



A study on effect of fundamental variables on stock index performance-with reference to NSE NIFTY 50 in India

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Abstract

The stock market analysis is very sensitive analysis due to wide diversity in influencing factors. However, analysts from academic and industrial point of view developed fundamental, technical and sentimental approach for predicting market movements in future. Present study used fundamental factors such as P/E ratio, P/B ratio and dividend yield as independent variables and NIFTY 50 index as dependent variable. The study adopted Multiple Regression Analysis technique for the period of one year data from 1st April 2021 to 31st March 2022. The statistical tools of the study found the significant positive relationship between P/B ratio and index, significant negative relationship between P/E ratio and index and insignificant negative relationship between dividend yield and NIFTY 50 index. Finally, the study suggests the investors for consideration of P/E and P/B Ratio for predicting NIFTY 50 index movement in the future and ignores the dividend yield.

Keywords: stock market, NIFTY 50 index, P/E ratio, P/B ratio and dividend yield

Introduction

Stock market is a systematic arrangement where financial instruments bought and sold between corporate and Investors within the limits regulations of the markets. The financial instruments or assets comprises of equity shares, preference shares and debt instruments and mutual funds etc. Stock market facilitates direct investments by investors in issued corporate financial instruments. In any both developed and developing economies stock markets play key role in provision of financial requirements to corporate sector at economical rates in exchange of ownership or financial and legal obligation of repayment of debt. On the other hand, investors who are risk takers will choose stock market as investment tool to multiply their investments. However, investment in stock market is subject to many determinants such as age of investors, company profile, and size of investment, right entry, right exit, expected yield, market volatility, dynamic company, industry and economic environment. Therefore, stock market investments should be done with proper knowledge on the various fundamental factors. Present study helps the investors to analyze and understand the impact of selected fundamental factors on the performance of NIFTY 50 index in India.

Conceptual Framework

NSE NIFTY 50: The stock market index is a representation for the performance of all the sectors of the economy. It is computed through weighted average of few selected stocks reflecting the all the listed companies in the stock market. The return of the index is also considered as a benchmark return for other listed companies and mutual fund portfolios. "SENSEX & NIFTY are the two major broad market indices in India where highly liquid stocks are listed. These two indices also act as a benchmark for various portfolio and mutual fund schemes. However, in the present study NSE NIFTY index only selected as dependent variable, and BSE SENSEX is eliminated. NIFTY 50 is weighed average of 50 companies representing 14 sector of the economy in India.

P/E Ratio

P/E ratio refers to the Price to Earnings Ratio which is calculated as market price of the share by earning per share. This is an indication for identification of over/under/fair valuation of shares. The general, P/E ratio for Indian stock market around 20 is good lower to this indicates good investment opportunity It can be calculated as:

$$P/E \text{ ratio} = MP_{t,n} / EPS_{t,n}$$

Where $MP_{t,n}$ is the market price per share of company t in the year n and $EPS_{t,n}$ is the earning per share of company j in year t.

P/B Ratio

Price to Book Ratio refers to the market's valuation of the company in relation to book value. This ratio is used by the investors to find out the potential investments. The PB ratio of one is good and up to three is acceptable and more than three indicates overvaluation and less than one indicates undervaluation.

$BV = (\text{Reserves} + \text{Equity Capital} - \text{Revaluation Reserves}) / \text{No. of outstanding shares}$
 No. of outstanding shares is the total number of equity shares held by the company.

Dividend Yield

Dividend yield is financial tool to measure the return generated by the company/index for investors during a particular period. In general dividend yield in the range of 2-4 indicates strong returns. DY is calculated as follows.

$$DY = \text{DPS}_{t,n} * 100 / \text{MP}_{t,n}$$

Where $\text{DPS}_{t,n}$ is the dividend per share of company t in the year n and $\text{MP}_{t,n}$ is the market price per share of company t in the year n .

Multiple Regression Analysis

Multiple Regression Analysis is widely used statistical technique in prediction models in which the value of dependent variable is predicted on the basis of two or more independent variables correlated with dependent variable. Therefore, present study also used MRA as an effective research tool. The linear line is also drawn to satisfy the assumption of MRA.

Review of literature

S. Sundara Ram (2022) examined the impact of EPS, Dividend yield, Dividend Payout Ratio, ROE, P/E, Net NPAs to Net Advances, Size of the firms (deposits) and Book value (Net Asset Value per share) on the share price movements of listed banking share in Indian stock market for the period of 2006-07 to 2017-18. The study found significant impact of all fundamental factors (except of size of the firm) on share price. Anusha Bardia (2019) found significant positive association between Dividend yield and EPS on stock prices and shareholders wealth. The study observed stock price trend of top 20 public and private sector banks during 2008-2018 listed in Indian stock markets. The study adopted DEA and ARIMA technique and revealed strong potentiality of this technique in short term price prediction. Sawagvudharee and Ousanee (2019), applied regression co-efficient tool and find out significant positive association among DPS and P/E ratios on the market price of the shares of commercial banks in Nepal. Sharif et al (2015) examined the impact of selected financial variables on stock prices of 41 companies of Bahrain stock exchanges for the period of 2006-2014 and revealed. The study also observed positive sign of ROE, BPS, DPS and P/E ratios and negative sign of EPS and dividend yield. Das, Niladri and Pattanayak (2009) have analyzed that relationship between fundamental factors on share price momentum in 30 companies in SENSEX BS through factor analysis and revealed that, significant positive association between earning power, ROI, growth and low valuation of share with market share.

Research Problem

Many research studies have done on the impact of financial variables, company variables, industrial variables and economic variables on the market price of shares and index values. However, impact of P/E ratio, P/B ratio and dividend yield is unclear. Therefore, present study is an attempt to increase clarity on the impact of selected variables on the NIFTY 50 index performance.

Objectives of the study

- To study the relationship between P/E ratio and NIFTY 50 index
- To study the relationship between P/B ratio and NIFTY 50 index
- To study the relationship between Dividend yield and NIFTY 50 index

Hypothesis**Alternative Hypothesis**

H₁: There is significant relationship between P/E ratio and NIFTY 50 index

H₂: There is significant relationship between P/B ratio and NIFTY 50 index

H₃: There is significant relationship between Dividend yield and NIFTY 50 index

Null Hypothesis

H₀: There is no significant relationship between P/E ratio and NIFTY 50 index

H₀: There is no significant relationship between P/B ratio and NIFTY 50 index

H₀: There is no significant relationship between Dividend yield and NIFTY 50 index

Research Methodology

Present study is purely based on secondary data collected from the NSE websites, earlier research articles, reports, on line sources. The study selected NIFTY 50 closing prices as dependable variable and P/E ratio, P/B ratio and dividend yield as dependable variables. The study applied multiple regression analysis to under the

relationship and effect of dependable variables on independent variables. The study period collected NIFTY 50 daily closing prices for the period of one year i.e. from 1st April 2021 to 31-03-2022.

Data analysis and interpretation

Regression Analysis

Table 1: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Dividend Yield, P/B Ratio, P/E Ratio	.	Enter
a. Dependent Variable: Nifty closing prices			
b. All requested variables entered.			

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.926 ^a	.857	.855	422.69348	.857	487.238	3	244	.000
a. Predictors: (Constant), Dividend Yield, P/B Ratio, P/E Ratio									
b. Dependent Variable: Nifty closing prices									

Table 3: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	261164181.590	3	87054727.197	48.23	.000 ^b
	Residual	43595426.098	244	178669.779		
	Total	304759607.687	247			
a. Dependent Variable: Nifty closing prices						
b. Predictors: (Constant), Dividend Yield, P/B Ratio, P/E Ratio						

Table 4: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.1609	1355.831	-.1187	.236	-4280.533	1060.721
	P/E Ratio	-.221	13.881	-.621	.000	-248.811	-194.127
	P/B Ratio	.5677	212.450	.654	.000	5258.542	6095.480
	Dividend Yield	-.434	499.133	-.034	.385	-1417.212	549.104
a. Dependent Variable: Nifty closing prices							

Table 5: Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	14012.7109	18456.3086	16662.7421	1028.27276	248
Residual	-1203.29102	708.70166	.00000	420.11867	248
Std. Predicted Value	-2.577	1.744	.000	1.000	248
Std. Residual	-2.847	1.677	.000	.994	248
a. Dependent Variable: Nifty closing prices					

Data Analysis

The study analyzed the effect of P/E ratio, P/B ratio and dividend yield on the NIFTY 50 in performance. The study observed that, The R value is .926 which indicates high reliability of the data in predicting the dependent variables with three independent variables. This means that P/E ratio, P/B ratio and dividend yield are strong determinants and predictors of NIFTY 50 index performance. The adjusted R square value results indicate that the three independent variables together cause the .855 percent of variation in the dependent variable. In ANOVA table the sign value is .000 which indicates fitness and significance of multiple regression analysis technique for analyzes the effect between independent and dependent variables. In the coefficient table, the study observed the sign value of .000 which is lower than 0.05 in case of P/E and P/B ratios and .385 in case of dividend yield which indicates significant relation of first two independent variables and insignificance of later one. Therefore, the B values revealed negative correlation of P/E and dividend yield and positive correlation or effect on NIFTY 50 index performance. This also indicates that, one percent rise in P/E ratio leads to down fall in .221 percent in the NIFTY 50 index, similarly, one percent rise in dividend yield leads to drop by .434 percent

in NIFTY 50 index. In contrast, the one percent rise in P/B value leads .567 percent rise in NIFTY 50 index. The study also drawn the linear line on plot picture and found liner relationship among the selected independent and dependent variables.

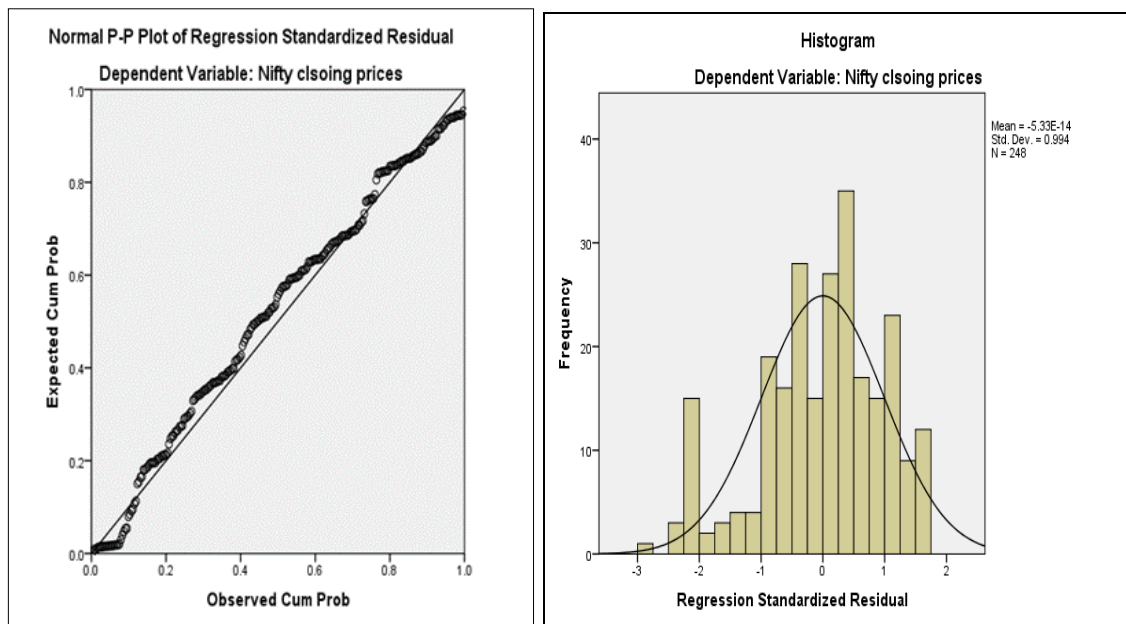


Fig 1

Hypothesis Results

The study found in coefficient table that .000 value which is lower than 0.05 in case of P/E ratio and P/B ratios which indicates significant relationship with dependent variables and acceptance of first two alternative hypothesis and rejection of null hypothesis. In contrast, sign value of .385 percent which is higher than 0.05 which indicates insignificant relationship with dependent variables and leads to acceptance of null hypothesis and rejection of alternative hypothesis.

Findings and Suggestions

The study found that, in three independent variables P/E ratio and P/B Ratio are significant determinants of NIFTY 50 index while dividend yield is insignificant variable in NIFTY 50 index prediction. The three variables together cause the .855 percent of variation in the NIFTY 50 index. The study also observed positive relation of P/B ratio and NIFTY 50 index and negative relationship of effect of P/E ratio and Dividend yield with NIFTY 50 index. This study also found that, one percent rise in P/E ratio leads to down fall in .221 percent in the NIFTY 50 index, similarly, one percent rise in dividend yield leads to drop by .434 percent in NIFTY 50 index. In contrast, the one percent rise in P/B value leads .567 percent rise in NIFTY 50 index. The study also drew the linear line on plot picture and found liner relationship among the selected independent and dependent variables. Therefore, the study suggests the investors for consideration of P/E and P/B Ratio for predicting NIFTY 50 index movement in the future.

Conclusion

The stock market analysis is very sensitive analysis due to wide diversity in influencing factors. However, analysts from academic and industrial point of view developed fundamental, technical and sentimental approach for predicting market movements in future. Present study used fundamental factors such as P/E ratio, P/B ratio and dividend yield as independent variables and NIFTY 50 index as dependent variable. The statistical tools of the study found the significant positive relationship between P/B ratio and index, significant negative relationship between P/E ratio and index and insignificant negative relationship between dividend yield and NIFTY 50 index. Finally, the study suggests the investors for consideration of P/E and P/B Ratio for predicting NIFTY 50 index movement in the future and ignores the dividend yield.

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