

DETERMINANTS OF CAPITAL STRUCTURE – A SECTOR SPECIFIC APPROACH

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Abstract

To achieve the objective of wealth maximization, capital structure of the firm has momentous role. Apart from qualitative factors like economic condition, political & social status and management approach, quantitative factors like profitability, sales, depreciation and few more financial variables determine and influence the capital structure of the firm. This paper deals with the analysis of similarities and dissimilarities of determinants of capital structure among different sectors of Indian capital market using data from 2008 to 2018. OLS regression model is used to decompose the influence of explanatory variable on debt to equity ratio, which is dependent variable. The present paper is among very few research works focusing on different sectors individually, at least with reference to Indian capital market. The findings of paper confirm the presence of sector-specific determinants of capital structure in Indian capital market. The paper has its implication in the field of finance in terms of extending the understanding about variation of factors influencing capital structure of companies from different sectors.

Keywords: *Capital structure, Indian capital market, determinants of capital structure*

JEL Classification: *F65, G23, G32*

1. Introduction

Capital structure is the way a company finances itself by combining long-term debt, specific short-term debt, and equity (Ross et al., 2005; Hsiao et al., 2009). Since capital structure affects financial performance, managers are always concern about status of capital structure. In line with the objectives of financial management, wealth maximization can be achieved through firm's value maximization. Capital structure is one of the factors to affect the value of the firm. Therefore, managers are continuously evaluating several combinations to minimize the weighted average cost of capital and maximization of the value of firm.

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The modern theory of capital structure was put forward by Modigliani and Miller (MM) in 1958. Over the past 55 years, the topic is well researched to explain the pattern of capital structure and its determinants. All those researches contributed to understand the application of theoretical models in the real business world. Still, a better understanding of determinants of firm's capital structure is still elusive (Barclay and Smith, 2005). Existing research work on determinants of capital structure can be divided into the following categories which are inclusive and not exhaustive.

Table 1- Category wise summary of research work on capital structure

Sr. No	Category	Reference
1	Country-specific	Booth et al, (2001), Rajan and Zingales (1995), Wald (1999), Ozkan (2001), Deesomsak, Paudyal and Pescetto (2004), Philippe et al (2003), Keshar and Baral (2004), Chen (2004), Datta and Agarwal (2009)
2	Sector-specific	Joshua (2008), Bhaduri (2002), Abdou et al (2012), Poddar and Mittal (2014), Ray (2013), Nimalathasan and Brabete (2010), Mishra (2011), Arvanitis et al (2012)
3	Cross country/Sector	Mehmet and Eda (2009), Psillaki and Daskalakis (2009)

Source: - Authors compilation

Above categorization indicates that more emphasis was given either on a country (category 1) or on a particular sector (category 2), or cross-country comparison (category 3). A *within country cross-sector*, comparative analysis of similarities and differences for determinants of capital structure is a topic that has not yet been explored adequately, at least with reference to the Indian market. The present research is carried out to find out similarities or differences for determinants of capital structure *among different sectors* of Indian capital market. Hence, this research is expected to make some contribution to the existing body of finance in the area of corporate finance.

The remainder of this paper is organized into five sections. Section 2 deals with a brief literature review to find out the research gap and to frame the research question. Section 3 covers with research methodology. Section 4 discusses the findings of data analysis and section 5 is the concluding section of the paper.

2. Literature Review - Theories of capital structure

Net income (NI) approach by David Durand (1952) suggested that the use of debt in capital structure can help the firm to increase its value. This claim was made under the assumption that the cost of equity will remain same and the value of firm will increase due to tax benefits of interest payments. On the contrary, in his later work, Net operating income (NOI) approach, he suggested that existence of debt do not change the value of the firm. Because debt addition increases risk due to bankruptcy which increases the cost of equity and keeping the value of the firm unaltered.

The existence of debt in capital structure reduces the tax burden for any firm. This saving of taxes helps to increase the value of the firm. Therefore, financial experts traditionally believe that increasing company's leverage would increase the value of the firm up to a certain point.

However, MM challenged this traditional view. They claimed that earnings power decides the value of the firm and capital structure is irrelevant to judge the value of the firm. MM tries to predict the value of firm under perfect market conditions which have attracted the attention of many scholars. In the real business world, pattern of capital structure deviates from the theoretical suggestion. Consequently, MM model should be considered as a starting point for finding out determinants of capital structure and importance of debt in total capital of a firm. Even MM makes some relaxation about their assumption in their later work (Modigliani and Miller, 1963, and Miller (1977). Below is the brief review of the prominent theories of capital structure.

Trade-off Theory

Kraus and Litzenberger (1973) put forward the relationship between capital structure and trade-off with cost and benefits of debt, popularly known as “Trade-off theory”. According to this theory, there is a possibility of optimal capital structure which can be achieved by a trade-off between cost and benefits of debt. Because of tax shield on interest, the presence of debt in total capital of firm reduces the tax liability of the firm. This increases post-tax returns for the firm up to a certain point. But, additional debt increases the risk of bankruptcy. And therefore benefits of debt diminish with its every addition to the capital of firm after a certain cut off point.

Agency Cost Theory

Developed by Jensen and Meckling (1976), this theory identified two types of conflict (referred to as agency cost) as determinants of capital structure. The first conflict is between shareholders, who can claim whole of post-tax profit, and managers, whose claim in the profits of the firm is restricted to their salaries. Therefore, management prefers to consume the majority of profits by way of perquisites which increases cost to the firm and reduces the profits. According to the theory, this problem can be solved by including debt as a part of capital. For payment of interest to debt holders, management has to avoid the use of free cash flows in inadequate investment decisions. Otherwise firm has to face bankruptcy for default of payment to debt holders. Second conflict is between shareholder and debt holder, which is more complicated than the first one. Shareholders may forgo current profits with the expectation of long-term appreciation of their investment. On the contrary, debt holders are interested in current profits to receive regular interest. In such situations, management has to determine the optimal capital structure, where the lowest level of conflicts (agency cost) can be determined by using independent variable i.e leverage ratio of the firm.

Pecking order Theory

Pecking order theory was articulated by Myers in 1984. This theory is based on information asymmetries between outside investors and firm’s managers. Debt is considered a signaling tool when there is information asymmetry between outside investors and firm’s managers. It was argued that management’s choice for including debt in the capital structure. If management expects poor cash flow in future, they will avoid debt for the fear that debt default will diminish the performance of the firm. Also, the

inclusion of debt in capital structure will tempt existing investor to expect a higher return on their current investment to compensate risk of diluting ownership. According to pecking order theory, (Mayers, 1984, Mayers and Majluf, 1984) management of the company gives first priority to internal funds followed by low-risk debt and lastly to new equity to finance new investments. The overall cost of capital is the focus of this theory rather than the optimization of capital structure of company. The relevance of pecking order theory was questioned by few experts like Helwege and Liang in 1996 & Frank and Goyal in 2001. However, Booth et al. (2001) support this theory on the basis of their empirical work on 10 countries.

Market Timing Theory

According to this theory, market performance is the key factor to decide the issue of new equity (Lucas and McDonald, 1990). Economy passes through different phases like recession and booming. When the economy is witnessing recession, equity issues will be less in contrast with when the economy is booming, equity issues will be large. Empirical work by Bayless and Chaplinsky (1996), and Baker and Wurgler (2000) support these relations between equity issues and the phase of the economy. Therefore, managers of the company prefer to postpone the new issue of equity for better market conditions. However, in the absence of any suggested model, opinion differs between researchers from different places.

In the Indian context, determinants of capital structure were well documented by Chakraborty (1977) by studying determinants like age, profitability, retained earnings and capital intensity, which shows negative, whereas total assets have shown positive relation with the debt-equity ratio which was the dependent variable. As the capital market of India was not much developed up to 1992, Singh and Hamid (1992) found that Indian corporate is highly inclined towards debt capital. Bhaduri (2002) develop and confirms a model to study the existence of restructuring costs in attaining an optimal capital structure. The model confirms optimal capital structure can be influenced by determinants such as growth, cash flow, size, product and industry characteristics.

Datta and Agarwal (2009) conclude that the behavior of Indian corporate sector towards capital structure is elastic. They have found that profitability and growth are negatively related, whereas size and tangibility are positively related with dependent variable, leverage. Panigrahi (2011) confirms that the “location of the firm” strongly influences the quantum of inflows of funds.

Rasoolpur (2012) on the basis of their research of 298 manufacturing firms’ claimed that uniqueness and liquidity are the main explanatory factors of capital structure in India. Other factors like growth of assets, cash flow coverage ratio, earning rate and dividend payout ratio are found insignificant. Ray (2013) have found that asset composition, size, and non-debt tax shield are positively related to debt-equity ratio, while age, profitability, asset collateral has a statistically negative relation with the debt-equity ratio.

Tiwari and Krishnakutty (2014) analyze the capital structure of 90 firms and found a significant relationship between non-debt tax shield and debt with the capital structure

of Indian firms. However, profitability and risk have shown the insignificant impact on the leverage of the firm.

Research Question

Many consolidated studies as cited above are done in the Indian context. Similarly, few sector-specific studies are compiled as below:

Sr.No	Author	Sector
1	Mohanraj (2011)	Manufacturing
2	Riyaz Ahmad (2012)	Automobile
3	Ali et al (2014)	Non-Finance Companies
4	Poddar and Mittal (2014)	Steel Companies
5	Sinha and Samantha (2014)	Cement
6	Satyanarayana and Malavalli (2015)	Auto and IT
7	Satyanarayana and Kumar (2017)	FMCG, Infra, IT and Capital Goods

Source: -Authors Compilation

Based on the comprehensive literature survey, it is observed that most of the research done so far is either sector-specific or consolidated by taking a sample of few companies irrespective of their sectorial belonging. Therefore, there is a need to have an elaborative research work focusing on all or many sectors in one research paper. The need for comparative analysis in single research work is identified as a research gap. Thus the present work is initiated with the following research question: -

Are determinants of capital structure sector specific among different sectors of Indian capital market?

This research paper is analyzing the capital structure of companies forming part different sectorial indices of National stock exchange (NSE).

3. Research Methodology

3.1 Sources of Data

The National Stock Exchange (NSE) is India's leading stock exchange set up by leading institutions to provide a modern, fully automated screen-based trading system with national reach. In addition to main market index i.e CNX Nifty, NSE has sector-specific indices representing 10 different sectors of Indian economy. In this study, the researcher is finding out the similarities or differences of determinants of capital structure of companies forming part of these indices. Out of 10, only 6 sectors are considered for the purpose of study.¹ The period of study is from 2008-2009 to 2017-2018 (April to March). The data about the financial variables are collected from a prowess database

¹ Financial and insurance (CNX Bank Index, CNX Finance Index and CNX PSU Bank Index) firms are excluded because their leverage is strongly differing from debt issued by non-financial firms (see Rajan and Zingales 1995). Furthermore, banks differ substantially from non-financial firms because they are protected by a regulatory safety net.

maintained by CMIE (Center for Monitoring Indian Economy). Further annual reports and website of sample companies have also been visited if required.

3.2 The technique of Data Analysis

The descriptive statistics are used for preliminary analysis of the data. Multiple regression model of Ordinary Least Squares (OLS) is used to decompose the variation in dependent variable by the independent variables. This technique reveals the extent of relationship between the dependent variable and several independent variables. The Step-wise regression approach is employed to identify variables, which explain the greatest variation in the dependent variable. It does this by selecting and adding to the model, the variables contributing the greatest explained variance, followed by the second, third and so on until additional variables do not contribute further to adjusted R^2 .

The best regression model has to meet certain assumptions which are checked by examining outliers and residuals. Another problem, multicollinearity among independent variables may affect the overall estimations of the model as well as coefficients of individual variables. VIFs have been considered to determine the extent of collinearity among independent variables. Regression models test only linear relationships. The scatter diagram of data may reveal the presence of non-linear relationships. The non-linear variables have been transformed to log values to improve the linearity of variables.

3.3 Research Variable - Dependent Variable

The dependent variable of this study is a debt to equity ratio also known as leverage. There is diversity in the definition of leverage among different scholars. The ratio of total debt (long term and short term) to total assets, ratio of long-term debt to total assets are few common ways to interpret the meaning of leverage. Earlier studies differ for market value or book value of terms used in the ratio. As the market value of debt is depending on many factors which are out of control for a firm, researcher used book value of variables (dependent and explanatory) in this study. Thies & Klock (1992) and Fama French (2002) also support the book value approach. The researcher has used following formula to find out the value of dependent variable:

$$\text{Debt to Equity Ratio} = \text{Total Debt (long term and short term)} / \text{Total assets (Book value)}$$

3.4 Independent (Explanatory) variables

Referring to the existing literature, a number of determinants of capital structure can be considered for the purpose of study. But due to limitations of data availability, researcher restricts the study to the following variables only.

Size of the firm

Firms are categorized on the basis of their scale of operations. This is a subjective concept with no clear bifurcation between large scale and small scale. However, a higher volume of transaction is associated with more funds and vice versa. For voluminous organizations need to infuse more capital which is a mix of debt and equity. However, the effect of the size of firm on capital structure is not unidirectional. Few researches like

Huang and Song (2002), Rajan and Zingales (1995)² Zarebski and Dimovski (2012), Rasoolpur (2012), Ajanthan (2013), Md-Yusuf et al. (2013), Kuhnhausen and Stieber (2014), Zubairi and Farooq (2014), found significant relation between size and leverage. Chhapra and Asim (2012) found size as an only significant factor affecting capital structure of the firm. In this study, the researcher has used natural logarithm of sales as a proxy for the size of company.

Profitability

The theory is inconsistent for effects of profit on the leverage of the company. According to trade-off theory, there is a positive relationship between profitability and leverage because companies with higher taxable profit should have a high leverage to get the maximum benefit of debt tax shield. On the contrary, pecking order theory claims a negative relationship between two variables. Firms with higher profits will have enough internal capital to finance new investments. Therefore, these firms will prefer internal capital over debt as a source of finance, thereby will have low leverage. Empirical findings by Rajan and Zingales, (1995), Titman and Wessels, (1988), Booth et al. (2001), Huang and Song, (2002), Chen (2004), Abor (2008), Bas et al. (2009), Kedzior (2012), Fernandez et al. (2013), Choi (2014), Zubairi and Farooq (2014), observed significant relation between profitability and leverage. In the present study, researcher has used return on total asset (defined as earnings before interest and taxes divided by total assets) as a proxy for the profitability of the company

Tangibility

Tangible assets can be used as collateral for debt financing. Therefore, theoretically more the tangible assets a firm has, higher is the leverage. Rajan and Zingales (1995), Friend and Lang (1988), Titman and Wessels (1988), Chen (2004), Frank and Goyal (2007), Bas et al. (2009), Ramakrishnan (2012), Fauzi et al. (2013), Choi (2014), Chekrezi (2015) confirm significant relationship between tangibility and leverage. In the present study, tangibility is defined as tangible assets divided by total assets.

Financial distress

Financial distress also referred to as volatility. It means variations in operating profits of the company. Volatility in earnings makes it difficult to meet the time-bound repayments towards debt capital. Therefore, earning volatility is reflected in the capital structure of the company by accommodating less debt and more equity due to its perpetual presence in the capitals of the firm. Empirical findings by Kim and Sorensen, (1986), Huang and Song, (2002) predict positive relationship, whereas Bradley et al. (1984), Titman and Wessels (1988) and Guha-Khasnobis and Bhaduri (2002) gave contradictory results. In the present study, the researcher has used the standard deviation of return on assets as a proxy for financial distress.

Non-Debt Tax Shield (NDTS)

The impact of income tax on capital structure is considered through NDTS. In addition to interest on the debt, companies have non-debt related items like depreciation and

² For G7 Countries only.

research & development (R&D) expenditure, which provide tax shield (DeAngelo and Masulis, 1980). Managers will have less inclination towards debt if other non-debt tax shields are available. So there is a negative relationship between non-debt tax shield and leverage as per trade-off theory. Pecking order theory expects no relation between NDTS and leverage. Earlier empirical results also give mix opinion about this relationship. Scott (1977), Moore (1986), Gardner and Trzcinka (1992), Prahalathan (2010), Lim (2012) & Kuhnhausen and Stieber (2014) observe positive relationship while Shenoy and Koch (1996), Huang and Song (2002), Choi (2014) and Saeed et al (2014) observed a negative relationship between NDTS and leverage. In India, items like depreciation, R & D expenses, preliminary expenses are considered as NDTS. However, due to limitations of availability of data, the researcher has used a ratio of depreciation to total assets as a proxy for NDTS.

Growth

Companies with growth opportunities need more capital to invest in the business. They prefer debt capital to finance the gap between required capital and available internal capital (Psillaki and Daskalakis 2009). Empirical findings give mixed results for this. In support of trade-off order theory, Rajan and Zingales, (1995), Fama and French, (2002) reported negative while Booth et al. (2001), Huang and Song, (2002), Chen (2004), Mishra (2011), Rasoolpur (2012), Pahuja and Sahi (2012), Tiwary and Krishnakutty (2014), Yadav (2014) found positive relation between growth and leverage in support of pecking order theory. In the present study, researcher has used percentage change in total assets as a proxy for growth opportunities.

Liquidity

Liquidity is used to measure short terms solvency of the company. As per pecking order theory, companies having high liquid assets will prefer internal funding thereby showing negative, the relationship between liquidity and leverage (Deesomsak et al. 2004). Alternatively, trade-off theory suggests high debt can be served with high liquidity and predicts a positive relationship between liquidity and leverage. Sabir and Malik (2012), Rasoolpur (2012), Md-Yusuf et. al. (2013), Zubairi and Farooq (2014), Cekrezi (2015) found liquidity as one of the significant determinants of capital structure. In the present study, researcher has used a ratio of current assets to current liabilities as a proxy for liquidity.

Uniqueness

Unique products have little alternative usage. Companies offering such unique products have to incur heavily on R & D and selling expenses. These companies' faces problems of exit barriers due to limited demand for their products. Therefore they find it difficult to raise debt so less leveraged (Titman, 1988). Song (2005) and Rasoolpur (2012) gave some contradictory findings on uniqueness for their studies during the different time period. Yadav (2014) support the findings of Song (2005) about no significant relationship between uniqueness and capital structure. In the present study, researcher has used a ratio of selling expenses to total sales as a proxy for uniqueness.

Ownership Structure of the Companies

Depending on legal status, a shareholder can be classified as an institutional and non-institutional shareholder. Capital structure and ownership structure of companies

were first correlated by Jensen and Meckling (1976). They observed heterogeneity in financial motivations between the different groups of the shareholder. Amihud et al (1990) and Zeckhauser & Pound (1990) observed a negative relationship between leverage and presence of large shareholder. The researcher has classified ownership structure of sample companies into an institutional and non-institutional pattern for the purpose of this study.

4. Findings

The objective of the present paper is to evaluate the sector-specific determinants of capital structure of Indian firms during the period 2008-18. The panel data for 10 years is analyzed across constituents of 6 sectorial indices maintained by National Stock Exchange of India. Total nine explanatory variables are regressed against one dependent variable. The findings of the research confirm the presence of sector-specific factors, that determine the capital structure of the company. The output of the regression analysis is discussed as under.

For checking the presence and influence of outliers, the standardized residual is analyzed. In the first trial, the maximum value of standardized residual was 5.76 against the acceptable value of < 3.29 . The problem was overcome by deleting cases using case-wise diagnostic. In the third trial, findings were within an acceptable value (max = 3.09, see table 1) against the standard acceptable value of < 3.29 with cook's distance (also known as D) at 0.97.

Table 1 – Residual Statistics

	Min	Max	Mean	Std. Deviation	N
Predicted Value	-46.6	150.9	19.9	26.11	303
Std. Predicted Value	-2.55	5.02	0	1	303
Std. Error of Predicted Value	1.76	21.73	3.54	1.62	303
Adjusted Predicted Value	-94.34	140.97	19.76	26.54	303
Residual	-82.84	93.45	0	30.06	303
Std. Residual	-2.74	3.09	0	0.99	303
Studentized Residual	-2.75	3.14	0	1.01	303
Deleted Residual	-83.83	99.99	0.14	31	303
Studentized Deleted Residual	-2.78	3.18	0	1.01	303
Mahalanobis Distance	0.03	154.71	3.99	9.5	303
Cook's Distance	0	0.97	0.01	0.06	303
Centered Leverage Value	0	0.51	0.01	0.03	303

Source-Authors Computation

Researched data do not have the problems of multi-collinearity. The highest value of variance inflation factor (VIF) is 1.21 as shown in table 2 against a recommended value of 10 (Hair, Anderson, Tatham, & Black, 1995) or 5 (Rogerson, 2001) and even 4 (Pan & Jackson, 2008) indicating multi-collinearity is not a concern.

Table 2 – Collinearity and VIF Statistics

	Un-standardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.68	6.71		2.52	0.802		
Size	0.877	0.164	0.611	5.34	0.00	1.00	1.00
NDTS	0.88	0.22	0.53	3.98	0.00	0.83	1.21
Profitability	0.37	0.12	0.40	3.00	0.01	0.83	1.15
Tangibility	2.00	0.37	0.89	5.45	0.00	1.00	1.00
Fin. Distress	1.13	0.18	0.91	6.47	0.00	1.00	1.00
Growth	0.502	0.134	0.454	3.74	0.00	0.96	1.03
Liquidity	0.504	0.191	0.319	2.63	0.01	0.96	1.03
Uniqueness	1.06	0.18	0.74	5.74	0.00	1.00	1.00
Ownership Structure	-0.97	0.34	-0.36	-2.84	0.01	1.00	1.00

Source-Authors Computation

Table 3: - Regression Coefficients

	FMCG		Real Estate		Pharma		Metal		Media		Auto	
	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P
LIQUIDITY	0.435344	0.3323	0.510186	0.0506	-1.023215	0.0007	0.246593	0.525	0.470011	0.5239	-0.262291	0.0949
FIN. DISTRESS	-0.603774	0.1139	0.578888	0.0039	0.223732	0.5141	-0.17763	0.721	-0.293414	0.4428	-0.09434	0.3552
GROWTH	0.293062	0.6008	0.159995	0.6673	0.257741	0.4824	2.538151	0.002	-3.304956	0.1611	1.251583	0.0064
NDTS	-0.199944	0.5845	-0.090841	0.7755	-1.549219	0.0199	0.398899	0.5073	-3.032069	0.0006	0.686363	0.0015
NON-PROMOTOR	0.403162	0.3372	0.417349	0.3028	-2.34135	0.0366	0.648886	0.0053	2.068216	0.053	-3.290085	0.0001
PROFITABILITY	-1.924538	0.0000	-0.698339	0.0045	-0.526966	0.1357	-0.907022	0.0171	-1.294009	0.1562	-0.739955	0.0009
PROMOTOR	0.185236	0.3672	-0.620821	0.0226	-2.349704	0.0518	1.143741	0.1468	2.031001	0.2871	-3.654421	0.0000
SIZE	-0.346412	0.0002	-0.017032	0.8382	-0.531872	0.034	0.01733	0.9046	-0.265179	0.1249	-0.352844	0.0003
TANGIBILITY	0.34183	0.2855	1.542577	0.0000	2.783375	0.0000	0.412864	0.4826	0.798009	0.5554	1.623455	0.0000
UNIQUENESS	0.755591	0.0331	0.223617	0.0807	1.194057	0.0000	-0.082279	0.6919	1.621494	0.0004	-0.004842	0.9721
Adjusted R-squared	0.478026		0.547886		0.600546		0.318824		0.482079		0.579879	

Source-Authors Computation

Among the 6 different sectors, it is found that the auto and pharma sector has the highest (six) number of significant factors followed by real estate industry. Neither single common explanatory variable found significant across all the indices which confirms the presence of sector-specific determinants of capital structure. However, it can be said that profitability and non-promoter shareholding are influencing the majority of sectors. The adjusted *R*-sq value across the sectors varies from 31% in the metal sector to 60% in the pharma sector. The findings of the present study are in line with the general assumption which is explained as under:

FMCG sector

It is found that profitability, sales, and uniqueness are three factors; significantly determine the capital structure of FMCG sector companies. In the case of FMCG sector, sales and profitability are focused on a daily basis, as goods are produced and sold at a faster rate than any other sector. Therefore, we conclude that the finding of significant factor matches with industry feature. The negative coefficient of profitability and sales means the FMCG sector prefers or need to have lesser debt component and more equity in the capital structure. Both the significant variables are favoring towards reducing the debt to equity ratio with their negative influence.

Real Estate Industry

The Operating return from real estate industry is not consistent. Therefore, even retails as well as institutional shareholders are not keenly interested in shareholding. As a result, promoters need to hold the majority of capital. Higher the promoter shareholding, lesser will be the debt to equity ratio. All these findings are confirmed in the present study. It is observed that financial distress, promoter holding, profitability, and tangibility are the significant factors contributing towards the capital structure of the companies from the real estate industry. Financial distress and tangibility with positive coefficient are pushing debt to equity ratio, which clearly indicates a higher amount of debt or lesser amount of equity is preferred. The overall effect of these two factors carries more weighted than the other two significant variables with a negative coefficient.

Pharma Sector

Total six, out of nine factors found to be significantly contributing towards the capital structure of the pharma sector companies. The value of adjusted R-sq is highest (60%) among the other sectors. Pharma sector companies are required to have research and development facility backed by research equipment for which company has to invest in plant and machinery. Therefore, tangibility is the key factor to decide the determinants of capital structure. Similarly, profitability and current ratio which speaks about the sound financial condition have a significant influence towards the capital structure.

Metal Sector

A capital-intensive sector has a seasonal business cycle. During the booming phase, there is a heavy demand for the product and vice-versa during a recessionary period. The present study correctly identified the growth as a significant factor influencing capital structure of the company in the metal sector. The positive coefficient of significant variable growth has more inclination towards debt as a preferred source of finance and therefore higher the debt to equity ratio. However, the value of R-square is the lowest among the other sector.

Media Sector

The media sector is believed to have lesser tangible assets as compared to manufacturing units. Therefore, the negative coefficient of NDTS specifies the lesser value of debt to equity ratio. Uniqueness, next significant factor indicates more use of capital towards selling and distribution expenses which have a direct impact on the composition of capital structure.

Auto Sector

A capital intensive sector, require a huge investment in physical infrastructure. At the same time, liquidity needs to be maintained at an optimum level. The finding of the present study accurately shows that the dependency of capital structure is influenced by all research variable except financial distress and uniqueness. The outcome of regression analysis clearly indicates that profitability, size, NDTS, growth, and liquidity are the major significant factors to decide the leverage level of companies belonging to the auto sector.

5. Conclusion

The present study is conducted with the objective to find out the presence of sector-specific determinants of capital structure. The sample units are selected from the constituents of sectorial indices maintained by NSE. The findings confirm the variation of determinants of capital structure from industry to industry. It can be concluding that each sector has its own features or requirements which determines and influence the level of leverage. More interestingly not a single factor is found to be common across all the sectors. The study came with a meaningful outcome that can be considered by the management while deciding the mix of various sources of finance to raise capital. Apart from the merits and demerits of each source of finance, sector affiliation seems to be a key variable to decide the capital structure.

References

- Abdou, H.A., Kuzmic, A., Pointon, J., and Lister, R.J., (2012), “Determinants of Capital Structure in the UK Retail Industry: A Comparison of Multiple Regression and Generalized Regression Neural Network”, *Intelligent Systems in Accounting, Finance & Management*, 19 (3):151-169.
- Abor, J., (2008), “Determinants of the Capital Structure of Ghanaian Firms”, *African Economic Research Consortium, Nairobi* 1-34.
- Ajanthan, A., (2013), “Determinants of Capital Structure: Evidence from Hotel and Restaurant Companies in Sri Lanka”, *International Journal of Scientific and Research Publications*, 3(6): 1–8.

- Ali, M.S., Akram, H.W. and Khan, M.A., (2014), "Analysis of Determinants of Capital Structure: With Special Reference to Indian Listed Non-Financial Companies in S and P CNX Nifty". *Business Dimensions*, 1(2): 113-170.
- Amihud, Y., Lev, B. and Travlos, N., (1990), "Corporate Control and the Choice of Investment Financing: The Case of Corporate Acquisitions". *Journal of Finance*, 45: 603-616.
- Arvanitis, S.H., Tzigkounaki, I.S., Stamatopoulos, T.V., and Thalassinou, E.I., (2012), "Dynamic Approach of Capital Structure of European Shipping Companies". *International Journal of Economic Sciences and Applied Research*, 5(3): 33-63.
- Baker, Malcolm P., and Wurgler, Jeffrey A., (2000), "The Equity Share in New Issues and Aggregate Stock Returns" *Journal of Finance*, 55(5): 2219-2258.
- Barclay, M.J., and Smith, C.W., (2005), "The Capital Structure Puzzle: The Evidence Revisited", *Journal of Applied Corporate Finance*, 17: 8-17. doi:10.1111/j.1745-6622.2005.012_2.x.
- Bas, T., Muradoglu, G. and Phylaktis, K., (2009), *Determinants of Capital Structure in Developing Countries*, Cass Business School, 106 Bunhill Row, London, UK.
- Bayless, M., and Chaplinsky, S., (1996), "Is There a Window of Opportunity for Seasoned Equity Issuance?", *The Journal of Finance*, 51(1): 253-278.
- Bhaduri, (2002), "Determinants of Capital Structure Choice: A Study of the Indian Corporate Sector", *Applied Financial Economics*, 12(9): 655-665.
- Booth, L., Aivazian, V., Demircuc-Kunt, A., and Maksimovic, V., (2001), "Capital Structure in Developing Countries", *The Journal of Finance*, 56 (1): 87-130.
- Bradley, Michael, Gregg A. Jarrell, and E. Han Kim, (1984), "On the Existence of an Optimal Capital Structure: Theory and Evidence", *Journal of Finance*, 39: 857-878.
- Cekrezi, A., (2015), "Internal Factors Which Influence Capital Structure Choice of Albanian Firms", *Research Journal of Finance and Accounting*, 6(8): 168-175.
- Chakraborty, S.K., (1977), "Corporate Capital Structure and Cost of Capital: A Preliminary Study of the Indian Private Sector" Institute of Cost and Works Accountants of India. Calcutta.
- Chen, J.J., (2004), "Determinants of capital structure of Chinese-listed companies". *Journal of Business Research*, 57(12): 1341-1351.
- Chhapra, I.U. and Asim, M., (2012), "Determinants of capital structuring: an empirical study of growth and financing behavior of firms of textile sector in Pakistan". *Journal of Management and Social Sciences*, 8(2): 1-10.
- Choi, D.S., (2014), "Determinants of The Capital Structure: Empirical Study from The Korean Market". *International Journal of Science, Commerce, and Humanities*, 2(7): 116-125.
- Cook, R.D. and Weisberg, S., (1982), *Residuals and Influence in Regression*. Chapman and Hall.
- Datta D. and Agarwal B., (2009), "Determinants of Capital Structure of Indian Corporate Sector in the Period of Bull Run 2003-2007: An Econometric Study". *Journal of Finance*, 4(9):45-49.
- DeAngelo, H., and Masulis R.W., (1980) "Optimal Capital Structure under Corporate and Personal Taxation". *Journal of Financial Economics*, 8: 3-29.
- Deesomsak R., Paudyal K. and Pescetto G., (2004), "The Determinants of Capital Structure: Evidence from The Asia Pacific Region". *Journal of Multinational Financial Management*, 14: 387- 405.

- Durand D., (1952), "Cost of Debt and Equity Funds for Business: Trends and Problems of Measurement". In *Conference on Research in Business Finance*, National Bureau of Economic Research New York, 115-147.
- Fama E.F. and French K.R., (2002), "Testing Trade-Off and Pecking Order Predictions About Dividends and Debt". *The Review of Financial Studies*, 15(1): 1-33.
- Fauzi, F., Basyith, A. and Idris, M., (2013), "The Determinants of Capital Structure: An Empirical Study of New Zealand-listed Firms". *Asian Journal of Finance and Accounting*, 5(2): 1-21.
- Fernandez, D.M., Kumar, D.R. and Mansour, D.E., (2013), "Determinants of Capital Structure: Evidence from Oman". *Arabian Journal of Business and Management Review*, 2(11): 34-44.
- Frank, M.Z. and Goyal, V.K., (2007), "Capital Structure Decisions: Which Factors Are Reliably Important?". University of Minnesota, Hong Kong University of Science and Technology, Working Paper.
- Frank, M.Z. and Goyal, V.K., (2001), "Testing the Pecking Order Theory of Capital Structure". In EFA 0157: AFA 2001 New Orleans London.
- Friend, I., and Larry H.P. Lang, (1988), "An Empirical Test of the Impact of Managerial Self-Interest on Corporate Capital Structure". *The Journal of Finance*, 43(2): 271-281.
- Gardner, J. and Trzcinka C., (1992), "All-Equity Firms and the Balancing Theory of Capital Structure". *Journal of Financial Research*, 15: 77-90.
- Guha-Khasnobis, B. and Bhaduri, S.N., (2002), "Determinants of Capital Structure in India, (1990–1998): A Dynamic Panel Data Approach". *Journal of Economic Integration*, 17(4): 761-776.
- Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C., (1995), *Multivariate Data Analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- Helwege, Jean, Liang, and Nellie, (1996), "Is there a pecking order? Evidence from a panel of IPO firms". *Journal of Financial Economics*, 40(3): 429-458.
- Hsiao et al., (2009), *The Concept Of Capital Structure Finance Essay*. Retrieved December 2017, from UKEssays.com:<http://www.ukessays.com/dissertation/literature-review/the-concept-of-capital-structure.php#ixzz2zauL4MDn>
- Huang, S.G.H. and Song, F.M., (2002), *The Determinants of Capital Structure: Evidence from China*, School of Economics & Finance and Centre for China Financial Research, The University of Hong Kong, Working Paper No. 1042: 1-34.
- Jensen, M. and Meckling, W., (1976), "Theory of The Firm: Managerial Behavior, Agency Costs, and Ownership Structure". *Journal of Financial Economics*, 3: 305- 360.
- Joshua, Abor, (2008), *Determinants of the Capital Structure of Ghanaian Firms*, Department of Finance University of Ghana Business School Legon. AERC Research Paper 176 African Economic Research Consortium. Nairobi.
- Kędzior, M., (2012), "Capital Structure in EU Selected Countries-Micro and Macro Determinants". *Argumenta Oeconomica*, 28(1): 69-117.
- Keshar J. Baral, (2004). "Determinants of Capital Structure: A Case Study of Listed Companies of Nepal". *The Journal of Nepalese Business Studies*, 1(1): 1-13.
- Kim W., and Sorensen E., (1986), "Evidence on the Impact of the Agency Costs of Debt on Corporate Debt Policy". *The Journal of Financial and Quantitative Analysis*, 21(2): 131- 144.
- Kraus and Litzenberger R., (1973), "A State-Preference Model of Optimal Financial Leverage". *Journal of Finance*, 28(4): 911- 922.

- Kuhnhausen, F. and Stieber, H.W., (2014), *Determinants of Capital Structure in Non-Financial Companies*, Munich Discussion Paper No. 38, Department of Economics, University of Munich, 1- 57.
- Lim, T.C., (2012), “Determinants of Capital Structure Empirical Evidence from Financial Services Listed Firms in China”. *International Journal of Economics and Finance*, 4(3): 191-203.
- Lucas, D., and McDonald, R., (1990), “Equity Issues and Stock Price Dynamics”. *The Journal of Finance*, 45(4): 1019-1043.
- Md-Yusuf, M., Yunus, F.M. and Supaat, N.Z.L., (2013), “Determinants of Capital Structure in Malaysia Electrical and Electronic Sector”. *International Journal of Social, Management, Economics and Business Engineering*, 7(6): 676-681.
- Mehmet Ş. and Eda O., (2009), “Behavioral Dimension of Cross-Sectoral Capital Structure Decisions: ISE (Istanbul Stock Exchange) Application”. *International Research Journal of Finance and Economics*, 12(7): 44-54.
- Miller, M.H., (1977), “Debt and Taxes” *Journal of Finance*, XXXII(2): 261-275.
- Mishra, C.S., (2011), “Determinants of Capital Structure-A Study of Manufacturing Sector PSU’s in India”. In *International Conference on Financial Management and Economics*, 11(1): 247-252.
- Modigliani, F. and Miller, M.H., (1963), “Corporate Income Taxes and the Cost of Capital: A Correction”. *American Economic Review*, 53: 433-443.
- Modigliani, Franco, and Merton. Miller H., (1958), “The Cost of Capital, Corporation Finance, and the Theory of Investment”. *American Economic Review*, 48: 261-297.
- Mohanraj, D.V., (2011), “Determinants of Capital Structure Decision in Indian Manufacturing Industries-An Empirical Analysis”. *International Journal of Research in Computer Application and Management*, 1(8): 139-142.
- Moore T.W., (1986), “Asset Composition, Bankruptcy Costs and The Firm’s Choice of Capital Structure”. *The Quarterly Review of Economics and Business*, 25: 4-51.
- Myers, S.C., (1984), “The Capital Structure Puzzle”. *The Journal of Finance*, 39: 574–592.
- Myers, Stewart C. and Majluf, Nicholas S., (1984), “Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have”. NBER Working Paper No. w1396. Available at SSRN: <https://ssrn.com/abstract=274547>.
- Nimalathasan, B. and Brabete V., (2010), “Capital Structure and Its Impact on Profitability: A Study of Listed Manufacturing Companies in Sri Lanka”. *The Young Economists Journal*, 13: 55-61.
- Ozkan, A., (2001), “An Empirical Analysis of Corporate Debt Maturity Structure”. *European Financial Management*, 6: 197-212.
- Pahuja, D.A. and Sahi, M.A., (2012), “Factors Affecting Capital Structure Decisions: Empirical Evidence from Selected Indian Firms”. *International Journal of Marketing, Financial Services and Management Research*, 1(3): 76-86.
- Pan, Y. and Jackson, R.T., (2008), “Ethnic Difference in The Relationship Between Acute Inflammation and Serum Ferritin in US Adult Males”. *Epidemiology and Infection*, 136: 421-431.
- Panigrahi, A., (2011), “Capital Structure Variations: A Study of Indian Corporate”. *Res Manageria*, 2(3): 29-42.
- Philippe et al., (2003), *The Capital Structure of Swiss Companies: An Empirical Analysis Using Dynamic Panel Data*, University of Geneva (HEC). Switzerland.

- Poddar, M.N. and Mittal, D.M., (2014), "Capital Structure Determinants of Steel Companies in India: A Panel Data Analysis". *Galaxy International Interdisciplinary Research Journal*, 2(1): 144-158.
- Prahalathan B., (2010), *The Determinants of Capital Structure: An Empirical Analysis of Listed Manufacturing Companies in Colombo Stock Exchange Market in Sri Lanka*, in *ICBI 2010*, University of Kelaniya, Sri Lanka. 1-15.
- Psillaki, M. and Daskalakis, N., (2009), "Are the Determinants of Capital Structure Country or Firm-Specific?". *Small Business Economics*, 33(3): 319-333.
- Rajan, R.G., and Zingales, L., (1995), "What Do We Know about Capital Structure? Some Evidence from International Data". *The Journal of Finance*, 50(5): 1421-1460.
- Ramakrishnan, S., (2012), *Sectoral Analysis on Capital Structure Determinants among the Malaysian Listed Firms*, Ph.D. thesis, Deakin University.
- Rasoolpur, G.S., (2012), "An Empirical Analysis of Capital Structure Determinants: Evidence from The Indian Corporate Sector". *International Journal of Management and Information Technology*, 1(3): 1-12.
- Ray, D.S., (2013), "Investigating Capital Structure Determinants in Listed Cement Companies of India". *Financial and Quantitative Analysis*, 1(3): 47-58.
- Riyaz Ahmed, K., (2012), "Determinants of Capital Structure: A Case of Automobile Manufacturing Companies Listed in NSE". *International Journal of Marketing, Financial Services and Management Research*, 1(4): 47-52.
- Rogerson P.A., (2001), *Statistical Methods for Geography*, Sage, London.
- Ross, S.A., Westerfield, R.W., & Jaffe, J., (2005), in Literature Review On the Concept of Capital Structure Finance Essay.
- Retrieved December 2017, from UKessays.com: <http://www.ukessays.com/dissertation/literature-review/the-conceptof-capital-structure.php#ixzz2zauL4MDn>
- Sabir, M. and Malik, Q.A., (2012), "Determinants of Capital Structure – A Study of Oil and Gas Sector of Pakistan". *Interdisciplinary Journal of Contemporary Research in Business*, 3(10): 395-400.
- Saeed et al., (2014), "Capital Structure and Its Determinants: Empirical Evidence from Pakistan's Pharmaceutical Firms". *Journal of Basic and Applied Scientific Research*, 4(2): 115-125.
- Sathyanarayana, S. and Malvalli, N., (2015), "An Analytical Study on the Determinants of Capital Structure in Indian Automobile, IT and Hotel Sectors". In *Twelfth AIMS International Conference on Management*, India.
- Sathyanarayana, S., Harish, S., and Kumar, H., (2017), "Determinants of Capital Structure: Evidence from Indian Stock Market with Special Reference to Capital Goods, FMCG, Infrastructure and IT sector". *SDMIMD Journal of Management*, 8(1): 75-83.
- Scott, J., (1977), "Bankruptcy, Secured Debt, and Optimal Capital Structure". *The Journal of Finance*, 32(1): 1-19.
- Shenoy, C., and Koch P., (1996), "The Firm's Leverage-Cash Flow Relationship". *Journal of Empirical Finance*, 2: 307-331.
- Singh, A. and Hamid, J., (1992), *Corporate Financial Structures in Developing Countries*, IFC Technical Paper No. 1, International Finance Corporation, Washington D.C.
- Sinha, S. and Samanta, P.K., (2014), "Determinants of Capital Structure of Selected Indian Cement Companies-A Quantile Regression Approach". *Vidyasagar University Journal of Commerce*, 19(1): 85-99.

- Song, H., (2005), "Capital Structure Determinants an Empirical Study of Swedish Companies". In *International Ph.D. Workshop 'Innovation, Entrepreneurship and Growth* Royal Institute of Technology Stockholm.
- Thies, C.F., and Klock, M.S., (1992), "Determinants of Capital Structure". *Review of Financial Economics*, 1(2): 40-53.
- Titman, S., and Wessels, R., (1988), "The determinants of capital structure". *Journal of Finance*, 43: 1-19.
- Tiwari, A.K. and Krishnankutty, R., (2014), "Determinants of Capital Structure: Comparison of Empirical Evidence for The Use of Different Estimators". *Theoretical and Applied Economics*, 21(12): 63-82.
- Wald, John K., (1999), "How Firm Characteristics Affect Capital Structure: An International Comparison". *Journal of Financial Research*, 22(2): 161-187.
- Yadav, C.S., (2014), "Determinants of The Capital Structure and Financial Leverage: Evidence of Selected Indian Companies". *Asia Pacific Journal of Research*, 1(12): 121-130.
- Zarebski, P. and Dimovski, B., (2012), "Determinants of Capital Structure of A-Reits and The Global Financial Crisis". *Pacific Rim Property Research Journal*, 18(1): 3-19.
- Zeckhauser, R.J. and Pound, J., (1990), "Are large shareholder's effective monitors? An investigation of share ownership and corporate performance". *Corporate Finance and Investment*, University of Chicago Press.
- Zubairi, H.J. and Farooq, S., (2014), "Factors Influencing the Capital Structure in Pakistan". *Pakistan Business Review, Journal of Economic Literature*, 16(2): 211-231.