the tendency to continue rising.

There have been some periods of retraction especially in September/October 2011 and after that Stochastics confirmed a good opportunity to go long with its strong buy signal. Signal strengths are of a solid distribution ranging from 2-10.

Graph 4: Amazon Inc daily trading over 5 years including Stochastic Oscillator

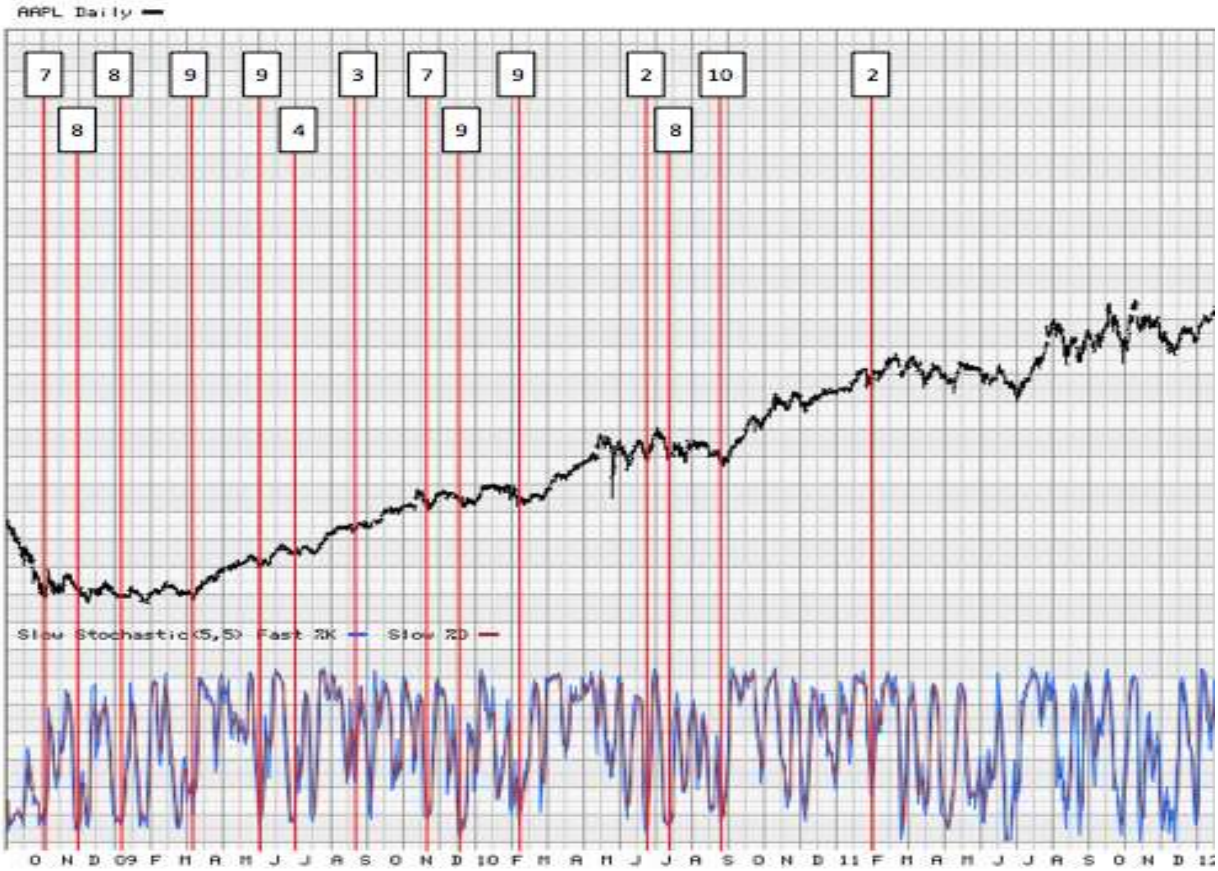



Source: http://bigcharts.marketwatch.com

On the graph 5, shown below we have the depiction of the price movements of Apple Corp, and below the price movements, Stochastic indicator is plotted out. In the given period of 5 years (from 2008-2013), Apple's Stochastics generated a total of 14 signals that are shown on the graph 5. The price movement generally has a positive slope with the tendency to correct itself downwards because the price line looks like it almost reached the point of 'saturation' and it is

ready to change direction. What is very interesting is the fact that Apple has touch-tested a psychological ceiling at $100 and as soon as it touched it the sell-off began. Signal strengths are of a solid distribution ranging from 2-10.

Graph 5: Apple Corp daily trading over 5 years including Stochastic Oscillator

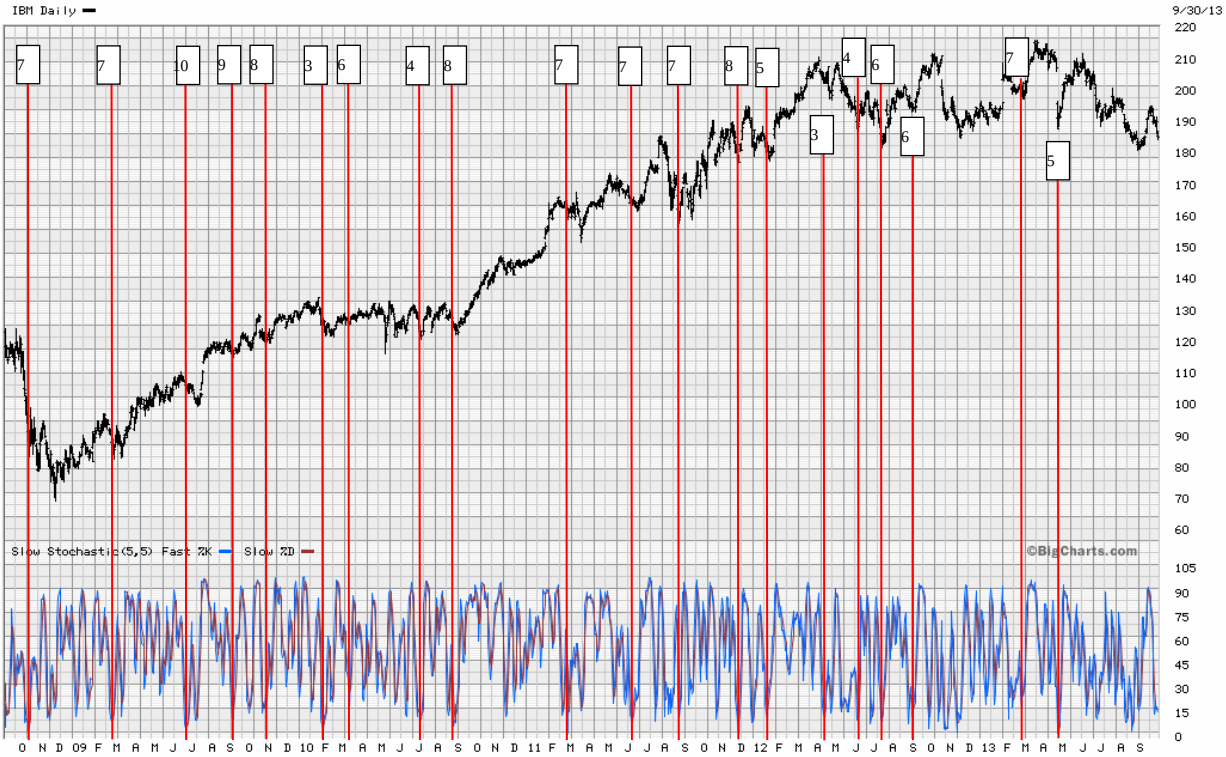



Source: http://bigcharts.marketwatch.com

On the graph 6, shown below we have the depiction of the price movements of IBM Corporation, and below the price movements, Stochastics indicator is plotted out. In the given period of 5 years (from 2008-2013), IBM's Stochastics generated a total of 20 signals that are shown on the graph 6. The price movement generally has a positive slope with the tendency to generally continue rising. There is a very good chance that the price will hit a very hard and psychological ceiling at $200 per share as this resistance has been tested at least 5 times in the past 6 months. If the price penetrates the given ceiling and since it was tested on so many occasions, if the price goes north of $200, than $200 level will become a super strong floor which would represent a good opportunity for a long term investment.

Signal strengths are of a solid distribution ranging from 3-10 with the most interesting event being the signal strength 10 occurred somewhere towards the end of June 2009 where the Stochastic oscillator crossover happened basically on the level zero, making it a perfect example of the oversold conditions and hence the opportunity/signal to buy.

Graph 6: IBM daily trading over 5 years including Stochastic Oscillator




Source: http://bigcharts.marketwatch.com

A tabular representation of consolidated stochastic oscillator signals for all three companies, their strengths and corresponding profit margins are shown in the table 1. This table shows all the details such as the date of the signal, price when signal was generated, the actual signal strength and the achieved profit margin that corresponds to the given signal. The table 1 will be used to generate a summarized table that will be then usable for the quantitative analysis, regression and paired sample t-test.

Table 1: Tabular Depiction of Signal Strengths and Profits for Amazon, Apple and IBM

| AMAZON | | | APPLE | | | IBM | | |
|---|---|---|---|---|---|---|---|---|
| Date | Price | Signal / | Date | Price | Signal | Date | Price | Signal / |
| 11/24/2008 | 42.5 | 10 | 10/8/2008 | 89.79 | 7 | 10/16/2008 | 91.52 | 7 |
| 3/9/2009 | 60.49 | 42.33% | 11/5/2008 | 103.3 | 15.05% | 12/11/2008 | 80.58 | -11.95% |
| 9/14/2009 | 83.86 | 5 | 11/21/2008 | 82.58 | 8 | 2/26/2009 | 88.97 | 7 |
| 12/21/2009 | 132.79 | 58.35% | 12/12/2008 | 98.27 | 19.00% | 3/27/2009 | 94.15 | 5.82% |
| 2/22/2010 | 118.01 | 10 | 1/5/2009 | 94.58 | 8 | 6/26/2009 | 105.68 | 10 |
| 4/26/2010 | 147.11 | 24.66% | 2/4/2009 | 93.55 | -1.09% | 8/7/2009 | 119.33 | 12.92% |
| 7/19/2010 | 119.94 | 10 | 3/11/2009 | 92.68 | 9 | 9/8/2009 | 117.16 | 9 |
| 9/24/2010 | 160.73 | 34.01% | 4/1/2009 | 108.69 | 17.27% | 9/23/2009 | 120.82 | 3.12% |
| 10/14/2010 | 155.53 | 2 | 5/18/2009 | 126.65 | 9 | 10/28/2009 | 121.50 | 8 |
| 10/28/2010 | 166.84 | 7.27% | 6/12/2009 | 136.97 | 8.15% | 11/27/2009 | 125.70 | 3.46% |
| 11/19/2010 | 164.82 | 7 | 6/25/2009 | 139.86 | 4 | 2/2/2010 | 125.53 | 3 |
| 12/10/2010 | 175.62 | 6.55% | 7/6/2009 | 138.61 | -0.89% | 3/4/2010 | 126.72 | 0.95% |
| 2/3/2011 | 173.71 | 9 | 8/20/2009 | 166.33 | 3 | 3/11/2010 | 127.60 | 6 |
| 2/22/2011 | 180.42 | 3.86% | 8/31/2009 | 168.21 | 1.13% | 3/25/2010 | 129.24 | 1.29% |
| 3/23/2011 | 165.32 | 10 | 11/6/2009 | 194.34 | 7 | 7/7/2010 | 127.00 | 4 |
| 4/12/2011 | 180.48 | 9.17% | 11/20/2009 | 199.92 | 2.87% | 7/20/2010 | 126.55 | -0.35% |
| 4/25/2011 | 185.42 | 1 | 12/9/2009 | 197.8 | 9 | 8/31/2010 | 123.13 | 8 |
| 5/16/2011 | 192.51 | 3.82% | 1/20/2010 | 211.73 | 7.04% | 10/18/2010 | 142.83 | 16.00% |
| 6/20/2011 | 187.72 | 10 | 2/12/2010 | 200.38 | 9 | 2/28/2011 | 161.88 | 7 |
| 7/15/2011 | 212.87 | 13.40% | 4/21/2010 | 259.22 | 29.36% | 4/13/2011 | 163.95 | 1.28% |
| 8/24/2011 | 193.73 | 10 | 6/14/2010 | 254.28 | 2 | 6/20/2011 | 165.02 | 7 |
| 9/22/2011 | 223.23 | 15.23% | 6/25/2010 | 266.7 | 4.88% | 7/12/2011 | 174.05 | 5.47% |
| 10/7/2011 | 224.74 | 5 | 7/9/2010 | 259.62 | 8 | 8/24/2011 | 166.76 | 7 |
| 10/24/2011 | 237.61 | 5.73% | 8/9/2010 | 261.75 | 0.82% | 9/1/2011 | 170.33 | 2.14% |
| 12/2/2011 | 196.03 | 7 | 8/31/2010 | 243.1 | 10 | 11/29/2011 | 180.94 | 8 |
| 1/24/2012 | 187 | -4.61% | 10/14/2010 | 302.31 | 24.36% | 12/15/2011 | 187.48 | 3.61% |
| 3/7/2012 | 183.77 | 7 | 1/25/2011 | 341.4 | 2 | 1/13/2012 | 179.16 | 5 |
| 3/30/2012 | 202.51 | 10.20% | 2/22/2011 | 338.61 | -0.82% | 2/10/2012 | 192.42 | 7.40% |
| 4/20/2012 | 189.98 | 8 | | | | 4/16/2012 | 202.72 | 3 |
| 5/15/2012 | 224.39 | 18.11% | | | | 5/8/2012 | 201.48 | -0.61% |
| 6/5/2012 | 213.21 | 8 | | | | 6/7/2012 | 194.44 | 4 |
| 7/9/2012 | 225.05 | 5.55% | | | | 6/22/2012 | 193.70 | -0.38% |
| 7/19/2012 | 226.17 | 5 | | | | 7/19/2012 | 195.34 | 6 |
| 9/21/2012 | 257.47 | 13.84% | | | | 8/21/2012 | 198.65 | 1.69% |
| 10/25/2012 | 222.92 | 10 | | | | 9/7/2012 | 199.50 | 6 |
| 12/7/2012 | 253.27 | 13.61% | | | | 9/24/2012 | 205.29 | 2.90% |
| 1/2/2013 | 257.31 | 7 | | | | 2/26/2013 | 199.14 | 7 |
| 1/28/2013 | 276.04 | 7.28% | | | | 3/22/2013 | 212.08 | 6.50% |
| 2/13/2013 | 269.47 | 5 | | | | 4/29/2013 | 199.15 | 5 |
| 3/13/2013 | 275.1 | 2.09% | | | | 5/22/2013 | 206.99 | 3.94% |
| 3/27/2013 | 265.3 | 6 | | | | | | |
| 4/17/2013 | 267.4 | 0.79% | | | | | | |
| 5/6/2013 | 255.72 | 9 | | | | | | |
| 5/22/2013 | 262.96 | 2.83% | | | | | | |
| 8/22/2013 | 289.73 | 9 | | | | | | |
| 9/13/2013 | 299.71 | 3.44% | | | | | | |

Source: http://bigcharts.marketwatch.com and author's own calculations

A truncated table showing a summary of only the signal strength and the corresponding profit margin is shown in the table 2. This table will serve as the dataset for the quantitative analysis.

Table 2 – Truncated table Showing Signal Strength and Corresponding Profit Margins

| Amazon | | Apple | | IBM | |
|---|---|---|---|---|---|
| **Signal** | **Profit** | **Signal** | **Profit** | **Signal** | **Profit** |
| 10 | 42.33% | 7 | 15.05% | 7 | -11.95% |
| 5 | 58.35% | 8 | 19.00% | 7 | 5.82% |
| 10 | 24.66% | 8 | -1.09% | 10 | 12.92% |
| 10 | 34.01% | 9 | 17.27% | 9 | 3.12% |
| 2 | 7.27% | 9 | 8.15% | 8 | 3.46% |
| 7 | 6.55% | 4 | -0.89% | 3 | 0.95% |
| 9 | 3.86% | 3 | 1.13% | 6 | 1.29% |
| 10 | 9.17% | 7 | 2.87% | 4 | -0.35% |
| 1 | 3.82% | 9 | 7.04% | 8 | 16.00% |
| 10 | 13.40% | 9 | 29.36% | 7 | 1.28% |
| 10 | 15.23% | 2 | 4.88% | 7 | 5.47% |
| 5 | 5.73% | 8 | 0.82% | 7 | 2.14% |
| 7 | -4.61% | 10 | 24.36% | 8 | 3.61% |
| 7 | 10.20% | 2 | -0.82% | 5 | 7.40% |
| 8 | 18.11% | | | 3 | -0.61% |
| 8 | 5.55% | | | 4 | -0.38% |
| 5 | 13.84% | | | 6 | 1.69% |
| 10 | 13.61% | | | 6 | 2.90% |
| 7 | 7.28% | | | 7 | 6.50% |
| 5 | 2.09% | | | 5 | 3.94% |
| 6 | 0.79% | | | | |
| 9 | 2.83% | | | | |
| 9 | 3.44% | | | | |

Source: http://bigcharts.marketwatch.com and author's own calculations

Using the above tables, usable dataset is created and it can be used for the statistical tests that will numerically prove or disprove the hypothesis.

Table 3: Paired Sample Test

| | | Paired Differences | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 95% Confidence Interval of the Difference | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | t | df | Sig. (2-tailed) |
| Pair 1 | AMZN profit – APPLE profit | -1.35556 | 9.39593 | 3.13198 | -8.57791 | 5.86679 | -.433 | 8 | .677 |
| Pair 2 | AMZN profit – IBM profit | 9.58091 | 18.20116 | 5.48786 | -2.64680 | 21.80862 | 1.746 | 10 | .111 |
| Pair 3 | APPLE profit – IBM profit | 4.99333 | 13.16276 | 4.38759 | -5.12446 | 15.11113 | 1.138 | 8 | .288 |

The profit yields and signal strength of three chosen companies, Amazon, Apple and IBM, were analyzed using paired sample t test.

The paired t-test is used when each observation in one group is paired with a related observation in the other group. In this case profit yields in relation to signal strength of one company are paired to that of another company, e.g. Amazon profit yields are paired with profit yields of Apple and IBM. Table above demonstrates the results of paired sample t test for three chosen companies. The p-value (level of significance) for all three pairs is higher than 0,05, what means that there is no significant difference in profit yields in relation to signal strength, between Amazon, Apple and IBM.

Besides using Paired Sample Test, the regression tool is also used in order to explain the strength of the relationship between independent variable (signal strength) and dependent variable (profit margin).

The relationship between the two variables will be mainly explained by a coefficient of determination or $r^2$. $R^2$ is a statistical measure of how close the data are to the fitted regression line. Coefficient of Determination is calculated as Explained variation / Total variation and it that sense, $R^2$ is a number that is always between 0 and 100%:

- 0% indicates that the model explains none of the variability of the response data around its mean.
- 100% indicates that the model explains all the variability of the response data around its mean.

Table 4: Linear Regression Analysis

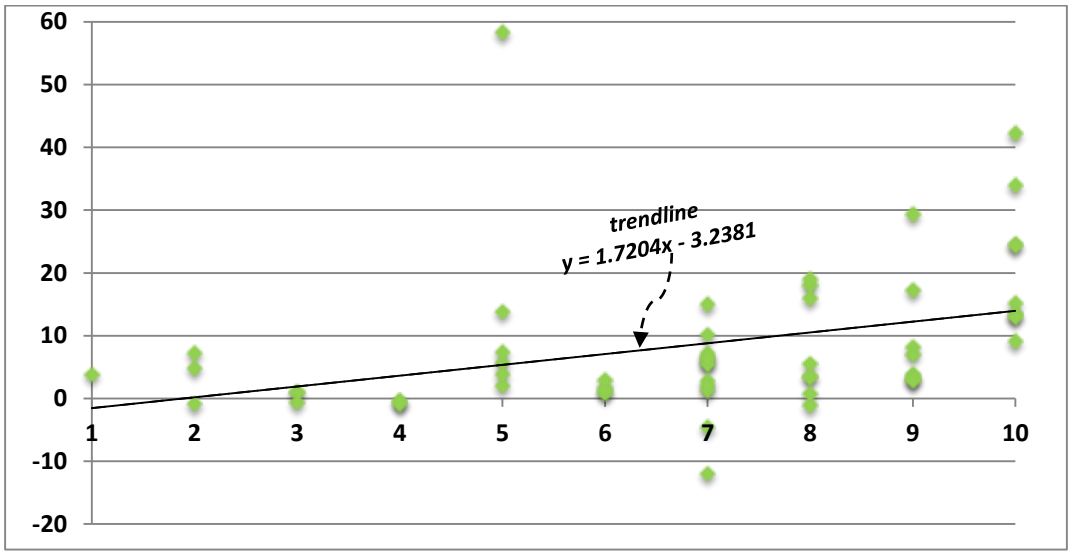
| **Regression Statistics** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Multiple R | 0.360 | | | | | | | |
| R Square | 0.1295 | | | | | | | |
| Adjusted $R_2$ | 0.114 | | | | | | | |
| Standard Error | 10.993 | | | | | | | |
| Observations | 57 | | | | | | | |
| **ANOVA** | | | | | | | | |
| | *df* | *SS* | *MS* | *F* | *Significance F* | | | |
| Regression | 1 | 989.018 | 989.018 | 8.184 | 0.006 | | | |
| Residual | 55 | 6646.454 | 120.845 | | | | | |
| Total | 56 | 7635.472 | | | | | | |
| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
| Intercept | -3.238 | 4.385 | -0.739 | 0.463 | -12.025 | 5.549 | -12.025 | 5.549 |
| Variable 1 | 1.720 | 0.601 | 2.861 | 0.006 | 0.515 | 2.926 | 0.515 | 2.926 |

With the overall number of 57 observations, the linear regression analysis clarified a couple of things. First of all, based on the multiple R or the correlation coefficient, the linear relationship between signal strength and the generated profit yield is not very strong, only 36%. Hence R squared or coefficient of determination will be even lower at only 12.95% which basically means that only 12.95% of variations of y-values around the mean, are explained by x-values. Simply said only 12.95% fits the model. The Significance F shows value of 0.006 which is way below the standard threshold of 0.05 hence the results are reliable or better yet, statistically significant.

All data points have also been plotted on a chart where X axis is the signal strength going from 1 to 10 and profit yields ranging from -11.95% to +58.35%. Alongside plotted dataset a trend-line is introduced that is basically derived from the regression where the formula dictates the intercept and the slope of the trend-line by using the linear regression data. The trend-line equation is the product of variable 1 multiplied by value X (the signal strength) and an intercept. Hence the trend-line equation is:

Trend-line (Y) = 1.720 X – 3.238 (3)

Graph 7: Data Set Plotted and the Linear Regression Based Trend-Line




## CONCLUSION

Based on the above research and analysis, the conclusion is that the hypothesis "…With Stochastic oscillator usage as a standalone stock investment indicator, it is not possible to generate a consistent, considerable and sustainable profit…" stands, as the statistical tools have shown that the relationship between signal strength and the generated profit is very weak and that the whole model of using Stochastic oscillator as an only tool in investing is only 12.95% reliable which is way under the limit of even the most risk-loving investors. This applies mainly to young and upcoming investors who are lured mainly by Forex brokers who claim that huge profits can be made using simple tools and indicators such as Stochastics oscillator. Investments in any kind of financial instruments must be based on multiple indicators and even if all selected indicators 'agree' on the signal, the investor should be cautious and protect themselves via stops, hedging or other loss-prevention techniques. The limitations of this research come mainly in the form of the lack of width across industries and across the markets as it would be interesting to see does the same thing happen over the World's markets and different industries. These limitations can serve as a 'seed' and as igniter for the upcoming graduates and master and PhD candidates who could develop and drill-down this topic deeper.

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