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# A STUDY ON PROFITABILITY ANALYSIS OF TATA MOTORS LIMITED IN INDIA

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**Abstract:**

The purpose of this study is to profitability relationship between the dependent (DER) and independent variables (current ratio, return on asset, asset structure, return on equity, interest coverage ratio) in the model of the Tata Motors Limited in India from the financial year 2015-2024. Data are analyzed using correlation and regression analysis to find the association between the variables. The results show that current ratio and interest coverage ratio have a significant impact on DER. The results also show Asset Structure and Interest Coverage Ratio negatively associated with Debt-Equity ratio. These results are consisting with previous empirical studies. Further, recommendations are presented in the research

**Key Words:** Profitability, Current Ratio, DER, ROA

## Introduction:

Profit represent primary factor which always wish to be achieved by every companies. To achieve this profit, companies must empower all of its resources optimally. The main resources are its own capital which is invested in company's assets, such as current assets, fixed assets and other assets. The problem arises when the resource (in this case is capital itself), is insufficient for making investments in company's assets, it makes debt is one alternative fund for financing investments aimed at achieving the desired profit. When a policy decided to acquire the debt, then lender would review the ability of companies to make a profit, so the ability to make a profit or profitability is a key factor for the companies to obtain debt. But, when the debt was obtained, the capital structure was changed, and would impact the profitability related to its risk of bankruptcy, so this make consideration of capital structure are very important. Profitability ratios are essential financial metrics that measure a company's ability to generate profits from its operations. These ratios provide insights into a company's financial health, efficiency and overall performance. By analyzing profitability ratios, investors, analyst and creditors assess a company's ability to generate sustainable returns, manage costs effectively and allocate resources wisely. Common profitability ratio includes gross profit, margin, net profit margin, return on assets and (ROA) return on equity (ROE).

## Research Objectives:

- To find the relationship between Debt-Equity ratio and profitability ratios
- To suggest the industry a way to increase profitability through adapting a better strategic framework.

## Review of Literature:

Ahmed Taha Al Ajlouni and Munir Shawer (2013), in their study entitled "The effect of capital structure on profitability: Evidence from the petrochemical companies in the Kingdom of Saudi Arabia", investigate, the relationship between the capital structure and profitability of the PICs in KSA during the period and to explore the direction of the relationship between the capital structure and profitability of the PICs in KSA. The data relevant to this study were obtained from the quarterly bulletin for the financial statements published by the Saudi Stock Exchange (TADAWUL). The total observations (periods) were 16 quarter observations for the nine selected companies. A sample represents 85% of the market value of the listed PICs in the Saudi capital market during the period 2008-2011. The selected firm should have sales during the study period. The selected PIC should disclose its financial reports regularly. Upon the above conditions, 5 companies out of the 14 targeted companies were excluded. The excluded companies constitute 15% of the petrochemical industrial market value. The financial reporting of the selected PIC should be prepared according to the listed requirements of the Saudi stock market. In this study selected debt ratio is considered as dependent variable. Return on assets, return on investment and net profit margin are considered as independent variables. Descriptive, correlation, and regression are used for analysis. They found that there is no significant relationship between the capital structure and each of the ROA and the ROE, and the relationship between the capital structure and NPM is very weak also. These

findings confirm that the profitability performance of the Saudi PICs is not affected by its capital structure, other variables have a key effect on the PICs' profitability.

Turki and Alzomaia (2014), carried out their study on "Capital structure determinants of publicly listed companies in Saudi Arabia", to investigate the capital structure of listed firms in Saudi Arabia, and to study the determinants of leverage. The contains balance sheet, profit and loss, and cash flow statements information for all Saudi public companies. The sample consists of non-financial public Saudi firms over the years 2000-2010. There were 146 listed companies in the Saudi market at the end of the year 2010. However, after excluding financial firms (11 banks and 31 insurance companies) the number of companies in the study is 104 companies. Leverage is considered as dependent variable. Whereas size, growth, tangibility, profitability, and risk are considered as independent variables. Descriptive statistics, correlation, and regression are used for analysis. They find that size has a positive and significant relationship with leverage. The size of the company has a limited impact on the capital structure of Saudi companies. Growth has a significant and positive relationship with leverage. Tangibility has a negative and significant relationship with leverage. Risk has a significant and strong negative relationship with leverage.

John Jacob and Jothi Jayakrishnan (2015), carried out their study on “Factors Influence of capital structure on profitability of selected chemical Industry in India" to identify the profitability average and evaluate the factors that influence the profitability of the capital structure chemical industry in India. The study considered the dependent variable is profitability, independent variables are debt ratio, debt/equity ratio, short-term debt ratio, long-term debt ratio, and gearing ratio. Statistical tools namely mean, standard deviation, correlation, and regression used for analysis. They found that the total debt is positively significantly related the profitability. The debt ratio is decreasing their profitability. Also, the trade-off theory stated that positively related to the debt ratio. That positive relationship firm may use equity and other external sources. The long-term ratio is negatively related the profitability. Therefore, debt ratio is increasing their profitability. Size is negatively related the profitability. It is found that the total debt ratio is positively related the profitability. The long-term ratio is negatively related to profitability Size is negatively related the profitability.

Priyanka and Ananth (2017), carried out their study on the "Influence of capital structure on profitability in selected public sector banks", to identify the influencing factors of capital structure on the profitability of public sector banks. The study is based on secondary data and it is taken from public sector banks. The study sample consists of the top five public sector banks ranking based on market capitalization that has been selected for the period of 2011-12 to 2015-2016 and have been collected for analysis. The study considered the debt-equity ratio and capital adequacy ratio as a dependent variable. Whereas namely return on equity, return on assets, investment deposits ratio, credit deposit ratio, spread ratio, operating profit, profit per employee, interest income, and non-interest income are considered as dependent variables. Regression analysis was used to find the influencing factors of capital structure and profitability. They find that the debt-equity ratio is found to have more influence on profitability in the state bank of India, bank of Baroda, Punjab national bank, and Canara bank. Further, they find found that there is no significant influencing factors among the capital structure and profitability of the top five public sector banks.

Sushil Kalyani and Neeti Mathur (2017), their study on, "Impact of capital structure on profitability: with reference to select companies from oil and natural Gas industry of India", to investigate the impact of capital structure on profitability of firms and the corporate financial performance represented by dependent variables are return on assets, net profit ratio and the independent variables are the size of the firm, degree of financial leverage, dividend payout ratio, debt equity ratio, degree of operating leverage and growth assets which are related to the capital structure of the firms belonging to the Indian Oil and Natural Gas companies were chosen for study. The study was based on Secondary data collected from the companies of the Indian oil and natural gas industry using prowess database software. A study of 50 top oil and natural gas companies in India has been conducted and the period from 2002 to 2015. Judgment sampling which is a non-random sampling technique is chosen for sample selection. Correlation and multiple regression analysis are used to study the influence of debt-equity, payout ratio, log asset, log sales, growth of assets, degree of financial leverage, and operating leverage on financial performance which are by on assets and net profit ratio. They found that debt-equity ratio, log assets, degree of financial leverage, and dividend payout ratio has a significant relationship with ROA and on the other hand log sales, degree of operating leverage and growth of asset are significant variables in determining the profitability of the firms in oil and natural gas industry in India.

**Methodology:**

Secondary data required for research were collected from the official web sites of cement industries in India. Data were used financial statements of Tata Motors Limited.

**Regression Model:**

The Multiple regression models have been followed to test the relationship between the dependent and independent variables of the industries.

$DER = a+b_1CR+ b_2ROA + b_3AS+ b_4ROE+ b_5ICR+e$

Where,

DER: Debt-Equity Ratio
CR: Current Ratio
ROA: Return on Equity
AS: Asset structure
ROE: Return on Equity
ICR: Interest Coverage Ratio
e: Error Term

**Results of the Study:**

**Results of Correlation:**

Table 1

| **Variables** | **R** | **$R^2$** |
|---|---|---|
| Current Ratio | 0.709 | 0.502681 |
| Return on Assets | 0.993 | 0.986049 |
| Asset Structure | -0.469 | 0.219961 |
| Return on Equity | 0.962 | 0.925444 |
| Interest Coverage Ratio | -0.671 | 0.450241 |

*Correlation is significant at the 0.05 level (2-tailed).
** Correlation significant at the 0.01 level (2-tailed)

Table 1 represent the relationship between the various independent and dependent variables used in this study. From this table it is clear that the variables Current Ratio, Return on Assets, Return on Equity have highly positive with Debt-Equity ratio. Whereas the variables Asset Structure and Interest Coverage Ratio negatively associated with Debt-Equity ratio. So, we conclude that all the select variables have associated with profitability Tata Motors Limited.

**Results of the Regression:**

Table 2: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .999[a] | .999 | .998 | .03430 |
| a. Predictors: (Constant), Interest Coverage Ratio, Asset Structure, Current Ratio, Return on Asset, Return on Equity | | | | |

The model summary table illustrates the magnitude of the variance in the dependent variables as described by the independent variables. The value of the R-square is 0.999 which is approximately the dependent variables 99% variance of the Debt-Equity ratio is explained by independent variables of profitability ratio.

Table 3: ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 4.358 | 5 | .872 | 74.867 | .000[a] |
| | Residual | .005 | 4 | .001 | | |
| | Total | 4.363 | 9 | | | |
| a. Predictors: (Constant), Interest Coverage Ratio, Asset Structure, Current Ratio, Return on Asset, Return on Equity | | | | | | |
| b. Dependent Variable: Debt on Equity | | | | | | |

ANOVA test to find out whether the regression model is valid or not. F-Statistics is 74.867 which are high and significant value of less than 5%which indicates that the testing of ANOVA is significant and that the model is valid from the given predictors.

Table 4: Regression Co-efficient of Tata Motors Limited

| **Variables** | **Model** |
|---|---|
| **(Constant)** | |
| Un-Standard co-efficient | -1.969 |
| Standard Error | 1.133 |
| T-Value | -1.738 |
| P-Value | 0.157 |
| **(Current Ratio)** | |
| Un-Standard co-efficient | 4.16 |
| Standard Error | 0.957 |
| T-Value | 4.345 |
| P-Value | 0.001 |
| **(Return on Assets)** | |
| Un-Standard co-efficient | 0.395 |
| Standard Error | 0.118 |
| T-Value | 3.352 |
| P-Value | 0.029 |
| **(Asset Structure)** | |

| | |
|---|---|
| Un-Standard co-efficient | 0.137 |
| Standard Error | 0.664 |
| T-Value | 0.206 |
| P-Value | 0.847 |
| **(Return on Equity)** | |
| Un-Standard co-efficient | 0.001 |
| Standard Error | 0.001 |
| T-Value | 0.399 |
| P-Value | 0.71 |
| **(Interest Coverage Ratio)** | |
| Un-Standard co-efficient | -0.116 |
| Standard Error | 0.886 |
| T-Value | -0.131 |
| P-Value | 0.002 |

The parameter of the regression model above the table is related. The table No. 4 shows the significant of the induvial independent variable in interpreting the dependent variable. The un-standard co-efficient (B) Value shows the magnitude and relationship between DER and independent variables of profitability ratios. The regression co-efficient value shows the relationship between current ratio and interest coverage ratio significant with DER. Other variables like return on assets, asset structure, return on equity not significant with DER.

**Conclusion:**

The purpose of this research study is to investigate the relationship between DER and profitability ratio. For this purpose, Tata Motors Limited has been selected from India as study sample and data is collected (2015-2024) and processed by using statistical tools. The study found that the R values of Current Ratio (0.709), Return on Assets (0.993), Return on Equity (0.962) have highly positive with Debt-Equity ratio. Asset Structure (-0.469) and Interest Coverage Ratio (-0.671) negatively associated with Debt-Equity ratio. Asset structure affects a company's capital structure. Which is the amount of long-term debt a company obtains. Companies with larger asset tend to have a larger capital structure derived from debt. The company concentrate on Interest coverage ratio, it is used by lenders, investors and creditors to determine a company's riskiness for future borrowing. It also helps to assess the profitability of the company.

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