

Determinants of Leverage -A Study on Food and Beverage Sector

*** Dr. D. Vijayalakshmi**

* Assistant Professor, Department of B.Com (AM), PSGR Krishnammal College for Women, Peelamedu, Coimbatore, Tamilnadu, India

Abstract

Capital structure is the permanent financing of the company which represents primarily the shareholders' funds and debt funds. Debt funds (leverage) play an imperative role in designing the capital structure. The focal gain of the insertion of debt funds in the capital structure is the treatment of interest as tax deductible expense, which has a domino effect on relatively higher profits to the shareholders. India is basically an agricultural economy. Food and beverage sector plays a pivotal role in the economic development of a nation. In this backdrop, the study makes an attempt to identify and analyse the determinants of leverage of Indian Food and Beverage sector for the period 1995-96 to 2009-10. Year wise analysis, summary statistics and a panel data approach have been applied to analyse the data. The study reveals that the variables, namely, profitability, and size are the key determinants of leverage of Indian Food and Beverage sector.

Keywords: Capital structure, Leverage, Profitability, Size.

Introduction

Capital structure is the permanent financing of the company which represents primarily the shareholders' funds and debt funds. Debt is a liability on which interest has to be paid irrespective of the company's profits. While equity consists of shareholders' fund on which payment of dividend depends upon the company's profits. Debt funds (leverage) play an imperative role in designing the capital structure. The focal gain of the insertion of debt funds in the capital structure is the treatment of interest as tax deductible expense, which has a domino effect on relatively higher profits to the shareholders. A firm has to employ a proper mix of debt and equity funds to minimize the cost and the risk. Therefore, Firms have to analyse the factors determining the leverage before framing its capital structure. India is basically an agricultural economy. Food and beverage sector plays a pivotal role in the economic development of a nation. In this background, the present paper makes an attempt to identify and analyse the determinants of leverage of Indian Food and beverage Sector for the period 1995-96 to 2009-10.

Food and Beverage Sector

India is basically an agricultural economy. It is the second largest producer of food, next to China. It is the principal source of livelihood for more than 58 per cent of the population. The total turnover of the food market is approximately US\$ 69.4 billion, out of which, value-added food product comprise US\$ 22.2 billion. The government of India anticipates US \$ 21.9 billion of investments in food processing industry infrastructure by 2015. Indian food industry consists of main food products such as tea, sugar, dairy products, coffee, vanaspati, and other food products such as fruits and vegetables, meat and poultry, dairy, marine products, packaged food, beverages and packaged drinking water.

Review of Literature

Nejla Ould Daoud Ellili and Sherine Farouk (2011) have conducted a study on "Examining the capital structure determinants: Empirical analysis of companies traded on Abu Dhabi stock exchange". The objective of the study is to examine the factors affecting the capital structure of the companies. They have taken a sample of 33 companies for the year 2008-

2009 from industries, namely, telecommunication (4), construction (10), consumer (8), health care (2), industrial (4), energy (3) and real estate (2). The variables have been classified into capital structure variables and the capital structure determinant variables. The capital structure variables are total leverage, short term leverage and long term leverage. The capital structure determinant variables are asset structure, profitability, size, expected growth, uniqueness, operating risk, Industry (dummy variable) managerial ownership (the part of the capital held by the manager) and the age of the company. They have employed descriptive statistics and multivariate regression analysis to analyse the data.

The result has inferred that asset structure has a positive relationship with long term debt but negative with the short term debt, profitability has a negative impact on long term leverage and positively related to short term leverage, expected growth of the company has a positive impact on long term leverage and negative impact on short term leverage and the other variables such as size, uniqueness and the operating risk of the company have a positive impact on all the leverages. The study has concluded that the industries such as telecommunication, consumer and health care depend more on short term debt, while the other industries, namely, construction, industrial, real estate and energy have depended on the long term debt.

Sumikhare and Saima Rizvi (2011) have conducted a study on “Factors affecting the capital structure of BSE-100 Indian firms: A panel data analysis”. The objectives of the study are to examine the variables that impact debt-equity choice of a company and they have also identified which of the two theories, namely, trade off or pecking order is suitable for the Indian firms. The data have been collected for 69 firms from BSE 100 index. The study has covered a period of 10 years from 2000-2009. They have taken leverage as a dependent variable and the independent variables, such as, tangibility, size, depreciation to total assets, depreciation over operating profit, profit margin on sales, return on assets and growth opportunities. They have applied panel data model to analyse the data. A random effect model has been fitted to panel data analysis. The result has shown that the variables, namely, profitability, return on asset and profit margin on sales are found to be significant. The result has supported the pecking order theory.

Theories of Capital Structure

The capital structure is one of the most important debatable issues in the field of finance. The Modigliani and Miller (1958) have made the first attempt to explain the relationship between capital structure and the firm value. The capital structure has been revisited by many theories, such as, pecking order theory, static trade off theory, agency theory and signaling theory.

Pecking Order Theory

The pecking order theory has been first framed by Donaldson in 1961. According to him, a firm has a well structured order of preference for raising funds. Whenever a firm need funds, it will rely as much as possible on internally generated funds. If the internally generated funds are not sufficient to meet the financial needs, the company has to move to rising of debt funds in the form of term loans and then to non- convertible bonds and debentures and then to convertible bonds instruments and quasi- equity instruments. After the exhaustion of all other resources, the final choice for the firm is to raise funds through issue of new equity shares. The theory presumes that:

- i) The cost of employing internally generated funds is the lowest because it has no issue cost.
- ii) Raising of debt fund is a cheaper source of finance as compared to issue of equity shares.
- iii) Raising of debt funds through term loans is cheaper than issuing bonds or debentures.

- iv) Issue of new equity capital involves high issue cost
- v) The cost of servicing of debt capital is relatively less as compared to servicing of equity capital.

The pecking order theory proposes that:

- i) A firms' dividend policy decision depends upon its leverage position and investment decision.
- ii) Internally generated funds has been preferred than external financing
- iii) If external financing is needed , debt is preferred than equity
- iv) Issue of new equity for raising additional funds has been considered as the last choice.
- v) **Modified Pecking Order Theory**

This theory has been modified by Myers in 1984. According to Modified Pecking order theory, the order of preference for raising finance arises because of the existence of asymmetric information between the market and the firm. He has argued that because of the asymmetric information, the market may undervalue the project and the firm may prefer internal funds, followed by debt as compared to issue of new equity shares for financing the projects.

Static-trade off Theory

According to Static trade off model, the tax benefit – bankruptcy cost trade off models have predicted that companies seek to maintain an optimal capital structure by balancing the benefits and the costs of debt (DeAngelo and Masulis, 1980).

The benefits include the tax shield whereas the costs include expected financial distress costs. This theory has predicted that companies maintain an optimum capital structure where the marginal benefit of debt equals the marginal cost. The implication of the trade-off model is that companies have target leverage and they adjust their leverage towards the target over time.

Agency Cost Theory

Agency cost theory has been first introduced by Jensen and Meckling (1976). They focused on the relationship between the shareholders (the principal) and the manager. In particular, the managers do not always act in the interest of the shareholders and consequently the goal is not always to maximize the value of the company. In fact, the managers can adopt an opportunistic behaviour and seek to benefit from the agency relationship. Such a conflict of interest will create agency costs and requires some remedy measures. They have proposed to increase the level of debt to concentrate a larger part of the capital structure between the hands of the manager and to incite the shareholders to increase the value of the company. According to agency theory, the financing choices are those which minimize the agency cost and increase the shareholders' wealth. The financial model resulting from this theory considers the debt as a device allowing the reduction of discretion and moral hazard of the managers.

Signaling Theory

The Signaling Theory has been originally developed by Leland and Pyle (1976) and Rose (1977). According to Leland and Pyle the value of a company is positively correlated with the managerial ownership and each change noticed on the level of the managerial ownership results in a modification in the financial policy followed by a new value of the company. He has argued that the higher is the managerial ownership in the capital of the company, the larger is the debt capacity. Such strong ownership is highly recognized by the bond holders and signals confidence in the future investments.

According to Rose (1977), the managers have been informed about the company's profitability than external investors. They know the true distribution of the company

returns, but investors do not. He has argued that higher financial leverage can be used by the managers to signal an optimistic future of the company since the debt is a contractual obligation to repay both principal and interest. He has stressed that the usage of more debt in the capital structure is a good signal of the managers' optimism about their companies.

Objectives of the Study

- To analyse the leverage position of Indian Food and Beverage sector
- To analyse the determinants of leverage of Indian Food and Beverage Sector

Hypotheses

The following null hypotheses have been framed for the purpose of the study:

- H₀₁: The variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on LTD ratio
- H₀₂: The variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on STD ratio
- H₀₃ : The independent variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on TDTA ratio

Research Methodology

Frame work of the study

The dependent variables taken to represent the leverage are Long term debt ratio, Short term debt ratio and Total debt to asset ratio.

Dependent Variables	Formulae
Long term debt ratio (LTD)	Long term debt / Total assets
Short term debt ratio (STD)	Short term debt / Total assets
Total debt to total asset ratio (TDTA)	Total debt / Total assets

Determinants of Leverage

Leverage depends on many factors, both internal and external. The following variables have been considered to study the determination of the leverage

Independent Variables	Formulae
Profitability	PBIT net of P&E / Total assets
Size	Natural logarithm of total assets
Tangibility	Net fixed assets / Total assets
Non debt tax shield (NDTS)	Depreciation + Amortization / Total assets
Growth	Growth rate in total assets
Business Risk (BR)	Standard deviation of PBIT net of P&E
Liquidity	Current assets / Current liabilities and provision
Free cash flow to total assets (FCFTA)	PAT net of P&E + depreciation / Total assets
Cost of borrowing (COB)	Interest paid / Total Borrowing
Tax rate (TR)	PAT net of P&E 1 - _____ PBT net of P&E

Sample and Sampling design

The food and beverage sector have in total 1756 firms, of which 103 firms have been listed at NSE and 358 firms have been listed at BSE. Out of 130 firms which have been listed both at BSE and NSE, those firms which have satisfied the following conditions have been selected for the study.

- i) Firms having a continuous data for 15 years from 1st April 1995 to 31st March, 2010.
- ii) Firms which have a positive net worth throughout the study period.
- iii) Firms which have total assets of more than 100 crores as on 31st March, 2010.

There are 28 manufacturing firms (excluding multinational corporations and government companies) which have satisfied all the above parameters. Accordingly, 28 (21.5 per cent) firms constitute the sample for the study, based on the purposive sampling technique applied. The data has been collected from PROWESS 3.1 version maintained by Centre for Monitoring Indian Economy Pvt Ltd. The study has covered a period of 15 financial years from post-liberalisation era, namely, 1995 -1996 to 2009- 2010.

Tools for Analysis

Summary Statistics

Summary statistics, such as, mean, median, standard deviation, co-efficient of variation, skewness and kurtosis have been applied to study the characteristics of the selected ratios. The growth measure namely, Annual Growth Rate (AGR) has been computed to study the growth of the ratios.

Panel Data Analysis

Pooled OLS Regression

Pooled Ordinary Least Square is an ordinary regression equation type

$$Y_i = a + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} \dots + b_nX_{ni} + u_i$$

where X_1, X_2, \dots, X_n are independent variables

and Y_i the dependent variable

u_i , error term

with $i = 1 \dots n$ observations.

In the pooled regression approach, the effect of period (years) is ignored and regression analysis is carried out with normal estimation procedure.

Panel Data Regression

Panel data is a dataset in which the behaviors of individuals are observed cross time. These individuals could be states, companies, persons, countries, etc.,. It facilitates analysis of cross-sectional and time series data. So it is also known as longitudinal or cross sectional time-series data. Panel data regressions are considered to be the most useful tools when it is suspected that the outcome (dependent) variable depends on explanatory variables which are not observable directly but correlated with other observed variables. If these unobserved variables are constant over time, panel data estimators allow to consistently estimating the effect of observed explanatory variables. The advantages of using panel data as compared to running the models using separate time series and cross section data are as follows:

- Considers large number of data points
- It controls the individual heterogeneity and therefore the risk of obtaining biased results are minimized.
- Increases degrees of freedom and reduces collinearity

- Improves efficiency of estimates and
- Broadens the scope of inference

Two basic models of panel data regression have been used in this study.

Model 1: Panel Data Regression with Fixed Effect.

Fixed-effect (FE) model may be used in analyzing the impact of variables that vary over time. Fixed Effect explores the relationship between predictor and outcome variables within an Individual. Each individual has its own unique characteristics that may or may not influence the predictor variables (for example business practices of a company may influence its stock price).

The equation for the fixed effects model is:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

where

- α_i ($i=1 \dots n$) is the unknown intercept for each individual (n individual -specific intercepts).
- Y_{it} is the dependent variable where i = individual and t = time.
- X_{it} represents one independent variable
- β_1 is the coefficient for that independent variable,
- u_{it} is the error term

Model 2: Panel Data Regression with Random Effects

The assumption behind Random effects (RE) model is that, unlike in the fixed effects model, the variations across individuals is assumed to be random and is uncorrelated with the predictor or independent variables included in the model; If the differences across individuals have some influence on the dependent variable then Random effects models may be used.

The equation for the Random effects model is:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it}$$

where

u_{it} – error variation between the individuals

ε_{it} - error variation within the individuals

Random effects assume that the individual's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables.

This study has used all the three models (pooled OLS, FE and RE) and further, two tests have been carried out to decide the appropriateness of these three models. Initially, the Lagrange multiplier test has been applied to find the existence of panel effect in the values.

The classical model (Pooled OLS) and the Random Effect model are compared and when there is no panel effect, the pooled OLS will be chosen for further analysis; otherwise, the Random Effect model will be chosen for the next step of application. As a second step, the Random Effect model is compared with Fixed Effect model using Hausman Specification test and the appropriate model is chosen for further analysis based on the significance of the chi-square value.

Results and Discussions

Leverage Position

The year wise analysis and summary statistics of leverage position has been presented in the table 1 for the study period from 1st April 1995 to 31st March 2010.

Table 1: Leverage Measures

Years	Long term debt ratio (LTD)	Short term debt ratio (STD)	Total debt to total asset ratio (TDTA)
1996	.183	.386	.569
1997	.224	.375	.583
1998	.214	.346	.560
1999	.189	.360	.549
2000	.187	.385	.571
2001	.166	.387	.553
2002	.165	.369	.535
2003	.159	.379	.538
2004	.162	.389	.550
2005	.177	.383	.560
2006	.188	.346	.533
2007	.189	.360	.549
2008	.207	.388	.595
2009	.208	.384	.592
2010	.200	.396	.596
Mean	0.188	0.376	0.562
Median	0.188	0.383	0.560
S.D	0.020	0.016	0.021
C.V	10.596	4.126	3.828
Skewness	0.175	-0.873	0.368
Kurtosis	-0.874	-0.389	-1.086
AGR	0.985	0.310	0.392

Source: Computed

The table 1 reveals that the sector has registered an increasing trend in the leverage measures during the year 2004, 2007 and 2008. A decreasing trend has been noticed during the years 1998, 2002, 2006 and 2009. skewness has been positive for the variables, such as, LTD ratio and TDTA ratio and negative for short term debt ratio. The sector has recorded a negative kurtosis for the variables, namely, LTD ratio, STD ratio, and TDTA ratio. The sector has shown a positive annual growth rate for all the ratios.

Determinants of Leverage

Long Term Debt Ratio

The following null hypothesis has been framed to find whether the selected variables have a significant influence on long term debt ratio:

H₀₁: “The variables, namely, profitability, size, tangibility, NDTs, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on LTD ratio”

**Table 2: Long Term Debt Ratio
Pooled OLS and Panel Data Regression**

	Pooled OLS			Fixed Effect			Random Effect		
	B	T	Sig.	B	t-value	Sig.	B	z-value	Sig.
(Constant)	-0.0763300	-1.688	NS	-.0237635	-0.57	NS	-.0221681	-0.50	NS
Profitability	1.4580000	5.760	**	.0779118	0.42	NS	.1781601	0.94	NS
Size	0.0193500	2.699	**	.027816	4.27	**	.0257761	4.02	**
Tangibility	0.2440000	5.576	**	.2614396	6.45	**	.2621819	6.59	**
NDTS	2.6890000	5.234	**	-.3275671	-0.84	NS	-.0796927	-0.20	NS
Growth	-0.0000306	-1.650	NS	-.0000228	-1.73	NS	-.0000228	-1.70	NS
Business Risk	0.0001071	.639	NS	-.0000799	-0.77	NS	-.0000624	-0.59	NS
Liquidity	0.0032070	1.389	NS	.0000762	0.04	NS	.000439	0.22	NS
FCFTA	-1.7740000	-5.884	**	-.3227752	-1.45	NS	-.427779	-1.90	NS
COB	-0.0517100	-6.736	**	-.0209672	-4.40	**	-.0228889	-4.69	**
TR	0.0146100	.706	NS	-.0125916	-1.01	NS	-.0099929	-0.78	NS
R²	.381			0.3131			0.3108		
F-statistic	19.630		**	13.42		**			
Wald (chi-square)							151.40		**
Hausman (chi-square)				30.09		**			
LM (chi-square)							636.66		**

Source: Computed ** significant at 1 per cent level

It is clear from the table 2 that the regression coefficients signs have been similar in both the FE and RE models and they differ in the pooled OLS model. The R² values have shown a moderate correlation between the independent variables and the LTD ratio. The F-value and Wald chi-square have shown a significant correlation between the selected independent variables and the LTD ratio.

The Lagrange Multiplier (LM) test has been employed to find whether the panel effect exists or not. The value of chi-square (636.66) is significant at one per cent level. Hence, the RE model has been preferred to pooled OLS model.

The Hausman test has been applied to test the effectiveness of FE model and RE model. It has revealed that the value of chi-square (30.09) is significant at 1 per cent level; hence,

the FE model has been preferred to find out the determinants of capital structure or Leverage. Among all the three models applied, the FE model serves as an appropriate model for further analysis.

The FE model shows that the variables, namely, size and tangibility have a significant positive influence on LTD ratio. The COB has a significant negative influence on LTD ratio. Hence, the null hypothesis has been rejected for these variables.

Majority of the variables, namely, profitability, NDTs, growth, BR, liquidity, FCFTA and TR have not had a significant influence on LTD ratio. Hence, the null hypothesis has been accepted for these variables.

Thus, it is concluded that size, tangibility and the COB have influenced the leverage (LTD ratio) of the Food and Beverage sector during the study period.

Short Term Debt Ratio

The following null hypothesis has been framed to find whether the selected variables have a significant influence on short term debt ratio:

H₀₂ : “The variables, namely, profitability, size, tangibility, NDTs, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on short term debt ratio”

**Table 3: Short Term Debt Ratio
Pooled OLS and Panel Data Regression**

	Pooled OLS			Fixed Effect			Random Effect		
	B	T	Sig.	B	t-value	Sig.	B	z-value	Sig.
(Constant)	0.4470000	9.392	**	.4212309	7.95	**	.4311422	8.13	**
Profitability	1.4670000	5.510	**	1.09754	4.61	**	1.137237	4.84	**
Size	0.0006402	.085	NS	.0193181	2.32	*	.016492	2.09	*
Tangibility	-0.4090000	-8.889	**	-.4335035	-8.38	**	-.4454294	-9.10	**
NDTS	1.1670000	2.158	*	.8988971	1.81	NS	.9739918	1.99	*
Growth	0.0000864	4.431	**	0.00000463	0.27	NS	.000014	0.84	NS
BR	-0.0003612	-2.046	*	-.0001454	-1.10	NS	-.0001637	-1.24	NS
Liquidity	0.0007688	.316	NS	-.0071428	-2.75	**	-.0056305	-2.26	*
FCFTA	-1.8350000	-5.782	**	-1.40801	-4.95	**	-1.45818	-5.19	**
COB	0.0461600	5.714	**	.0194518	3.20	**	.0217835	3.57	**
TR	0.0136100	.625	NS	.0012768	0.08	NS	.0028054	0.18	NS
R²	.464			0.2984			0.2965		
F-statistic	27.642			12.53			**		
Wald (chi-square)							161.56		
Hausman (chi-square)				16.49			NS		
LM (chi-square)							455.90		

Source: Computed * significant at 5 per cent level ** significant at 1 per cent level

The table 3 has revealed that the regression co-efficient signs have been similar for all the independent variables, in all the three models, except, for the variable- liquidity in the Pooled OLS model. The R² values have shown a moderate correlation between the selected independent variables and the STD ratio in all the three models. The F value and the Wald-chi square value have a significant correlation between the selected independent variables and the STD ratio.

The LM test has revealed that the chi-square value (455.90) is significant at one per cent level implying the existence of panel effect; thereby, the RE model is preferred to Pooled OLS model.

The Hausman specification test has depicted that the value of chi-square (16.49) is not significant; thereby, the RE model is found more effective. In all the three models applied, the RE model has been taken for further analysis.

The RE model has revealed that the variables, namely, profitability, size, NDTS and COB have a significant positive influence on STD ratio and the variables, such as, tangibility, liquidity and FCFTA have a significant negative influence on STD ratio. Hence, the null hypothesis has been rejected for these variables.

The three independent variables, namely, growth, BR and TR have not had a significant influence on STD ratio in respect of these variables.

In general, it is found that the leverage (STD ratio) of the food and beverage sector has been influenced by profitability, size, NDTS, COB, tangibility, liquidity and FCFTA during the study period.

Total Debt to Total Asset Ratio

The following null hypothesis has been framed to find whether the selected variables have a significant influence on total debt to total asset ratio:

H₀₃ : “The independent variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on TDTA ratio”

**Table 4: Total Debt to Total Asset Ratio
Pooled OLS and Panel Data Regression**

	Pooled OLS			Fixed Effect			Random Effect		
	B	t	Sig.	B	t-value	Sig.	B	z-value	Sig.
(Constant)	0.3710000	6.818	**	.3974674	8.08	**	.4049045	7.65	**
Profitability	2.9250000	9.616	**	1.175451	5.32	**	1.27591	5.74	**
Size	0.0199900	2.320	*	.0471342	6.11	**	.0438811	5.77	**
Tangibility	-0.1650000	-3.144	**	-.1720639	-3.58	**	-.1789039	-3.79	**
NDTS	3.8550000	6.244	**	.57133	1.24	NS	.809867	1.75	NS
Growth	0.0000558	2.507	*	-.0000182	-1.16	NS	-.0000129	-0.82	NS
BR	-0.0002541	-1.260	NS	-.0002253	-1.84	NS	-.0002214	-1.78	NS
Liquidity	0.0039760	1.432	NS	-.0070665	-2.93	**	-.0059098	-2.48	*
FCFTA	-3.6100000	-9.957	**	-1.730785	-6.55	**	-1.841002	-6.93	**
COB	-0.0055460	-.601	NS	-.0015154	-0.27	NS	-.0017387	-0.30	NS
TR	0.0282200	1.134	NS	-.0113148	-0.76	NS	-.0083936	-0.56	NS
R²	.330			0.2913			0.2892		
F-statistic	15.748			12.10			**		
Wald (chi-square)							132.08		
Hausman (chi-square)				23.10			*		
LM (chi-square)							651.63		

Source: Computed * significant at 5 per cent level ** significant at 1 per cent level

It is inferred from the table 4 that the regression coefficient signs have been similar in the FE and RE model, whereas the Pooled OLS model has different signs. The R² values have shown a moderate correlation between the selected independent variables and the TDTA

ratio in the pooled OLS model. The F test and Wald Chi-square test have disclosed a significant correlation between the selected independent variables and TDTA ratio.

The LM test has shown that the chi-square value (651.63) is significant at one per cent level, which reveals the existence of panel effect. Hence, the RE model has been chosen for further application.

The result of Hausman specification test has depicted that the chi-square value (23.10) is significant at five per cent level implying that the FE model is more appropriate than the RE model. Hence, among all the three models applied, the FE model has been logically selected for further analysis.

The FE model has inferred that the variables, namely, profitability and size have a significant positive influence on TDTA ratio and the variables, namely, tangibility, liquidity and FCFTA have a significant negative influence on TDTA ratio. Hence, the null hypothesis has been rejected in respect of these variables.

The variables, namely, NDTS, growth, BR, COB, and TR have not had a significant influence on TDTA ratio. Hence, the null hypothesis has been accepted for these variables.

In general, it is found that the leverage of the food and beverage sector has been influenced by profitability, size, tangibility, liquidity and FCFTA during the study period.

Conclusion

The study has concluded that profitability and size are the key determinants of leverage of Indian food and beverage sector. The findings of the study have endorsed the prescriptions of the trade off theory and signaling theory.

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List of Abbreviations

CMIE	Centre for Monitoring Indian Economy
BSE	Bombay Stock Exchange
NSE	National Stock Exchange
LM	Lagrange Multiplier
FE	Fixed Effect
RE	Random Effect
OLS	Ordinary Least square
AGR	Annual Growth Rate
LTD	Long Term Debt
STD	Short Term Debt
TDTA	Total debt to Total Asset
NDTS	Non Debt Tax Shield
BR	Business Risk
FCFTA	Free Cash Flow to Total Assets
COB	Cost of Borrowing
TR	Tax Rate

Food and Beverage Sector

S.No	Name of the Companies
1	ADF Foods Ltd
2	Agro Dutch Industries Ltd
3	Anik Industries Ltd
4	Avanti Feeds Ltd
5	Bannari Amman Sugars Ltd
6	Dalmia Bharat Sugar & Industries Ltd
7	Dharani Sugars & Chemicals Ltd
8	E I D - Parry(India) Ltd
9	Godfrey Phillips India Ltd
10	Gujarat Ambuja Exports Ltd
11	Harrisons Malayam Ltd
12	Heritage Foods (India) Ltd
13	IFB Agro Industries Ltd
14	Jagatjit Industries Ltd
15	Jay Shree Tea & Industries Ltd
16	KLRF Ltd
17	KRBL Ltd
18	KS oils Ltd
19	Kohinoor Foods Ltd
20	Kwality Dairy (India) Ltd
21	Madhusudan Industries Ltd
22	Murli Industries Ltd
23	Parrys sugar Industries Ltd
24	Rajshree sugars & chemicals Ltd
25	Ruchi Soya Industries Ltd
26	Sanwaria Agro Oils Ltd
27	Tata Global Beverages Ltd
28	Venky'S (India) Ltd