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IMPACT OF DIFFERENT FINANCIAL RATIO ON ROE OF LISTED COMPANIES IN BSE 100

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Abstract

The work has been focused on how different financial efficiency measuring ratios are related with ROE of BSE100 companies. The study is mainly based on BSE 100 companies except some financial institutions and debt less firms. The reference period of the this study is fifteen years and the data is completely based on secondary data sources which has been collected from's equity data base'. This study used pooling regression model to test the explanatory power (influences) of different financial efficiency measuring ratios on companies' ROE. Method of Ordinary Least Square (OLS) is used to estimate the regression line. OLS is used because it minimizes the error between the estimated points on the line and the actual observed points of the estimated regression line by giving the best fit. All the dependent and independent variables are pooled cross section time series for estimation. Adjusted R^2 is carried on to test level of significant of regression line. The findings of the study have put forth that ROCE or ROA has significant estimation power to estimate ROE of a company where as other financial ratios have low explanatory power to the variability of ROE of a company.

Key words: ROCE, ROE, ROA, Debt-Equity Ratio & pooling regression model.

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INTRODUCTION

The present era is the era of tough competition in which 'survival of the fittest' becoming the slogan of the modern business world. In such a scenario investment decision has emerged as one of the toughest tasks as it decides the fate of the investment value. Therefore, investors have to take into consideration the cause effect relationship while making a particular investment decision. To invest in equity of present corporate world, investors have to follow systems approach in their decision making because a decision taken in isolation can bring a investment value to the null value. So all the aspects of a firm such as ROCE, capital structure and company efficiency etc. are the vital ones, as the ROE of an enterprise is directly affected by such factors. Hence, proper care and attention need to be given while forecasting ROE of a company. There could be many variables which may impact ROE of a company but to decide which factor is best in forecasting ROE of a firm is important in this complex business environment. In this context my lucid endeavor is to find out how different financial efficiency measuring ratios are related with ROE of a company. In a nut cell my primary objective is to find out how much this ratio can able to explain ROE of a company during the study period.

In order to find out the impact of different financial ratios on ROE of a firm, few research works have been undertaken so far by various researchers all over the world. The review of some of the major related studies have been undertaken for developing a clear understanding about the relationship among ROE and different financial ratios. Modigliani, (1958) stated that high financial risk and profitability are positively correlated where as Rhyne *et al.*(1992) observed something different approach to Modigliani et al (1958); they stated those institutions which have high capital structure with equity , is tend to be more profitable. A study done by Claessens and Djankov (2000) for comparing the growth and financing patterns of East Asian corporations for the year before crisis with corporation in other countries. The sample was from 850 public listed firms in the four countries which were also influence by crisis, there are Indonesia, Malaysia, the Republic of Korea, and Thailand and two comparators, Hong Kong (China) as well as Singapore. The result show that firm-specific weaknesses which already in exist before the crisis were essential factors in the failing performance of the corporate sector. Study on capital structure for 1997 crisis, showed the key factor which accelerated economic distress is due to increase dependency on debt financing (Suto, 2003). The dependency had lead to excess

investment before the crisis and also instability in the Malaysia economy. A study on the impact of economic crisis on the capital structure revealed that by having a low leverage, Turkey's firms immunize themselves against economic crisis (Gunay,2002). The development of capital markets is essential for high leverage firms because they are near to financial distress. This condition had lead to high cost of debt for high leverage firms in the post-crisis period compare to the cost of debt in the pre-crisis period. Apart from that, the result had indicated that profits significant of high leverage firms can be increase by either issue equity or decrease the debt. However, debt for high leverage firms cannot be decrease due to unable to generate profit through the ordinary operations in the post-crisis period. A study undertook on 35 companies listed in Hong Kong Stock Exchange revealed the findings of the study put forth that profitability and capital structure are interrelated (Chiang, 2002). An investigation on the effect of leverage on the profitability of the U.S. air carriers showed a significant negative relationship between ROE and leverage during the study period (Richard *et.al*., 2004). The work on the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange found a significant positive relationship between the ratio of short-term debt to total assets and ROE and negative relationship between the ratio of long-term debt to total assets and ROE (Abor, 2005). A study on sensitivity of performance to capital structure on selected food and beverage company in Nigeria showed that the performance indicators to turnover (Earnings Before Interest and Taxes, Earninig Per Share and Dividend Per Share) and the measures of leverage (Degree of Operating Leverage, Degree of Financial Leverage and Dividend Per Share) are significantly sensitive (Akintoye,2008). Research on the financial performance of some listed firms in Egypt told that capital structure has no influence on the performance of the firm (Ebaid, 2009). This work was done by using three accounting-based measurement of financial performance which is Return On Asset (ROA), Return on capital employed(ROCE) and Return to equity(ROE).In extension of Abor's (2005) findings regarding the effect of capital Structure on profitability a study by examining the effect of capital structure on profitability of the American service and manufacturing firms revealed the result of a positive relationship between short-term debt to total assets and profitability and between total debt to total assets and profitability in the service industry (Gill,2011). The findings of this paper also showed a positive relationship between short-term debt to total assets and profitability, long-term debt to total assets and profitability, and between total debt to total assets and profitability in the manufacturing industry. The other

major studies undertaken in different times (Philips and sipahioglu, 2004; Haldlock and james, 2002; Arbabiyan and Safari, 2009;2006; Gaver and Gaver, 1993;Gleason *et. al.*, 2000; Klein *et.al.*,2002; Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). David and Olorunfemi, 2010; Bistrova *et.al.*,2011; Berger and Bonnacorsi Di Patti, 2006; Barclay *et. al*.,2006; Alonso *et.al.*,2005; Aivazian *et.al.* , 2005; Chakraborty, 2010; Huang and Song, 2006; Pandey, 2004; Jensen and Meckling, 1976; Jensen,1986; Huang and Song) came up with the findings which were conflicting in nature as some studies confirm positive relationship between capital structure and profitability, while other studies confirm negative relationship between the variables. It is against this background that the present study has been undertaken so as to facilitate the existing literature. .

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THEORETICAL BACKGROUND

ROE is the ultimate results of the financial performance of a business organization which go to the hand of owner of a business organization. Now this ultimate result comes from the derivation of the financial activity. There are many financial ratios which measure the efficiency of the financial performance of a business organization. This financial efficiency measuring ratios are Return on capital employed(ROCE),Return on assets(ROA), fixed assets to sales ratio, working capital to sales ratio, profit after tax(PAT) growth rate, assets turnover ratio etc. Now for changing this ratio may means financial performance of the organization also changing positively or negatively which ultimately affect ROE of a firm.

OBJECTIVES

The main objective of study is to find out the explanatorily power of different financial efficiency ratio about the ROE of the company. The specific objectives are:

- To built up the regression equation of ROE with this financial efficiency measuring ratios.
- To identify and analyze the relationship between ROE with financial efficiency measuring ratio.

HYPOTHESIS

H0: Financial efficiency ratios have strong relationship with ROE.

H1: There is no significant relationship between ROE and the above financial ratios.

MATERIALS AND METHODS

The data-base of the study is completely based on secondary data sources which has been collected from various web sites and annual financial reports of the sample firms. The reference period of the study is of fifteen years which is from the financial year 2000-01 to 2014-15.In this study all company except financial company and some IT company have been taken from BSE100 . The reason of excluding financial company is that its capital structure is highly geared up by debt fund and some ratio which is necessary for my study, is not available due to their business nature. In order to achieve the set objectives of the study, we have employed Regression Analysis, correlation analysis. Adjusted R^2 is carried on to test level of significant of regression line. As my study is on how different financial efficiency measuring ratio of different company related with ROE so no unit root test is done on my data sate to find out auto- correlation problem over the study periods. For analyzing the impact of different financial ratio first of all descriptive analysis is carried on. Here determinants of ROE are dependant variable where as ROCE and DEBT EQUITY ratio ,return on assets(ROA) working capital to sales ratio ,total assets to sales ratio and sales to fixed assets ratio are consider primarily as independent variable. A hypothetical regression model with those variables is given below.

Model of the study:

$$ROE=a + \beta_1 ROCE + \beta_2 D/E + \beta_3 ROA + \beta_4 W/SALES + \beta_5 SALES/FA + \beta_6 PAT\ GROWTH\ RATE + \beta_7 ASSETS\ TURNOVER\ RATIO + e$$

ROE= Return on Equity, ROCE=Return on capital employed, D/E=Debt EQUITY RATIO, ROA= return on assets, FA= fixed assets, PAT=profit after tax growth rate, W= working capital. Where a, is constant, β_i (i=1 to 7) are coefficient of variables, e is the residual term.

EMPIRICAL RESULTS AND DISCUSSION

From the correlation matrix it is clear that there has multicolinirity problem among the independent variable. We know if in case of secondary data sate a high (0.7 or above) correlation between two variable imply multicollinirity problem between the two variable. Now to solve this problem factor analysis is use for grouping this variable in some homogeneous group.

Table1

Correlation Matrix

		ROA	ROCE	ASSETS TURNOVER	SALES/FA	WORKING CAPITAL/SALES	PAT GROWTH	TOTAL DEBT/EQUITY
Correlation	ROA	1.000	.832	.406	-.107	-.032	.045	-.261
	ROCE	.832	1.000	.526	-.047	-.039	.029	-.191
	ASSETS TURNOVER	.406	.526	1.000	-.006	.016	-.010	-.214
	SALES/FA	-.107	-.047	-.006	1.000	-.005	.014	.278
	WORKING CAPITAL/SALES	-.032	-.039	.016	-.005	1.000	-.002	-.013
	PAT GROWTH	.045	.029	-.010	.014	-.002	1.000	-.004
	TOTAL DEBT/EQUITY	-.261	-.191	-.214	.278	-.013	-.004	1.000

Table 2 shows the component matrix of the independent variable. Here seven variables grouped into three components to minimize multicollinirity problem.

Table2

Component Matrix[a]

	Component		
	1	2	3
ROCE	.902		
ROA	.884		
ASSETS TURNOVER	.699		
SALES/FA		.818	
TOTAL DEBT/EQUITY		.624	
WORKING CAPITAL/SALES			.780
PAT GROWTH			.590

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Table3

Correlation Matrix[a]

		REGR factor score 1 for analysis 1	REGR factor score 2 for analysis 1	REGR factor score 3 for analysis 1
Correlation	REGR factor score 1 for analysis 1	1.000	.000	.000
	REGR factor score 1 for analysis 1	.000	1.000	.000
	REGR factor score 1 for analysis 1	.000	.000	1.000

a. Determinant = 1.000

Table 3 shows that the value of determinant is 1 which implies no multicollinirity problem has in the driven independent variable (component1,component2,component3).

Table 4

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.600
Bartlett's Test of Sphericity	Approx. Chi-Square	.000
	df	3
	Sig.	1.000

Table 3 shows that value of the determinant is one which implies no multicolinirity has in the derive components matrices. Table 4 shows that KMO VALUE=.60 which implies sample size is good.

Table 5

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1[b]	.	Enter

a. Dependent Variable: ROE

b. All requested variables entered.

Table 6

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	.853[a]	.727	.726	12.58280	.727	1092.903	3	1231	.000

a. Predictors: (Constant), REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1

Table 7

ANOVA[a]

tModel		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	519107.793	3	173035.931	1092.903	.000[b]
	Residual	194900.430	1231	158.327		
	Total	714008.223	1234			

a. Dependent Variable: ROE

b. Predictors: (Constant), REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1

The above two table (6,7) shows that my feted regression equation abele to forecast 72.7% ROE and it is significant at 5% level of significant.

Table 8

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	23.696	.358		66.181	.000		
	REGR factor score 1 for analysis 1	20.276	.358	.593	56.607	.000	1.000	1.000
	REGR factor score 2 for analysis 1	.374	.358	.016	1.043	.029	1.000	1.000
	REGR factor score 3 for analysis 1	3.066	.358	.127	8.561	.000	1.000	1.000

a. Dependent Variable: ROE

In table 8 collinerity statistics VIF value is one and t statistics is significant at 5 % which confirms the above regression result.

Table 9

Collinearity Diagnostics[a]

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	REGR factor score 1 for analysis 1	REGR factor score 2 for analysis 1	REGR factor score 3 for analysis 1
1	1	1.000	1.000	.46	.33	.00	.21
	2	1.000	1.000	.00	.01	.99	.00
	3	1.000	1.000	.00	.33	.00	.67
	4	1.000	1.000	.54	.33	.00	.13

a. Dependent Variable: ROE

Regression

A simple linear regression model is used to determine the relation of different ratio with ROE . The results shows that component 1,(which consist of ROA,ROCE AND ASSETS TURNOVER RATIO) component 2 and component 3 have positive effect on ROE .Among this three components first component has higher effect on the ROE of the firm and component 2 has low estimation power of ROE. Table 8 shows that all this values are statistically significant ($p>0.05$).According to null hypothesis that, financial efficiency measuring ratios have significant effect on the firm ROE is therefore accepted and alternative hypothesis is rejected.

So the feted regression equation will be

$$ROE=23.696+0.593REGR1+0.016REGR2+0.127REGR3+e$$

CONCLUSION

From the above empirical result it is affirm that the efficiency measuring financial ratios have power to explain value of dependent variable (ROE) up to 72.2%. So this ratio must have some relation with the ROE of the company. It was found that ROCE, ROA, and ASSETS

TURNOVER ratio have strong explanting capacity than other financial ratios. Assets turnover ratio, return on assets and return on capital employed have strong positive relation to firm ROE. This shows that firms who have higher assets turnover ratio ROA and ROCE will generate high return to the equity .From the findings the study suggests that firm showed monitor its business by using its financial efficiency ratio regularly, show that financial performance bring the long time survival of firm.

LIMITATION OF MY STUDY

For this study purposefully some financial ratios have been taken base on my individual judgment. No logical explanation has been given why they are selected. My study is limited for 2000-2001 to 2014-15. I keep financial company out of my preview of study. Due to data heterogeneity some company is rejected primarily. My study is based on BSE100 Company only.

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