

## DETERMINANTS OF CAPITAL STRUCTURE OF SELECT EDIBLE OIL FIRMS IN INDIA

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### ABSTRACT

*The study aims to examine and analyze the relationship between leverage and determinants of capital structure of selected edible oil firms in India. The study contains five years data of different variables from 2008-2013 of select edible oil firms. In order to achieve the objectives we applied few statistical tools such as hypothesis, Correlation and Regression analysis. It is concluded that all independent variables have significant impact on leverage except profitability. Profitability had negative impact on leverage. It concludes those firms Tangibility, Growth, Size have positive relationship with Leverage on other hand Profitability has a negative association with Leverage and other independent variables. The correlation analysis exists negative relationship between growth, size, and leverage with profitability. It indicates the company cannot generate funds. So it is suggested that determinants of capital structure must consider for decision making about capital structure and policy makers have to focus on dominants of capital structure.*

**Keywords:** *Capital structure, Tangibility, Growth, Size, Leverage, Profitability.*

### Introduction:

Capital structure refers to the different options used by a firm in financing its assets. The capital structure of a company is a particular combination of debt, equity and further sources of finance that it uses to fund its long-term asset. The key partition in capital structure is between debt and equity. The proportion of debt funding is measured by gearing or leverages. There are different factors that affect a firm's capital structure, and a firm should challenge to determine what its best, or best, mix of financing.

But determining the precise optimal capital structure is not a science, so after analyzing a number of factors, firms establish a target capital structure which it believes is most favorable. Capital structure policy also involves a trade-off between risk and return. By means of more debt raise the risks in the firm's income flow, but a higher quantity of debt normally leads to a higher expected rate of return and the higher risk associated with greater debt tends to lower the stock's price. At the same time, however, the higher expected rate of return makes the stock more attractive to

investors, which, in turn, in the end increases the stock's price. Consequently, the optimal capital structure is the one that strikes a balance between risk and return to attain our ultimate goal of maximizing the stock prices.

Capital structure is fundamentally permanent long term financing of a firm. Although there has been abundance of research focusing on the most important determinants of capital structure, there is still deviation regarding which factors significantly affect a firm's capital structure. This study attempts to analyze determinants of capital structure in a systemic manner and provides practical and appropriate guideline for anyone who wants to have approaching of the topic. Research introduces the main determinants of capital structure and their influencing factors. In general, it covers each and every aspect of the area under discussion but particularly it is associated to capital structure of oil firms listed in Bombay stock exchange and their financing decision making. It explores a multiplicity of factors that manipulate the determinants of capital structure and direct the

financial decision taken by the manager as well the achievement or the disappointment to these decisions.

### Literature Review:

A lot of research has been done in this area. Different researchers have set different criteria's for the determination of capital structure and firm profitability. Different researcher use different variables or tools for searching in this field. The theory of capital structure and its relationship with the market value of firm is very controversial in corporate finance because some analyst thought that capital structure can increase firm value by decreasing of capital. Some opposite suggestions like as follows.

(Modigliani, 1958) Defined that their seminal work on capital structure and debt irrelevant to the value of firm. (Kraus & Litzenger, 1973) argue that if firm's debt obligations are greater than its earnings then firms' market value is necessarily a concave function of its debt obligations. (Melinda, 1976) Stated that the firms selected capital structure by the examining the net tax advantage of debt financing by comparing debt and equity. This implies that the optimal capital structure is the one that gives the debt tax advantage to the firm. (Jensen & Mecking, 1976) suggested either to increase the ownership of the managers in the firm in order to align the interest of managers with that of the owners or increase the use of debt which will reduce the equity. (Deangelo & Masulis, 1980) concluded that each firm has an internal optimal structure that maximizes its value. (Myers & Majluf, 1984) argued that capital structure appears to explain financial structure decisions amongst a panel of firms with in energy sector. (Altman, 1986) was the first to identify direct and indirect costs of bankruptcy. He found that firm's capital structure should be such that the percent value of marginal tax benefits is equal to marginal percent value of bankruptcy costs. (Jarrell & Kim, 1988) used a model that synthesized modern balancing theory of optimal capital structure. They found strong direct relationship between non-tax shields and the firm's debt level. (Stulz, 1990) argued that to reduce the cost of underinvestment and overinvestment, the amount of free cash flow should be reduce to management by increasing debt financing. (Donaldson, 1998) argued that the capital structure information asymmetry that exists between a firms managers and the market necessitates, when choosing among the available resources of funds. (Shyam sundar & Myers, 1999) suggests that when external financing is needed, firms prefer to raise debt before external equity. (Ross et al, 2009) suggested that managers should choose the capital structure that they believe will have the highest firm value, because this capital structure will be most beneficial to the firms.

### Research Methodology:

#### Need of the Study:

India's rapid economic growth and soaring demand by sectors like, Real estate, Automobiles and oil industries at home and abroad has put Indian spinning industry on the global map. This paper attempts to make an analytical study of application of optimum capital structure, Leverage, Profitability, Tangibility, Growth, Size of Indian edible oil industry with data for period 2008-2013. For the purpose of analysis, ratio techniques and to test hypothesis other statistics tools have been used for the research purpose. The result of the study indicates that there is a correlation between dependant and independent variables.

#### Objectives:

- To examine the determinants of capital structure of selected edible oil firms in India.
- To analyze the relationship between leverage and determinants of capital structure.

#### Hypothesis:

This research is based on the following hypothesis that clearly defines the research measure. The four alternative hypotheses are;

**Hypothesis 1:** A firm with higher percentage of fixed assets will have a higher debt ratio.

**Hypothesis 2:** There is a negative relationship between size and leverage of the firm.

**Hypothesis 3:** Firms with a higher growth rate will have higher leverage.

**Hypothesis 4:** Firms with higher profitability with have lesser leverage.

#### Research Design:

This is systematic way to solve the research problem and it is important component for the study without which researchers may not be able to obtain the format. A research design is the arrangement of conditions for collection and analysis of data in a manager that aims to combine for collection and analysis of data relevance to the research purpose with economy in procedure.

#### Source of Data:

The data of Indian edible oil industry have been collected from the annual reports of the company and capitalize data base. The data collected from this source have been used and compiled will be care as per requirement of the study.

#### Data Methodology:

A sample of ten Edible Oil companies listed on Bombay Stock Exchange is selected for this study on the basis of non- probability, convenient sampling

technique. The study contains five years data of different variables from 2008-2013 to examine the relationship. The study only uses secondary data of the selected firms. The selection of the variables is based on previous relative empirical and descriptive studies. Growth, size, tangibility and firm profitability are taken as independent variables while market value of firm (leverage) is used as dependent +variable in the contemporary work.

**Tangibility:**

Asset tangibility means any asset of a company that exist physically .Asset tangibility of a firm is measured by expected assets. Asset values repeatedly fall sharply once assets are placed slight of the firm. When this happens, investors have less incentive to impose their right to settle or reorganize the firm Instead; they may allow an underperforming business to carry on and may even performance it under its current management. The problem that this creates is that firm insiders then have fewer incentives to implement value enhancing policies. Continuation is less likely to occur, however, when assets can fetch high values outside of the firm. Tangibility of assets can be measured by the following equation:  
**Tangibility =Total gross fixed assets/Total asset**

**Profitability:**

Profitability of a firm can be measured by return on assets. Profitability is used as a measurement for firm value because it evaluates the efficiency with which plant, equipment, and current assets are transformed into profit. These variables are determined with following equations:

**Return on Assets= Net Income/ Total Assets**

**Growth:**

Growth is the percentage of change in firm’s asset in comparison with the previous year. Growth is measured by:

**Growth=Annual percentage change in total assets.**

**Size:**

Firm size was measured by natural logarithm of firms’ assets. Size is measured by:

**Size=Log of sales**

**Leverage:**

The dependent variable of this research study is book value of leverage ratio. Leverage is measured by:

**Leverage = Total Debt/ Total**

**Regression:**

Simple linear regression is based on the slap-intercept equation of a line. This equation is the given as  $y =$

$ax + b$ . Where, “a” is the slop the line and “b” is the “Y” intercept of the line. The straight line regression model with respect to population parameters  $\beta_0$  and  $\beta_1$  can be given as  $Y= \beta_0+\beta_1+X_i$ .Where,  $\beta_0$  is the population Y intercept which respect the average value of the dependent variable, when  $X=0$ . And  $\beta_1$  is the slop of the regression line which indicates expected change in the value of Y per unit change in the value of X.

**Leverage Ratio =  $\beta_0 + \beta_1(\text{Profitability})_i + \beta_2(\text{Tangibility})_i + \beta_3(\text{Growth})_i + \beta_4(\text{Firm size})_i + \epsilon_i$**

**Table 4.1: Descriptive Statistics**

Company Name	Tangibility	Profitability	Growth	Size	Leverage
Rasoya Proteins	1.27	0.03	47	2.70	0.48
Agro Tech Foods	1.28	0.84	17	2.86	0.00
Ruchi Soya	1.70	0.03	29	4.25	0.62
Sanwaria Agro Oils	1.57	0.06	12	3.14	0.59
Gujarat Ambuja	1.44	0.09	23	3.29	0.29
AVT Natural Products	1.65	0.21	18	2.16	0.35
Gokul Refoils	1.72	0.02	41	3.62	0.58
Oswal Agro Mills	0.71	-0.02	-5	0.95	0.02
Raj Oil Mills	1.47	0.06	44	2.49	0.26
I.K OILS	1.008	0.012	25	8.49	0.428

**Data Analysis and Interpretation:**

**Table 4.2 descriptive statistics**

	No of Companies	Minimum	Maximum	Mean	Standard Deviation
Tangibility	10	0.71	1.72	1.38	0.28
Profitability	10	-0.02	0.84	0.13	0.24
Growth	10	-5	47	25	15
Size	10	0.95	4.25	3.39	1.94
Leverage	10	0.00	0.62	0.36	0.21

**Descriptive Statistics:**

Descriptive statistics analysis was used to find out the central tendency and variance of the data. The total number of observations is 10. Tangibility has a minimum value of 0.71, maximum value of 1.72, mean value of 1.38 and standard deviation value of 0.28. Profitability has a minimum value of -0.02, maximum value of 0.84, mean value of 0.13 and standard deviation value of 0.24 .Growth has a minimum value of -5, maximum value of 47, mean value of 25 and standard deviation value of 15 .Size has a minimum value of 0.95, maximum value of 4.25, mean value of 3.39 and standard deviation value

of 1.94. Leverage has a maximum value of 0.62, mean value of 0.36 and standard deviation value of 0.21.

**Correlation:**

**Table 4.3 Correlations:**

	Tangibility	Profitability	Growth	Size	Leverage
Tangibility	1	0.008	0.493	0.021	.660*
Profitability	0.008	1	-0.175	0.145	-0.547
Growth	0.493	-0.175	1	0.224	0.486
Size	0.021	-0.145	0.224	1	0.392
Leverage	.660*	-0.547	0.486	0.392	1

\* Correlation Is Significant At The 0.05 Level (2-Tailed).

Correlation analysis identified direction and strength of the relationship between all understudy variables. The above table shows that there is positive relationship of Profitability, Growth, Size and Leverage with Tangibility and strength of this relationship are Profitability is 8%, Growth is 49.3%, Size is 21%, and Leverage is 66%. Growth, Size, Leverage is negative relationship with the profitability and weaknesses are Growth -17.5%, Size -14.5%, Leverage -54.7%. Size and leverage are positive relationship with the growth and their strengths are Size is 22.4% and Leverage is 48.6%. Leverage is positive relationship with the size and strength is 39.2%.

**Regression Analysis:**

Simple linear regression is based on the slope-intercept equation of a line. This equation is given as  $y = ax + b$ . Where, "a" is the slope of the line and "b" is the "Y" intercept of the line. The straight line regression model with respect to population parameters  $\beta_0$  and  $\beta_1$  can be given as  $Y = \beta_0 + \beta_1 X_i$ . Where,  $\beta_0$  is the population Y intercept which respects the average value of the dependent variable, when  $X=0$ . And  $\beta_1$  is the slope of the regression line which indicates expected change in the value of Y per unit change in the value of X.

**Table 4.4 Regression Analysis Model summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.912a	0.831	0.696	0.12296
a Predictors: (Constant), Size, Tangibility, Profitability, Growth				

**Table 4.4 ANOVA**

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.371	4	0.093	6.143	.036b
	Residual	0.076	5	0.015		
	<b>Total</b>	<b>0.447</b>	<b>9</b>			

a. Dependent Variable: LEVERAGE

b. Predictors: (Constant), Size, Tangibility, Profitability, Growth

**Table 4.5 Coefficients**

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.338	0.202		-1.671	0.155
	Tangibility	0.461	0.151	0.654	3.061	0.028
	Profitability	-0.441	0.164	-0.507	-2.684	0.044
	Growth	0.000	0.003	0.008	0.035	0.974
	Size	0.034	0.021	0.303	1.587	0.173

**Dependent Variable: LEVERAGE**

The above table reveals the parameters estimations of each variable which provide source for developing regression model; it shows value of constant ( $\alpha$ ), value of co-efficient ( $\beta$ ) along with its value of adjusted  $R^2$ , model significance. These values of co-efficient ( $\beta$ ), indicating the contribution of each predictor to the model. The parameters estimated are analyzed at 95% confidence interval. The  $R^2$  shows the variations in the dependent variable (Leverage) are explained by the variations in the given four independent variables. The adjusted  $R^2$  is slightly below the  $R^2$ . The F-Statistics shows the validity of the model as its 0.12296.

Analyzing the results for the sound effects of independent variable on dependent variable, we get that asset tangibility is positively correlated with leverage. This confirms our hypothesis regarding tangibility of assets and too confirms to the Indian edible oil companies description of trade-off theory that debt level should increase with more fixed tangible assets on balance sheet on the other hand, we do not find a lot confirmation that this relationship is statistically important.

Size is positively correlated with the leverage. These suggest that large firms in India borrow more and small firms are fearful of more debt. These contradict to earlier hypothesis about the size of the firm that large firms will have lower level of leverage. This confirms to the bankruptcy cost theory on leverage that fixed direct costs of bankruptcy constitute a smaller portion of the total value of the firm thus large will not hesitate to take more debt because of fear of bankruptcy. At the same time, the results contradict to the view of less asymmetric that new equity issue will not be under-priced and thus large firms will issue more equity.

Growth is positively related to leverage. This suggests that growing firms in India use less of equity and more debt to finance the new investment opportunities. This also supports the simple description of growing firms will option first to the internally generated funds for satisfying their financing needs.

Profitability is negatively correlated with the income. This suggests that a profitable firm in India uses more of equity and less debt. These wise the pecking order

theory and also approve our earlier hypothesis about profitability.

Tangibility is positively correlated with the leverage. This suggests that a tangible of firms in India uses less of equity and more of debt. These wise the pecking order theory and also approve our earlier hypothesis about tangibility.

Leverage = - 0.338-0.442 (Profitability) + 0.416 (Tangibility) + 0.00 (Growth) + 0.034 (Firm size)

### Conclusion:

The present study is an attempt to find the determinants of the capital structure of oils and gas firms listed on the BSE in India for the period of 2009-2013. Correlation and Regression analysis are applied to know the relationship between dependent and independent variables; it is the all independent variables have significant impact on leverage except profitability. Profitability had negative impact on leverage. It concludes those firms Tangibility, Growth, Size have positive relationship with Leverage on other hand Profitability has a negative association with Leverage and other independent variables. The correlation analysis exists negative relationship between growth, size, and leverage with profitability. It indicates the company cannot generate funds. I suggested that the company may borrow long term debt because of increase profitability.

### References:

- [1] Altman. (1986). Intra-industry capital structuredispreion. *Economics and management strategy*.
- [2] Chitti Babu. P (2014). et al., *Analysis of Light Motor Vehicle Component Using Topology Optimization Method, International Journal of Emerging Technology and Advanced*

*Engineering*, ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume4, Issue 1, 211-215, Impact Factor – 1.932

- [3] Chitti Babu.P (2014). et al., *Tuning of Production Systems, International Journal of Science and Technology*, ISSN:2319-2119, Vol.19(4),1375-1379, ,Impact factor – 0.27.
- [4] Deangelo & Masulis. (1980). Determine the speed of adjustment to the target capital structure. *Market Timing and Capital Structure*.
- [5] Donaldson. (1998). Evaluation of Capital Structure in East-Asia firms. *Corporate Finance*.
- [6] Jarrell & Kim. (1988). Firm's histories and their Capital Structure. *Financial Economics*.
- [7] Jensen & Mecking. (1976). Managerial behavior, agency costs and capital structure. *Journal of Financial Economics* .
- [8] Kraus & Litzemberger. (1973). Leverage analysis for largefirms in USA. *Journal of Asia-Pacific business* .
- [9] Melinda. (1976).The Effects of Capital Structure on Profitability of Listed Firms. *Capital Structure of European firms*.
- [10] Modigliani, M. a. (1958). The Effects of Capital Structure on Profitability of Listed Firms. *European journal of Business & Management* .
- [11] Myers & Majluf. (1984). The credit rating and capital structure. *Endogeneous Bankruptcy and the term structure of credit spreads*.
- [12] Ross et al. (2009). Comparing capital structure and rates of returns in emerging markets. *Journal Financial and Quantitative Analysis*.
- [13] Shyam sundar & Myers. (1999). Credit rating and capital structure. *The journal of Financial Economics*.
- [14] Stulz. (1990). Capital structure and stock returns. *Journal of Political Economy*.

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