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# Impact of Capital Structure on Financial Performance of Two and Three Wheeler Companies in India

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***Abstract*---**This study aimed to examine the relationship between capital structure and financial performance of two and three-wheeler manufacturing companies in India. The analysis has been carried out by taking into account all the two and three-wheeler manufacturing companies listed in BSE for 10 years from 2007-08 to 2016-17. The econometric model, fixed effects model is used for the analysis as per the Hausman test. The accounting measure, Return on Equity was used for measuring the financial performance. The results revealed that capital structure has a negative influence on the financial performance of these companies.

***Keywords*---**capital structure, financial performance, Return on Equity (ROE), the proportion of long-term debt to total assets (DTA), the ratio of long-term debt to equity (DE).

## Introduction

One of the main decisions to be taken by a financial manager is deciding appropriate capital structure. The seminal study by (Modigliani & Miller, 1958) states that in a perfect capital market capital structure decision is irrelevant in determining the value of the firm. But later on, many theories were developed based on more realistic assumptions to establish the relationship between capital structure and firm value. The theory of Jensen & Meckling (1976) suggests that debt level in capital structure leads to agency conflict between shareholders and managers of the company which in turn affects firm performance. The trade-off theory says that a company can determine its optimal capital structure by balancing the costs and benefits associated with debt financing. Another theory of capital structure, the pecking order theory developed by Myers & Majluf (1984), points out that managers first prefer retained earnings as a source of investment, then seek external sources and equity as the last source of finance. So the


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relevant theories of capital structure have different conclusions regarding the relationship between capital structure and firm performance.

The present study investigates the relationship between capital structure and financial performance of two and three-wheeler automobile manufacturing companies in India. Two wheeler segment is the largest segment of an automobile in India, accounts for about 81 percent market share (SIAM, 2020). Capital structure decision is a crucial decision in the case of automobile manufacturing companies as the demand for automobiles varies with fluctuations in economic conditions (Gleason et al., 2000; Serghiescu & Văidean, 2014). Since huge capital investment is required in this sector, the decision regarding debt capital is to be taken very carefully because it leads to operating and financial risk to the firm.

Many studies were undertaken both in India and abroad to study the influence of capital structure on financial performance (Akeem et al., 2014; Arulvel & Ajanthan, 2013; Berger & Patti, 2006; Birru, 2016; Ubesie, 2016; Dawar, 2014; Rakesh, 2013; Sheikh & Wang, 2013). But no studies were found in the area of two and three-wheeler segments.

**Review of empirical studies**

Many studies have been undertaken to study the influence of capital structure on financial performance. Return on Equity and Return on Assets was commonly used for measuring financial performance in these studies (Ubesie, 2016; Brown & Caylor, 2004; Ebaid, 2009; Dawar, 2014; Birru, 2016). The results of the studies were controversial. A number of studies support negative relationship between capital structure and financial performance (Kester, 1986; Rajan & Zingales, 1995; Booth et al., 2001; Birru, 2016; Dada & Ghazali, 2016; Tifow & Sayılır, 2015; Sheikh & Wang, 2013; Rakesh, 2013; Arulvel & Ajanthan, 2013; Dawar, 2014; Majumdar & Chhibber, 1999; Fama & French, 2002; Ebaid, 2009; Chandrapala & Knapkova, 2013; Vatavu, 2015; Akeemet al., 2014; Ali, 2013). On the other hand, some studies confirm the positive relationship of capital structure with financial performance (Al-Kayed et al., 2014; Nirajini & Priya, 2013; Berger & Patti, 2006; Margaritis & Psillaki, 2007; Nickell et al., 1997; Nickell & Nicolitsas, 1999). So the results are contradictory. In this context, a study of the influence of capital structure on financial performance is found to be relevant.

**Research Methodology**

The study investigates whether capital structure decision has an impact on the financial performance of two and three-wheeler automobile manufacturing companies in India. All the automobile manufacturing companies listed in BSE under the category two and three-wheelers were taken for the study. The study covers a period of 10 years from 2008-09 to 2017-18.

The study uses the accounting-based measure Return on Equity (ROE) for measuring financial performance (Salama, 2005; Chi & Gursoy, 2009). Return on equity is the ratio of net income after tax to shareholders' funds. This ratio reflects the extent to which the objective of wealth maximization of shareholders has been achieved. With it, one can determine whether a firm is a profit-creator or

a profit-burner. A rising ROE can signal that a company can grow profits without adding new equity into the business, which dilutes the ownership share of existing shareholders (Kijewska, 2016).

Some researchers have employed ROE as a firm performance measure in their studies (Rechner & Dalton, 1991; Dalton et al., 1999; Brown & Caylor, 2004; Jog & Dutta, 2005; Kangarlouei et al., 2012; Thafani & Abdullah, 2014; Dawar, 2014; Ebaid, 2009). The two variants of capital structure, (1) the proportion of long-term debt to total assets (DTA) and (2) the ratio of long-term debt to equity (DE) are used as independent variables in the study. The analysis is carried out using panel data regression. Fixed effects model and random effects model are used in evaluating the influence of capital structure on financial performance. The suitability of the model is tested using Hausman Specification Test. The stationarity of the data series is tested using the Philips Perron Fisher Chi-square test. And multicollinearity is tested using variance inflation factor (VIF). The hypothesis formulated for the study is as follows:

$H_1$: Financial performance of automobile companies in India represented by ROE is independent of their capital structure.

**Model Specification**

To capture the influence of capital structure on financial performance, the following econometric model is formulated:

$$ROE_{it} = \beta 0_{it} + \beta 1 DTA_{it} + \beta 2 DE_{it} + U_{it}$$

Where,

*β0* = *Coefficient of Intercept (constant)*
*β1* = *Coefficient of DTA*
*β2* = *Coefficient of DE*
$U_{it}$ = *The error term*

To test the stationarity nature of the data series, the Philips-Perron Fisher Chi-square test has been used and the results are given in Table 1.

Table 1
Unit Root Test Results (Level) of ROE, DTA, and DE

| Variables | Total Observations | Cross Sections | Statistic | Probability |
|---|---|---|---|---|
| ROE | 63 | 7 | 34.747 | 0.002 |
| DTA | 63 | 7 | 30.078 | 0.007 |
| DE | 63 | 7 | 61.450 | 0.000 |

Computed from Panel Data

As indicated in table 1, the probability of PP - Fisher Chi-square-statistic being less than 0.05 in all the cases, the data series are stationary. The correlation between the dependent and independent variables is calculated as follows in Table 2.

Table 2
Correlation of ROE, DTA, and DE (Two and Three Wheelers)

| Variables | ROE | DTA | DE |
|---|---|---|---|
| ROE | 1 | | |
| DTA | 0.087 | 1 | |
| DE | -0.509 | -0.275 | 1 |

Computed from Panel Data

Between dependent and independent variables, a high correlation does not exist in any case. Among independent variables also the correlation is found to be low (-0.275). 'DTA' positively correlated to 'ROE', and 'DE' is negatively correlated to 'ROE'. The regression results for the influence of capital structure on financial performance are shown in table 3. The fixed effects model is applied for analysis since the p-value of the chi-square test is less than 0.05.

Table 3
Fixed Effects Model of ROE (Two and Three Wheelers)

| Independent Variables | Coefficient | Std. Error | t - statistic | Probability |
|---|---|---|---|---|
| C | 30.431 | 5.783 | 5.262 | 0.000 |
| DTA | 6.539 | 36.398 | 0.180 | 0.858 |
| DE | -62.230 | 9.949 | -6.255 | **0.000** |
| R-squared | | | | 0.516 |
| S.E. of regression | | | | 30.910 |
| Durbin-Watson stat | | | | 2.132 |
| F-statistic | | | | 3.256 |
| Prob(F-statistic) | | | | 0.001 |
| VIF | | | | 2.062 |
| Hausman Test | | | | 0.000 |

Computed from Panel Data

Table 3 reveals that capital structure variant DE is significantly influencing ROE since the p-value of the t statistic is less than 0.05. The relationship between DE and ROE is found to be negative. The model explains 51 percent variations in ROE. Since the p-value of the F test is less than 0.05, the model has overall fitness also. Then the model can be represented as:

$$ROE = 30.431 + 6.539*DTA - 62.230* DE$$

The hypothesis that the "financial performance of automobile companies in India represented by ROE is independent of their capital structure" is rejected in the case of two-wheelers. The capital structure proxy 'DE' is significantly influencing ROE.

**Results and Discussions**

In the analysis of the influence of capital structure on the financial performance of two and three-wheeler companies, Return on Equity (ROE)is taken as the

financial performance measure. The results reveal that the capital structure variant, long-term debt to equity (DE) is significant and it has a negative relationship with financial performance. In other words, the larger the debt proportion, the lower will be the financial performance in terms of return on equity. So many studies have proved that there is a negative relationship between capital structure and firm performance (Pushner, 1995; Booth et al., 2001; Onaolapo & Kajola, 2010).

**Conclusion**

The study examined the influence of capital structure on the financial performance of two and three-wheeler automobile manufacturing companies in India. Return on equity is used as a proxy of financial performance. And the two variants of capital structure, long-term debt to total assets and long-term debt to equity were used as independent variables. Econometric tools such as the fixed effects model and random-effects model were used for the analysis. The results revealed that capital structure is significantly negatively influencing the financial performance of two and three-wheeler automobile companies in India.

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