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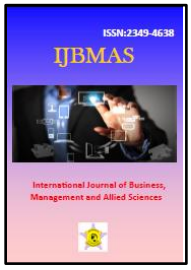
EFFECT OF FINANCIAL LEVERAGE ON FINANCIAL PERFORMANCE: A PANEL DATA ANALYSIS

Dr. Jaba Rani Patta[1], Prof. Ram Ranjan Routh[2]
1Assistant Teacher, Ramnagar Rao High School, West Bengal
E-mail: jabarani.routh@gmail.com
2Assistant Professor, Department of Commerce, Kharagpur College
West Bengal
E-mail: ramranjan.routh@gmail.com



ABSTRACT
In the field of corporate finance, determination of capital structure is one of the most important decisions, because many firms become insolvent for their improper capital mix. So, the present study is an attempt to investigate the effect of financial leverage on firm's financial performance. 20 FMCG companies have been selected from those listed in National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) for a period of 17 years from 2000 to 2016. Return on Assets and Return on Equity are taken as indicators of firm's financial performance. The technique of panel data regression has been used on STATA. The study shows that leverage has a significant negative effect on firm's financial performance.
Keywords: Fast Moving Consumer Goods Companies, Financiallverage Firm financial performance.

1. Introduction

An optimal capital structure can influence the value of firm and wealth of shareholder's through reduced cost of capital. Hence, determination of optimal debt level and its effect on the firm's over all capital structure is regarded as an integral part of a firm's financial decision. A company finances its assets through some combination of equity, debt and hybrid securities. Leverage is employed to avoid using too much equity to fund operations. The financial leverage is a prerequisite for achieving optimal capital structure. Financial leverage is the use of debt in the capital structure of the company. As debt increases, financial leverage increases. The companies that are run by aggressive leaders tend to use more financial leverage. In this respect, their purpose for using financial leverage is not only to increase the performance of the company, but to also help ensure their control of the company. An excessive amount of financial leverage increases the risk of failure, since it becomes more difficult to repay debt. The use of financial leverage varies greatly by industry and by business sector. Financial leverage may be an acceptable alternative when a company is located in an industry with steady revenue levels, large cash reserves, and high barriers to entry, since operating conditions are sufficiently steady to support a large amount of leverage with little downside.

Amongst the research issues in the field of corporate finance, financing decision is one of the most significant research problems. Sometimes, organizations face the problem of insolvency or bankruptcy due to improper capital mix. So, it is required for all companies to maintain an optimal

capital structure. The present study focuses on FMCG industry.FMCG stands for Fast Moving Consumer Goods, i.e., the daily items that we need to use in our everyday life. India has a very strong base for producing FMCG goods. It has shown immense growth potential over the years and is growing steadily at present. The FMCG industry of India is the fourth largest industry in the country. The large base of FMCG industry is now producing wide range of food, toiletries, soap, body wash, shampoos, cosmetics, toothpastes, shaving products, detergents, bulbs, batteries as well as electronics products. The market size of FMCG in India is estimated to grow from US$ 30 billion in 2011 to US$ 74 billion in 2018. Food products leads the segment with 43 per cent of the overall market whereas personal care (22 per cent) and fabric care (12 per cent) comes next in terms of market share. Changing lifestyles, growing awareness and increased incomes for middle class families have been the key factors for the growth of this industry. The FMCG industries play a significant role in shaping a country's economy and development. This sector can drive growth, enhance quality of life, create jobs and support penetration of technology.

In this context, it is examined in our present study how financial leverage hasaffected the financial performance.

2. Review of Literature

The results from the notable studies that have been carried out are briefly mentioned below:

Franklin & Muthusamy (2011), in their article "Determinants of Financial Leverage in Indian Pharmaceutical Industry" revealed that variables like interest, asset structure, retained earnings and intrinsic value of share are positively associated with leverage while cash flow and interest coverage bear negative association with leverage. The study also showed that Indian pharmaceutical Companies employ substantial amount of debt.

Akinlo & Asaolu (2012), in their study "Profitability and Leverage: Evidence from NigerianFirms" found that firm size has a significant positive effect on profitability, while leverage has negative effect. The paper suggests that expansion, increased sales and low debt ratios enhance firm profitability.

Rehman (2013), in his article "Relationship between Financial Leverage and Financial Performance: Empirical Evidence of Listed Sugar Companies of Pakistan" showed the positive relationship of debt equity ratio with return on assets and sales growth and negative relationship with debt equity ratio with earning per share, net profit margin and return on equity.

Granath & Thorsell (2014), in their study "Leverage and how it affects shareholder value" found that factors, that affect a firm's capital structure are profitability, firm size and firm risk and the firm's leverage has a positive effect on shareholders' value.

Rajkumar (2014), in his study "Impact of Financial Leverage on Financial Performance: Special Reference to John Keells Holdings plc in Sri Lanka" showrd that a negative relationship between the financial leverage and the financial performance of the John Keells Holdings plc. But the financial leverage has a significant impact on the financial performance of the John Keells Holdings plc in Sri Lanka.

Gweyi & Karanja (2014), in their articles "Effect of Financial Leverage on Financial Performance of Deposit Taking Savings and Credit Co-operative in Kenya" showed a perfect positive correlation between debt equity ratio with return on equity and profit after tax and a weak positive correlation between debt equity ratio with return on assets income growth.

Al-Shamaileh & Khanfar (2014), in their study "The Effect of the Financial Leverage on the Profitability in the Tourism Companies (Analytical Study- Tourism Sector- Jordan)" indicated the presence of a statistically significant impact for the financial leverage on the profitability of the Tourism Companies listed in the Amman Exchange.

Innocent, Ikechukwu & Nnagbogu (2014), in their study "The Effect of Financial Leverage on Financial Performance: Evidence of Quoted Pharmaceutical Companies in Nigeria" showed that debt ratio and debt-equity ratio have negative insignificance relationship with Return on Assets while interest coverage ratio has a positive insignificant relationship with Return on Assets.

Moghadam & Jafar (2015), in their article "The Role of Financial Leverage in the Performance of Companies Listed in the Stock Exchange" indicated that financial leverage has a significant positive relationship with the performance of sample companies.

Mule & Mukras (2015), in their article "Financial Leverage and Performance of Listed Firms in a Frontier Market: Panel Evidence from Kenya" showed that the financial leverage has significant negative impact on Return on Assets and Tobin's Q and ownership concentration significantly negatively associated with Tobin's Q. The study also revealed that the asset tangibility has significant positive impact on Return on Equity and Tobin's Q.

Adetunji, Akinyemi & Rasheed (2016), in their study "Financial Leverage and Firms' Value: A Study of Selected Firms in Nigeria" the study recommended that financial leverage be optimized by firms to aid maximization of firm's value.

On the basis of the above literatures, it is found that A large number of studies in various countries and industries have been conducted to assess the effect of financial leverage on firm's performance. But there is no general consensus for any country or for any specific industry.In this context, it is examined in our present study how financial leverage hasaffected the financial performance of Indian FMCG companies.

3. Objective of the study:

To assess empirically theeffect of financial leverage on firm's financial performance.

4. Hypothesis:

The following hypotheses have been formulated to find out the relationship between the attitudes towards

i) **H0**: There is no significant relationship between the financial leverage and ROA.

H1: There is significant relation between the financial leverage and ROA.

ii) **H0**: There is no significant relationship between the financial leverage and ROE

H1: There is significant relationship between the financial leverage and ROE

5. Database and Methodology:

Sources of data: The study is mainly based on secondary data. Data are collected from the published annual reports of the selected companies, Ace Equity database and Capitaline database.

Sample Design: There are 20 FMCG companies selected from listed in NSE and BSE, of which10 companies are highest profit earning and 10 companies running at loss. The companies are selected on the basis of their average profitability.

Period of the study: The study have been covered a period of seventeen years starting from the financial year 2000 to 2016. In this study balanced panel data consist of 340 observations for 20 companies for seventeen year.

Methodology: In order to assess the effect of financial leverage on firm's financial performance, panel data regression has been applied. Firm's financial performance has been analyzed with the help of Return on assets (ROA) and Return on Equity (ROE). We have calculated mean, Min, Max and standard deviation of different variables. To check the presence of multicollinearity, construct a correlation matrix.

Estimation Techniques: Multiple regression analysis has been carried out chosen to assess the effect of financial leverage on firm's financial performance of some selective FMCG companies India. In order to capture the effects of firm and time specific heterogeneities panel data models (Pooled OLS regression model, fixed effects model and Random effect model) have been used. The choice amongst the three models, three statistical tests, viz, the Restricted F Test, Breusch-Pagan Lagrange Multiplier Test and Hausman Test have been carried out. The Restricted F Test is applied to make a choice between Pooled OLS regression model and FEM. On the other hand, Breusch-Pagan Lagrange Multiplier Test is applied to make a choice between Pooled OLS regression model and REM. The Hausman Test (1978) is applied to make choice between the FEM and REM. Moreover, the specification tests like, Levin-Lin-Chu unit-root test, Pearson correlation coefficients, Variance Inflation Factor and Robust standard error are applied for unbiased and efficient regression results.To

judge the Stationarity of the selected variables we have carried out the Levin-Lin-Chu unit-root test. To check the presence of multicollinearity, a correlation matrix (Pearson correlation coefficients) has been constructed. VIF is used to measure the degree of multi-collinearity of an independent variable with the other independent variables in a regression model. Robust standard error (Huber/White or sandwich estimators) is used to remove the problem of heteroskedasticity in the models. In order to assess the effect of financial leverage on firm's financial performance.We have fitted two regression models.

Model Specification: The effect of financial leverage on firm's financial performance is investigated using balanced panel data and run on STATA. The models are as follows:

Model 1: Return on Assets (ROA) has been used as a performance indicator with debt-equity ratio, tangibility and firm's size as the independent variables. ROA measures the efficiency of the firm in utilizing the assets for firm's growth.

$$\text{ROA}_{it} = \beta_0 + \beta_1 (\text{D/E})_{it} + \beta_2 (\text{Tangibility})_{it} + \beta_3 (\text{Size})_{it} + u_{it} \quad \text{.....[model 1]}$$

Model 2: Return on Equity (ROE) has been used as a performance indicator with debt-equity ratio, tangibility and firm's size as the independent variables.

$$\text{ROE}_{it} = \beta_0 + \beta_1 (\text{D/E})_{it} + \beta_2 (\text{Tangibility})_{it} + \beta_3 (\text{Size})_{it} + u_{it} \quad \text{.....[model 2]}$$

Return on Assets (ROA) and Return on Equity (ROE) has been used as a measure of firm's performance. Debt-equity ratio (D/E) is measured financial leverage of selected companies. Tangibility refers to assets tangibility defined as the ratio of the fixed tangible assets divided by the total assets of selected companies. Natural logarithm of sales is representing size and u is the error term.

6. Findings:

In order to study the effect of financial leverage on firm's financial performance.We have calculated the profitability ratio, leverage ratio and other related ratios which are depicted in the following table:

Table I: Descriptive Statistics of Variables:

Statistics	Dependent Variables		Independent Variables		
	Return on Assets (ROA)	Return on Equity (ROE)	Debt - Equity Ratio (D/E)	Tangibility	Size
Mean	14.27	0.29	1.76	0.48	6.08
Min	-560.53	-7066.84	-60.89	0.09	-3.91
Max	107.96	264.61	183.37	0.93	10.86
Std. Dev.	42.76	388.85	14.00	0.18	2.30
N	340	340	340	340	340

From the Table I it is found that the average Return on assets (ROA) of the FMCG Company is 14.27 with a standard deviation 42.76 during the study period. It ranges between -560.53 and 107.96.

The average Return on equity (ROE) of the FMCG Company is 0.29 with a standard deviation 388.85 during the study period. It ranges between -7066.84 and 264.61.

Return on assets and return on equity range is highly negative to moderate positive, this is due to sum loss making FMCG companies are running at a huge loss, whereas profit making companies are earning moderate profit.

The average Debt-Equity Ratio (D/E) of the FMCG Company is 1.76 with a standard deviation 14 during the study period. It ranges between -60.89 and 183.37.Its minimum value is negative because shareholder's funds of loss making companies are mostly negative, beside use of higher amount debt.

The average tangibility of the FMCG Company is 0.48 with a standard deviation 0.18during the study period. It ranges between 0.09 and 0.48.

The Market Size is measured by Natural logarithm of sale. A greater volume is more favorable. The average size is 6.08 with a standard deviation 2.30 during the study period. It ranges between -3.91and 10.86.

Correlation Analysis:

Pearson correlation coefficients for the independent variables are used to assess the problem ofmulticollinearity.

Table II: Pearson Correlation Coefficient among Independent Variables:

Independent Variables	Debt - Equity Ratio	Tangibility	Size
Debt - Equity Ratio	1		
Tangibility	0.0667	1	
Size	0.0844	-0.0530	1

From the Table II it is found that there are low correlation coefficients for allthe independent variables. It implies that the problem of high multicollinearity does not exist.

Regression Analysis:

In order to assess the effect of financial leverage on firm's financial performance, two regression equations have been developed and panel data regression has been run. STATA has been given the following empirical findings for the regression equations.

Here Levin-Lin-Chu unit-root test is applied for all variables are used in the analysis in order to avoid spurious regression results. It is found that all the variables are stationary, some of them are stationary at level, and some are stationary at lag 1. This implies that the results obtained are not spurious.

The regression results show the relationship between financial leverage and financial performance for Pooled OLS model, Fixed effect model (FEM) and Random effect model (REM). The F statistics of the pooled regression model and fixed effect model are statistically significant and also the Wald-statistic of the random-effect model is statistically significant. Therefore they are well fitted.

It is difficult to identify the severity of the collinearity problem from only relying on the correlation results. The variance inflation factor (VIF) is a widely used measure of the degree of multi-collinearity of an independent variable with the other independent variables in a regression model. It measures the variance of an estimated regression coefficient is increased as a result of collinearity. As a rule of thumb, VIF ≥ 10 indicates multi-collinearity. So VIF is undertaken. From Appendix III, it is found that in all cases, all the VIFs are less than 2. Hence, collinearity does not seem to be a problem in the regression models.

In order to select the appropriate model Pooled OLS regression model, fixed effects model (FEM) and Random effect model (REM) are carried out. It is found that test statistics in Restricted F Test, Breusch-Pagan Lagrange Multiplier Test are statistically significant, whereas Hausman Test is not statistically significant. Hence the regression results of the REM are used for statistical inference and further analysis of the individual coefficients.

Finally, we have made the robust estimation of the coefficients of the regression models under study. These models take care of the autocorrelation as well as heteroskedasticity in the observation and the estimates are unbiased and efficient. The regression results are presented below:

The effect of the financial leverage on Return on assets (ROA):

Table III: Model 1 (ROA as a measure of firm's financial performance)

Independent Variables	**Coefficient**	**Robust Standard Error**	**z Stat**	**p - value**
Debt - Equity Ratio	-0.3626*	0.0957	-3.7900	0.0000
Tangibility	-16.7074	28.9422	-0.5800	0.5640
Size	58.4417*	20.6945	2.8200	0.0050
Intercept	13.0908*	4.3730	2.9900	0.0030
Total Panel(Balanced) Observations	340			
Adjusted R2-Within	37.81%			

Adjusted R2-Between	37.24%
Adjusted R2-Overall	36.36%
Wald χ^2 statistics	15.0900*
Prob. (Wald chi2)	0.0017

***Notes**: '*' implies significant at 1% probability level; '**' implies significant at 5% probability level;*

$$\mathbf{ROA}_{it} = \beta_0 + \beta_1 (\mathbf{D/E})_{it} + \beta_2 (\mathbf{Tangibility})_{it} + \beta_3 (\mathbf{Size})_{it} + u_{it}$$

$$\mathbf{ROA}_{it} = (13.0908^{*}) + (-0.3626^{*})\ (\mathbf{D/E})_{it} + (-16.7074)\ (\mathbf{Tangibility})_{it} + (58.4417^{*})(\mathbf{Size})_{it} + u_{it}$$

Since Wald χ^2 test is significant at 1% probability level, therefore model 1 is well fitted. From Table III it is observed that leverage has negative highly significant effect on return on assets (ROA). It implies that a high level of debt ratio indicates low financial health of the company.The firm's tangibility has an insignificant negative effect on ROA. The variable, Market size has positively and statistically significant on return on assets. Market Size is positive highly significant with profitability, which implies that larger Market Sizes seem to favor the profitability, therefore larger firms more profitable.

The effect of the financial leverage on Return on equity (ROE):

Table IV: Model 2 (ROE as a measure of firm's financial performance)

Independent Variables	Coefficient	Robust Standard Error	z Stat	p - value
Debt - Equity Ratio	-16.2882*	2.8857	-5.6400	0.0000
Tangibility	174.9200	148.9004	1.1700	0.2400
Size	24.3835	25.2868	0.9600	0.3350
Intercept	26.9464**	11.5348	2.3400	0.0190
Total Panel(Balanced) Observations	340			
Adjusted R2-Within	30.99%			
Adjusted R2-Between	75.63%			
Adjusted R2-Overall	34.03%			
Wald χ^2 statistics	99.3100*			
Prob. (Wald chi2)	0.0000			

***Notes**: '*' implies significant at 1% probability level; '**' implies significant at 5% probability level;*

$$\mathbf{ROE}_{it} = \beta_0 + \beta_1 (\mathbf{D/E})_{it} + \beta_2 (\mathbf{Tangibility})_{it} + \beta_3 (\mathbf{Size})_{it} + u_{it}$$

$$\mathbf{ROE}_{it} = (26.9464^{**}) + (-16.2882^{*})\ (\mathbf{D/E})_{it} + (174.9200)\ (\mathbf{Tangibility})_{it} + (24.3835)(\mathbf{Size})_{it} + u_{it}$$

Since Wald χ^2 test is significant at 1% probability level, therefore model 2 is well fitted. From Table IV it is observed that leverage has negative highly significant effect on return on equity (ROE). It implies that a high level of debt ratio indicates low financial health of the company. The firm's tangibility and Market size have an insignificant positive effect on ROE.

7. Conclusion

The present study is an attempt to investigate the effect of financial leverage on firm's financial performance of some selected Fast Moving Consumer Goods (FMCG) Companies in India. 20 FMCG companies have been selected from those listed in National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) for a period of 17 years from 2000 to 2016. Return on Assets and Return on Equity are taken as indicators of firm's performance. The technique of panel data regression has been used on STATA.

The results showed that financial leverage has negative highly significant effect on return on

equity (ROE) and return on assets (ROA). It implies that a high level of debt ratio indicates low financial health of the company. The firm's tangibility has an insignificant effect on ROA and ROE, which implies that firm's performance does not differ significantly across the Indian FMCG companies in respect of their tangibility. The variable, Market size has positively and statistically significant on ROA but insignificant positive effect on ROE. It implies that larger Market Sizes seem to favor the profitability, therefore larger firms more profitable.

From the above findings, it is recommended for financial managers to consider decreasing the level of financial leverage as sources of funds while forming the capital structure of Indian FMCG sector. In other words, it implies that it would be better for FMCG firms if they finance the total assets by shareholders' fund rather than debt fund, which can enhance their performance.

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Appendix I: list of selected FMCG companies

Profit making companies	Loss making companies
Britania Industry Ltd	Agro Dutch Industries Ltd
Colgate – Palmolive (India) Ltd	Golden Tobacco Ltd
Dabur India Ltd	Gopala Polyplast Ltd
Emami Ltd	Indian Extractions Ltd
Hindustan Unilever Ltd	Modern Dairies Ltd
ITC Ltd	Mount Everest Mineral Water Ltd
Marico Ltd	Murli Industries Ltd
Nestle India Ltd	Phoenix International Ltd
Procter & Gamble Hygiene Health Care Ltd	Venlon Enterprises Ltd
Reckitt Benckiser (India) Ltd	Yashraj Containers Ltd.

Appendix II: Variables Definition

ROA	Return on assets is EBIT/total assets
ROE	Return on equity is Profit after tax/ Shareholders capital
D/E	Debt equity ratio is Debt/ Equity
Tangibility	Assets tangibility is fixed tangible assets / total assets
Size	Size is the natural logarithm of sales

Appendix III: Result of Variance Inflation Factor (VIF) of selected FMCG Companies in India for the period 2000 to 2016

Independent Variables	ROA (Model 1)	ROE(Model 2)
Debt - Equity Ratio	1.01	1.01
Tangibility	1.01	1.01
Size	1.01	1.01