

# Returns Relationship between BIG FOUR Bank Stock and the S&P/ASX 200

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**Abstract:** *The Capital Markets progress and magnify, more and more data is formed every day. Market is very sensitive and movement of stock prices is affected by various factors including political, economic, statements of business people, natural calamities and even rumors. Analyzing the behavior of stock market is a serious challenge for investor and corporate stockholders. Technical analysis and fundamental analysis are two main schools of thought when it comes to analyzing the market. The technical analysis looks at the price movement of a security and using the data to predict future movement, on the other hand fundamental analysis looks at economic and financial factors of business that influence the stocks. This article seeks to examine different forecasting techniques to examine the performance of BIG FOUR Banks returns based on historical data of stocks and S&P/ASX 200. The result of the study helps the investor to forecast the returns of securities and they can make investment choices consequently.*

**Keywords:** Securities, Returns, Volatility, Behavior, Regression

## 1. Introduction

The Capital market attend as a place for investors competently distribute capital to entrepreneurs and business so that they can commendably provide their service to the society. In order for this progression to perform best, market need to be both liquid and proficient. It means that an investor can buy or dispose a considerable quantity at reasonable price. There are two main school of thought in the capital markets, namely fundamental analysis and technical analysis. Fundamental analysis attempts to determine a stocks' return by focusing on primary factors that affects a concerns actual business and its future prospects. Fundamental analysis can be performed an industries or the company as a whole, fundamental information like financial and non-financial aspects of the company. The fundamental school of thought appraised the intrinsic value of shares through economic analysis, Industry Analysis and Company Analysis.

### Economic Analysis

The level of economic activity has an impact on investment in many ways, when the level of economic activity is low, stock prices are low and when the level of economic activity is high, stock prices are high reflecting the prosperous outlook for sale and profit of the firm. (Punithavathy Pandian, 2006)

### Industry Analysis

An industry is a group of firm have a similar technological structure of production and produce similar product called industry. Each industry is entirely different from other industry. Stock prices in the market based on the factor like: Growth of Industry, Cost Structure and Profitability, Nature of the Product, Competition, Government Policy, Labour and Research and Development.

### Company Analysis

Investor assimilates the several bits of information related to the company and evaluate the present and future value of

stock. The risk and return associated with the purchase of the stock is analyzed to take better investment decisions. The valuation process depends upon the investors' ability to elicit information from the relationship and inter-relationship among the company related variables.

Examine an alternative approach to predicting stock price behavior is called technical analysis. The technical analysis is frequently used as a supplement to fundamental analysis rather than auxiliary for it. People have many intentions for investing. Some people invest in order to gain a sense of power or prestige. Often the control of corporate empires is a driving motive. For most investor, however, their interest in investment is largely pecuniary to earn a return on their money. However, selecting stock exclusively on the basis of maximization of returns is not enough. (Donald E. Fischar, Ronald J Jordan, 2008)

The fact that most investors do not place available fund into the one, two, or even three stock promising the greatest returns suggests that other factor must be considered besides return in the selection process. Investors not only like return, they dislike risk. Here our job of analyzing securities within a return – risk context, we must begin with clear understanding of what risk and return are, what creates them and how they should be measured (Robert Parrino, David S. Kidwell, & Thomas Bates, 2014). The technical analyst assumes that it is ninety percent psychological and ten percent logical. Technical analysis is a method of evaluating securities by analyzing statistics generated by market activity, such as price, return and volume. It looks at the returns movement of a stock and use this data to predict its future performance. The time frame in which technical analysis is applied many range from intraday 5 minutes, 10 minute, 30 minute or hourly, daily, weekly or monthly returns data to many years.

## Assumptions of Technical Analysis

### 1) Market Fluctuations Discount Everything else.

Technical analysts believe that changes in the price of a security and how well it trades in the market embody all available information about that security from everyone involved with it and therefore represents the fair value of that security. Sudden changes in how a stock trades often precedes major news about the company that issued the stock. Technical analysts don't concern themselves with the price-to-earnings ratio, shareholder equity, return on equity or other factors that fundamental analysts do.

### 2) Price Movements can often be charted and predicted.

Technical analysts acknowledge that there are periods when prices move randomly, but there are also times when they move in an identifiable trend. Once a trend is identified, it is possible to make money from it, either by buying low and selling high during an upward trend (bull market) or by selling short during a downward trend (bear market). By adjusting the length of time the market is being analyzed, it is possible to spot both short- and long-term trends.

### 3) History Repeats Itself.

People don't change their motivations overnight; therefore, traders will react the same way to conditions as they did in the past when those conditions repeat themselves. Because people react the same way, technical analysts can use the knowledge of how other traders reacted in the past to profit each time those conditions repeat them.

## 2. Big Four Banks

This study efforts to analyse the performance of the big four banks returns based on its historical data in S&P / ASX 200. The first bank in Australia was the bank of New South Wales, established in Sydney in 1817. During 19<sup>th</sup> and early 20<sup>th</sup> century, the bank of New South Wales opened branches throughout the Australia and Oceania at Moreton Bay (Brisbane 1850), then in Victoria (1851), New Zealand (1861), South Australia (1877), Western Australia (1883), Fiji (1901), Papua (1910) and Tasmania (1910).

In 1835 a London based bank called the bank of Australia was formed that would eventually become the ANZ Bank. In 1951, It merged with the Union Bank of Australia, another London based bank, which had been formed in 1837. In 1970, it merged with the English, Scottish and Australian Bank Limited, another London based bank formed in 1852, It is the largest merger in Australian Banking history, to form the Australia and New Zealand Banking Group Limited. The federal government owned common wealth bank was established in 1911 and by 1913 had branches in all six states. In 1912, it took over the state saving bank of Tasmania and did the same in 1920 with the Sate Saving Bank of Queensland. As with many other countries, the great depression of the 1930's brought a string of bank faltering. In 1931, common wealth Bank took over faltering state saving banks. Currently, banking in Australia is dominated by four major banks, Australia and New Zealand Banking Group, Common Wealth Bank of Australia,

National Australian Bank and Westpac Banking Corporation.

In 1990, the Australian Government adopted a "Four Pillars Policy" in relation to banking in Australia and announced that it would reject any mergers between four banks. These are the top four banking groups in Australia ranked by market capitalization at share price in 2016.

## 3. Literature Review

Das and Pattanayak (2009) examined 30 share constituting the Bombay Stock Exchange (BSE) sensitivity index in order to study the factors affecting stock price movements. The analysis revealed that higher earnings, return on investment, growth possibility and favorable valuation have positive impacts on the market price of shares while higher risk and volatility have inverse impacts.

Nirmala, Sanju and Ramachandran M (2011) examined three sectors namely auto, healthcare and public sector undertakings over the period 2000-2009 in order to infer the main factors affecting share price in India. The study employed the fully modified ordinary least squares method and result revealed that divided, price earning (PE) ratio and leverage are the major determinants of share price. Another significant and positive determinant of stock price which emerged in the studies conducted by Balakrishnan (1984), Zahir and Khanna (1982) and Sharma (2011) was book value per share depicts a sound financial performance of the company as book value is a major representation of owners' fund. This in turn affects the stock prices in a positive way.

## 4. Objectives of the Study

- To Study the relevance of technical analysis in Australian Capital Market
- To analyze the performance of shares in selected Banks of Australian Stock Market through technical analysis.
- To measure the volatility of selected securities.
- Analysis of selected stock and interpret on whether to buy or sell based on past performance in stock market.

## 5. Research Methodology

The technical analysis, market (Secondary) data the monthly share return movements of the selected banks in S&P/ASX 200 were observed for the five years i.e. July 2012 – June 2017. The closing prices of the share were taken and performance was analyzed by using tools. Data were gathered from trading of the equity market in S&P/ASX 200. All the listed banks in the Australia Stock Exchange are actively traded in S&P / ASX 200 were taken on stratified sampling basis for the study.

The selected Banks are given below:

- Australia New Zealand Banking Group (ANZ.AX)
- Commonwealth Bank of Australia(CBA.AX)
- National Australia Bank (NAB.AX)
- Westpac Banking Corporation (WBC.AX)

**Period of the Study:**

The period of five years from July. 2012 to June 2017 have been taken to carry out the present study.

**Secondary Data:**

The Secondary Data have been collected from the Stock Market Indices, also from the Journals and Websites.

**6. Limitations of the Study**

- Technical analysis only for five years is undertaken; from this data we cannot analyse the returns accurately.
- Technical indicators' mixed signals.
- Study relating to past performance of the stocks when compared to the market returns.
- This study can be used only for short term decision making.

**Table 1:** Returns of S&P/ASX 200 and Big Four Banks' Equity 2012 – 2017

Date	S&P ASX 200	S&P ASX 200 Ret.	ANZ. AX Ret.	CBA. AX Ret.	NAB. AX Ret.	WBC. AX Ret.
6/30/2017	5720.6	-0.02%	3.17%	1.11%	1.22%	4.29%
5/31/2017	5721.5	-0.05%	6.51%	3.97%	2.69%	4.39%
4/30/2017	5724.6	-3.37%	-14.50%	-8.87%	-11.41%	-13.01%
3/31/2017	5924.1	1.01%	2.95%	1.73%	1.98%	0.00%
2/28/2017	5864.9	2.67%	2.98%	7.93%	4.22%	4.04%
1/31/2017	5712.2	1.62%	5.50%	0.81%	5.47%	6.28%
12/31/2016	5620.9	-0.79%	-3.71%	-0.91%	2.12%	-1.83%
11/30/2016	5665.8	4.14%	11.58%	4.78%	8.22%	7.83%
10/31/2016	5440.5	2.31%	2.01%	7.17%	3.32%	2.63%
9/30/2016	5317.7	-2.17%	0.80%	1.37%	0.47%	3.25%
8/31/2016	5435.9	0.05%	2.71%	5.21%	1.94%	0.17%
7/31/2016	5433	-2.32%	4.10%	-7.16%	3.01%	-5.24%
6/30/2016	5562.3	6.28%	7.13%	4.01%	4.36%	5.75%
5/31/2016	5233.4	-2.70%	-0.83%	-3.95%	-1.54%	0.06%
4/30/2016	5378.6	2.41%	4.99%	4.79%	-0.15%	-1.13%
3/31/2016	5252.2	3.33%	3.45%	-1.37%	3.62%	2.31%
2/29/2016	5082.8	4.14%	4.73%	11.04%	8.47%	5.57%
1/31/2016	4880.9	-2.49%	-7.36%	-10.84%	-9.36%	-6.81%
12/31/2015	5005.5	-5.48%	-13.43%	-8.02%	-8.41%	-8.08%
11/30/2015	5295.9	2.50%	8.39%	7.68%	8.05%	9.13%
10/31/2015	5166.5	-1.39%	-0.22%	3.52%	-2.52%	2.45%
9/30/2015	5239.4	4.34%	0.48%	5.51%	0.57%	6.38%
8/31/2015	5021.6	-3.56%	-3.04%	-0.90%	-3.82%	-6.59%
7/31/2015	5207	-8.64%	-14.53%	-12.32%	-10.35%	-8.79%
6/30/2015	5699.2	4.40%	1.49%	2.85%	4.38%	7.70%
5/31/2015	5459	-5.51%	0.77%	0.05%	1.24%	0.39%
4/30/2015	5777.2	-0.22%	-2.35%	-4.25%	-5.33%	-7.95%
3/31/2015	5790	-1.72%	-7.23%	-4.85%	-4.62%	-7.41%
2/28/2015	5891.5	-0.63%	3.68%	4.80%	1.71%	3.63%

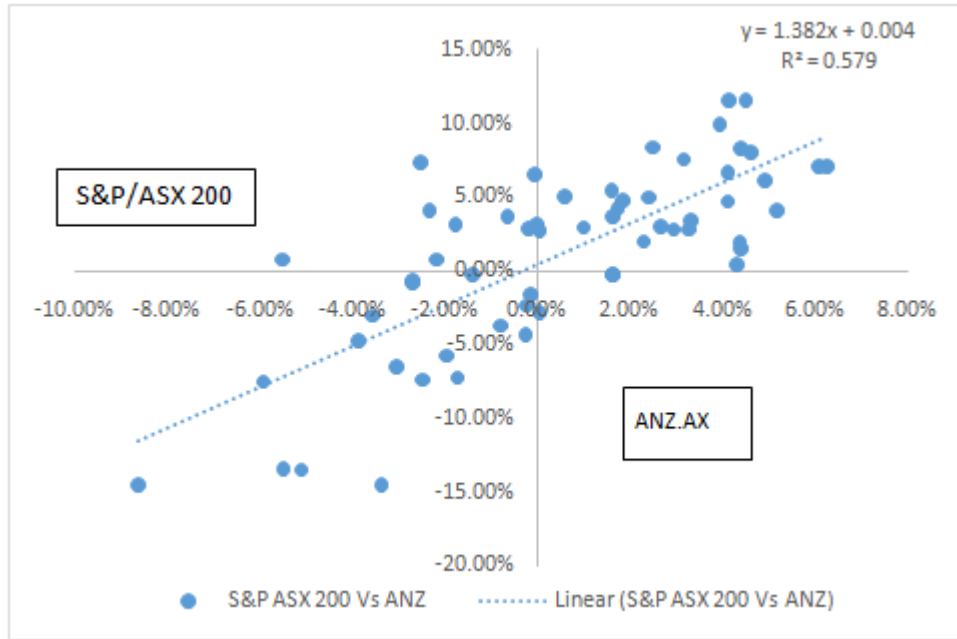
1/31/2015	5928.8	6.09%	7.09%	2.90%	6.37%	10.27%
12/31/2014	5588.3	3.28%	2.84%	4.30%	6.04%	3.92%
11/30/2014	5411	1.84%	4.76%	6.11%	7.75%	5.90%
10/31/2014	5313	-3.86%	-4.72%	0.30%	-6.83%	-6.41%
9/30/2014	5526.6	4.42%	8.34%	6.89%	7.53%	8.21%
8/31/2014	5292.8	-5.92%	-7.51%	-3.71%	-7.56%	-8.28%
7/31/2014	5625.9	-0.12%	-1.59%	-2.90%	-0.34%	1.24%
6/30/2014	5632.9	4.40%	1.89%	3.55%	7.75%	2.15%
5/31/2014	5395.7	-1.76%	3.17%	-0.87%	2.29%	2.20%
4/30/2014	5492.5	0.06%	-2.84%	3.41%	-5.13%	-1.99%
3/31/2014	5489.1	1.75%	4.26%	1.89%	-0.45%	1.62%
2/28/2014	5394.8	-0.19%	2.86%	7.44%	2.07%	3.26%
1/31/2014	5404.8	4.14%	6.67%	0.58%	4.48%	8.42%
12/31/2013	5190	-3.03%	-6.52%	-4.59%	-4.54%	-4.66%
11/30/2013	5352.2	0.60%	5.08%	-0.03%	4.98%	2.71%
10/31/2013	5320.1	-1.94%	-5.73%	2.29%	-2.07%	-4.11%
9/30/2013	5425.5	3.96%	9.94%	6.84%	2.88%	4.77%
8/31/2013	5218.9	1.63%	3.67%	1.75%	5.76%	4.27%
7/31/2013	5135	1.64%	-0.24%	-1.85%	3.91%	1.62%
6/30/2013	5052	5.19%	4.13%	7.27%	5.22%	6.96%
5/31/2013	4802.6	-2.52%	7.33%	3.47%	7.25%	5.99%
4/30/2013	4926.6	-5.10%	-13.51%	-8.97%	-14.71%	-15.86%
3/31/2013	5191.2	4.52%	11.60%	8.00%	10.25%	9.88%
2/28/2013	4966.5	-2.70%	-0.66%	4.78%	2.12%	-0.03%
1/31/2013	5104.1	4.62%	8.05%	4.38%	10.38%	9.74%
12/31/2012	4878.8	4.94%	6.11%	3.65%	9.44%	7.68%
11/30/2012	4649	3.17%	7.59%	4.17%	8.79%	7.11%
10/31/2012	4506	-0.24%	-4.28%	3.36%	-5.78%	-0.04%
9/30/2012	4517	2.96%	2.83%	3.55%	1.18%	2.66%
8/31/2012	4387	1.64%	-0.28%	7.17%	1.11%	0.32%
7/31/2012	4316.1					

Source: Yahoo Finance

**Table 2:** Table Showing Correlation between S&P/ASX 200 and ANZ.AX

Particulars	S&P/ASX 200	ANZ.AX
Average	0.54%	1.20%
Variance	0.0011442	0.003772
Standard Deviation	3.38%	6.14%
Covariance		0.001582
Correlation		76.14%

From the table No. 2, It could be inferred that the Australia New Zealand Banking Group (ANZ.AX) Security are more volatility than the market returns. Also coefficient is a statistical measure that reflects the correlation between securities and market or between two securities. Other hand, this statistics tells us how closely are security is related to others. Calculated correlation coefficient between S&P/ASX 200 and ANZ.AX has positive and moves in the same direction, but it has strong linear relationship.



**Chart 1:** Chart Showing Regression of S&P/ASX 200 and ANZ.AX

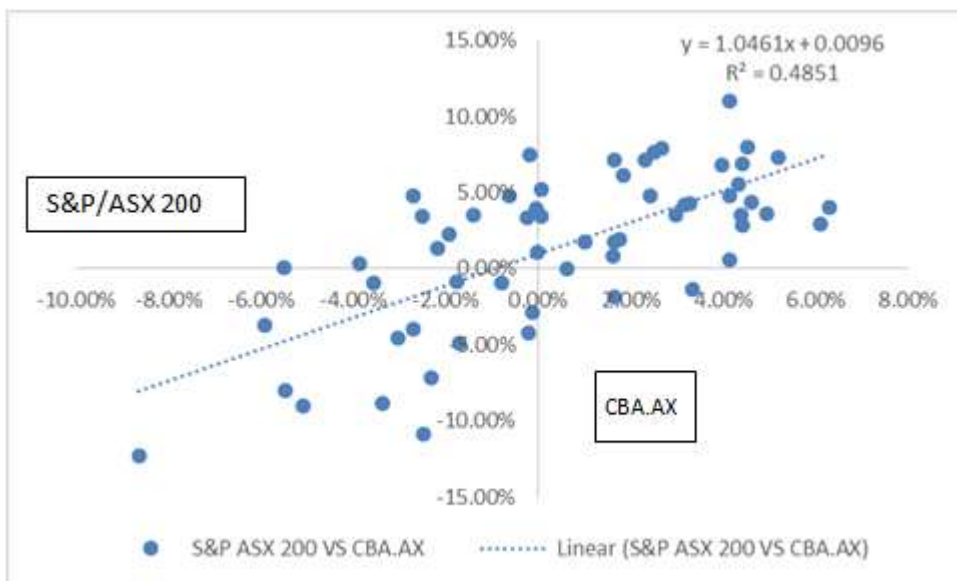
From the above Regression line that kind of gives us a sense for how ANZ.AX varies with S&P /ASX 200 returns, just visually there is a slope upward, it tells us that as S&P 200 returns increase along the 'X' axis and ANZ.AX returns also tend to increase along the 'Y' axis. Huge variation between the plots in the graph that some points are away and other points are really close to the line, it tells us that ANZ.AX varies for reasons other than just S&P 200's variation. The equation tells us here that for every increase of 1 % point of S&P/ASX 200 returns, there is a 1.3825% increase in ANZ.AX returns. If S&P/ASX 200 were 0, ANZ.AX would be completely flat between any two months then ANZ.AX gets positive 0.0045 and would increase by 0.45%. Out of the selected securities ANZ.AX has more volatility, produces more returns as well. Purchase and sale of securities purely based on the investors' decisions based on risk-taking habits. Finally  $R^2$  0.5797, about 57% of the variation in ANZ.AX is explained by S&P/ASX 200. The fact that ANZ.AX stock is fluctuating is partly explained because the S&P/ASX 200

itself is fluctuating and partly because there may be specific things happening within ANZ.AX and other factors.

**Table 3:** Table Showing Correlation between S&P/ASX 200 and CBA.AX

Particulars	S&P/ASX 200		CBA.AX
Average	-0.96%		1.53%
Variance	0.001144		0.002581
Standard Deviation	3.38%		5.08%
Covariance		0.001197	
Correlation		70%	

From the table No. 3, it could be interpreted that the Commonwealth Bank of Australia (CBA.AX) security has more volatility than the market returns. Calculated correlation coefficient between S&P/ASX 200 and CBA.AX has a positive and moves in the same direction, but it is a strong linear relationship.



**Chart 2:** Chart Showing Regression of S&P/ASX 200 and CBA.AX



From the above Regression line that kind of gives us a sense for how CBA.AX varies with S&P /ASX 200 returns, just visually there is a slope upward, so that tells us that as S&P 200 returns increase along the 'X' axis and CBA.AX returns also impression to increase along the 'Y' axis. Huge variation between the plots in the graph that some points are away and other points are really close to the line, it tells us that CBA.AX. varies for reason other than just S&P 200's variation. The equation tells us here that for every increase of 1 % point of S&P/ASX 200 returns, there is a 1.0461% increase in CBA.AX returns. If S&P/ASX 200 were 0, stayed completely flat between any two months then CBA.AX gets positive 0.0096 and would increase by 0.96%.

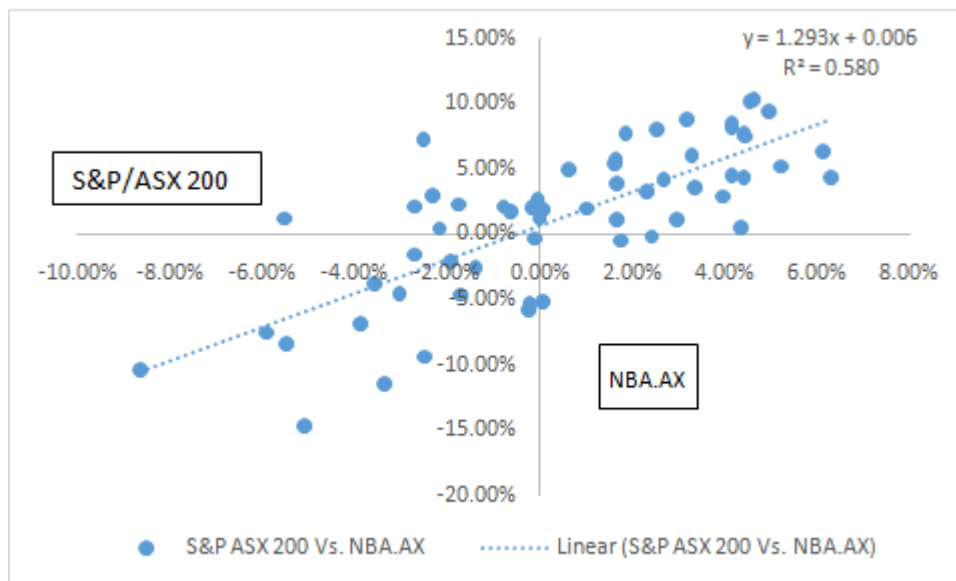
Finally  $R^2$  0.4851, about 48 % of the variation in CBA.AX. is explained by S&P/ASX 200. The fact that CBA.AX stock is fluctuating is partly explained because the S&P/ASX 200

itself is fluctuating and partly because there may specific things happening within CBA.AX and other factor.

**Table 4:** Table Showing Correlation between S&P/ASX 200 and NBA.AX

Particulars	S&P/ASX 200	NBA.AX
Average Returns	0.54%	1.35%
Variance	0.001144	0.003299
Standard Deviation	3.38%	5.74%
Covariance		0.00148
Correlation		76.19%

From the Table 4, it could be concluded that the NBA.AX security are more volatility than the market returns and calculated correlation coefficient between S&P /ASX.500 and NBA.AX has positive and moves in the same direction, but it also has strong linear relationship



**Chart 3:** Chart Showing Regression of S&P/ASX 200 and NBA.AX

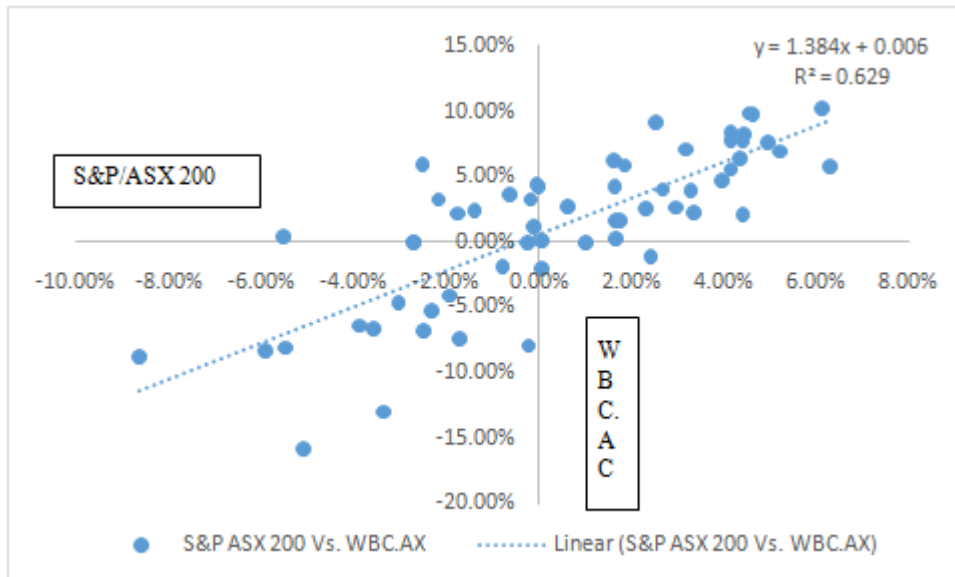
From the below Regression line that kind of gives us a sense for how NAB.AX varies with S&P /ASX 200 returns, just visually there is a slope upward, so that tells us that as S&P 200 returns increase along the 'X' axis and NBA.AX returns also dent to increase along the 'Y' axis. Huge variation between the plots in the graph that some points are away and other points are really close to the line, it tells us that NBA.AX. varies for reason other than just S&P 200's variation. The equation tells us here that for every increase of 1 % point of S&P/ASX 200 returns, there is a 1.2938 % increase in NBA.AX returns. If S&P/ASX 200 were 0, stayed completely flat between any two months then NBA.AX gets positive 0.0066 and would increase by 0.66%.

Finally  $R^2$  0.5805, about 58 % of the variation in NBA.AX. is explained by S&P/ASX 200. The fact that NBA.AX stock is fluctuating is partly explained because the S&P/ASX 200 itself is fluctuating and partly because there may specific things happening within NBA.AX and other factor.

**Table 5:** Table Showing Correlation between S&P/ASX 200 and WBC.AX

Particulars	S&P/ASX 200	WBC.AX
Average Returns	0.54%	1.34%
Variance	0.001144	0.003486
Standard Deviation	3.38%	5.90%
Covariance		0.001584
Correlation		79.31%

From the Table 5, it could be concluded that the WBC's security are volatility than the market returns and correlation coefficient between S&P 500 and SAP has positive and moves in the same direction, but it also has Strong linear relationship.



**Chart 4:** Chart Showing Regression of S&P/ASX 200 and WBC.AX

From the above Regression line that kind of gives us a sense for how WBC.AX varies with S&P /ASX 200 returns, just visually there is a slope upward, it tells us that as S&P 200 returns increase along the 'X' axis and WBC.AX returns also tend to increase along the 'Y' axis. Huge variation between the plots in the graph that some points are away and other points are really close to the line, it tells us that WBC.AX varies for reasons other than just S&P 200's variation. The equation tells us here that for every increase of 1 % point of S&P/ASX 200 returns, there is a 1.3843 % increase in WBC.AX returns. If S&P/ASX 200 were 0, stayed completely flat between any two months then WBC.AX gets positive 0.006 and would increase by 0.60%.

Finally  $R^2$  0.6290, about 62 % of the variation in WBC.AX is explained by S&P/ASX 200. The fact that WBC.AX stock is fluctuating is partly explained because the S&P/ASX 200 itself is fluctuating and partly because there may be specific things happening within WBC.AX and other factors.

## 7. Discussion of Results

- As explained in earlier the highest average return evidenced with CBA.AX, lowest in ANZ.AX
- The result of variance shows that highest is found with ANZ.AX, lowest with CBA.AX
- Our result shows that the highest standard deviation is noted in ANZ.AX, lowest and less volatility indicated with CBA.AX
- We also show that the 79.31% correlation between S&P/ASX 200 and WBC.AX and lowest between S&P/ASX 200 and CBA.AX

## 8. Conclusion

Technical analysis is a technique which gives an awareness about past performance, future share returns and share prices of selected companies in which investors invest. From the above study the investor can identify the securities which are giving more returns for their investment based on the past

performance. Also the study revealed that some of the companies are more volatile and some are equal to the market return, learnt that weak and strong linear relationship with market index. ANZ.AX has highest volatility when compared to stock market and other banks' stock and lowest volatility evidenced from the analysis of CBA.AX.

By using the technical indicators the future market securities would be known in which to invest. The more accurate performance of stock returns of selected banks/companies the investor to carry out the fundamental analysis, even they can predict the future trend of stock returns and price. On the basis of performance of four banks (i.e. ANZ, CBA, NBA and WBC), different patterns of stock returns give an idea of future trend of stock returns. Technical analysis and tools of the same is an important to predict the trend of medium and short term returns movement and help the investor to select the right stock to invest in the remunerative one. The technician also required a fundamental knowledge, which would give a clear idea about the investment decision. Both technical and fundamental analysis helps in investment decision in the stock market based on past performance of companies' stock in which the investor wishes to invest.

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