Analysis on Stock Return Increasing or Decreasing Drivers with special reference to Indian Banking Sector Stocks in Indian Capital Market

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Abstract

This study had focussed on share holders’ benefit which means appreciation in the market price between the purchasing day and selling day. The growth in the benefit is said to be called as Stock return. There was the path driving the increase or decrease of this stock return which was found out by using Statistical analysis namely Path analysis. This analysis had taken each independent variable and these variables were routed to the direction of the dependent variable namely Stock return / Return on total assets and exactly the variables which were less than 0.5% significant value in the path analysis, the particular variable showing positive significance, it is considered as “variable contributing the increase in stock return” and the particular variable showing negative significance, it is considered as “Variable contributing the decrease in stock return.
Key words used in the Study:

- Stock return: It is the market price difference between the purchase price and selling price of the investor.
- Share holder value Drivers: The variables which are cause of increase or decrease in stock prices called as shareholder value drivers. The share holder value is actually the return; the investor gets due to market price changes.
- Potential/ Novice Investor: The investor who is new to the stock market for Investment.
- Significant Value: $R^2$ is a statistical measure of how well a regression line approximates real data points. $R^2$ is a descriptive measure between zero and one, indicating how good one term is at predicting another.
- R-square Value: A significance test is performed to determine if an observed value of a statistic differs enough from a hypothesized value of a parameter to draw the inference that the hypothesized value of the parameter is not the true value. The hypothesized value of the parameter is called the “null hypothesis. A significance test consists of calculating the probability of obtaining a statistic as different or more different from the null hypothesis (given that the null hypothesis is correct) than the statistic obtained in the sample. If this probability is sufficiently low, then the difference between the parameter and the statistic is said to be "statistically significant."
Introduction:

With prices rising at double digit rates, where did it pay to investment? An analysis of stock returns over alternative avenues of investments such as gold, bank deposits and commodity futures showed that equities had been most successful in giving inflation beating returns. According to the analysis, equities had managed a higher return compared to other asset classes during years of high inflation (consumer price Index in excess of 7 per cent). The consumer Price Index had been above 7 per cent annually in all the years since 1990. Equities had managed to outperform other asset classes for six years during the period. In 1991, when the Consumer Price Index (CPI) rose above 14 percent, equity investors made an 80 per cent return (measured by Sensex) on their investment. In 1997, when the CPI had risen 7 per cent, the equity market delivered a close to 20 per cent return. In 2009 when inflation was at a 10 year high of 11 percent, investors could have ranked it from the market, had they only been ventured enough.

Source: Business Line,

Research Methodology:

The sampling plan used by the researcher in this study is Proportionate Stratified Random sampling has been employed. It is because 75% of the total listed companies in each industry segment had been taken as a sample. In each segment the samples are classified into 1.Excellent segment, 2. Good segment, 3. Average segment, 4. Poor segment, 5. Very poor segment.

Selection of Sample:

- The sample selection was made to choose companies from among two industries namely banking sector, and IT sector. The type of sampling chosen was stratified random sampling. In order to justify the accuracy of the study the large sample that is 75% of the total population was taken as sample size from the respective service sector industries namely Banking and Information Technology Industry. From the date of listing on NSE, seven financial years, the stocks should be in continuous listing. The selected stocks are five segments which are classified as Excellent, Good, Average, Poor and Very Poor based on 365 days average market capitalization criteria. For each segment, the sample companies had taken in the range of 2 to 3. It means minimum one and maximum three.
The details of the sampling are as follows:

**Sampling for banking industry**

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Group Name</th>
<th>Criteria</th>
<th>No of companies-Population</th>
<th>No of selected sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Excellent segment</td>
<td>&gt;Rs. 7428 crore</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Good segment</td>
<td>&gt;Rs.3714 &lt; Rs.7428</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Average segment</td>
<td>&gt; Rs.1857 &lt; Rs.3714</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Poor segment</td>
<td>&gt; Rs.929 &lt; Rs. 1857</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Very Poor segment</td>
<td>&lt; Rs.929 Crore</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>19</td>
<td>14</td>
</tr>
</tbody>
</table>

**Sampling for banking industry :**

Excellent segment of Banking sector ( > Rs.7428 crore) was given below;
   a) HDFC bank
   b) ICICI bank
   c) Punjab National bank

Good segment Of Banking sector ( >Rs.3714 < Rs.7428) was given below;
   d) Bank of Baroda
   e) Bank of India
   f) Oriental bank of commerce

Average segment of Banking sector ( > 1857 < Rs.3714 crore) was given below;
   g) Andhra Bank
   h) Jammu and Kashmir Bank
   i) Syndicate Bank

Poor segment of Banking sector ( > Rs.929 crore < Rs.1857 crore) was given below;
   j) ING Vysya Bank Ltd.,
   k) Karnataka Bank Ltd.,

Very Poor Segment of Banking sector ( < Rs.929 crore) was given below:
   1) Bank of Rajasthan
   2) Lakshmi Vilas Bank Ltd.,
   3) South Indian Bank Ltd

**Sampling for Information Technology Companies :**

All the below mentioned three companies such as a, b, c come under Excellent segment

I Excellent Segment ( > Rs.3755 Crore )

   a) Infosys Technologies Limited.
   b) Satyam Computer Services Limited.
   c) Wipro Limited.

II Good Segment ( > Rs.1878 Crore < Rs.3755 Crore)

The company, which was included in Good segment namely

   a) MPhasis Limited.
III Average Segment ( > 939 Crore < Rs.1878 Crore):

   a) CMC Limited,
   b) Hinduja Ventures Limited.
   c) Rolta India Limited.

VI Poor Segment ( > Rs.470 crore < Rs.939 Crore)

   a) Aptech Limited,
   b) Mastek Limited
   c) NIIT Limited

V Very Poor Segment ( < Rs.470 Crore)

   1. Computech International Limited,
   2. Kale Consultants Limited,
   3. Ramco Systems Limited,

Sources of Data:

The study is of fictitious in nature; only secondary data was taken for the analysis. These secondary data had been collected from Reserve Bank of India bulletin, Reserve Bank of India statistical table, National stock exchange Bhav Copy, Statistical table of INDIAN ECONOMY, CMIE Prowess Software and Capital Line Plus Software.

ANALYSIS OF DATA

Here in this study, the collected data had been analysed by using Path analysis. Path analysis was in fact helping investors to spot out which variable happened to be responsible to increase the stock return and which variable happened to Path analysis be responsible to decrease the stock return.

Historical Background of the Path Analysis:

Path Analysis was developed as a method of decomposing correlations into different pieces for interpretation of effects (e.g., how does parental education influence children's income 40 years later?). Path Analysis is closely related to multiple regressions; you might say that regression is a special case of path analysis. Some people call this stuff (path analysis and related techniques) "causal modeling." The reason for this name is that the techniques allow us to test theoretical propositions about cause and effect without manipulating variables. However, the "causal" in "causal modeling" refers to an assumption of the model rather than a property of the output or consequence of the technique. That is, people assume some variables are causally related, and test propositions about them using the techniques. If the propositions are supported, it does NOT prove that the causal assumptions are correct.

Source: http://luna.cas.usf.edu/~mbransc/files/regression/pathan.html
Calculating Path Coefficients

Because we are working with correlations, we can assume that our variables are in standard score form (z scores). For our example, the equations for the four variables are:

\[ z_1 = e_1 \]
\[ z_2 = p_{21} z_1 + e_2 \]
\[ z_3 = p_{31} z_2 + p_{32} z_2 + e_3 \]
\[ z_4 = p_{41} z_1 + p_{42} z_2 + p_{43} z_3 + e_4 \]

Note that the first variable is not explained by any other variable in the model. In path language, \( e \) means stray causes, or causes outside the model. The \( e \) does not stand for measurement error, which is assumed to be zero. The second variable (2) is due partly to the first variable and partly to error or unexplained causes. Note the correspondence between the path diagram and the equations. Each \( z \) is determined by the paths leading directly to it, and not the indirect paths (e.g., there is no mention of \( p_{21} \) in the determination of \( z_3 \)).

To calculate the path coefficients, we will use observed correlations:

\[ r_{12} = \frac{1}{N} \sum z_1 z_2 \]

Which is the formula for \( r \) with \( z \) scores? If we substitute the path equation for \( z_2 \), we get:

\[ r_{12} = \frac{1}{N} \sum z_1 (p_{21} z_1 + e_2) \]

which amounts to

\[ r_{12} = p_{21} \frac{\sum z_1 z_1}{N} + \frac{\sum z_1 e_2}{N} \]

**Statement of the Problem:**

It is quite natural that all potential investors who are found to be novice in stock market Investment, they do not know which variable is causing the increase in stock return and
which variable is the cause of decrease in stock return. In fact the variable causing influences are varying from one industry to another. Is it not that NPA to total advances, cost of funds to total deposits, current and Savings account to total deposits and so on influencing the stock return variable?

Objectives of the Study:
- To find out the shareholder value drivers
- To find out the magnitude of increase or decrease in stock return

Table -1 showing the list of variables taken for the research in Bank Industry

<table>
<thead>
<tr>
<th>Variable-No:</th>
<th>Name of the Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>Secured advances/ Total Advances</td>
</tr>
<tr>
<td>V2</td>
<td>Investments in Non Approved Securities/Total Advances</td>
</tr>
<tr>
<td>V3</td>
<td>Intermediation Cost/Total assets</td>
</tr>
<tr>
<td>V4</td>
<td>Wage bills/Total Income</td>
</tr>
<tr>
<td>V5</td>
<td>Ratio of Burdon/Interest Income</td>
</tr>
<tr>
<td>V6</td>
<td>Operating Profits/Total Assets</td>
</tr>
<tr>
<td>V7</td>
<td>Growth in ROA in times</td>
</tr>
<tr>
<td>V8</td>
<td>Net NPA/net advances</td>
</tr>
<tr>
<td>V9</td>
<td>Deposits/ Total Liabilities ratio</td>
</tr>
<tr>
<td>V10</td>
<td>Term deposits/Total Deposits</td>
</tr>
<tr>
<td>V11</td>
<td>Cost of Funds/Total Expenses</td>
</tr>
<tr>
<td>V12</td>
<td>Growth in return on Equity in times</td>
</tr>
<tr>
<td>V13</td>
<td>FII growth in times</td>
</tr>
<tr>
<td>V14</td>
<td>NSE’s Market Cap Growth in times</td>
</tr>
</tbody>
</table>

Table – 2 showing the details of Path analysis of all sampled Banks having less than 5 percent p value

<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Segment</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>V6</th>
<th>V7</th>
<th>V8</th>
<th>V9</th>
<th>V10</th>
<th>V11</th>
<th>V12</th>
<th>V13</th>
<th>V14</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFC Bank</td>
<td>Excellent Segment</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.668</td>
</tr>
<tr>
<td>ICICI Bank</td>
<td>Excellent Segment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.727</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punjab National Bank</td>
<td>Good Segment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
<td>0.934</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank of Baroda</td>
<td>Good Segment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>0.824</td>
</tr>
<tr>
<td>Bank of India</td>
<td>Good Segment</td>
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</tbody>
</table>
Results and Discussion derived from the analysis table-2:

According to the table-3, In the category of excellent segment, there are three banks belonging to this category namely 1. HDFC, 2. ICICI Bank, 3. Punjab National Bank. The path table for HDFC Bank Limited for the period from 2001-02 to 2009-10, the following independent factor has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, V28- Market Cap growth at NSE ratio (0.668) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Finally, an insight of this study table reveals that the variable V28 contributes towards stock returns.

The path table for ICICI Bank Limited for the period of 2001-02 to 2009-10 reveals that the following independent factor has the significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, v14- Return on assets ratio (0.727) which has direct effect on stock return and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Hence an insight of this study table reveals that the variable v14 contributes towards stock returns. As far as the case of Punjab National Bank Limited is concerned during the period from 2001-02 to 2009-10, the following independent factors have significant correlation co-efficient with the ratio of stock return / return on total assets and they have the direct effect on stock return changes, V13- Operating Profits to total assets ratio (0.319) and V22- Cost of borrowings ratio (0.934) other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant.
In the category of Good segment, three banks are falling namely 1. Bank of Baroda 2. Bank of India 5. Oriental Bank of Commerce. The path table for **Bank of Baroda** Limited for the period from 2001-02 to 2009-10, the following independent factor has the significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, V13- Operating profits to total assets ratio (0.686) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. It can be observed from the path table that Bank of India Limited for the period from 2001-02 to 2009-10. The following independent factor has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, V18- Deposits to total liabilities ratio (0.824) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Hence in the case of Bank of India Limited, this study table reveals that the variable V18 contributes towards stock returns. For **Oriental Bank of Commerce Limited** for the period from 2001-02 to 2009-10, the following independent factors have significant correlation co-efficient with the ratio of stock return / return on total assets and they have the direct effect on stock return changes , V19- Ratio of term deposits to total deposits ratio (0.523) and V29- FII Investments growth ratio (0.771) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant.

In the category of Average segment, there are three banks are falling namely Andhra Bank, Jammu and Kashmir Bank and and Vijaya Bank. It can be observed from the above path table of **Andhra Bank Limited** for the period of 2001-02 to 2009-10, the following independent factor has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes , V12- Return of Burdon to interest income ratio (-0.696) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Finally, an insight this study table reveals that the variable v12 contributes towards stock returns.

In the case of **Jammu and Kashmir Bank** Limited for the period of 2001-02 to 2009-10 has made investors understand that the following independent factors have significant correlation co-efficient with the ratio of stock return / return on total assets and it have the direct effect on stock return changes , V11- Wage bills to total income ratio (-493) and V29- FII investments growth ratio ( 0.744) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Finally, an insight of this study table reveals that the variable V11 and V29 contribute towards stock returns.

Since wage bills are found the expenses, this ratio has been found as the negative factor for the growth of company and stock return as well. FII investments addition helps the entire market to up. So this uptrend does not spare Jammu and Kashmir bank as well. Bank of Rajasthan Limited for the period of 2001-02 to 2009-10, the only one predictor independent factor has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, V29- FII INVESTMENTS growth ratio (0.711) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. This study table...
reveals that the variable V29 contributes towards stock returns. In the case of Vijaya Bank Limited for the period of 2001-02 to 2009-10, the following independent factors have significant correlation co-efficient with the ratio of stock return / return on total assets and they have the direct effect on stock return changes, v16- Net NPA to net advances ratio (0.758) and v28 Market cap growth at NSE(-0.642) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant.

Finally, an insight of Vijaya Bank study reveals that the variables namely V16 and V28 contribute towards stock returns. Here NPA factor has been viewed as the negative factor for the cause of the bank. But in this study it has been reduced over the period of times. This reduced NPA created positive impact on the yearly stock return growth as well. Because investor perceives that the decrease in NPA is the strength of the bank which is quite evident from the coefficient value of 0.758.

In the category of poor segment there are two banks are coming, one is ING Vysya Bank Limited and another one is Karnataka Bank Limited. ING Vysya Bank Limited for the period of 2001-02 to 2009-10, the following independent factors have significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, v5- Secured advances/ Total advances ratio (-1.803) and Cost of borrowing (-1.293) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Finally, an insight this study table reveals that both the variable v5 contributes towards stock returns and variable v22 minimizes stock return by 1.803 and 1.293 times respectively.

It emphasizes that both the variables are giving negative impact to stock returns. In the case of Karnataka Bank Limited for the period of 2001-02 to 2009-10, the following independent factor has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, v10- Intermediation cost to total assets ratio (-0.698) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. So it reveals that the variable v20 contributes towards stock returns. In the category of Very poor segment, there are three banks are falling namely Bank of Rajasthan, Lakshmivilas Bank and South Indian Bank Limited.

It can be observed from the path table of Bank of Rajasthan Limited for the period of 2001-02 to 2009-10, the following independent factor has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, v20- Return on equity ratio (0.683) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. It reveals that the variable v20 contributes towards stock returns.

In the case of Lakshmi Vilas Bank Limited for the period of 2001-02 to 2009-10, the following independent factors has significant correlation co-efficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, v14-Return on assets ratio (0.801) and v28- NSE’s Market Cap growth and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant. Finally, an insight this study table reveals that the variable v14 and v28 contribute towards stock returns. So the stock return of this particular
stock is driven by the overall earnings i.e., return on assets and the volume of trading taking place in NSE would have created positive effect.

It can be observed from the path table of **South Indian Bank Limited** for the period of 2001-02 to 2009-10, The following independent factor has significant correlation coefficient with the ratio of stock return / return on total assets and it has the direct effect on stock return changes, v6- Investments in non approved securities to total Investments ratio (0.730) and other variables have contributed indirectly towards the ratio of stock return / return on total assets as they are found to be statistically not significant.

**Conclusion:**

- The share holder value analysis has a significant impact on potential investors’ valuation decision in the Indian capital market. **Path analysis** is helping investors to spot out which variable is responsible to increase the stock return and which variable is responsible to decrease the stock return. The research in Indian market regarding Share holder value analysis is few in number, when compared to the extensive work done by the developed countries. The capital market reforms in India have changed over all scenarios in terms of efficiency and transparency.

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