

# Impact of Economic and Financial Performance Indicators ratios on Determination of Stock Returns – A Study with reference to National Stock Exchange

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## ABSTRACT

The study investigates the relationship between the Economic and Financial indicators with stock returns of some select companies listed on the National Stock Exchange. The data has collected from CMIE prowess database for a period of eight years from 2010 to 2017. A total of 28 firms were selected for the study after using the inclusion and exclusion criteria. The study makes use of the panel data regression method to analyze the relationship between eleven dependent variables and independent variables. The results reveal that Return on Equity (ROE) and Price to Book Value (PB) have a positive and significant impact on the determination of stock returns for selected samples. The consequences of this investigation propose that managers' accomplishment in stock valuation basically relies upon the right comprehension of compelling resources. Furthermore, it is suggested that managers enhance the worth of their organization's stock by the prober use and blend of elements successful in stock valuation as indicated by the data of the organization. The findings of paper are significant as far as framing investment strategies techniques and to predict market efficiencies.

**Keywords:** Economic indicators, Financial Indicators, Return on Equity, Return on Assets, Price to Earnings, and Stock Returns

JEL Classification: C23, O16, M41, G32, Z23

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## 1. INTRODUCTION

Investments in stocks can be a significant portion of your portfolio. Investments in stocks can be supported to build your savings, protects investments from inflations and taxes, and enhances your income through dividend and capital appreciations

for your investments as compared to other investment options. Stock market investments are subject to market risks. It is important to assess and understand the risks associated with stock market investments. Understanding the market risk helps to

correlate the risk /return relationship and to control it. (Emin Zeytinoglu, Deniz Akarim and Sibel Celik, 2012), Historically, long-term equity returns are far better than compared to other investment options. However, stock prices are subject to rising and fall over time. Investor, who considered equity investment for the long term perspective for the equity portfolio, tends to gain better returns over a longer period. The stock price is influenced by many factors name micro and macroeconomic conditions, increase in mergers and acquisitions, good performance of firms, good governance policies of the companies, etc., all these factors effects market psychology that can encourage investments in stocks. Selecting the right stocks for the portfolio are still a complex task for many investors. There are many tools and techniques available to assess the company's stocks, but the ratios analysis model has predicated more accurate results in predicting the stock returns. (Halimahton Borhan, Rozita Naina Mohamed and Nurnafisah Azmi, 2013), The investors who rely on financial ratios as part of analyzing companies by comparing the financial ratios of the other companies are expected to show convenience and speed in the decision-making. (Inta Kotane and Irina Kuzmina-Merlino 2012), Hence ratios are used to understand company financial statements as an easier way to understand and predicate the financial and economic performance. In the present scenario, the Indian stock market has seen an increase in stock investment from the past decade, (SEBI, 2013). which shows that an improvement in regulations of SEBI, advancements in trading platforms, SEBI

protections policy towards retails investors, good economic environments conditions, improvements in industrial reforms, all these factors boosted the increase in public interest in the stock market. National Stock Exchange is a leading stock exchange in India with more than three thousand firms and with 50 nifty as an index which constitutes fifty top-performing companies. The companies which are listed in NSE and part of nifty50 should have a good financial record in the past. To understand the good financial record of the companies the better tool to measure is ratios analysis, this ratio is used to analyze the cause and effect relationship of financial variables of a firm, and through which investors can understand and forecast expected returns in the future. (Martina Rut Utamia and Arif Darmawan, 2019). The observation found that earning per share and market value-added have a positive and significant effect on stock prices, but different results for the variables like debt to equity ratio, return on assets and return on equity partially do not affect stock prices. So, in this way, an attempt is made to study the below-mentioned companies, which has given highest retunes in the past ten years. So, the researcher has chosen to study the impact of economic and financial ratios with stock returns with below mentioned companies.

## 2. LITERATURE REVIEW

(Aparna Nayak M. M. Manohara Pai & Radhika M.Pai, 2016), Stock market price data is generated in huge volume and it changes every second. The stock market is a complex and challenging system where people will either gain money or lose their entire life savings. (Samaneh Sharafoddina

and Elmira Emsiaa, 2016), The highlights the relationship between stock valuations and management from 2009 to 2013 with 125 observations of the Tehran Stock Exchange. The results highlight that the success of forecasting the future stock price primarily depends on proper evaluations of influential resources and the manager enhances the value of stocks through proper usage and best combination factors from available pieces of information. (Hosseini A., Karami Gh and Abdzadeh Kanafi M, 2011), the study examined the nonoperating variables of Economic and Financial performance earnings and investigated the relationship with stock value. The results of the study concluded that operating profits and do not have similar functions and those nonoperating profits are used to predicate the future earnings and non-operating profits are more reliable in predicting the stock valuations. (Fama, 1992), the study has taken stock returns average, market risk, financial leverage, stockholders salary, bond value to market value, and profit to price ratios are used. (Barnor, Charles, 2014), The purpose of this study was to evaluate the relationship between selected macro-variables and stock returns in Ghana Stock Exchange the results revealed that interest rates and money supply has negative correlations and whereas exchange rates have a positive impact on stock returns and inflation rate have a neutral effect on the stock market in Ghana. (Placido M. Menaje, 2012), The paper aims to determine the relationship between earnings per share (EPS) and return on assets (ROA) and have a significant effect on the stock price of the Philippines. The data collected for 2009 for

50 firms from the OSIRIS electronic database. The result showed that the Spearman Rank Correlation showed a strong positive relationship between EPS and share price. Return on assets highlighted that a weak negative relationship with stock prices. (Muhammad Arslan and Rashid Zaman, 2014), the study investigated the influence of dividend yield and PE ratio on stock valuation by taking 111 nonfinancial firms of Karachi Stock Exchange from 1998 to 2008. The results showed that the size of firms and earnings ratios have positive correlations with stock value. (Raymond, Y.C., 2002), the study attempted to evaluate the dividend yield and PE ratio of the companies and fluctuations in property values and dividend yield have a significant effect on PE ratio and changes in PE ratio have a positive effect on stock valuations. (Fama, E, 1970), the role of new information has a significant impact on deciding the quick response in movements of securities prices and prevailing stock prices which have strong fundamentals that have less effect on stock prices. (Hobarth, 2006), The findings revealed firms with low book-to-market ratio, efficient working capital management, low liquidity, more equity, and fewer liabilities, have high income based on Return on Investments. Firms with a low book-to-market ratio, efficient working capital management, more equity and fewer liabilities, low total assets, and high EBIT have better market performance. (Basu, 1977), the study showed that the Economic and Financial performance variable of the PE ratio does not affect the share price. Generally, it looks that the stocks model is different coefficients that have incorrect

prices as compared to another type of pricing, and a major contributor in predicting the returns is by investors. (Sareewiwatthana, 2014), the paper attempted to study Economic and Financial performance variables like PE, PEG, and PERG ratios for the stock selections PE ratio as has shown that to be a better option for stock screening, and for providing the highest returns during the period tested. (Louis K. C. Chan, Yasushi Hamano, and Josef Lakonishok, 1991), The attempt was made to study the relationship between cross-sectional and stock returns of Japan stocks with earnings yield, the book to returns to cash flow. The findings observed that there exists a positive relationship between stock returns and financial variables among all variables cash flow and book to market ratio are more significant with stock returns. (Ali, Kim Ehab Shelbaya, 2014), The primary objective of the study is to develop the algorithmic financial model to evaluate the earnings, net income, EBDITA, sales, book value with stock returns by using the multilinear regression, the results showed that price to sales and price to book value have a significant relationship with stock returns were as PE ratio, EBDITA ratio and price to Net Income have neutral impact on stock returns. (Hongduo Cao, Tiantian Lin, Ying Li, and Hanyu Zhang, 2019), The forecasting of future stock prices is still a complex method for many investors and researchers. Many experiments were conducted on predicting the future stock prices by taking few independent variables. But very few have come with unique methods that proved to some extent in

predicting the prices. (Gupta, 2011), Stock returns are the results of many outcomes and but it is very difficult to predict the future price, one of the influenced factors is financial formations. (Nai-Fu Chen, Richard Roll and Stephen A. Ross, 1986), Many investors and researchers use this information but failed to understand it efficiently and some researchers have proved that there exists a significant relationship between stock prices and financial information of companies and some have a negative opinion on this relationship between stock returns and financial information. Even today it has become a significant and attractive topic to many researchers. (Maryam Anwaar, 2016), The panel Analysis method is for the data analysis results shows that net profit margin, return on assets has got positive correlation on stock returns and earnings per share harms stock returns additionally, return on equity and quick ratio do not correlate with stock returns. The current year dividend and the small increase in price lead to selling off of the stocks by the short-term investors due to which selling pressure surges in the market that leads to increase in the supply factors and effects on decrease in the stock prices. The paper highlighted that market risk and company size has no correlations with stock returns average and stock returns average have an insignificant relationship with financial leverage. Lastly, financial leverage and bond value have significant correlations

### **3. PROBLEM STATEMENT**

(Hongduo Cao, Tiantian Lin, Ying Li, and Hanyu Zhang, 2019), the forecasting of future stock prices is still a complex method

for many investors and researchers. Many experiments were conducted on predicting the future stock prices by taking few independent variables. But very few have come with unique methods that proved to some extent in predicting the prices. (Gupta, 2011), Stock returns are the results of many outcomes and but it is very difficult to predict the future price, one of the influenced factors is economic and financial information. (Nai-Fu Chen, Richard Roll and Stephen A. Ross, 1986), Many investors and researchers use this information but failed to understand it efficiently and some researchers have proved that there exists a significant relationship between stock prices and economic and financial information of companies and some have a negative opinion on this relationship of stock returns economic and financial information. Even today it has become a significant and attractive topic to many researchers.

#### **4. SIGNIFICANCE OF THE STUDY**

The main objective of the study is to find the relationship between Economic and Financial performance variables and stock returns of the companies. Many types of research were conducted on the influence of a firm's financial information and stock returns still exist a hope to understand, assess, and diagnose the study of the relationship between stock returns with economic and financial information. (Robert W. Holthausen and David F. Larcker, 1992), The findings of the study are major inputs to investors and significant inputs for management to upgrade the decisions regarding the investment, financial, and dividend decisions.

#### **5. RESEARCH METHODOLOGY**

The study is attempted to evaluate the relationship between stock returns and Economic and Financial performance variables of the companies which are chosen from the National Stock Exchange of India. Secondary data is used to study the impact of variables. The data is collected for eight years for the consecutive years from 2010 to 2017 and data is collected from CMIE data sources from the Central University of Karnataka, Kalaburagi, and Karnataka. The factors to choose the samples are returns given by the companies from the past ten years and the returns are in the range of 2000% to 36000% in past ten years. The study used panel regression analysis with the pooled regression model, random effect model, and fixed-effect model. The study also used the Hausman Test and Breusch and Pagan Lagrangian Multiplier test to choose the best model to fit the outcome of the study of variables with the STATA 16 statistical software. A convenient sampling technique is used to select the samples from 112 companies to 28 companies. The following factors are considered for sample selection:

- Companies financial year is ending in march
- The companies don't halt for more than a year
- The companies do not fall under financial Intermediations
- The company's financial information is available throughout the year

##### **5.1. INDEPENDENT VARIABLES**

Current study uses the ten measures of independent variables they are;

Log EVA (Economic value Added), Tobin-Q value, Log MVA (Market Value Added), ROE (Return on Equity), ROA (Return on Assets), P/E (Price to Earnings ratio), PE/G (Price to Earnings Growth

ratio), P/B (Price to Book Value ratio), P/S (Price to Sale Revenue ratio), P/C (Price to Cash flow ratio), CAPM (Capital Asset Pricing Model)

<b>Table-1; LIST OF COMPANIES WITH RETURNS FOR THE PAST EIGHT YEARS</b>	
<b>Company Name</b>	<b>Returns in %</b>
Bajaj Finance	57087
Avanti Feeds	33200
Astral Poly Technik Ltd	33148
Caplin Point Lab Ltd	27190
Symphony Ltd	23245
Relaxo footwear	19104
Ajanta Pharma	14601
Vinati Organics	12461
La Opala RTG	12191
Bharat Rasayan Ltd	11467
Eichers Motors	9377
Poly Medicare	8532
Vakrangee Ltd	8433
Atul Ltd	8346
KRBL ltd	7347
Arman Financial services	7089
Balkrishna Industries	6872
V-Guard Industries	6739
Natco Pharma	6687
Vidhi Speacilty Food Ingerdents	6487
Amara Raja Batt	6396
Tasty Bite Eatables	6200
Vidhi Specially Food Ingredients	3317
Alkyl Amine Chemicals	2864
CeraSantaryware Ltd	2835
DFM foods	2691
Page Industries	2610
Bhageria Industries Ltd	2507
Note: companies are chosen from NSE database	

## 5.2. RESEARCH MODEL

<sup>1</sup> (Akbari, Amin, 2013), The study followed by Edward Bell and Olson (EBO) method

$$P_{it} = a_0 + a_1 EPS_{it} + a_2 BV_{it} + \varepsilon_t$$

Were  $P_{it}$  is the price per share for common stocks of company 'i' in year 't';  $EPS_{it}$  earning per share for company 'i' in 't' years;  $BV_{it}$  book value per share of common stock of company I in year t and  $\varepsilon_t$  is disturbing component with zero mean.

Then the study developed new model of EBO

$$SR_{it} = a_0 + a_1 \text{LogEVA}_{it} + a_2 \text{Tobin's } Q_{it} + a_3 \text{LogMVA}_{it} + a_4 ROE_{it} + a_5 ROA_{it} + a_6 PE_{it} + a_7 PEG_{it} + a_8 PB_{it} + a_9 PS_{it} + a_{10} PC_{it} + a_{11} CAPM_{it} + \varepsilon_{it}$$

Were as,

$SR_{it}$  = It is the stock return per company 'i' the individual security for the 't' year for 't' year;

$\text{LogEVA}_{it}$  = It is the economic value added for company 'i' the individual security for the 't' year for 't' year;

$\text{Tobin's-}Q_{it}$  = It is the Tobin's Q value for per company the 'i' individual security for the 't' year

$\text{LogMVA}_{it}$  = It is the market value added for per company the 'i' individual security for the 't' year

$ROE_{it}$  = It is for return on equity for company the 'i' individual security for the 't' year

$ROA_{it}$  = It is the Return on Assets for company the 'i' individual security for the 't' year

$PE_{it}$  = It is the Price to Earnings for company the 'i' individual security for the 't' year

$PEG_{it}$  = It is the Price to Earnings Growth for company the 'i' individual security for the 't' year

$PB_{it}$  = It is the Price to Book Value for the company the 'i' individual security for the 't' year

$PS_{it}$  = It is the Price to sales for the company the 'i' individual security for the 't' year

$PC_{it}$  = It is the Price to cash flows for the company the 'i' individual security for the 't' year

$CAPM_{it}$  = It is the Capital Asset Pricing Model for the company the 'i' individual security for the 't' year

$\varepsilon_{it}$  = It is Error Term in model for given variables

$\beta_0$  = Constant coefficient (intercept)

$\beta_1, \beta_2, \beta_3, \dots, \beta_{10}$  = Coefficients of the Independent Variables

## 5.2. 1<sup>2,3</sup> ECONOMIC VALUE ADDED

(Vijaykarthigeyan, Mathangi V and Dr K T, 2020), EVA is traditional approach to measure the performance of organization and it is used to understand and evaluate the shareholders value creation. It is residual measure of financial performance. This measure is being increasingly used by AAA+ rated companies to evaluate the

<sup>2</sup>

<https://corporatefinanceinstitute.com/resources/knowledge/valuation/economic-value-added-eva/>

<sup>3</sup>

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=163466](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=163466)

<sup>1</sup> <https://www.oocities.org/wallstreet/1257/ebo.html>

value created to shareholders. A positive EVA indicates a value creation by the business to the shareholders and a negative EVA indicates a worthless investment into the stocks of a company.

$$EVA_{it} = NOPAT_{it} - (WACC_{it} \times Total\ Capital_{it})$$

Where,  $NOPAT_{it}$  = Net Operating Profit after Taxes for the 't' individual security for the 't' year

$WACC_{it}$  = Weighted Average Cost of Capital, the 't' individual security for the 't' year

$$Total\ Capital_{it} = Equity_{it} + \text{long-term debt at the beginning of the period}_{it}$$

## 5. 2. 2 <sup>4</sup>TOBIN-Q VALUE

(Ghulam Hussain Khan Zaigham, Xiangning Wang, Haji Suleman Ali, 2019), Tobin's-Q value measure the market capitalization with book value of assets. It is highly significant indicator of predicating the future stock prices. This ratio shows that cost of assets to creation of value of the firms. When the ratio is less than numerical one, buying or replacing the assets are unfavorable then buying the readymade available assets. This makes firms investments more unfavorable to future investments. In reality this method is used by different researchers in different way. In this study, ratio is calculated by taking the market capitalization to total book value of Liabilities and total book value of assets. Tobin's-Q shows the close relationship between firm values with cost of total book value of assets. If the ratio is between zero and one that indicates ensure

that cost of total book value is more than firm value and it is unfavorable to accept it and if the ratio is above the one than it ensures that firms' value is more than the cost of total book value and it unfavorable to accept.

$$Tobin's\ Q\ Value = \frac{Market\ Capitalisation + Book\ Value\ of\ Total\ Debt}{Total\ book\ value\ of\ assets}$$

Whereas:

$$Market\ Capitalization = \frac{Total\ Shares\ allotted\ to\ shareholders\ in\ the\ current\ year}{Current\ market\ price\ (last\ closing\ price\ of\ year)}$$

Book value of debt = long-term debt at the beginning of the period + Short term debt beginning of the period

Total book value of assets = Closing balance of assets value after adjusting the Depreciation and Amortization

## 5. 2. 3. MARKET VALUE ADDED

(Mathangi V Dr K T Vijaykarthigeyan, 2020), **and** (Pratiwi Putri Wibowo; and Ruben Garcia Berasategui, 2008), MVA is the gauge factor of future growth prospects of a company. It refers to difference between market value and economic value of the firms' total capital of equity, debt. It assesses the sensitivity of capital employed and forecasts the future venturing profitability. MVA is the difference between the market value of a firm with capital employed and book value of debt. If the MVA is negative than it indicates that capital employed and book value of debt are more in influencing in the movement of stock prices, if MVA is positive than it indicates that firms value is more deterministic in movement of stock prices.

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<https://corporatefinanceinstitute.com/resources/knowledge/valuation/economic-value-added-eva/>

$$MVA_{it} = Total\ Market\ Value_{it} - Total\ Capital_{it}$$

$$MVA_{it} =$$

$$(MV\ of\ Stock_{it} + MV\ of\ Debt_{it}) - Total\ Capital_{it}$$

Where,

Market Value of Stock<sub>it</sub> = Shares Outstanding<sub>it</sub> x Stock Price<sub>it</sub>

Market Value of Debt<sub>it</sub> ≈ Book Value of Debt<sub>it</sub>

Total Capital<sub>it</sub> = Total Book Value of Debt and Equity<sub>it</sub>

#### 5. 2. 4. RETURN ON EQUITY (ROE)

(Wong Pik Har & Muhammad Afif. Abdul Ghafa, 2015), Return on Equity shows how a shareholders one rupee of investments is earned by the company through the earnings. ROE is measure that identifies the efficiency of companies in generating the returns. In the paper fifteen percent annual returns is termed as standard of returns. If the ROE is above the fifteen percent than the company is termed as good company and if the ROE is less than fifteen percent than it is termed as not good company to invest.

$$ROE_{it} = \frac{Profit\ After\ Tax_{it}}{Average\ Equity_{it}}$$

#### 5. 2. 5. RETURN ON ASSETS (ROA)

(Wong Pik Har & Muhammad Afif. Abdul Ghafar, 2015), ROA indicates that how profitability a company is relative to its total assets. Return on Assets is indicates the efficiency of assets to earnings of the company. It is measure to analysis, how a company is optimistically utilised in generating the sales for the year. If the ROA is above the ten percent than the company is termed as good company and if the ROA is less than ten percent than it is termed as not good company to invest.

$$ROA_{it} = \frac{Profit\ After\ Tax_{it}}{Total\ Asset_{it}}$$

#### 5. 2. 6. PRICE TO EARNING (PE Ratio)

(Kumar Debasis Dutta, Mallika Saha and Dibakar chandra Das, 2018), Price to Earnings<sub>it</sub> ratio is one of the most recommended by analysts to investors. It signifies that, how much money is willing to invest in a single share by the investor in the company, for Rs. 1 of its earnings. If the PE ratio is below the ten percent than the company is termed as to company to be expected in invest and if the PE ratio is higher than twenty five percent than it is termed as not good company to invest, if the PE ratio is between five to twenty five percent than it neutral to invest taking other ratio with concern to decide the investments.

$$P_{it} = E_{it} \times \left(\frac{P}{E}\right)_{it}$$

P<sub>it</sub>= Price to security ‘i’ in period ‘t’ price to taken as adjusted price for the year end for the current year and with current market price and total of number of outstanding share for the current year

E<sub>it</sub> = Earnings per share of security ‘i’ in period ‘t’

#### 5. 2. 7. PRICE TO EARNINGS GROWTH (PEG Ratio)

(T. I’Ons and M. Ward, 2012), The Price to Earnings Growth Rate is the effect of growth rate with the PE ratio. PEG is the growth rate of earnings to the price paid by the market. PEG ratio is significantly draws the PE ratio of a company divided by the expected earnings growth of company. If the PEG ratio is above the five percent than the

company is termed as to company to be expected to invest and if the PE ratio is less than five percent than it is termed as neutral company to invest, if the PE ratio is negative than it to not good company to invest and taking other ratio to decide the investments.

$$PEG_{it} = \left( \frac{\frac{P}{EPS}}{\text{Rate of Growth Earnings}} \right)_{it}$$

Price<sub>it</sub> = Price to security 'i' in period 't' price to taken as adjusted price for the year end for the current year and with current market price and total of number of outstanding share for the current year

EPS<sub>it</sub> = Earnings per share of security 'i' in period 't'

$$GR_{it} = \frac{EPS_{it-1} - EPS_{it}}{EPS_{it}} - 1$$

Where,

GR = rate growth rate

EPS<sub>it</sub> = Earnings per share at the current year,

EPS<sub>it-1</sub> = Earnings per share previous year,

### 5. 2. 8. PRICE TO BOOK VALUE OF NET ASSETS

(Surendra P. Agrawal, Reza M. Monem And Mohamed Ariff, 1996), Price to Book value of net assets shows a correlation between the market value of shares and book value of assets. PB ratio is used to assess the company stocks are undervalued or overvalued. If the PB ratio is above the five percent than the company is termed as to company to be expected to invest and if the PB ratio is less than five percent than it is termed as neutral company to invest, if the

PB ratio is negative than it to not good company to invest and taking other ratio to decide the investments.

$$PB_{it} = \left( \frac{P}{\text{Book value of net assets}} \right)_{it}$$

Whereas,

P<sub>it</sub> = Price to security 'i' in period 't' price to taken as adjusted price for the year end for the current year and with current market price and total of number of outstanding share for the current year

B<sub>it</sub> = Total Assets<sub>it</sub> - Total Liabilities<sub>it</sub>

Total Assets one unit fixed assets for 'i' in period 't' value of assets for the year ended and Total Liabilities of long term debt and short term debt for the year ended with for 'i' in period 't'.

### 5. 2. 9. PRICE TO SALES

Price to sales ratio is used to valuate between stock prices to sales revenue. It is the value of company, that financial market willing to place on each unit of money of company's sales. If the PS ratio is above the five percent than the company is termed as to company to be expected to invest and if the PS ratio is less than five percent than it is termed as neutral company to invest, if the PS ratio is negative than it to not good company to invest and taking other ratio to decide the investments.

$$PS_{it} = \frac{P_{it}}{S_{it}}$$

Where,

P<sub>it</sub> = Price to security 'i' in period 't' price to taken as adjusted price for the year end for the current year and with current market

price and total of number of outstanding share for the current year.

$S_{it}$  = Earnings after adjusted tax, interest and depreciations from the current year revenues prior distributing to shareholders as a dividend.

**5. 2. 10. PRICE TO CASHFLOW**

It is the ratio of company market value with operating cashflows. It is ratio which measures the price of a company’s stock relative to how much cashflow it generates for the year. If the PC ratio is above the ten percent than the company is termed as to company to be expected to invest and if the PC ratio is less than five percent than it is termed as neutral company to invest, if the PC ratio is negative than it to not good company to invest and taking other ratio to decide the investments.

$$PS_{it} = \frac{P_{it}}{C_{it}}$$

$P_{it}$  = Price to security ‘i’ in period ‘t’ price to taken as adjusted price for the year end for the current year and with current market price and total of number of outstanding share for the current year.

$C_{it}$  = Cashflows are taken for the ending balance after preparing the cashflows statement for the current year of the company

**5. 2. 11. CAPITAL ASSET PRICING MODEL CAPM**

(Mathangi V Dr K T Vijaykarthigeyan, 2020), and (Pratiwi Putri Wibowo; and Ruben Garcia Berasategui, 2008), The CAPM is used to portrait the securities prices and it is used to estimate the expected

returns on investor investments. CAPM consider the risk factor into the calculation of expected returns due this CAPM can predicate the expected returns of investors’ too reliable level for the company’s financial managers. If the CAPM measure is above the ten percent than the company is termed as to company to be expected to invest and if the CAPM measure is less than five percent than it is termed as neutral company to invest, CAPM measure is negative than it to not good company to invest and taking other ratio to decide the investments.

$$Cost\ of\ Equity\ (K_{e_{it}}) = R_{m_{it}} + \beta_{it} (R_m - R_{f_{it}})$$

Where

$\square_{f_{it}}$  = Risk free rate of individual stock ‘i’ for the current year ‘t’ (yield on 364 days government bond was taken)

$$\beta_{it} = \frac{Covariance\ (Stock\ Return,\ Market\ Return)}{Variance\ (Market\ Return)}$$

*Beta is calculated for the individual stock ‘i’ for the current year ‘t’*

$$R_{m_{it}} = \frac{Current\ Index - Previous\ Index}{Previous\ Index} \times 10$$

Index returns are calculated for the current year

**5. 3. DEPENDENT VARIABLE**

**STOCK RETURN OF THE FIRMS**

The estimation of annual stock returns is the change in share prices in year current ‘t’ year plus dividend ‘i’ individual year ‘t’ divided by adjusted closing share prices in year t-1

$$SR_{it} = \frac{P_{it} + D_{it} + P_{it-1}}{P_{it-1}}$$

Were;

$SR_{it}$  = Stock returns 'i' individual returns for the 't' year

$P_{it}$  = Price of share 'i' individual returns for the 't' year

$D_{it}$  = Dividend of share 'i' individual returns for the 't' year

$P_{it-1}$  = Price of share 'i' individual returns for the previous year 't-1' year

#### 5. 4. CONSTANT VARIABLES

Sales, Firm size, Current Ratio, Equity to Debt ratio and Return on Capital Employed ratio

#### 5.5. HYPOTHESIS OF THE STUDY

Based on the previous research informations, following hypothesis is framed to test the relationship between independent variable and dependent variable.

$H_{10}$ : There is no significant relationship between LogEVA and stock returns

$H_{20}$ : There is no significant relationship between Tobin's-Q and stock returns

$H_{30}$ : There is no significant relationship between LogMVA and stock returns

$H_{40}$ : There is no significant relationship between ROE and stock returns

$H_{50}$ : There is no significant relationship between ROA and stock returns

$H_{60}$ : There is no significant relationship between PE and stock returns

$H_{70}$ : There is no significant relationship between PEG and stock returns

$H_{80}$ : There is no significant relationship between PB and stock returns

$H_{90}$ : There is no significant relationship between PS and stock returns

be analyzed with the help of descriptive table.

$H_{100}$ : There is no significant relationship between PC and stock returns

$H_{110}$ : There is no significant relationship between CAPM and stock returns

## 6. RESULTS AND ANALYSIS OF DATA

### 6.1. Descriptive Statistics

Descriptive analysis is used to study the quantitative characteristics of collected data by using basic statistics and mathematics tools. It facilitates the raw data to convert and interpret into desired results. The study shows that average returns for the eight years of all the firms are 24.6947 percent with the highest returns of 89.56 percent and a minimum of returns are -114.707 percent and standard deviations of stock returns is 36.5097 percent, the peak level of the normal distribution is 1.1159 and sample variance is of 1332.960 percent. In the case of the independent variable as Economic Value Added the maximum level is Rs. 1.7086E+10 and the minimum level of Rs. -279304380 with a mean of Rs. 1063715854 and Standard deviation 2108459868, the peak level of the normal distribution is 29.1448. In the case of Tobin's-Q value the maximum level is 237.1443 and the minimum level of Tobin's-Q value 0.04773, In the case of the average of Tobin's Q value is 6.0291 and Standard deviation of 17.20684 with a Kurtosis level of 148.309 and sample variance of 296.07542 is recorded. Further, the other independent variable can be analyzed with the help of a descriptive table. Further the other independent variable can

<b>Table-3; DESCRIPTIVE ANALYSIS</b>						
	EVA	TOBIN'S-Q	LogMVA	ROE	ROA	PE
Mean	1063715854	6.02914	8.23854	0.22703	0.11969	0.33878
Standard Error	140877401	1.14968	0.24699	0.00789	0.00503	0.05207
Median	372719930	2.86396	9.69703	0.22090	0.10900	0.15995
Standard Deviation	2108459868	17.20684	3.69658	0.11814	0.07535	0.77928
Sample Variance	4.4456E+18	296.07542	13.66471	0.01396	0.00568	0.60728
Kurtosis	29.1448656	148.30937	0.59614	0.34626	0.41080	89.77438
Skewness	4.84762636	11.37043	-1.50030	0.41224	0.78135	8.69200
Range	1.7365E+10	237.09658	11.95671	0.66670	0.43070	9.30880
Minimum	-279304380	0.04773	-0.06883	-0.09490	-0.07180	0.00000
Maximum	1.7086E+10	237.14431	11.88788	0.57180	0.35890	9.30880
Sum	2.3827E+11	1350.527	1845.433	50.8558	26.8108	75.8873
Count	224	224	224	224	224	224
	PEG	PB	P/S	P/C	CAPM	Stock Returns
Mean	0.00864	0.12900	0.08698	3.45685	0.17864	24.6914
Standard Error	0.00229	0.06544	0.02463	0.85614	0.00341	2.43941
Median	0.00240	0.03905	0.01880	0.15520	0.17608	29.2626
Standard Deviation	0.03428	0.97940	0.36870	12.81348	0.05109	36.5097
Sample Variance	0.00118	0.95921	0.1359	164.1852	0.00261	1332.960
Kurtosis	16.6177	221.4096	82.8948	39.8916	113.659	1.1595
Skewness	2.10328	14.8381	8.69526	5.74192	9.07974	-0.8533
Range	0.40000	14.6794	4.00590	121.110	0.71336	204.274
Minimum	-0.1577	0.00060	0.00000	0.00000	0.10948	-114.707
Maximum	0.2423	14.6800	4.00590	121.110	0.82285	89.5670
Sum	1.9347	28.8957	19.4839	774.3346	40.0164	5530.888
Count	224	224	224	224	224	224

**6.3. Correlation Analysis**

Correlation analysis determines the relationship between the two or more variables. Correlation analysis studies the direction between the variables and it also determines the strength of the relationship of variables in the study. The table-2; shows the results of correlation between the variables. Economic Value added (EVA)

and stock returns have a positive correlation in the study. A one unit value increase in economic profit leads to 3.7 percent increase in stock returns of the firms can be seen from the table. In case of the Tobin's-Q value their exists the positive correlation with stock return a one unit increase in Tobin's-Q value leads to an 6.47 percent increase in stock returns of the firms. Market Value Added (LogMVA) have positive

relationship with stock returns by very negligible percentage of effect in stock returns. Whereas in case of true financial indicators like Return on Equity (ROE), Return on Assets (ROA), Price to Earnings (PE), Price to Sales (PS), Price to Cash Flow

(PC) have positive correlation with stock returns in the study, were as in case of Price to Earnings Growth (PEG), Price to Book value (PB) and Capital Asset Pricing Model (CAPM) have negative relationship with stock returns.

**Table-4; CORRELATION ANALYSIS**

	EVA	Tobin's-Q	LogMVA	ROE	ROA	PE
EVA	1					
Tobin'S-Q	0.072878	1				
LogMVA	0.262270	-0.112833	1			
ROE	0.362355	-0.013924	0.455216	1		
ROA	0.498462	0.077962	0.457513	0.850169	1	
PE	0.053747	0.143442	-0.199620	-0.15477	-0.06077	1
PEG	0.022692	0.051415	-0.129415	-0.014314	0.06564	0.364081
PB	0.028419	0.030425	0.031586	0.104365	0.15588	0.041065
P/S	0.023019	0.136976	-0.266051	-0.20067	-0.10127	0.948873
P/C	0.382651	0.037657	0.083145	0.125571	0.157712	0.066301
CAPM	0.167464	0.077889	-0.021835	-0.03547	0.05470	0.029167
Stock Returns	0.037445	0.064789	9.498E-05	0.100746	0.01820	0.019670
	PEG	PB	P/S	P/C	CAPM	Stock Returns
PEG	1					
PB	0.019911	1				
P/S	0.326731	0.025055	1			
P/C	0.055341	0.011575	0.06414	1		
CAPM	-0.045507	0.062994	-0.019030	0.105785	1	
Stock Returns	-0.019075	-0.173613	0.0261940	0.058669	-0.018810	1

**6.4. Regression Analysis**

The regression analysis is used show the cause-effect of the variable in the study; it explores the dispersion of dependent variable with independent variable. The study used panel regression analysis with pooled regression model, random effect

model and fixed effect model. The study also used Hausman Test and Breusch and Pagan Lagrangian Multiplier test to choose best model to fit the outcome of the study. The P-Value in Hausman Test is 0.9741 and P-Value of Breusch and Pagan Lagrangian test is 1.000, this proves that Pooled Regression Effect Model is best suited to

explain the outcome of the study. The hausman test is used to determine which model is best between Random Effect Model and Fixed Effect Model the hausman test proved to stay with Random effect model with probability value of 0.9741 which is higher than the 5% level significance hence the study cannot reject the Null Hypothesis that means random effect model is best suited to explain the outcome the study. But when Random Random Effect Model.

Effect Model is compared with Pooled Regression Model by using Breusch and Pagan Lagrangian Multiplier test and the test result concluded that Pooled Regression Model is best suited to explain the study outcome with Probability Value of 1.000 which is more than the 5% level significance therefore the test result explores that Pooled Regression Model is suited between the Pooled Regression Model and

**Table-4; PANEL REGRESSION ANALYSIS**

Models	d.f	Wald chi2(11)	chi2(10) / chibar2(01)	Prob > F	Prob > chi2
Pooled Regression Model	(11, 212) 1.59	-	-	0.1033	-
Fixed-Effects Model	(11,185) 1.98	-	-	0.0322	-
Random-Effects Model	-	17.49	-	-	0.0942
Hausman Test	-	-	3.28	-	0.9741
Breusch and Pagan Lagrangian Multiplier test	-	-	0.00	-	1.0000

**Hausman Test:**

H<sub>0</sub>: Random Effect Model Is Appropriate

H<sub>1</sub>: Fixed Effect Model Is Appropriate

Decision Rule: Select Null hypothesis if the Prob > chi2 is more than the 5% level of significance.

Decision Rule: Reject Null hypothesis if the Prob > chi2 is less than the 5% level of significance.

**Breusch and Pagan Lagrangian Multiplier test:**

H<sub>0</sub>: Pooled Regression Model is Appropriate

H<sub>1</sub>: Random Effect Model is Appropriate

Decision Rule: Select Null hypothesis if the Prob > chi2 is more than the 5% level of significance.

Decision Rule: Reject Null hypothesis if the Prob > chi2 is less than the 5% level of significance.

The coefficient value of EVA is  $1.58e-09$  is very negligible with t-Statistic of 1.09 with a P-value is more than the 5% level of significance, which is not a significant impact on stock returns. A one percent change in the EVA leads to very negligible change can be seen in stock returns. The coefficient value of Tobin'S-Q is 0.1766847 which means as 17.66% change in stock returns is explained by Tobin'S-Q value. The t-Statistic of 1.22 with P-Value of 0.224 which is more than the 5% level of significance, which is not significant impact on stock returns. The coefficient value of LogMVA is 0.1123186 which means as 11.231% change in stock returns is explained by LogMVA value. The LogMVA t-Statistic is 0.14 with P-Value of 0.886 which is more than the 5% level of significance, which is positive insignificant impact on stock returns. The coefficient value of ROE is 100.7483 which means as 10074.83% change in stock returns is explained by ROE value. A ROE t-Statistic is 2.45 with P-Value of 0.015 which is less than the 5% level of significance, which is a positive significant impact on stock returns. The coefficient value of ROA is 91.95214 which means as 9195.214% change in stock returns is explained by ROE value. A ROE t-Statistic is 1.32 with P-Value of 0.189 which is more than the 5% level of significance, which is a positive insignificant impact on stock returns. The coefficient value of PE is 2.093501 which means as 209.3501% change in stock returns is explained by PE value. A PE t-Statistic is 0.20 with P-Value of 0.840 which is more than the 5% level of significance, which is a

positive insignificant impact on stock returns. The coefficient value of PEG is -27.11796 which means as 2711.179% change in stock returns is explained by PEG value. A PEG t-Statistic is -0.35 with P-Value of 0.726 which is more than the 5% level of significance, which is a negative insignificant impact on stock returns. The coefficient value of PB is -6.711484 which means as 607.11484% change in stock returns is explained by PB value. A PB t-Statistic is -2.67 with P-Value of 0.008 which is less than the 5% level of significance, which is a negative insignificant impact on stock returns. The coefficient value of PS is 10.95384 which means as 1095.384% change in stock returns is explained by PS value. A PS t-Statistic is 0.50 with P-Value of 0.618 which is more than the 5% level of significance, which is a positive insignificant impact on stock returns. The coefficient value of PC is 0.22203 which means as 22.203% change in stock returns is explained by PC value. A PC t-Statistic is 1.08 with P-Value of 0.280 which is more than the 5% level of significance, which is a positive insignificant impact on stock returns. The coefficient value of CAPM is -12.16237 which means as 121.6237% change in stock returns is explained by CAPM value. A CAPM t-Statistic is -0.25 with P-Value of 0.806 which is more than the 5% level of significance, which is a negative insignificant impact on stock returns. The determination value of R-Squared is 0.0762 which means that 7.62 percent change the value of stock returns is explained by independent variables. The Adjusted R-

Squared 0.0283 which shows that the study should incorporate the more relevant variable to adjust with R-Square value at the rate of 2.83 percent. The model is statistically insignificant to explain the

relationships between stock returns and independent variables with Prob (F-statistic) of 0.1033 which is more than the 5% level of significance. The model is not fit to study.

**Table-5; POOLED REGRESSION MODEL**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EVA	1.58e-09	1.45e-09	1.09	0.276
Tobin’S-Q	0.1766847	0.14477	1.22	0.224
LogMVA	0.1123186	0.78588	0.14	0.886
ROE	100.7483	41.1472	2.45	0.015
ROA	91.95214	69.7743	1.32	0.189
PE	2.093501	10.3455	0.20	0.840
PEG	-27.11796	77.3293	-0.35	0.726
PB	-6.711484	2.50928	-2.67	0.008
PS	10.95384	21.9397	0.50	0.618
PC	0.2220307	0.20499	1.08	0.280
CAPM	-12.16237	49.48601	-0.25	0.806
Constant	12.27962	11.75676	1.04	0.297
R-Squared	0.0762			
Adjusted R-Squared	0.0283	F (d.f)		F(11, 212)
Sum of Squares	22653.0428	Akaike Info Criterion		2034.5463
Mean Squared Errors	2059.36753	Bayesian information criterion		2312.4583
Root Mean Square Error	35.99	Durbin-Watson Stat		44.23931
Prob (F-statistic)	0.1033			

**Table-6; HYPOTHESIS TESTING**

H <sub>01</sub> : There is no significant relationship between LogEVA and stock returns	Accept
H <sub>02</sub> : There is no significant relationship between Tobin’s-Q and stock returns	Accept
H <sub>03</sub> : There is no significant relationship between LogMVA and stock returns	Accept
H <sub>04</sub> : There is no significant relationship between ROE and stock returns	Reject
H <sub>05</sub> : There is no significant relationship between ROA and stock returns	Accept
H <sub>06</sub> : There is no significant relationship between PE and stock returns	Accept
H <sub>07</sub> : There is no significant relationship between PEG and stock returns	Accept
H <sub>08</sub> : There is no significant relationship between PB and stock returns	Reject
H <sub>09</sub> : There is no significant relationship between PS and stock returns	Accept
H <sub>010</sub> : There is no significant relationship between PC and stock returns	Accept
H <sub>011</sub> : There is no significant relationship between CAPM and stock returns	Accept

## 7. CONCLUSION

The study is conducted to find the relationship between financial indicators of the firms with stock returns of the firms. The study had eleven independent variables and one dependent variable. The study highlighted that only two independent variables are showed a positive and significant impact on the stock returns for the whole study and other nine variables are reluctant to explain the relationship with the stock returns. The ROE shows that profit earned by the shareholders for the year. If there is increase in earnings of the company, the shareholders expectations to receive the dividend and capital appreciations increases and major of the companies in the study have shown consistent profit for the years. This results in more demand for the stock prices for the long run and leads to increase the stock prices. In case of Price to book value (PB) shows that how optimistically the company is engaged in utilization the company assets to generate the sales for the year. If sales increase than there is increase in the earnings of the firms during the years that leads to more creation of demand for the stock prices in the market which in turn increase the stock prices. Whereas the in case of other independent variables have not proved to show the relationship with stock returns due to the less informative in among major shareholders to create the demand in stock market.

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