

Impact of Firm Performance on Stock Returns: A Study of 30 Listed Firms in Bombay Stock Exchange

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Abstract:

The emerging area of research in financial industry is drawing a relation between the firms' performance and its stock return. The outcome of all the research conducted over time has varying results. Over the years there are tremendous efforts to understand the link between financial performance of a company and its stock return. Despite the number of research attempts, it is still having low success rate, because of the unpredictability and volatility in the stock market. It is still an area to explore and study the possibility to accurately understand the stock returns by using the financial ratios. The present study is to investigate the financial ratios as an indicator of stock returns in context of Indian Companies. The study is based on 30 listed companies in BSE for a period of ten years and both financial and statistical techniques are applied for formulating a meaningful conclusion. The findings of this study clearly establish a positive correlation among the financial performance and the stock return.

Keywords- Firm's Performance, Stock Returns, BSE Sensex, Listed Companies, Indian Companies

1.0 INTRODUCTION

Many researchers have done study on the impact of a company's financial performance on stock returns. Yet there has been no concrete answer to this question, whether Companies' performance directly affect its stock return? Can the financial ratios accurately predict the percentage change in its share price? This research is an attempt to investigate and understand whether the financial ratios could be considered for making a prediction of stock return in a particular period in context of Indian Companies. We have selected a sample of 30 listed Indian companies in BSE SENSEX, Mumbai. Data is collected primarily from the Income Statement and Statement of Financial Position given in the Annual Reports of the chosen companies' website for a period of last ten years, from 2011 to 2020. Average of the last 10 year ratios is used to create a model, predicting the stock return. We have selected five independent variables in this research, they are Asset Turnover Ratio, Net Profit Margin (NPM), Return on Equity (ROE), Earning Per Share (EPS) and Return on Asset (ROA), and Stock return is taken as dependent variable. We have attempted to draw a relation among the ratios and its capability to influence the dependent variable in both short as well as long term. In the later part of the research we have used descriptive statistics tools to analyse the data also the correlation matrix is used to derive the relation between the variables. This research can help an investor to understand the stock return by using the financial ratios, and can help the investor to determine the yield and returns on the stock investment. Financial Ratios used in this study: NPM, EPS, ROA, ROE, Asset Turnover Ratio as independent variable and stock return is adopted as the dependent variable

2.0 STATEMENT OF THE PROBLEM

If we can derive a relation between the variables, then we can estimate the change in the dependent variable as an impact because of the change in independent variable. We have used financial ratios as one of the key parameters to not only understands the financial health of an organisation, but also to understand the effect of different ratios on its share price changes. By using the historical data of the firm and industry, we can draw a comparison of the firm with the industry. However, the unpredictability of the stock market and its unpredictable volatility is a challenge in formulating a model to predict the stock returns. The aim of this study is to understand and interpret the correlation between the ratios and study its effect on stock return.

3.0 LITERATURE REVIEW

James O Horrigan (1966) stated that usefulness of accounting data and financial ratios for determining corporate bond-ratings, which can in the long run be useful for credit administration. **Sudipta Basu (1997)** states that bad news

has two to six times more negative effect on share price returns than the good news has a positive impact on the stock returns. He also have proved that the “changes in negative earnings has less persistent effect than the changes in positive earnings in the stock prices”. **Simone Kelly and Ray McNamara (2008)** showed the presence of low PE effect in the Australian market. The authors also proved that when the consensus of two business failure prediction model is applied, it results in improved and superior returns of the portfolios containing low PE. **Chang et al (2008)** stated that companies with higher growth rate, explains less of stock prices and vice versa. They proved the importance of EPS and stock price prediction in the long run, by studying samples of electronic firms listed in Taiwan Stock Exchange. **Sanjay Sehgal and Asheesh Pandey (2010)** in their research doing research on BRICKS countries (excluding Russia), found that “price to book value alone is a good multiple for the economies of India, South Korea and China and PE prove better with economies like Brazil and South Africa.” Also they stated that “for price forecasting in Indian Markets, market regression tool is considered to be better than sector regression”. **Khalaf Taani and Mari’e Hasan HamedBanyKhaled (2011)** showed significant impact of profitability ratio (ROE), leverage ratio (DER), market ratio (PBV) and CFO or sales on EPS. They did this research on a sample of forty stocks listed in Amman Stock Exchange (ASE) with regression analysis of EPS as dependent variable and ROE, DER, CFO, PBV as independent ratio. **Menike M.G.P.D. and U.S.Prabath (2014)** proved that financial ratios like “dividend per share (DPS), Earnings Per Share (EPS) and BVPS has a significant impact on stock price of sample at Colombo Stock Exchange (CSE) listed companies.” **Erin E. Syron Ferris (2015)** related stock volatility to dividend taxes with employee stock options. He stated that companies in which employees have ownership in the same company, has reduced stock price volatility due to dividend taxes. **Arkan (2016)** derived the relation of specific ratios to be useful in predicting stock price for specific sectors, by investigating financial ratios in estimating share price trends in Kuwaiti Financial Markets. The author concluded that some set of financial ratios like ROA, ROE and Net Profit Ratio could be very useful for predicting stock prices of the industrial sector, however, ratios like ROA, ROE, P/E and EPS could be very useful for predicting stock prices of the investment sector. **Anwaar (2016)** tested the impact of company’s performance on stock returns. She conducted regression analysis on FTSE – 100 listed companies’ performance, over the period of 10 years (2005 – 2014). The author used EPS, ROA, Quick Ratio, ROE and Net Profit Margin (NPM) as independent variables. Stock Returns was used as a dependent variable in the model. The researcher observed that ratios like “ROA and NPM shows a significant positive impact on the stock returns, whereas Earning per share has an adverse effect on the stock returns. Other ratios like quick ratio and ROE don’t show any significant effect on the stock price returns over the given period”. **Yousef Shambor (2017)** stated in his study of “oil and gas companies listed in OILGSD from the year 2000 to the year 2015, that the Global Financial Crisis of 2007-2009 had significant effect on the determinants of debt and equity structure in oil and gas companies, however it has lower to no significance on their liquidity”. **Al Khubaisi, A faneh and Al Assuli (2017)** found that dividend yield ratio, earnings yield ratio and book-to-market ratio have no role in stock return predictability if regressed over a long period of ten years (2006-2015). However when it was regressed for a shorter period of three years (2009-2011), these ratios proved to be predictive and interpretive of the stock returns for sample commercial banks. **Putri Fadillah Hadi Mirsa, Iskandar Muda and Erlina (2018)** stated that financial ratios (CR, TATO, ROA, LDR, BOPO and NPL) have no significant relationship on the stock returns. They did research on banking companies listed on Indonesia Stock Exchange, for a period of 2012 to 2016. Only Current Ratio and BOPO has a mild positive impact on the stock return, while other financial ratios has lower to no effect on stock returns. **S. Amogha and N. Suresh (2019)** found that some of the financial ratios have impact on the stock returns, while other ratios has less to no impact on the stock prices. They selected twelve firms from FMCG sector and six firms of pharmaceutical sector listed in NSE for a period of 2010 to 2017. Ratios like price to book value and dividend per share has a strong relationship with the stock returns, however financial ratios EPS, DPS, ROA and PBV has a short term relationship with stock returns. **A Razzak et al (2020)** have presented an alternative perspective through their research, they studied Heavy Machine and Equipment companies stock of Indonesia and found that selected financial ratios like Current Ratio, Total Asset Turnover, Return On Asset and Debt Equity Ratio have less to no effect on stock return. Instead they suggest that macroeconomic variables like interest rate, inflation, exchange rates have more impact on stock returns than the financial ratios.

4.0 RESEARCH GAP

From the literature review, we can understand that many researches are done in this field. The review of literature shows many rich studies have been conducted in this field, however there are limited studies conducted in relation to the prediction of stock returns by using some selected ratios, and deriving the relation between the ratios. With

availability of information via many sources, it is now possible to conduct research in a much improved and better way. The purpose of this study is to fill the gap.

4.0 OBJECTIVES OF THE STUDY

- To study the effect of selected financial ratios on shares and stock returns of listed companies on Bombay Stock Exchange, Mumbai.
- To study the predictability of stock returns with the help of selected ratios.

5.0 RESEARCH METHODOLOGY

The objective of the study is to check and test the effect of companies' performance on predicting security prices and stock returns, by using financial ratios. The sample companies are selected from all the listed companies in NSE India for a period of 2011 to 2020. The collected data is quantitative in nature, and it is collected from secondary sources, like financial websites, and companies' financial statements. The financial ratios NPM, Asset turnover ratio, EPS, Financial leverage and Dividend Yield ratio are the dependent variables and stock returns as independent variables. The ratios are derived from the Income statements and Statement of Financial Position that were downloaded from the companies' website of the exchange listed sample companies. The stock returns were downloaded from the Bloomberg website.

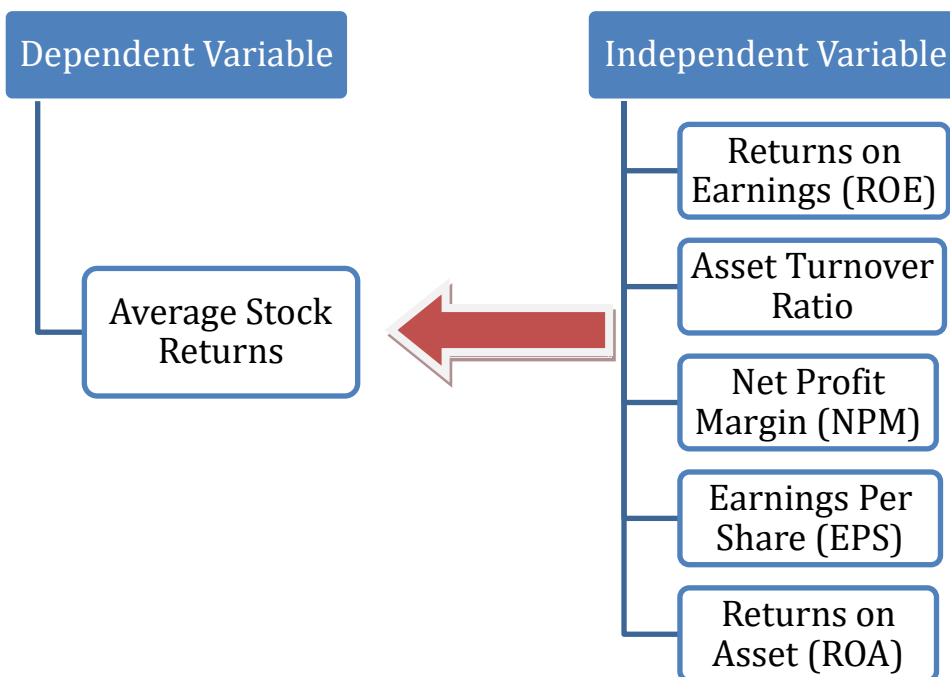


Figure 1: Dependent and independent variables

Research Framework:

The research will be testing a regression equation with Net Profit Margin, Asset Turnover ratio, Earnings per Share, ROA, ROE as independent variables. Stock returns of last ten years are selected as the dependent variable. This is further illustrated with the following diagram.

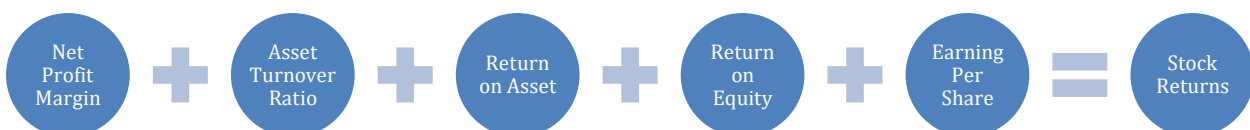


Figure 2: Regression relations

Research Design:

In this research, the collected data is mostly quantitative. The data collected from financial statements of 30 Sensex listed companies, India, is analysed and tested by using correlation and regression analysis techniques for hypothesis testing. To better understand the volatility in stocks and to catch its trend in the market, it is later tested using statistical tools like mean, median mode, variance and standard deviation.

The analysis is done in three parts, descriptive analysis using descriptive statistical tools as mentioned above mean, median, mode, maximum, minimum, standard deviation, skewness and kurtosis.

Correlation analysis is done to determine the relationship between two variables, dependent and independent variables. Also it is used to determine multi-collinear relationships between the variables. The independent variables are NPM, EPS, Asset turnover ratio, ROE and ROA, and stock returns as dependent variables.

6.0 DISCUSSION AND ANALYSIS:

Descriptive Analysis: Descriptive Analysis for the 30 listed companies in Sensex is shown in the following table:

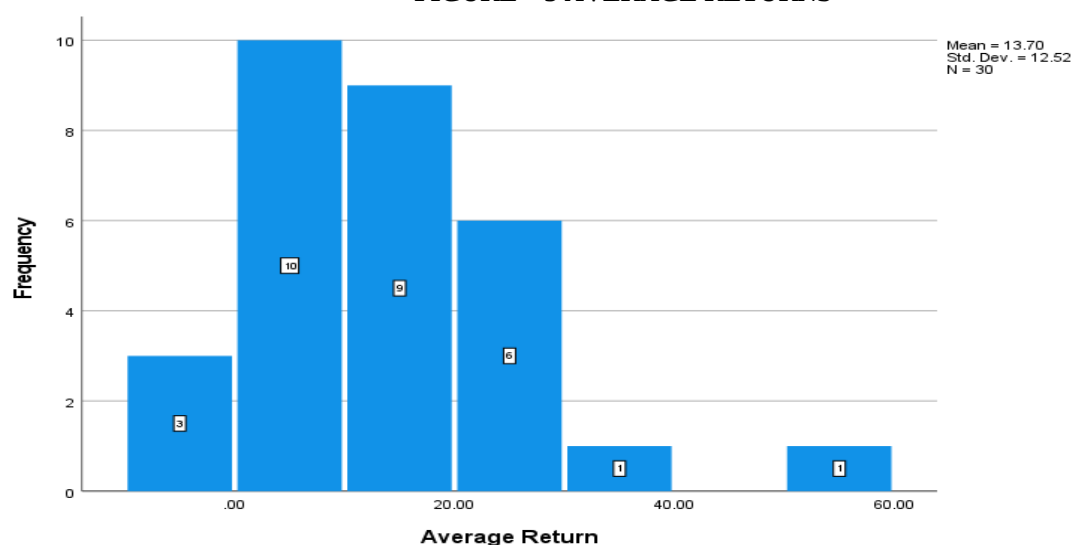
TABLE-1 – AVERAGE RETURN

	n	Min	Max	Mean	Standard Dev	Skewness
Average Return	30	-5.72	58.58	13.6958	12.52003	1.453
Net Profit Margin	30	.92	30.54	15.2188	7.93772	.255
Asset Turnover Ratio	30	.08	214.10	72.0297	65.34989	.698
ROE	30	1.73	91.00	21.5383	17.28146	2.481
EPS	30	1.79	154.19	56.1363	42.79058	.800
ROA	30	.46	30.14	10.2403	9.05553	.792
Valid N (listwise)	30					

(N represents number of variables in the sample. Here the N represents selected 30 companies listed stocks on Sensex.)

Sources: Compiled from collected data

FIGURE – 3 AVERAGE RETURNS



Sources: Compiled from collected data

TABLE -2 AVERAGE RETURNS

	N Statistics	Min Statistics	Max statistics	Mean Statistic	Standard deviation Statistics	Skewness		Kurtosis	
						Statistics	Standard Error	Statistics	Standard Error
Average Return	30	-5.72	58.58	13.6958	12.52	1.453	0.427	4.577	0.833
Valid N (listwise)	30								

Sources: Compiled from collected data

Minimum stands for the minimum of every independent variable in the last ten-year sample data. The minimum of average return for stock ONGC is -5.72%, which means the minimum average return in the last ten years is -5.72%. The Maximum of average return is 58.58% for the stock Bajaj Finance. This shows a very high variation among the stocks over the last ten years' data. The Maximum average return of 58.58% is more than four times the Mean of 13.70% returns, that means that Bajaj Finance share average return has influenced Mean average return, similarly - 5.72% of average return of ONGC stock has performed much lower than the index average.

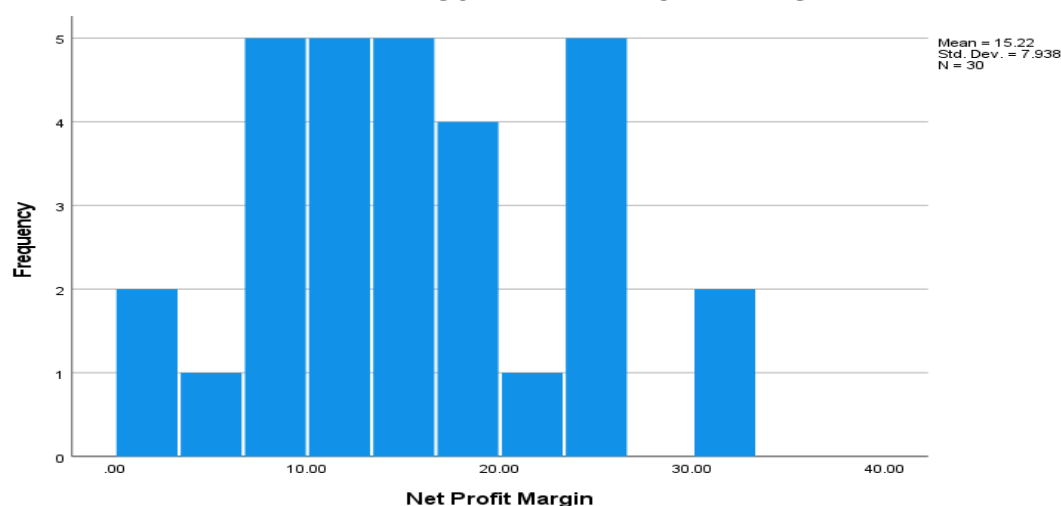
It is very clearly seen that the average return is very positively skewed towards right. The skewness is over 1, which means it is skewed towards right.

Standard Deviation of 12.52 represents the deviation from the Mean return of 13.70% on an average.

Kurtosis: The kurtosis is a measure of peakedness or flatness of a distribution. Here in this table, the kurtosis is 4.6, which supports our previous argument of outliers as the range of data having a minimum of -5.72% to 58.58%.

Net Profit Margin:

FIGURE – 4 NET PROFIT MARGIN



Sources: Compiled from collected data

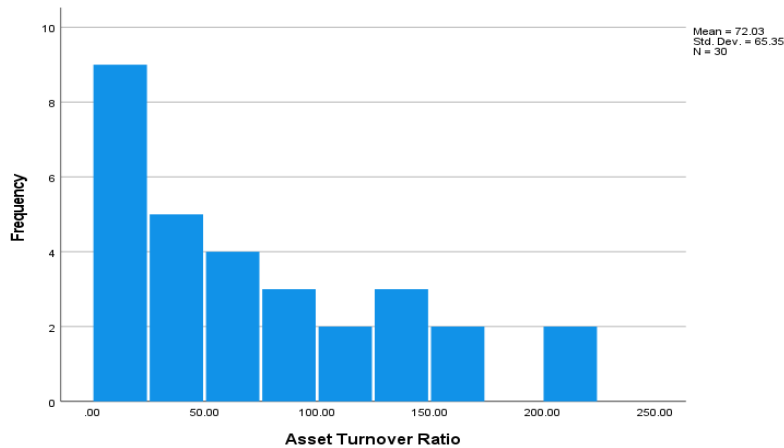
TABLE 3 NET PROFIT MARGIN

	N Statistics	Min Statistics	Max statistics	Mean Statistic	Standard deviation Statistics	Skewness		Kurtosis	
						Statistics	Standard Error	Statistics	Standard Error
Net Profit Margin	30	0.92	30.54	15.2188	7.93772	0.255	0.427	-0.587	0.833
Valid N (listwise)	30								

Sources: Compiled from collected data

The Net Profit Margin (NPM) has a minimum of 0.92 and a maximum value of 30.54, again the range between the values is very high. The Mean value of NPM is 15.22 is in exactly in between the minimum and maximum value of NPM. Similar to the average return data of last ten years, NPM data is also has a wide range, however the mean is rightly fit into the distribution. The maximum is just double the mean, which means the data is rightly distributed. Skewness of 0.255 which is less than 1, means the data is evenly distributed, there is no skewness problem with NPM distribution over the last ten years average. The kurtosis is -0.587, which indicates a flat curve. We can also see in the histogram graph above, the distribution of data is indicating a flat curve.

FIGURE – 5 ASSET TURNOVER RATIOS



Sources: Compiled from collected data

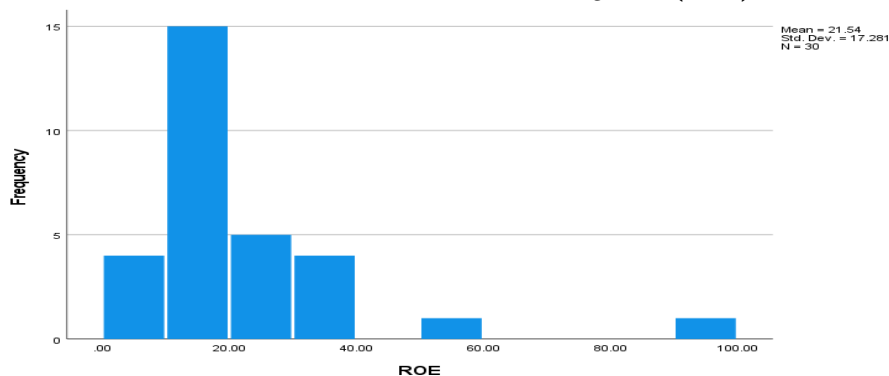
TABLE – 4 ASSET TURNOVER RATIO

	N	Min Statistics	Max Statistics	Mean Statistic	Standard Deviation Statistics	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
Asset Turnover Ratio	30	0.08	214.1	72.0297	65.34989	0.698	0.427	-0.497	0.833
Valid N (list wise)	30								

Sources: Compiled from collected data

The Minimum of 0.08 is very low as compared to the maximum of 214.1 and Mean of 72.03. Also, the Maximum is almost three times the Mean Asset Turnover Ratio. We can treat this as an outlier. The standard deviation is 65.35 that indicates the variance in the data for 65.35 either side of the Mean. With a skewness of 0.698, this can be said as moderately skewed towards the right, we can see the right tail is longer, and most of the distribution is towards the right. “If the skewness is in between +1/2 or +1, the distribution is moderately skewed”, Bulmer, M.G., Principles of Statistics (Dover, 1979).

FIGURE-6 RETURN ON EQUITY (ROE):



Sources: Compiled from collected data

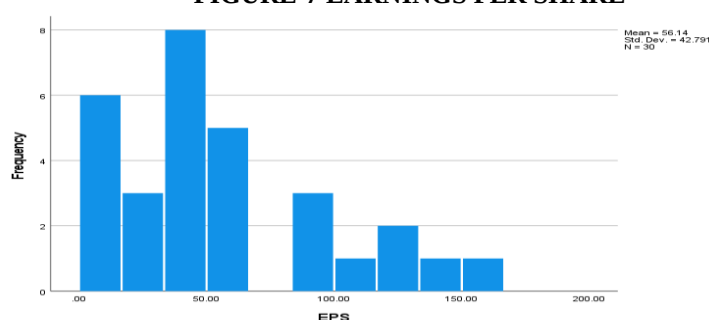
TABLE 5 RETURNS ON EQUITY

	N Statistic	Min Statistic	Max Statistic	Mean Statistic	Standard Deviation Statistic	Skewness Statistic	Skewness Standard Error	Kurtosis	
								Statistic	Standard Error
ROE	30	1.73	91	21.5383	17.28146	2.481	0.427	8.378	0.833
Valid N (listwise)	30								

Sources: Compiled from collected data

Return on Equity (ROE) data of last ten years has a minimum of 1.73 and a maximum of 91, the range between the minimum and maximum is quite high, which indicates that few companies' stocks have influenced the maximum value. Also the maximum is more than four times the Mean ROE, it indicates of outlier. The skewness of 2.50 indicates the data is positively skewed towards the right and long left tail. Kurtosis of above 8.37 suggests a peaked distribution.

FIGURE-7 EARNINGS PER SHARE



Sources: Compiled from collected data

TABLE-6 EARNINGS PER SHARE

	N Statistic	Min Statistic	Max Statistic	Mean Statistic	Standard Deviation Statistic	Skewness Statistic	Skewness Standard Error	Kurtosis	
								Statistic	Standard Error
EPS	30	1.79	154.19	56.1363	42.79	0.8	0.427	-0.237	0.833
Valid N (listwise)	30								

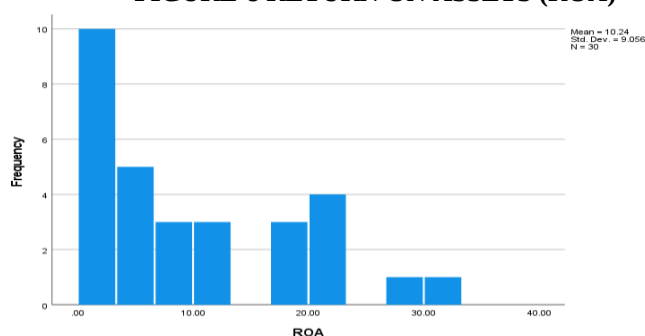
Sources: Compiled from collected data

The minimum of 1.79 is very low as compared to the maximum of 154.19; the range of 152.40 is very high among the stocks. Also, the Maximum of 154.19 is almost three times the Mean, which again gives the possibility of outliers in the data, that is influencing the distribution.

Skewness is less than 1, that proves that the data is positively skewed towards the right, and has a fatter tail on the left side of the distribution.

The kurtosis is -0.237, suggest that the distribution is approximately symmetric.

FIGURE-8 RETURN ON ASSETS (ROA)



Sources: Compiled from collected data

TABLE-7: RETURN ON ASSET

	N Statistic	Min Statistic	Max Statistic	Mean Statistic	Standard Deviation Statistic	Skewness Statistic	Skewness Standard Error	Kurtosis	
								Statistic	Std. Error
ROA	30	0.46	30.14	10.2403	9.05553	0.792	0.427	-0.539	0.833
Valid N (listwise)	30								

Sources: Compiled from collected data

Minimum: Minimum of average ROA is 0.46 in the last ten years of sample data and the maximum is 30.14. Also the mean is 10.24 and standard deviation of 9.06. With mean and standard deviation seemingly close to each other, it means the data is evenly distributed.

The skewness of 0.792 is less than 1, which means the data is moderately distributed towards the right. Also the -0.539 of kurtosis means the distribution has moderately flat tails.

Correlation Analysis

TABLE- 8: CORRELATIONS

		Average Return	Net Profit Margin	Asset Turnover Ratio	ROE	EPS	ROA
Average Return	Correlation	1					
	Sig (2tailed)						
	N	30					
Net Profit Margin	Correlation	0.074	1				
	Sig. (2-tailed)	0.697					
	N	30	30				
Asset Turnover Ratio	Correlation	0.111	-0.208	1			
	Sig. (2-tailed)	0.561	0.27				
	N	30	30	30			
ROE	Correlation	0.294	0.182	.741**	1		
	Sig. (2-tailed)	0.115	0.336	0			
	N	30	30	30	30		
EPS	Correlation	0.166	-0.055	.403*	0.203	1	
	Sig. (2-tailed)	0.382	0.774	0.027	0.282		
	N	30	30	30	30	30	
ROA	Correlation	0.096	0.261	.806**	.814**	0.322	1
	Sig. (2-tailed)	0.614	0.163	0	0	0.083	
	N	30	30	30	30	30	30

Sources: Compiled from collected data

From the above correlation table among the dependent variable average returns and independent variables, Asset Turnover Ratio (ATR), Net profit margin (NPM), Return On Assets (ROA), Earning Per Share (EPS) and Return On Equity (ROE). You can see that the correlation between NPM and Average returns is very low, close to 0.074, it means they are hardly correlated. The p-value is 0.697.

ROA has the highest correlation between the dependent variable stock returns and independent variable ROE is 0.294 with a p-value of 0.115. We can see clearly that all the variables have positive correlation with the dependent variable. However we can see multicollinearity problem among ROE and ROA, which has a correlation of around 0.814. According to Ratner (2009), a correlation of 0.90 and above is considered to have a serious multicollinearity problem. Except than ROA and ROE all other variables have minor multicollinearity, which isn't that significant.

We can clearly see that the correlation among the independent variable and dependent variables is positive, though its not that significant, but it clearly indicates that the financial performance of the organisation has a positive impact on

the average stock returns. Because the data is of last ten years, in long run the independent variables have a positive impact on the average stock returns.

7.0 CONCLUSION

This study was conducted to understand the relation between the different financial ratios and its impact on stock returns. We have done this research on the thirty listed stocks on BSE Sensex index, and have used the five independent ratios namely, Return on Assets (ROA), Earning Per Share (EPS), Asset Turnover Ratio (ATR), Return on Equity (ROE) and Net Profit Margin, and the impact of these ratios on Stock Returns.

Descriptive statistics tools and correlation analysis techniques were used to do this research, understand the relation among the independent variables and with the dependant variable, ie., stock returns. The relationship between the variables was proven successful and this model can be used for correctly understanding and predicting the stock returns in the future. The correlation analysis, understands and proves that the relationship among the variables exists and can be used to understand the financial return better.

From the research it is very highly evident that the correction between ROE and stock returns is very high, and can be better used as a parameter for understanding the stock returns in the future. We can also see that the correlation between net profit margin and average historical stock returns is very low, and with a high p-value the relationship among the two could not be established. The Investors could rely on the ROE and ROA to understand the financial return and financial performance of the stock investment decisions.

There were some limitations while conducting the study, like correlating of data during the covid-19 period of 2020 to 2022. The stock market worldwide faced very high fluctuations including the Indian stock markets. Therefore we limited the use of data till the year 2020 only. More study could be done to show the link among the company performance and stock returns before and after the covid-19 pandemic period.

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