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CRITICAL FACTORS OF BORROWING IN FOOD PROCESSING INDUSTRY OF INDIA

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Abstract *Financial performance of a firm is a function of its financing sources which are affected by firm-specific as well as market-specific factors. Though substantial literature is available on capital structure, there are very few studies which have concentrated on Indian food processing industry. The research paper investigates the factors affecting the financing choice of a company considering its relative size and market share. On the basis of literature review, eight important factors are identified and their impact on the long-term and short-term borrowings have been tested using multiple regression model on balanced panel data of 40 firms for 5 years (2014 – 2018). The study concludes that tangibility, liquidity, growth opportunities and operating cash flows are major determinants of long-term and short-term liability. The paper has also found that small firms primarily borrow more with high profit whereas medium and large firms prefer equity and retained earnings as profits increases.*

Keywords: *Borrowings, Food Processing Industry, Market Share, Asset Size*

INTRODUCTION

Finance management, in its literary terms, is defined as an approach of managing money. Modern business practices have brought a radical change in this definition and finance managers must redefine their roles. One of the major challenges that modern finance managers face is to decide about the source of funds. Conventionally, a business may be funded by owners' funds (Equity) or borrowed funds (Debt). Both sources are like two sides of a coin, encompassing their own pros and cons. Issuing debt will act as tax shield as interest payment is tax-deductible and it does not dilute the decision authority of managers as well. On the contrary, equity funds do not require fix coupon payment and can help in maintaining the cost of financial distress. Excessive debt creates a financial burden on firms and enhances the risk of bankruptcy. Whereas only equity issue results into a higher cost of funds as it is riskier from investors' viewpoint. Capital structure decision has remained a controversial issue for scholars to research on as well as it's a vital decision for managers to make and hence factors affecting financing decision needs to be understood.

David Durand (1952) has pioneered in the research work on CS in the form of "Net Operating Approach" concluding that the value of the firm is independent of financing decision. Modigliani and Miller (1958, 1963) have enlightened the issue of financing decision with their "Theory of Irrelevance" and confined the conclusion given by David Durand (1952). In 1963, Ezra Solomon had contradicted the irrelevance approach and stated that higher debt can reduce the overall cost of funds as cost of debt is lower than that of equity. Besides financial factors, Donaldson (1961) (Pecking Order Theory), Jensen and Meckling (1976) (Agency Cost Theory) and Myers (1984) (Static Trade-off Theory) have highlighted other behavioural and non-financial aspects of CS choice. Apart from theoretical studies, a lot of empirical inquiries are also conducted in the area of CS determinants but there is no concluding evidence over it. Every firm within the same industry does have differentiating characteristics which make managers choose debt or equity-based on firm-specific factors. Current research work will highlight the significant factors affecting the CS choice of food processing industry by sub-grouping the sample companies based on their size and revenue to identify the firm-specific factors affecting CS. It also adds value to the existing pool of studies.

The research paper is constructed in eight broad sections starting with Introduction followed by Literature Review and Research Methodology. Fourth and Fifth sections encompass Data Analysis and Findings, and paper ends with practical implications, conclusion and further scope of research.

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LITERATURE REVIEW

Reviewing the existing literature helps in factor identification and methodologies followed by other scholars. It also aids to compare and contrast the present research work with research work carried earlier. The literature review has been done in two parts, i.e. Review of CS Theories followed by Review of empirical results.

Review of CS Theories

Theory of Irrelevance

NOI Approach, propounded by David Durand (1952), advocates that the value of the firm depends on business risk and its net operating profits. David has argued that the level of debt and equity alters the distribution of profits only and does not affect the value of firm. The irrelevance argument has gained more attention when Modigliani and Miller (1958) have stated that under perfect capital market and in absence of taxes, the choice of debt and equity does not alter the value of firm. Later, Modigliani and Miller (1963) have made a correction in form of tax benefits due to debt issue.

Pecking Order Theory

Pecking Order Theory, first recommended by Donaldson (1961) and later modified by Myers and Majluf (1984), does not emphasis on an optimal ratio of debt-equity but provides an order of financing which usually most of the firms follow. The theory states that profitable firms usually depend more on accumulated profits for financing new or existing projects which is followed by borrowings and the last preference is given to ordinary equity. As suggested by Fama and French (2004), firms with low profits may go for borrowings first as they experience short retained profits for funding. Pecking Order Theory concludes inverse relation between debt and profitability.

Agency Cost Theory

As suggested by Meckling and M.C. Jensen (1976), issue of debt or/and equity results into conflicting interest of managers & equity holders and between equity holders and lenders. Agency cost theory stresses on the issue of separation of ownership and control. Managers may take several decisions which are not in the interest of equity holders. Issue of debt reduces agency cost by enforcing financial control in form of compulsory interest payments.

Static Trade-off Theory

Stewart C. Myers (1984) has explained the existence of an optimal debt-equity ratio. Interest payment on debt acts as tax shield; but on the contrary, it also adds to cost of financial distress. The firm do a trade-off between cost and benefit by balancing its debt-equity proportions. Excessive issue of either debt or equity results into suboptimal value of the firm. According to Myers (2003), a firm should equate the PV of cost of financial distress with that of interest tax shield to arrive at an optimal CS. Murphy (2018) has developed a simple model to predict the cost of debt using static trade-off theory and empirical findings on cost of bankruptcy and financial distress.

Review of Empirical Studies

Bhaduri (2002) has conducted her research work on 363 Indian firms and studied the factors affecting the borrowing decisions of selected companies. The scholar has done an appreciable statistical analysis to provide a valid and concrete conclusion. Based on the study, the researcher has commented that Cash flow, Growth and Uniqueness of the firm significantly affect the debt choice. In addition, the study also concludes that information-based theory and agency theory can provide meaningful insights for the debt-equity choices of the sampled companies.

Chen (2004) have studied the factors affecting borrowing choices by taking a sample of 77 non-financial Chinese listed companies with a reference period of 6 years (1995 – 2000) and tested the applicability theories developed in Western countries. The author has concluded that the earning capacity and size of the company are negatively associated with debt whereas a direct relation is found between debt and growth as well as tangibility. Chen has also suggested a 'New Pecking Order', i.e. Chinese firms do prefer retained earnings followed by common stock and the last choice is given to debt.

Mallikarjunappa and Goveas (2007) have carried out their research work by taking pharmaceutical industry into consideration. By taking debt-equity ratio as proxy of leverage decision, they have tested the implication of selected variable on it. Researchers have found that debt service capacity, non-debt tax shield, liquidity and business risk are significant variables affecting leverage decision.

Karadeniz, Kandir, Balcilar and Onal (2009) have carried their research work on Turkish Lodging companies by selecting five companies with a data set of 5 years. The study reveals that tax rate, collateral value of asset and earnings on

asset are negatively associated with ratio of debt. The authors conclude that pecking order theory is partially applicable in Turkish lodging industry and there is no concrete evidence of application of trade-off or pecking order theory in its complete sense.

Kaur and Rao (2009), in their research work on Indian Cotton Textile Industry, have identified factors affecting CS and tested whether pecking order or trade off theory is applicable in the industry or not. They have commented that Growth, Profitability, Business Risk and Liquidity are the most crucial determinants of debt-equity choice. The study concludes that firm size and tangibility are insignificant. Authors have also found that instead of pecking order theory, the Indian Cotton Textile Industry is following trade-off theory.

Kouki and Said (2012) have emphasized the theories of market imperfection to explain the leverage of firms. They have selected 244 listed companies of France with study period of 11 years (1997–2007). The study was mainly focused on applicability of theories like market-timing, trade-off and pecking order in the French capital market. Based on the empirical findings, the authors suggested that French firms alters their borrowing levels based on a target debt-equity ratio affected by variables like size, profitability, growth and non-debt tax shield. As concluded in the study, companies in France mainly behave according to the trade-off and pecking order theory.

Ramaratnam and Jayaraman (2013) have analysed the factors affecting CS choice of Indian Pharmaceutical industry and found that asset Tangibility, Profitability and Non-debt Tax Shield are having significant impact on debt-equity choice of the firms studied. Handoo and Sharma (2014), by analysing 870 Indian listed companies for a period of 10 years (2001–2010), have found that among the selected factors Size, Tangibility, Growth, Profits, Rate of Taxes and Debt Service Capacity are the most significant factors affecting the leverage decision in Indian context.

Kaźmierska-Jóźwiak, Marszałek and Sekuła (2015), in their research work on Polish Industries, have tested relation between total debt ratio and selected exploratory variables. Based on statistical results, the scholars have commented that debt ratio is negatively affected by size, tangibility, growth rate and profitability. Besides, the study also highlights that pecking order theory can explain the borrowing choices among the selected companies more accurately as compared to other CS theories.

Hossain and Hossain (2015) have studied 74 listed manufacturing companies of Dhaka Stock Exchange using balanced panel data of 10 years (2002–2011). Research work indicates that capital structure choice is determined by all selected veriables jointly. Among the selected factors, Ownership by Managers is having a direct relation with debt-ratio whereas growth, earnings, free cash flow, debt service coverage ratio and payment of dividends possess inverse relation with the same. The study strongly recommends applicability of Static Trade-off and Pecking Order theory in Bangladesh.

Al-Duais (2016) have considered a sample of 711 Chinese listed companies to study how debt ratio affects corporate performance. Findings of the paper suggest that long term, as well as total borrowings, have favourable impact on financial performance whereas short-term loan reduces profitability of Chinese firms.

Rani, Narain and Dhawan (2016) have analysed 107 non-financial Indian firms using panel data of 10 years and identified that uniqueness, growth, size and profitability are major factors affecting leverage decision. The study also concluded that solvency, liquidity and collateral value of asset does not affect the funding choice of Indian firms.

Vijayalakshami (2016) has focused the study of capital structure in the Indian Transport Equipment Sector. Using data set for 15 years (1995–96 to 2009–10) and applying OLS and Pooled regression, the author has concluded that leverage is affected by Profitability, Size and Non-Debt Tax Shield among the selected factors.

Sathyanarayana, Harish and Kumar (2017) have studied the factors affecting leverage decision in multiple industries. The scholars have focused mainly on IT, Infrastructure, Capital Goods and FMCG industry. Based on data analysis (collected from 2006–2015), researchers have concluded that Profitability, Tangibility and Growth are major determinants of financing decision in Capital Goods and FMCG sector, whereas Size of the company has been found to be important factor for FMCG, Infrastructure and IT industry. Besides these factors, Business Risk has major implication for Infrastructure and IT industry.

Tripathi (2018) have conducted a study on company-specific as well as industry-specific factors affecting capital structure decision of automobile industry. Using pooled and panel data regression, the author concluded that profitability and size are the major determinants of the financing choice. Besides, the research also concludes mix implications of the pecking order and trade-off theory for individual companies whereas at industry level pecking order theory is strongly supported.

Zaman (2018) have studied 146 group firms in Pakistan to analyse the impact of group and bank affiliation on capital structure choice of firms. Scholar has sub-categorise the sample companies into bank-affiliated and non-bank affiliated, and found that bank-affiliated firms do behave in a different fashion as compared to the later one. The study also reveals that determinants like growth, tangibility, non-debt

tax shield and operating risk are having different impact on firms debt ratio based on their association/non-association with banks.

Ajmera (2019) has studied the impact of debt-equity ratio and long-term debt on the financial performance of paper manufacturing firms. By using panel data analysis, the author has concluded that selected capital structure variables affect all profitability measures, i.e. ROA, ROCE except for EPS.

RESEARCH METHODOLOGY

The present section is mainly focused on the construct of a research paper. It will highlight Research Objectives and Scope, Selection of Variables, Scope and Data Sources, Statistical Tools & Model Specification and Hypothesis.

Research Objectives

Primarily, the study will highlight factors which affect CS decision in food processing industry and their relative strength in determining optimal CS of a firm. The study will analyse the firm-wise differences in CS within the industry. The following objectives are intended to be fulfilled by carrying out the research work.

- To analyse the determinants of CS for the overall industry.
- To determine the factors affecting CS by grouping the firms based on Size (Total Assets) and Revenue (Net Sales).

Determination of Variables

Based on the review of existing literature, ten variables (Dependent and Exploratory) are identified and used for study.

Dependent Variables

Determinants of long-term borrowings are not necessarily same for short-term as well. To study impact differences of independent variables on debts with different maturities, instead of considering ratio of total debt, long-term and short-term debt are used as separate variables.

$$\text{Long}-\text{Term Liability Ratio}\left(\text{LTLR}\right)=\frac{\text{Long Term Debt}}{\text{Total Asset}}$$

$$\text{Short}-\text{Term Liability Ratio}\left(\text{STLR}\right)=\frac{\text{Short Term Debt}}{\text{Total Asset}}$$

Explanatory Variables

As suggested by various theories and research work, following determinants are considered for study.

Tangible Assets (TAS): Tangible assets mainly encompass the collateral capacity of the firm. Firms with high tangible assets can raise long-term debt by mortgaging those assets. Several research findings suggest a positive relation between debt and tangibility (Hossain & Hossain, 2015; Ramaratnam & Jayaraman, 2013; Chen, 2004) whereas studies like (Kouki & Said, 2012; Karadeniz, et al., 2009; Bhaduri, 2002) indicates negative or no relation.

$$\text{Tangible Asset}=\frac{\text{Net Fixed Assets}}{\text{Total Assets}}$$

Liquidity (LQD): Indicated by the current ratio of the company, Liquidity enumerates the cash convertibility of firms' assets. Liquid assets can be used to pay off debts or interest thereon. It can also be used for raising working capital finance. Scholars such as (Hossain & Hossain, 2015; Kaur & Rao, 2009) have concluded direct relation between liquidity and debt and several like (Mallikarjunappa & Goveas, 2007; Vijayalakshami, 2016) have concluded reverse.

$$\text{Current Ratio}=\frac{\text{Current Asset}}{\text{Current Liabilities}}$$

Opportunity of Growth (OPGR): Firms with higher growth opportunities usually require more funds to finance their projects and operations. The growth component is measured by percentage change in sales. Past studies (Kouki & Said, 2012; Rani et al., 2016; Chen, 2004) have indicated the positive impact of growth on borrowings. On the contrary, findings by (Hossain & Hossain, 2015; Kaur & Rao, 2009) show that higher growth induced a firm to reduce their borrowings.

$$\text{Opportunity of Growth}=\frac{\text{Sale}_{n}-\text{Sale}_{n-1}}{\text{Sale}_{n-1}}$$

Profitability (PRFT): Impact of profits on borrowings is highly debatable issue. Research findings like (Hossain & Hossain, 2015; Karadeniz et al., 2009; Ramaratnam & Jayaraman, 2013; Rani, et al., 2016; Chen, 2004) suggested

that profitable firms rely more on equity and retained earnings whereas another school of thought from (Kouki & Said, 2012; Vijayalakshami, 2016) states higher profits may result into higher borrowing as lenders show more confident for such firms.

$$\text{Profitability}(\text{ROA}) = \frac{\text{EBIT}}{\text{Total Asset}}$$

Rate of Tax (RTX): An Interest payment on borrowed funds is an allowable expense under tax laws and hence higher debt reduces the tax liability of firms. Modigliani and Miller (1963) have revised their 'Theory of Irrelevance' on the ground of tax advantages received by levered firms. A study by Karadeniz, et al. (2009) portrays a positive relation between tax rate and debt, whereas Handoo and Sharma (2014) have concluded negative relation.

$$\text{Tax Rate} = \frac{\text{Provision of Tax}}{\text{Profit Before Tax}}$$

Non-Debt Tax Shield (NDT): Besides, interest payments, depreciation and amortization of assets are also allowed as an expense under tax rules. Though debt reduces the tax burden, it may increase the cost of financial distress. Hence, companies do substitute debt tax shield with non-debt tax shield. Research work by (Mallikarjunappa & Goveas, 2007; Kaur and Rao, 2009; Vijayalakshami, 2016) suggests the direct impact of NDT on debt and others like (Hossain & Hossain, 2015; Ramaratnam & Jayaraman, 2013; Chen, 2004) suggest inverse.

$$\text{Non} - \text{Debt Tax Shield} = \frac{\text{Depreciation \& Amortisation}}{\text{Total Assets}}$$

Operating Cash Flow to Assets (OCFA): Higher cash flow may have either effect on borrowing decision of firms. Companies with high cash generation may attract lenders and can easily mitigate compulsory obligations. On the contrary, firms may start paying off its debt with cash surplus and reduces the debt component from its CS (Bhaduri, 2002; Vijayalakshami, 2016).

$$\text{Operating Cash Flow to Assets} = \frac{\text{Net Operating Cash Flows}}{\text{Total Assets}}$$

Debt-Coverage Capacity (DCC): Debt-Coverage Capacity indicates the ability of a firm to meet its interest obligation even if there is a reduction in EBIT. Higher debt-coverage ratio implies a higher borrowing rate (Mittal & Singla, 1992; Venkatesan, 1983) as a firm can meet its financial requirements easily.

$$\text{Debt} - \text{Coverage Capacity} = \frac{\text{EBIT}}{\text{Interest Expenses}}$$

Scope of the Research and Data Sources

The research work is focused on Indian food processing industry. As determinants of CS for firms may differ based on their relative size and market share, they will be classified into three groups based on these parameters, i.e., Size and Revenue. Based on size companies will be grouped as Small (Asset Value < 100 Cr.), Medium (100 Cr. to 500 Cr.) and Large (> 500 Cr.), and based on revenue it will be Low (Net Sales < 200 Cr.), Medium (200 Cr. to 700 Cr.) and High (> 700 Cr.)

Panel Data for the study period of 5 years (2013–14 to 2017–18) will be considered. For statistical analysis, various ratios from Annual Reports of Food Processing companies are calculated.

Statistical Tools and Model Specification

As the study involves variables that are interdependent; correlation and regression models are most suitable. To assess the impact of selected determinants on debt-ratios (LTLR and STLR), Multiple Regression model will be constructed using SPSS software. Presence of Multicollinearity and Auto Correlation is tested using the Variance Inflation Factor (VIF) and Durbin–Watson Statistics (D-W).

As the research is aimed at testing the effect of independent variables on short-term and long-term borrowings separately, two models are constructed as follows. Below mentioned models are used for each sub-category of the sample.

$$\text{LTLR} = \propto + \beta_1\text{TAS} + \beta_2\text{LQD} + \beta_3\text{OPGR} + \beta_4\text{PRFT} + \beta_5\text{RTX} + \beta_6\text{NDT} + \beta_7\text{OCFA} + \beta_8\text{DCC} + \varepsilon$$

$$\text{STLR} = \propto + \beta_1\text{TAS} + \beta_2\text{LQD} + \beta_3\text{OPGR} + \beta_4\text{PRFT} + \beta_5\text{RTX} + \beta_6\text{NDT} + \beta_7\text{OCFA} + \beta_8\text{DCC} + \varepsilon$$

Hypothesis

Main purpose of this research paper is to identify the determinants of the debt-equity choice of food processing industry in India. Considering stated objectives, the following null hypotheses are formulated.

H_{01}:	Asset Tangibility has no significant impact on Long Term Liability Ratio.	H_{09}:	Asset Tangibility has no significant impact on Short Term Liability Ratio.
H_{02}:	Liquidity has no significant impact on Long Term Liability Ratio.	H_{10}:	Liquidity has no significant impact on Short Term Liability Ratio.
H_{03}:	Opportunities of Growth has no significant impact on Long Term Liability Ratio.	H_{11}:	Opportunities of Growth has no significant impact on Short Term Liability Ratio.
H_{04}:	Profitability has no significant impact on Long Term Liability Ratio.	H_{12}:	Profitability has no significant impact on Short Term Liability Ratio.
H_{05}:	Tax Rate has no significant impact on Long Term Liability Ratio.	H_{13}:	Tax Rate has no significant impact on Short Term Liability Ratio.
H_{06}:	Non-Debt Tax Shield has no significant impact on Long Term Liability Ratio.	H_{14}:	Non-Debt Tax Shield has no significant impact on Short Term Liability Ratio.
H_{07}:	Operating Cash Flow has no significant impact on Long Term Liability Ratio.	H_{15}:	Operating Cash Flow has no significant impact on Short Term Liability Ratio.
H_{08}:	Debt Coverage Capacity has no significant impact on Long Term Liability Ratio.	H_{16}:	Debt Coverage Capacity has no significant impact on Short Term Liability Ratio.

ANALYSIS AND INFERENCES

Data analysis has been categorized into three parts. The first section deals with the analysis of serial correlation among selected variables. The second section highlights the regression outcome of models formulated earlier.

Correlation Analysis

Table 1 shows the pair-wise correlation among the selected variables. Long-term borrowings are positively and significantly related to Asset Tangibility and Non-Debt Tax Shield and inversely related to Liquidity, Profitability, Tax Rate, Operating Cash Flow and Debt-Coverage Capacity. The relation of said determinants with short-term borrowing is quite different from that of long-term borrowings. An only non-debt tax shield is directly associated with short-term loan whereas Profits, Liquidity and Operating Cash Flows are negatively related to the same. Overall, it shows that profitable firms prefer more of equity funds instead of borrowings.

Table 1: Correlation Analysis

	LTLR	STLR	TAS	LQD	OPGR	PRFT	RTX	NDT	OCFA	DCC
LTLR	1									
STLR	-.002	1								
TAS	.350**	.101	1							
LQD	-.192**	-.377**	-.371**	1						
OPGR	.011	-.081	-.061	.012	1					
PRFT	-.157*	-.789**	-.189**	.229**	.084	1				
RTX	-.142*	.004	-.012	-.063	-.013	.033	1			
NDT	.220**	.162*	.724**	-.232**	-.058	-.206**	.104	1		
OCFA	-.154*	-.349**	.173*	-.080	-.087	.446**	.051	.094	1	
DCC	-.179*	-.087	-.122	.148*	.097	.209**	.036	-.043	.219**	1

* - Significant at 5% level** - Significant at 1% level

Regression Analysis

Regression model for long-term liability of sales-based classified firms is depicted in Table 2. The stated data shows that models are statistically significant (P – values < 0.05). R-square states the strength of the model for predicting dependent variables which highest for high revenue firms i.e. 0.5287. It shows that 52.87% of changes in long-term borrowings can be explained by the variables included in the model. Similar interpretations can be drawn for other categories as well.

Table 2 also shows the regression result for asset-based firms. Although models are significant, the included variables can explain the changes in the capital structure for large-size firms more effectively. Out of the selected determinants, one (tax rate), two (tangibility, operating cash flow) and four (tangibility, liquidity, growth opportunities, operating cash flow) are found to be significant for small, medium and large-size firms, respectively.

As indicated by the statistical inferences in Table 3, models for short-term borrowing are found to be stronger than that of long-term borrowings for all sub-categories. It is also

found that food processing companies are more dependent on short-term funds. The selected determinants explain the changes in short-term borrowings effectively in case of medium and large firms both in case of sales and asset size.

Presence of Autocorrelation and Multicollinearity

Multicollinearity is tested by VIF and its highest value among all models is 7.3362. As indicated by Sangeetha and Gujarati (2007), the thumb rule range for VIF is 5 – 10 and the stated value is within the limit. The computed value of D-W statistics should range from 0 to 2 to control autocorrelation. The highest value of D-W test is 1.7909 which is also within the allowable limits.

$$LTLR = \propto + \beta_1 TAS + \beta_2 LQD + \beta_3 OPGR + \beta_4 PRFT + \beta_5 RTX + \beta_6 NDT + \beta_7 OCFA + \beta_8 DCC + \varepsilon$$

Table 2: Regression Model - 1

Parameters	Low Sales	Medium Sales	High Sales	Small Size	Medium Size	Large Size
Constant	0.2426	-0.0033	0.1486	0.1272	0.1336	0.1304
TAS	0.0543	0.5881**	0.3929**	0.1404	0.3748**	0.4727**
LQD	-0.0134	0.0349	-0.0458**	0.0535	-0.0169	-0.0476**
OPGR	-0.0025	-0.0782	0.0026	0.0077	-0.0026	0.0869*
PRFT	-0.5189***	0.0089	0.1025***	-0.3457	0.0217	0.0906
RTX	-0.3747**	-0.0051	-0.1469	-0.3176*	-0.0148	-0.1536
NDT	2.2512	-2.1729***	-0.3656	1.2957	-1.4011	-0.6826
OCFA	-0.4090***	-0.2286	-0.3563*	-0.3728	-0.3046***	-0.3940*
DCC	0.0000	0.0028	0.0000	-0.0002	0.0000	0.0000
R^2	0.3024	0.3352	0.5287	0.2536	0.2209	0.6282
Adj. R^2	0.2178	0.2309	0.4613	0.1365	0.1331	0.5699
F – Value	3.5763	3.2143	7.8529	2.1661	2.5173	10.7754
Sign. Value	0.0016	0.0049	0.0000	0.0459	0.0180	0.0000
D-W Stat	1.1314	0.9226	1.1135	1.1112	0.9905	1.7909
VIF	2.4933	2.4875	7.4214	3.3351	1.9021	7.3362

* - Significant at 5% level ** - Significant at 1% level *** - Significant at 10% level

$$STLR = \propto + \beta_1 TAS + \beta_2 LQD + \beta_3 OPGR + \beta_4 PRFT + \beta_5 RTX + \beta_6 NDT + \beta_7 OCFA + \beta_8 DCC + \varepsilon$$

Table 3: Regression Model – 2 Based on Sales

Parameters	Low Sales	Medium Sales	High Sales	Small Size	Medium Size	Large Size
Constant	0.3503	0.8635	0.6418	0.6547	0.8752	0.6709
TAS	-0.0823	-0.7375**	-0.4018	-0.3474***	-0.6162**	-0.5355*
LQD	-0.0880**	-0.1489**	-0.0895**	-0.2704**	-0.1617**	-0.0866**
OPGR	-0.0344*	-0.2173**	-0.0015	-0.0174	0.0026	-0.1731**
PRFT	0.8553**	-0.3429**	-1.7180**	0.8838**	-0.9080**	-1.6329**
RTX	-0.1072	-0.0112	0.6887**	-0.0677	-0.0049	0.5841**
NDT	-0.3914	2.3043***	-0.0035	1.2157	-0.5085	1.2290
OCFA	-0.3777***	0.0215	0.2050	-0.5318**	0.1627	0.1537
DCC	0.0000	-0.0152**	0.0000	-0.0005*	0.0003**	0.0000
R^2	0.3509	0.8306	0.9376	0.5225	0.5854	0.9447
Adj. R^2	0.2722	0.8040	0.9287	0.4475	0.5387	0.9361
F – Value	4.4605	31.2600	105.2766	6.9757	12.5355	109.0731
Sign. Value	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
D-W Stat	0.8192	1.5782	1.0105	1.0375	1.7835	1.2879
VIF	2.4933	2.4875	7.4214	3.3351	1.9021	7.3362

* - Significant at 5% level ** - Significant at 1% level *** - Significant at 10% level

FINDINGS

The current section highlights impact of each selected determinant on long-term and short-term borrowings as well as compare and contrast the findings of the paper with the past studies. The section also consists of hypothesis testing for each model.

Tangible Assets

Tangible assets are positively related to long-term borrowings indicating that firms with higher tangible assets to pledge use long-term debt. It is worthy to note that tangibility does not affect the borrowing decision of small size and low sales firms. Firms with medium to high sales and large in size can have better accumulation of tangible assets as compared to small firms. Short-term borrowings are negatively affected by asset tangibility indicating that firms that have less fixed assets borrow from short-term sources. The findings are in consensus with results of Awan and Amin (2014); Handoo and Sharma (2014); Chen (2004); Vijayalakshami (2016); Ramaratnam and Jayaraman (2013); Sathyanarayana, et al. (2017); Hussain and Miras (2015) and Hossain and Hossain (2015) whereas Kaźmierska-Jóźwiak, Marszałek, and Sekuła (2015) have contradicting results.

Liquidity

Except for large and high sales firms, liquidity is found to be insignificant factor affecting long-term loans. Higher liquidity results into lower borrowing as indicated in Table 2. In case of short-term borrowings, liquidity affects negatively and significantly (P-value < 0.01) for all categories of firms. With higher current assets, firms generate high cash flows for meeting its funding requirements. Researchers like Mallikarjunappa and Goveas (2007); Hussain and Miras (2015) and Hossain and Hossain (2015) have concluded negative relation between liquidity and borrowings. On the contrary, others like Awan and Amin (2014); Vijayalakshami (2016) and Kaur and Rao (2009) have found positive relation.

Opportunity of Growth

Growth opportunities show mix results in determination of borrowing structure of selected companies. Long-term debts are not significantly affected by sales growth (Vijayalakshami, 2016) whereas in case of short-term liabilities, higher growth results into fewer borrowings for large size firms. The result contradicts with findings of Handoo and Sharma (2014) and Sathyanarayana et al. (2017). It indicates that with higher growth rate firms can meet their investment needs from internal sources. Such relation is also observed by Kaźmierska-Jóźwiak, et al. (2015); Kaur and Rao (2009) and Hossain and Hossain (2015).

Profitability

Profitability is found to be a weak predictor of long-term borrowings in case of the food processing industry. It has mix but insignificant impact on long-term liabilities. On the contrary, profits are having a significant and critical impact on short-term debt. The results indicate that firms with low sales and small size will borrow more when profits rise. Once firms reach to medium to high sales and grow in terms of size, they reduce the level of borrowings showing negative relation between profits and short-term liabilities. Hence, it is important to note that firms' borrowing strategies changes with change in its relative market share and asset size. Authors such as Melwani (2019) Vijayalakshami (2016); Kaur and Rao (2009) have confirmed the positive impact of profits on borrowings and Awan and Amin (2014); Kaźmierska-Jóźwiak et al. (2015); Handoo and Sharma (2014); Chen (2004); Ramaratnam and Jayaraman (2013); Sathyanarayana et al. (2017); Hussain and Miras, (2015) and Hossain and Hossain (2015) have concluded the inverse relation.

Rate of Tax

Effective rate of tax is found to be an insignificant factor determining long-term loan except for small-size and low sales firms. Such insignificant results are also found by Awan and Amin (2014) and Rani et al. (2016). These firms show inverse relation between borrowing and tax rate, which contradicts the theatrical literature. The tax rate is having positive and significant impact on short-term borrowings in the case of large-size firms and other category firms shows insignificant relation. The results contradict with Handoo and Sharma (2014) and Vijayalakshami (2016).

Non-Debt Tax Shield

Statistical results do not convey any significant relation between NDS and borrowings of both kinds. The findings are not in consensus with Awan and Amin (2014); Vijayalakshami (2016); Kaur and Rao (2009) and Mallikarjunappa and Goveas (2007) who have found positive relation nor with Chen (2004); Ramaratnam and Jayaraman (2013) and Hossain andHossain (2015) who shown negative relation. Researchers such as Rani et al. (2016) and Sathyanarayana et al. (2017) have also concluded same results.

Operating Cash Flows

Cash flows are having significant and negative impact on long-term borrowings only case of high sales and large size firms. Results indicate that firms with high cash flow use owners' fund instead of borrowings. Empirical results from Vijayalakshami (2016) and Hossain and Hossain (2015) have found negative relation between borrowing level and cash flows. Cash flow does not have significant effect on short-term borrowings other than for small size firms as indicated by Table 3.

Debt - Coverage Capacity

Based on empirical results, DCC has not found to be a determinant of long-term borrowing in case of food processing firms in Indian context. Such results contradict findings of Handoo and Sharma (2014); Mallikarjunappa and Goveas (2007) and Hossain and Hossain (2015). DCC also found to be insignificant factor affecting short-term borrowings in case of large size and high sales firms.

HYPOTHESIS TESTING FOR MODEL – 1

Description of Hypothesis Low Sales		Sale Base Classification			Asset Base Classification		
		Medium Sales	High Sales	Small Size	Medium Size	Large Size	
H_{01}:	Asset Tangibility has no significant impact on LTLR	Accepted	Rejected	Rejected	Accepted	Rejected	Rejected
H_{02}:	Liquidity has no significant impact on LTLR	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected
H_{03}:	Opportunities of Growth has no significant impact on LTLR	Accepted	Accepted	Accepted	Accepted	Accepted	Rejected
H_{04}:	Profitability has no significant impact on LTLR	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
H_{05}:	Tax Rate has no significant impact on LTLR	Rejected	Accepted	Accepted	Rejected	Accepted	Accepted
H_{06}:	Non-Debt Tax Shield has no significant impact on LTLR	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
H_{07}:	Operating Cash Flow has no significant impact on LTLR	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected
H_{08}:	Debt Coverage Capacity has no significant impact on LTLR	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

HYPOTHESIS TESTING FOR MODEL – 2

Description of Hypothesis Low Sales		Sale Base Classification			Asset Base Classification		
		Medium Sales	High Sales	Small Size	Medium Size	Large Size	
H_{09}:	Asset Tangibility has no significant impact on STLR	Accepted	Rejected	Accepted	Accepted	Rejected	Rejected
H_{10}:	Liquidity has no significant impact on STLR	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
H_{11}:	Opportunities of Growth has no significant impact on STLR	Rejected	Rejected	Accepted	Accepted	Accepted	Rejected
H_{12}:	Profitability has no significant impact on STLR	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
H_{13}:	Tax Rate has no significant impact on STLR	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected
H_{14}:	Non-Debt Tax Shield has no significant impact on STLR	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
H_{15}:	Operating Cash Flow has no significant impact on STLR	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected
H_{16}:	Debt Coverage Capacity has no significant impact on STLR	Accepted	Rejected	Accepted	Rejected	Rejected	Accepted

PRACTICAL IMPLICATIONS

Financing is one of the most critical decisions to be made under the ambit of financial management. Present research provides a comprehensive view of determinants of borrowings by studying them separately for short term as well as long-term debt. Exploratory power of various factors has been moderated by the size of the firm and market share. The findings of the current research will assist professionals while designing their capital structure. Practitioners can select only significant factors based on the size and market share of their firms.

CONCLUSION

In countries like India where financial markets are under development stage, financing decision becomes very critical. The choice of debt or equity plays an important role in determining firms' profitability. This research paper mainly focuses on the determinants of capital structure choices of the food processing industry. As firms within the same industry may behave differently about their funding decision, sample companies are categorized based on Sales and Asset Size to draw a more valid conclusion. For research purpose, 40 foods processing companies are selected based on data availability for 5 years (2014–2018). The data compiled from annual reports are analysed using correlation and multiple regression analysis.

The empirical results of the paper suggest that Tangibility, Liquidity and Operating Cash flow are major determinants of long-term borrowing for large size and high sales firms. For medium size and small size firm, only tangibility and tax rate respectively are found to be important factors affecting long-term borrowing decision. While analysing the data, it is also observed that food processing firms prefer more of short-term debt as compared to long-term debt. The selected determinants have more significant role in determining short-term borrowings. Tangibility, Tax Rate, Operating Cash Flow are critical factors for large size and high sales firms. Liquidity and Profitability are significant factors affecting short-term borrowings for all firms. Growth Opportunities are significant for low and medium sales companies. NDT has no impact on short-term borrowings in all cases whereas debt – coverage ratio plays significant role for small and medium-size companies.

An important relation between profits and short-term borrowings is drawn from study. The results indicate a positive relation for small size and low sales companies but negative relation for medium and large-size companies. It advocates that higher profits for small firms induce them to borrow more but as firms grow up, they replace debt with own funds showing the inverse relationship. At the end, the paper does not draw any general conclusion as firm-specific factors do have significant role in determining capital structure.

RESEARCH EXTENSIONS

The last section of paper enumerates scope of further research in form of research extensions. It mainly highlights following possibilities of extending the current work.

- As factors affecting CS vary across industries, one can take multiple industries and can comprehend the findings as against which the current research work is based on food processing industry only.
- Extended research can consider applicability of CS theories such as 'Pecking Order', 'Static Trade off' and 'Agency Cost' in different industries.
- Based on the relation between profit and short-term debt stated above, researchers can study changes in capital structure during the life cycle of the firm.
- As the factors included in the study are quantitative only, further research work can include qualitative factors like government regulation, management policies and capital market norms for analysing borrowing decisions.

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