A Study on Relationship Between Leverage and Profitability – A Case of Food Industries in India

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***Abstract:** In financial management, Leverage is the key decision area. Leverage constitutes the Degree of Operating Leverage, Degree of Financial Leverage and Degree of Combined Leverage. In this paper, the relationship between Leverage and Profitability has been discussed. For the purpose of this study, data of financial year (FY) 2020 has been considered. About 10 companies in the food industry which are listed in the Bombay Stock Exchange have been chosen for this study. An exploratory form of research design is used which is based on the secondary data. The data was collected from the annual reports of the chosen companies. The data collected has been analyzed by using the regression tool. The main aim of this study is to analyse the performance of the 10 companies, chosen.*

***Keywords:** Profitability, Operating Leverage, Financial Leverage, Combined Leverage.*

I. INTRODUCTION

In order to finance the purchase of other assets when the money is borrowed, it is known as the leverage. Financial leverage is considered to be the most crucial factor among the others that affects the profitability of the company. One of the concepts of the Capital Structure management is Financial Leverage. "Manager choice of making debt intensive or equity intensive company that formulate the financing of the company assets, this leads to the concept of Capital Structure formulation." Usually, the owners of the company use both debt and equity to finance their assets. Therefore, making a right choice and striking the right balance between debt and equity is an important decision that the owner has to make. Generally financial leverage is measured by the ratio of total debts of the company and the total assets the company owns (Ahmed, Salmaan, & Shamsi, 2015, [2]). Financial leverage means- "The extent to which company has used borrowed money in order to finance its capital structure". In case, the company uses more of borrowed money than the equity to finance its assets they will have to pay more fixed costs associated with it where if they use less of the borrowed money then they will have to pay less fixed cost associated.

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Higher financial leverage benefits the company in the economic boom period, on the other hand higher financial leverage has adverse effects on a company's profitability during the time of economic recession which can lead to cash flow problems. Historical studies represent that, financial leverage induce cost of capital, at last incline firm's profitability and stock price. If a company opts for a choice which constitutes more of debt and less of equity, they are associating themselves with several financial risks. Financial strategy planning includes leverage, which raises the rate of return by producing a greater return on borrowed funds than the cost of doing it. It can be said that the leverage will hold positive when the return on the assets is greater than the interest paid on the debt (before tax) and vice versa. The aim of this study is to investigate the effects of leverage on profitability in the food industry of India. Ten companies which are listed in the Bombay Stock Exchange have been chosen. They are – LT Foods, Britannia, Dabur, Future Consumer, Hatsun Agro, Heritage Foods, Hindustan Unilever Ltd., ITC, KRBL Ltd., and Nestle-India. The independent variable of this study is leverage which was measured using Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL), Degree of Combined Leverage (DCL) and the dependent variable of this study is Profitability which is measured as Return on Total Assets (ROTA). (Ahmed, Salmaan, & Shamsi, 2015, [2])

II. RESEARCH DESIGN

A. Research Objective

- To understand the relationship between Leverage and Profitability.
- To analyse the performance of the companies in the food industry based on the relationship between Leverage and Profitability.

B. Research Question

- Is there a relationship between Leverage and Profitability with respect to food industry in India?

C. Hypothesis

- H0 - There is no relationship between Leverage and profitability with respect to food industry in India.
- H1 - There is a relationship between Leverage and profitability with respect to food industry in India.

D. Methodology

a. Method and Data Collection

For the purpose of this study, the secondary data required was gathered from the official websites of the chosen companies. The numeric values used for the purpose of analysis were taken from the annual reports of the respective companies.

b. Sample Size

There are several food industries which are listed in the Bombay Stock Exchange out of which, 10 companies were chosen at random for the purpose of this study. The data for one year i.e., of financial year 2019-20 was used in the variables in this study.

c. Variable Description

Profitability is used as a dependant variable in this study. It was measured as the ratio of EBIT and the total assets of the company which is called Return on Total Assets (ROTA). This measure is a comprehensive indicator showing how well a company utilizes its assets for generating profits.

ROTA = EBIT/ Total Assets

Leverage is used as the independent variable in this study. It was measured using the degree of operating leverage, degree of combined leverage and degree of financial leverage. These measures assess the ability of a company to pay their financial obligations.

DOL = Percentage change in EBIT/ Percentage change in Sales

DFL = Percentage change in EPS/ Percentage change in EBIT

DCL = DOL* DFL

d. Statistical Technique

The technique of Simple Linear Regression (SLR) will be used for testing the developed hypothesis. Since the dependent and the independent variables are on a numeric scale and considering the requirements of this study, the prediction ability of regression seems to be stronger as compared to other techniques. Thus, for this study the SLR technique is used for the purpose of analysis.

III. LITERATURE REVIEW

Singapurwoko and El-Wahid (2011): This research employed industry, business size, macroeconomics, and operational decision elements to comprehend the relationship between debt and profitability. The main purpose of the authors behind incorporating different factors was that industrial factors compensate other factors in determining company's profitability. The results revealed that in – "uncategorized data, debt, firm size, and operational decision effect positively significant, and macroeconomics effect insignificantly towards profitability". (Singapurwoko & El-Wahid, 2011, [17][18][19])

Akinlo and Asaolu (2012): In this study the authors analyzed the profit profiles of the Nigerian firms. They analyzed the impact of leverage on profitability for the period of 1999 to 2007. From the analysis of the available data, it was concluded that during the period of study the aggregate profit levels of the firms dropped every year. However, a few firms experienced a situation of profit when they were disaggregated into sectors. This shows the size of the firm has an effect on profitability where as leverage has a negative effect over the same. The authors also observed that due to low debt ratio, along with increase in sales and expansion - the profitability was enhanced. (Akinlo & Asaolu, 2012, [3][20][21][22])

Fengju, Fard, Maher and Akhteghan (2013): In this study, the effects of financial leverage on profitability were analysed. The authors also investigated the smoothing in certain companies which are listed in the Tehran Stock Exchange. The authors of this study used the financial reports of the companies chosen for the period of 2006 to 2010. About 60 listed companies were undertaken and analysed for the purpose of this study. They were chosen based on a systematic elimination manner. The process of analysis of the data was carried out using various statistical tools. The findings of this study revealed that there exists a relationship between financial leverage and profitability and there also exists smoothing in the companies. (Fengju, Fard, Maher, & Akhteghan, 2013, [9])

Barakat (2014): The aim of the study was to investigate the impact of financial leverage, financial structure and profitability on company's industrial value. Along with this the external environment of the firm was also analyzed. The companies selected for the purpose of this study were listed in Saudi Arabia. Data of about 46 companies were used for the purpose of conducting analysis. Several statistical tools were used by the authors for analysis of the data. It was concluded within the paper that – "there was weak and inverse relationship between financial leverage and stock value, and this relationship was not significant, so there is no statistically significant relationship between financial leverage and company's value. There was a positive relationship between capital structure and return on equity upon using multiple regression analysis; it was shown that the strongest relationship was between capital structure and dependent variable". Lastly, it was found that there is a clear impact of financial structure in company's value. (Barakat, 2014, [5][4])

Kumar (2014): In this study the authors analyzed the relationship between leverage and profitability in Bata India Limited. Through this study the authors wanted to analyze the performance of Bata India. for the purpose of this research paper, the data of 2006 to 2012 was collected. Various dependent and independent variables were used as a measure of profitability and leverage, respectively. The statistical tools like correlation, average, percentage, etc. were utilized for analysis of the data. That DFL of Bata was not in an optimum level, and that the leverage is positively correlated to the ROI. Lastly, the authors suggested that – thought the company's financial position is satisfactory still there is some scope of improvement and so, Bata should revise its capital structure policy. (Kumar, 2014, [15])

Ahmad, Salmaan and Shamsi (2015): The authors of this research paper made an attempt to investigate and establish a relationship between financial leverage and profitability. The study was done considering the cement industry of Pakistan. For the purpose of this study the authors managed to incorporate 18 cement manufactures out of the total of 21 in.

Pakistan and among the data of about six years was taken for the purpose of analysis. In the study it was found that there is an inverse impact of leverage on profitability of about 99%, statistically. (Ahmed, Salmaan, & Shamsi, 2015, [2])

IV. ABOUT THE COMPANIES

For the purpose of this study, 10 listed companies from the Indian food industry were choses, they are –

A. Britannia

With a legacy of over 100 years, Britannia is considered to be one of India's leading food companies. Its annual revenue exceeds Rs. 9000 crores. Britannia is the most trusted brand of India, offering brands like – "Good Day, Tiger, Nutri-Choice, Milk Bikis and Marie Gold". One of the largest brands in the bread market is Britannia. Its annual turnover is of about 1 lakh tonnes in volume and Rs. 450 crores in value. With presence in almost 60 countries, Britannia aims to rule the globe and serve people with their high-quality products. (Britannia, [6])

B. Dabur

Dabur India Ltd. has a revenue of over Rs. 7680 crore and market capitalization of about "Rs. 48800 crores". With a legacy of over 133 years in terms of quality and experience, Dabur has been the name for perfection. Dabur India is also a world leader in Ayurveda with a portfolio of "over 250 Herbal/Ayurvedic products". Dabur operates in the following consumer categories – **"**Hair Care, Oral Care, Health Care, Foods, etc.**".** Dabur's merchandise is currently sold in more than 100 countries worldwide and have a significant following in international markets. Its brands are highly popular in the - "Middle East, SAARC countries, Africa, US, Europe and Russia". Dabur's overseas revenue today accounts for over 27% of the total turnover. (Dabur, [8])

C. Future Consumer

One of the popular names in the FMCG sector is Future Consumer. It is a data and tech driven company. Branding of Food- "In food, the opportunity lies in branding as food itself is an under-branded category in the country. More than 670 million Indians today were born in the post-liberalization era (1990 onwards). Over 65 percent of the market is unbranded, according to estimates, with 1.3 billion people who are only just beginning to consume." Agri-sourcing- "Future Consumer has one of the leading Agri-sourcing operations in the country. The golden harvest of Indian farmers – rice, sugar, wheat, oil seeds, pulses, dry fruits, spices and much more are sourced through 51 centers across India for further grading, quality checks, processing, packaging and distribution." (Consumer, [7].)

D. Hatsun Agro

For over 5 decades, HAP has been proving great quality of dairy products in the market. HAP is well-established worldwide, having exported dairy components to 42 nations, primarily in America, the Middle East and South Asian markets. Their brands hold considerable share in the states of – Tamil Nadu, Andhra Pradesh, Telangana, Karnataka, Puducherry, Kerala, Maharashtra, Goa, Gujarat, Chhattisgarh and Odisha. (Agro, Hatsun, [1])

E. Hindustan Unilever

Unilever – They hold about 400 brand names across 190 countries. HUL – Holding a heritage of over 85 years in India, HUL is considered to be India's largest FMCG company. With 44 brands in 14 different categories, the company is a staple in millions of Indian consumers' daily lives. HUL is a subsidiary of Unilever, one of the world's leading suppliers of – "Food, Home Care, Personal Care and Refreshment products". (HUL, [12])

F. ITC

ITC has a Gross Sales Value of "Rs.74,979 crores and Net Profit of Rs. 13,032 crores", this year. ITC has a diversified presence in – "FMCG, Hotels, Packaging, Paperboards & Specialty Papers and Agri-Business". ITC's world class FMCG brands including "Aashirvaad, Sunfeast, Yippee! and others" have garnered encouraging consumer franchise within a short span of time. (ITC, [14])

G. Nestle

NESTLÉ India is a subsidiary of Switzerland's NESTLÉ S.A. Nestlé has more than "2000 brands" ranging from "global icons to local favorites", and we are present in "191 countries" around the world. This was how we started more than 150 years ago when Henri Nestlé created an infant cereal that saved the life of a child. (India, Nestle, [13])

H. LT Foods

In the year 1978, Mr. Vijay Kumar Arora began a small company in the village of Amritsar. Today, LT Foods is the leading processor of rice and other specialty foods in India. initial years, the brand only contributed 20% of its total revenue, now they contribute 70% of their total revenue. Their sub-brand- Daawat Basmat Rice. (Foods LT, [11])

I. Heritage Foods

The Heritage Foods Limited was founded by "Mr. Nara Chandrababu Naidu in the year 1992", which is one of the fastest growing Public Listed Companies in India, with two business divisions – "Dairy and Renewable Energy". The annual turnover of Heritage Foods stood at – INR 24,070 million in the financial year 2020-21. Currently, Heritage's milk and milk products have a market presence in – Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu, Maharashtra, Odisha, NCR Delhi, Haryana, Rajasthan, Uttarakhand & Uttar Pradesh. (Foods, Heritage, [10])

J. KSRB LTD.

The world's most popular Basmati brand set out on its journey when two enterprising brothers- Khushi Ram and Behari Lal who founded KRBL (formerly known as Khushi Ram Behari Lal) in 1889 at Lyallpur, known now as Faisalabad in Pakistan. Today, KRBL has its wings spread across all the Basmati eating regions like "Asia, Middle East, Europe, USA, Canada and Africa". In the year 2019-20, the total revenue of the company was – "Rs. 4,014 Crores". (Ltd., [16])

V. RESULT AND DISCUSSION

Companies	DOL	DFL	DCL
Britannia	-0.7555	-1.8434	1.3926
Hatsun Agro	2.7765	-0.0441	-0.1224
Dabur	0.48856	0.125	0.061
Hindustan Unilever	1.4626	1.7167	2.5109
Nestle	0.4573	1.5613	0.7141
ITC	2.1242	4.4248	9.3994
Future Consumer	-6128.9	0.0157	-965.8
LT Foods	1.0688	6.9502	7.4285
Heritage Foods	4.8579	2.0296	9.86
KRBL Ltd.	0.3518	3.3827	1.1903

E. Findings and Interpretation of Result

Sample of 10 companies in food industry listed in Bombay Stock Exchange was take. Statistical too- Simple Linear Regression was used for the purpose of this study. The technique identified and applied in this study was to analyze the relationship between the independent variable – Leverage and dependent variable- Profitability. Following is the interpretation result –

Table 1.1 – Model Summary

Model	Multiple R	R Square	Adjusted R Square	Standard Error	Observations
1	0.765619	0.586172	0.379258	2.3854	10

The model summary table explains the amount of variability in the dependent variable explained by the independent variable (Ahmed, Salmaan, & Shamsi, 2015, [2]). The value of Multiple R is - **0.765619**, which means that the independent variables are almost 76-77 percent related to each other. At the same time the value of R Square is - **0.586172** which is almost 57.49 % of variability in the dependent variable profitability is explained by the independent variable Leverage (Ahmed, Salmaan, & Shamsi, 2015, [2]). it also means that this model is fit for regression.

Table 1.2 – ANOVA

Model	df	SS	MS	F	Significance F
Regression	3	48.35919	16.11973	2.832926	0.128532
Residual	6	34.14081	5.69013		
Total	9	82.5			

ANOVA test is done to determine whether the regression model is valid or not. In this analysis, Significant F is **0.128532**, which more than **0.05**. Therefore, it means that the relationship between Leverage and Profitability is less significant and there is no impact on profitability.

Table 1.3 – Coefficients

Model	Coefficient	Standard Error	t-state	P-value
Intercept	3.338925	1.102541	3.028389	0.023146
DOL	-0.01807	0.044084	-0.40984	0.696152
DFL	0.796941	0.419817	1.898304	0.10642
DCL	0.110879	0.279327	0.396949	0.70514

Above table is concerned with the parameters of the regression model. Coefficients' table shows the significance of individual independent variable in explaining the dependent variable. From the above table, it can be observed that the P-value of DOL **(0.696152)**, DFL **(0.10642)**, and DCL **(0.70514)** is more than **0.05**, which implies that the result is not significant, which means there is no impact on profitability. This further proves that the null hypothesis is true.

F. Hypothesis Assessment

Hypothesis considered at the beginning of this study –

- H0 - There is no significant relationship between Leverage and profitability with respect to food industry in India.
- H1 - There exists a significant relationship between Leverage and profitability with respect to food industry in India.

After the analysis of the given that it can be concluded that the null hypothesis holds true, as both the P-value and the R square value is more than 0.05 (ideal value) which implies that the impact on profitability is not significant, meaning- the relationship between Leverage and Profitability is not significant or probably does not exist- when taking into account the 10 listed companies of the BSE which were chosen for the purpose of this study at the initial stage.

VI. CONCLUSION

This study investigated the relationship between Leverage and Profitability in the food industry of India. data of 10 listed companies were taken into account. It was hypothesized that there might or there might not exist a significant relationship between Leverage and Profitability. They were taken as alternative and null hypothesis, respectively. Post the analysis of data and the results obtained from it, it can be concluded that there does not exist any significant relationship between Leverage and Profitability. It is usually said that higher leverage means lower profitability and lower leverage means higher profitability. Therefore, when no significant relationship exists it clearly means that there is no impact on profitability, further meaning that the companies in the food industry are able to strike balance between debt and equity.

LIMITATION

This study was limited to the companies belonging to the food industry in India which were listed in the Bombay Stock Exchange. The data taken for the purpose of analysis was restricted to the last financial year i.e., 2019-20. The dependent variable profitability was measured by using only ROTA and the independent variable Leverage was measured using only DOL, DFL and DCL.

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