

Determinants of Capital Structure - An Empirical Study of Indian Computer Software Industry

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Abstract

This study seeks to investigate the determinants affecting capital structure decision of Computer Software firms. The required data have been collected from PROWESS from BSE listed Computer Software firms over the period of 10 years (2004-05 to 2013-14). The variables taken for the study are size, growth, tangibility, liquidity, uniqueness, profitability, business risk, non-debt tax shield, debt service capacity and effective tax rate. The panel data regression model has been applied to identify the major determinants that affect capital structure decisions. The results of the study reveal that the variables such as profitability, business risk and non-debt tax shield are statistically significant variables. This study also finds the applicability of two capital structure theories (trade-off theory and pecking order theory) in Indian Computer Software industry.

Key Words

Panel data, trade off theory, pecking order theory, profitability and business risk.

INTRODUCTION

Capital structure decision is the mix of debt and equity capital used by a company to finance its business (Damodaran, 2012). Capital structure is the right blend of different sources of finance. It is the optimum proportion of all kinds of funds used by firms to finance their assets. According to Chen (2007), Capital structure refers to the way a corporation finance itself through some combination of equity, debt or hybrid securities. Optimal capital structure is an

important part of the financial planning of the finance manager. Ensuring an optimal capital structure with least cost of capital and enhanced stakeholder's wealth is important for all corporate entities. It also increases the firm's ability to survive in the competitive environment.

The debate on capital structure starts with a path breaking paper by Modigliani and Merton Miller (1958) when they gave relevance and irrelevance theory of a firm in different market situations. In the second version Miller (1977), stated that when there are corporate taxes then due to the tax deductibility of tax expenses, the value of the firm is affected by its capital structure. Net Income Approach given by Durand showed direct relationship between the capital structure and the value of firm. In his revised theory Durand states that overall cost of capital remains constant for all modes of financing.

The literature on capital structure determinants supports the existence of three theories of capital structure Eldomiaty (2007). Trade-off theory states that a firm selects a source of finance by balancing its costs and benefits. Pecking order theory suggests that every firm has well defined order of preference for raising funds. In the first instance, firms fulfill their needs through internal financing, then through debt and use equity capital as a last resort. It also argued that firms do not have any target leverage ratio (Myers and Majulif, 1984). In agency theory, the minimizing cost arising from conflicts between shareholders and debt holders decide optimal capital structure. These theories are "conditional" in the sense that each works under own assumptions and propositions (Myers, 1977).

It was found out that studies on the determinants of capital structure include selected determinants in a regression equation (Eldomaity, 2007). The results in many cases turned out to be mixed. This is what Fama and French (2002) referred to as the two theories of capital structure (trade-off and pecking order) share many general prediction about the determinants of leverage, turning out results to be indecisive (Prasad *et al.*, 2001). The impact of various determinants of capital structure such as (size, growth, tangibility, business risk, debt service capacity etc.), in financing decisions has also been proved by these theories.

India has the one of the largest and fastest growing service sectors in the world with annual growth rate of above 9% since 2001. As per Planning Commission report 2015 service sector contributes 57.9% in GDP of India. Among service sector, Indian computer software and IT firms has not only transformed India's image on the global platform but also has fulfilled economic growth by energizing higher education in this sector. Moreover this sector has a good year

in terms of financial performance and the contribution of this sector to India's GDP rose to approximately 9.5 per cent in FY15 from 1.2 per cent in FY98.

The remainder of this paper is divided into four main sections. Section two presents the review of literature. Section 3 provides a detailed description of the methodology, operational definitions of the variables and model used. Section 4 then presents the results of the analysis, comparing the results with the past findings. Finally, section 5 summarizes and concludes.

REVIEW OF LITERATURE

For better understanding some literatures concerning the capital structure determinants of different countries, different industries as well as different economies have been reviewed. In this section, attempt has been made to review the existing literature related with determinants of capital structure to get some insight into this topic.

Bhatt, R. K. (1980) tried to analyze the impact of various determinants on financial leverage and the relationship of institutional characteristics e.g. growth, firm size, profitability and business risk with leverage ratio of 63 firms through correlation and regression methods for the period of 1972 to 1978. The study found that financial leverage does not have any significant relationship with growth, size and degree of operating leverage but debt service ratio, risk and dividend payout ratio have negative relation with financial leverage. Only earning rate is directly related to it.

Kakani and Reddy (1998) attempted to find out the factors affecting the capital structure for 100 Indian firms for a period of 11 years from 1985 to 1995 i.e. pre liberalization and post liberalization period by using correlation and multiple regression. There is no significant relation among size and diversification strategy of the firm with leverage. Profitability and capital intensity were found to be negatively associated to leverage. They also concluded that negative relationship exists between earnings volatility and non-debt tax shield to short-term and total debt of the firm. Uniqueness of the firm has been found to be positively related.

Banerjee et al (2000) tested the determinants of a time-varying optimal capital structure of 426 US firms for the period 1989-1996 by using dynamic adjustment model and panel data method. They concluded that factors affecting optimal leverage were in general in UK. But in USA leverage was affected by growth in positive sense in the dynamic model particularly.

Gaud et al. (2003) analyzed the determinants of capital structure in Switzerland. They applied panel data regression pertaining to 106 Swiss companies for the period of 10 years for 1991 to 2000. They found that leverage was

positively related to size, tangible assets and business risk while current profitability and growth were negatively related with leverage. They also resulted that both the trade-off theory and pecking order theory were present in the Swiss firms.

Bauer (2004) revealed capital structure practices of listed companies in Visegrad countries for the period of 2000-2001. The data was collected from the financial reports of the companies listed on the respective stock exchanges. He concluded from empirical analysis that in Visegrad the leverage of listed firms showed positive relation with size where as negative relation with profitability and non-debt tax shield.

Gill *et al.* (2009) discussed various determinants of capital structure in the service industry in United States for the period between Jan. 1, 2004 and Dec. 31, 2005. This study showed that profitability was negatively correlated with leverage and income tax rate was positively related with leverage of the firm. They further revealed that there was no significant relationship of non-debt tax shield and firm size with the leverage of the firms in service industry in United States.

Ahmad *et al.* (2011) in their paper tried to determine the impact of explanatory variables on the determination of capital structure and also examined the applicability of pecking order theory and trade off theory in 336 Pakistani non-financial sector firms by using panel data regression. They proved that among the determinants of capital structure size, liquidity, payout, non-debt tax shield and tangibility of assets showed positive relationship with leverage while growth, profitability and tax did not show any significant relationship with leverage

Reddy (2012) examined the capital structure practices and its effect on profitability in selected software companies in South India by taking 10 companies listed in Bombay Stock Exchange for 2002 to 2011. Ratio and percentage technique were used to know the effect. He found that Software companies in south India were suffering from the crisis of low profitability and this study showed that this declining trend was due to the increasing dependence on internal sources of financing.

Chandrasekharan (2012) examined the determinants of capital structure of 87 companies listed in Nigeria stock exchange for the period of 2007 to 2011 using panel multiple regression. The result revealed that age, size, profitability, growth and tangibility had great impact on the leverage in Nigerian firms. He further recommended that various factors like size, growth, profitability, tangibility and age should be considered for the purpose of optimum financing mix for their firms.

Parasuraman and Ramadu (2013) empirically examined the factors affecting capital structure practices over last five years from 2007-2011 by taking data of seventy three companies constituting S&P CNX NIFTY and NX NIFTY JUNIOR. Using multiple regression model the study revealed that factors such as profitability, solvency and tax factor had positive relation with capital structure whereas growth and time factor did not have any important impact in designing capital structure of firms. Then their study showed that firms in India depended mostly on profitability, followed by size, tax laws and short term solvency.

Khanna (2013) attempted to examine the determinants of capital structure of 284 Indian corporate 2000-01 to 2010-11 by using Panel regression model. The findings of her study showed that COVA, size and liquidity of the firm had positive relationship with the leverage of the firm whereas stock liquidity, growth and uniqueness had negative relationship with firm leverage. Further she found that there was no control of non-depreciation tax shield and profitability in determining the debt equity ratio of the firm.

Sharma and Singh (2014) examined the relationship between capital structure and firm's characteristics of 46 automobile companies for 10 years through panel data and multiple regression analysis. They revealed that leverage is positively associated with tangibility, size and growth whereas negative relation exists between tax rate and leverage. Profitability has shown negative relationship with long term debt and liquidity with total leverage. Further the study indicated that non debt tax shield and uniqueness have no significant impact on capital structure.

Poddar and Mittal (2014), tested the impact of leverage on independent variables viz. Size, profitability, Liquidity and interest coverage of the five Indian steel sector companies applying panel data analysis techniques. The results of their study revealed that profitability, liquidity and interest coverage ratio are negatively associated with leverage whereas there is positive relationship between size and leverage of the firms under study.

It is evident from the literature review that capital structure decisions are very important for firms and so many studies have been conducted so far on this concept but there is no consistency regarding the significant determinants of capital structure. Moreover the determinants are country specific and industry specific, therefore, this study has been conducted to identify the significant determinants of capital structure in Indian computer software and IT industry.

RESEARCH METHODOLOGY AND SCOPE OF THE STUDY

Objectives

The purpose of this paper is to examine the various determinants of capital structure in Indian computer software industry.

Scope

The scope of this paper is restricted to computer software and IT firms listed on S&P BSE Sensex. There are 42 companies in that sector but after scrutiny the companies with incomplete data were removed from the sample. Therefore, the final sample has 31 companies only. The time period of the study is ten years from 2004-05 to 2013-14. The required secondary data has been taken from the corporate data base PROWESS maintained by centre for monitoring Indian Economy (CMIE).

Dependent Variable (Leverage)

Leverage is the proportion of debt in firm's capital composition. As there is no clear cut definition of leverage so it can be defined as the ratio of firm's debt to assets. Previous literature on capital structure show that Taub (1975), Pandey *et al.* (2000), Garg & Shekhar (2002), Dass & Roy (2007), Mishra (2011) and Kumar *et al.* (2012) have used different measures of leverage. Keeping in view the previous studies the researcher took total debt/total assets measure of leverage in line with Pandey (2000), Bevan and Danbolt (2000), Gaud *et al.* (2003), Chen (2004), Hizazi and Tariq (2006), Dass & Roy (2007), Ghani and Bukhari (2010), Gill and Biger (2011), Ting & Lean (2011), Siddiqui (2012), Hossain & Ali (2012) and Srivastva (2012). Total debts include both short term & long term debts from financial institutions, banks, fixed deposits from government, foreign loans & funds raised from capital market through debt instruments such as commercial papers and debentures (both convertible & Non-convertible) and total assets include both current and fixed assets.

Independent Variables

So many independent variables have been used by previous researchers. This study included size, growth, tangibility, liquidity, uniqueness, profitability, business risk, non-debt tax shield, debt service capacity and effective tax rate, as these are important variables affecting capital structure decisions of the firms.

1. Profitability

Profitability is an important determinant affecting capital structure.

According to pecking order theory, a profitable firm prefers to finance from internal sources first, then debt and at last external equity. As more profitable firms make more profits have more retained earnings so they fund their projects with these retained earnings and have lower need of outsider financing resulting in negative relationship of profitability and leverage. On the other trade off theory expects positive relationship and states that the firms with higher profits will have better access to outside financing and they prefer debt to have more income to shield from taxes as interest payment on debentures are tax deductible results in reduction of cost of capital. Empirical Studies support mixed results. Bhatt (1980), Titman and Wessels (1988), Harris and Raviv (1991), Rajan and Zingales (1995), Kakani and Reddy (1998), Pandey (2000), Booth *et al.* (2001), Shah and Khan (2007) and Ahmed (2011) all found leverage to be negatively related to the level of profitability while Taub (1975), Bevan and Danbolt (2000) and Mojtahedzadeh, (2009) locate a positive relationship between leverage and profitability. The present study has used most commonly measure of profitability i.e. EBIT divided by total assets in line with Bhatt (1980), Pandey *et al.* (2000), Garg and Shekhar (2002), Rasoolpur (2012) and Hossain and Ali (2012).

2. Tangibility

The asset structure of the firm denotes tangibility. The firms with higher level of tangible fixed assets have higher tendency of issuing debt by using fixed assets as collateral rather than issuing equity predicting the positive relationship in line with trade off theory. Pandey (2000), Frydenberg (2004), Jong *et al.* (2007) and Ghani (2010) found significant positive relationship between tangibility and leverage. However Rajan and Zingales (1995), Titman and Wessels (1988), Bevan and Danbolt (2002) predicted negative relationship in support of pecking order theory. The present study has used gross fixed assets to total assets in line with Pandey (2001), Bevan and Danbolt (2002), Hizazi and Tariq (2006) and Oztekin (2010).

3. Business Risk

Harris and Raviv (1991) suggest that in high volatile firms, risk of cash flow to honour the payment of debt remains high. The two theories of capital structure i.e. pecking order theory and trade off theory also suggest the same negative relationship between leverage and business risk. According to trade off theory higher debt ratio may increase the probability of financial distress and hence firms should use less debt in order to maintain a balance of total risk profile. Pecking order theory states that high volatile firms always try to accumulate cash when there are surplus profits to avoid external finances in order to avail

investment opportunities, thus also support negative relationship. Bradley *et al.* (1984), Kakani and Reddy (1998), Eldomiaty (2007), Qian *et al.* (2007) and Akdal (2011) found significant negative relationship between leverage and business risk. But Bhatt (1980), Titman and Wessels (1988), Frank and Goyal (2007), found no significant relationship between risk and leverage, whereas some researchers such as Booth *et al.* (2001), Pandey (2001) and Rafiq *et al.* (2008) supports positive relationship between risk and leverage ratio. Standard deviation of the first difference in operating cash flow scaled by total assets, standard deviation of return on assets (Bauer 2004), standard deviation of the per cent change in operating income (e.g. Titman and Wessel (1988), Pandey (2000) and Pathak (2010)) measure has been used. As standard deviation and coefficient of variation gives a single value for a given variable and it is not possible to use this measure in the present study with panel data. So this study follow Rafiq *et al.* (2008) and Shah and Khan (2007) and used the value of the deviation from mean of net profit scaled by total number of years for each firm in a given year as a proxy for measuring business risk.

4. Size

It is evident from the literature that size of the firm is an important determinant of the capital structure. Size may then be inversely related to the probability of bankruptcy thus suggesting the positive relationship between size and leverage (Titman and Wessels 1988 and Rajan and Zingales 1995). Same positive relationship is expected under trade off theory. On the other hand pecking order theory states that there is less asymmetric information about large size firms and it reduces the chances of undervaluation of the new equity issue and larger firms favor to use equity financing. This means that there should be negative relationship between size and leverage of the firm Rajan and Zingales (1995). The empirical findings on relationship between level of debt financing and firm size are not uniform. The present study has used the natural log of the net sales to measure size of the firm in line with the studies Bhatt (1980) and Titman and Wessels (1988).

5. Debt Service Capacity

Debt service capacity indicates the ability of the firm to serve its fixed payments funding after paying all expenses except taxes and interest are paid. If the ratio is high it shows that the capacity of the firm is less to serve debt and hence resulting in the lower proportion of debt in the capital structure of the firm. Baral (2004), Bhatt, (1980) and Kumar, *et al.* (2012) have used earnings before interest and taxes to fixed interest charges as proxy for measuring the

debt service capacity. This study has also used the same measure in line with above studies.

6. Uniqueness

Uniqueness is another important determinant affecting capital structure decisions. It is predicted that firms with unique goods has to spend large amount of expenditures on selling and distribution and research and development, so these firms have more intangible assets and they are not able to get long term loans from banks and other financial institutions, hence uniqueness is expected to be negatively associated to debt ratios (Titman and Wessels, 1988). But when the research and development expenses are higher, then the firm need more funds to finance its activities thus issue more debt capital means positive relationship as per pecking order theory. Bradley (1984), Frank and Goyal (2007) and Rasoolpur (2012) found negative relationship between uniqueness and leverage whereas Kakani and Reddy (1998), Frydenberg (2004), Oztekin (2010) and Pathak (2010) found that leverage is positively associated with uniqueness. Selling and distribution expenses divided by sales has been taken as a proxy for uniqueness in line with Khanna (2013), Rasoolpur (2012) and Pandey (2000).

7. Non- Debt Tax Shield

Items other than interest expenses, that contribute reduction in tax payments, are characterized as non-debt tax shields. All these expenses are charged to profit and loss account and thus reduce the tax liability of the firm. Thus, one can expect positive association between leverage and non-debt tax shield. But DeAngelo and Masulis (1980) states that non-debt tax shields can be alternates for the tax benefits of debt financing and a firm with larger non-debt tax shields is expected to use less outside debt due to the probability of bankruptcy increases with leverage. Modigliani and Miller also argue that the main benefit of borrowing is to take advantage of interest tax shield. Thus the firms with considerable amount of non-debt tax shields do not require the tax shield provided by debt hence a negative relation is expected between non debt tax shield and leverage in support of trade off theory. Literature review provides mixed results. Some of the researchers like Kakani and Reddy (1998), Ozkan (2001) and Oztekin (2010) establish significant negative relationship whereas Frank and Goyal (2007), Rafiq *et al.* (2008) and Srivastava (2012) found positive relationship among them. Titman and Wessels (1988) observed that non debt tax shield is not statistically significant variable of capital structure. The present study has used depreciation scaled down by total assets as a proxy to measure the relationship of the debt and non debt tax shield in line with other studies i.e. Benerjee *et al.* (2000), Bauer (2004),

Qian *et al.* (2007) and Oztekin (2010).

8. Liquidity

Liquidity is the indicator of short term solvency of the firm. This ratio indicates that the firms with more liquid resources are able to meet its short term obligations without any difficulty. As per trade off theory highly liquid firms have higher level of leverage and these firms can employ external debt and other financing as they are able to pay back liabilities easily can avail the benefit of tax shields, so expects the positive relationship. On the other, pecking order theory expects negative relationship between leverage and liquidity and assumes that highly liquid firms first use its internal sources of financing then external financing. Most of the studies such as Jong *et al.* (2008), Pathak (2010), Akdal (2011), Rasoolpur (2012), and Srivastava (2012) observed significant negative relationship between liquidity and leverage while Jong *et al.* (2007) showed that there is positive relationship between liquidity and leverage. Current assets divided by current liabilities proxy has been used in the present study in line with Ahmed (2011), Rasoolpur (2012) and Siddiqui and Khanna (2013).

9. Effective Tax Rate

Debt tax shields play an important role in determining the capital structure. The impact of tax on capital structure can be measured through non-debt tax shields and tax. De Angelo and Masulis (1980) found that the non-debt tax shields such as net operating loss carry forwards, depreciation expense, and investment tax credits are substitute mechanisms for the tax benefits of leverage. Higher the tax rates, more the interest tax benefits of debt, as interest paid on debt is tax deductible, hence the effective tax rate is expected to be positively related with leverage thus supports the trade-off theory. On the other hand, it is assumed that when the tax rates are high the internal funds are used to reduce the cost of capital. Hence it is expected that there is a negative relationship between effective tax rate and leverage. Ahmed *et al.* (2011), Oztekin (2010), Eldomiaty (2007), Sarvanan (2006) and Bauer (2004) found positive significant relationship whereas Taub (1975), Booth *et al.* (2001), Frank and Goyal (2007), Niu, *et al.* (2008), and Mishra (2011) have found negative relationship between tax rate and leverage. A large number of measures have been used to compute the effective tax rate. The present study has been used the measure (1- Earnings after Tax / Earnings before Tax) in line with Rasoolpur (2011) and Sharma and Singh (2014).

10. Growth

Firms with high growth opportunities have greater future need for funds.

To fulfill the need of finance firms financed their assets through issue of equity instead of debt due to minimizing the risk per shareholder that leads tonegative relation between firm growth and leverage supporting trade off theory. Rajan and Zingales (1995), Bevanand Danbolt (2002) found negative significant relationship whereas Titman and Wessels (1988) and Pandey *et al.* (2000) claimed a positive relationship between leverage and growth opportunities. The present study measures the growth as annual percentage change in total assets in line with studies Gaud *et al.* (2003), Ghani (2010) and Qyyum (2013).

Table 1

Relationship of determinants with capital structure as expected by TOT and POT

Variables	TOT	POT
1. Size		+ve-ve
2. Growth	-ve	+ve
3. Tangibility	+ve	-ve
4. Liquidity	+ve	-ve
5. Uniqueness	-	+ve
6. Profitability	+ve	-ve
7. Business Risk	-ve	-ve
8. NDTs	-ve	No
9. Debt Service Capacity	+ve	-
10. Effective Tax Rate	-	+ve

MODEL SPECIFICATION

This study has used panel data and it combines cross-sectional data with time series data. Panel data have space as well as time dimension (Gujarati, 2004). Combination of time series with cross-section observations, panel data give "more informative data, more variability, less collinearity among variables, and more efficiency," Baltagi (2001). Panel data models are certainly attractive and appealing since they provide ways of dealing with heterogeneity and examine fixed and/or random effects in the longitudinal data under the condition of well organized data, (Park, 2011). Panel data techniques of Random Effects Model and Fixed Effects Model have been applied on this random sample. Then Hausman's specification test is applied to test the applicability of relevant model. This test tells the rejection or acceptance of null hypothesis, which is, "Random effect model is appropriate," otherwise fixed effect model is used. After this, the validity

of random effect model is tested by applying the Wald chi square and if this model also not supported by this test, then only Pooled Ordinary Least Square (OLS) regression can be applied.

Variance Inflation Factor (VIF) is used to check the problem of multicollinearity among variables. In this study all the analysis has been done with the help of software packages STATA. The regression equation for our model is :

$$\text{Lev} = \alpha + \beta_1\text{PFTY} + \beta_2\text{TANG} + \beta_3\text{BR} + \beta_4\text{SS} + \beta_5\text{DSC} + \beta_6\text{UNIQ} + \beta_7\text{NDTS} + \beta_8\text{LIQ} + \beta_9\text{ETR} + \beta_{10}\text{GA}$$

Where :

Variables Measures (proxy)

α = intercept

LEV = Leverage = Total Debt/Total Assets

PFTY = Profitability= EBIT / Total Assets

TANG = Tangibility = Fixed Assets / Total Assets

BR = Business Risk = Deviation from Mean of Net Profit/No. of Years

SS = Size = Natural Logarithm of Sales

DSC = Debt service capacity = EBIT / Interest

UNIQ = Uniqueness = Selling and Distribution Cost /Sales

NDTS = Non-debt Tax Shield = Depreciation / Total Assets

LIQ = Liquidity =Current Assets / Current Liabilities

ETR = Effective tax rate = 1– Earnings after Tax / Earnings before Tax

G = Growth Opportunity = % Change in Total Assets

ANALYSIS AND DISCUSSION OF RESULTS

Variance Inflation Factor (VIF) Test

VIF test has been applied to test the multicollinearity among the independent variables used in the study. If two variables are not correlated then VIF will be one. But it is not possible that VIF will be 1 in actual practical situation, because there would always be some degree of correlation among the independent variables (Banerjee and De, 2015). It can be revealed from the table that VIF is less than 2 for all individual variables and overall average VIF is also less than 2, so it indicates that there is no problem of multicollinearity and we can proceed for regressions analysis.

Table 2**VIF Test for Computer Software and IT Industry**

Variable	VIF	1/VIF
PFTY	1.34	0.748795
TANG	1.26	0.792360
BR	1.24	0.805194
S(S)	1.23	0.811732
DSC	1.13	0.882788
UNIQ	1.12	0.890633
NDTS	1.10	0.912086
LIQ	1.06	0.945477
ETR	1.04	0.963178
G(A)	1.01	0.991844
Mean VIF	1.15	

Hausman's Specification Test

Hausman's Specification Test has been applied to check whether fixed effect model is appropriate or random effect model is suitable for the study. Only on the basis of outcome of this test the present study rejects the null hypothesis which is, "Random effect model is appropriate." So fixed effect model is used for further analysis, as the value of Hausman's Specification Test is 53.98 and p-value is 0.0000 that shows the acceptance of alternative hypothesis of fixed effect model.

Panel Data Analysis

Table 3 presents the panel regression results to examine the impact of determinants of capital structure. Fixed effect model is used on the basis of outcome of Hausman's specification test and fixed effect results for all firms have been presented here.

Discussion and Analysis

F-test has been used to check the validity of the model and the value of F-test is 1238.96 with ap-value 0.0000 which shows that the model is statistically significant; hence, the model can be used for identifying the important determinants of capital structure. R-Squared (within) has a value of 0.979 which means that our independent variables (tangibility, growth, size, tangibility, business risk, sales, effective tax rate, uniqueness, non debt tax shield and profitability) explain about

Table 3**Panel Regression Results for Determinants of Capital Structure**

R-Sq : within = 0.9787		Number of groups = 31	
Between = 0.7916		Number of observations = 310	
Overall = 0.9445		F(10.269) = 1238.96	
		Prob>F = 0.0000	
Variable	Coefficients		
Profitability	-0.316081(41.52)*		
Tangibility	-0.321083(1.36)		
Business risk	0.000542(18.01)*		
Size(s)	-0.1870806(1.52)		
Debt service capacity	0.000006(0.59)		
Uniqueness	0.7994715(0.33)		
Non debt tax shield	1.578428(93.20)*		
Liquidity	-0.0017288(0.85)		
Effective tax rate	0.1251151(0.57)		
Growth(A)	0.0000398(0.28)		
Cons	1.016141(2.15)		

Note : Values given in parenthesis shows t-values

* Denotes significance at 1% level

98% of the variation in capital structure. The observed relationship with capital structure has been explained in the following section:

Profitability

The negative coefficient value (-0.31) of profitability, indicates negative relationship between leverage and profitability. The negative coefficient implies that 1% increase in the profitability causes the leverage to decrease by 0.31%. The relationship is significant at 1% level as p-value is less than 0.05, hence more profitable firms would tend to use less debt in their capital structure. This study also shows that computer software and I.T firms first use internal funds before seeking debt to fulfill its fund requirements in consistence with pecking order theory predictions and are in line with the findings of Rajan and Zingales (1995), Shah and Hizazi (2005) and Gill *et al.* (2009) and Hossain and Ali (2012).

Tangibility

The beta coefficient value of tangibility suggests negative relationship between leverage and tangibility. But this relationship is statistically insignificant. The negative relationship of tangibility and leverage support pecking order theory and contradictory to trade off theory. The results of the study are in consistence with Shah and Hizazi (2000) and Siddiqui (2012).

Business Risk

The significant positive relationship between business risk and leverage is found in this study with a coefficient value of 0.000542 which explains that 1% increase in business risk results in 0.00054% increase in the leverage ratio. The relationship is statistically significant as the p-value is less than 0.05. The results indicate that due to higher business risk the firms are not interested to issue equity due to high cost of equity and intend to use debt in their capital structure. This result contradicts the predictions of both theories but is in line with Pandey (2001), Shanmugasundaram (2008) and Rafiq, *et al.* (2008).

Size

The regression results predict negative relationship between size and leverage with beta coefficient (-0.187). But p-value is more than 0.05, so this relationship is statistically insignificant. The results found that leverage decreases with increase in size. The findings of this study are in line with pecking order theory which also supports negative relationship. It implies that large size firms can easily access equity as compared to smaller firms Fama and Jenson (1983). Hizazi and Tariq (2006) and Hossain and Ali (2012) also support the results of this study.

Debt Service Capacity

Debt service capacity coefficient shows positive but statistically insignificant relationship between leverage and debt service capacity as p-value is more than 0.05. The positive relationship indicates high proportion of debt in capital structure. Empirical studies such as Baral (2004) and Kumar, *et al.* (2012) support positive relationship of debt service capacity with leverage.

Uniqueness

The results show positive relationship between leverage and uniqueness with beta coefficient 0.7995. But this relationship is statistically insignificant as the p-value is more than 0.05. When the research and development expenses are

higher, then the firm needs more funds and it issues more debt capital means positive relationship in support of trade off theory. But statistically insignificant relationship also indicates that uniqueness is not a determinant that affects the capital structure of computer software and I.T companies in India.

Non Debt Tax Shield

The table shows that non-debt tax shield has positive relationship with leverage with beta coefficient 1.578 which explains 1% increase in non-debt tax shield results in 1.578% increase in the leverage ratio. The relationship is statistically significant at 1% level as the p-value is less than 0.01. Literature on capital structure suggests that non-debt tax shields like depreciation decrease the requirement for debt to stop net income from going to a higher tax bracket, and thus debt should be negatively associated to leverage. The positive relationship of this study suggest that when there is increase in non debt tax shields, leverage of the firm also increases, as with the increase of debt proportion and depreciation firms can enjoy more benefits of tax shield. So non-debt tax shield is important determinant affecting capital structure in the present study. The results are in contrary to trade off theory that expects negative relationship between these two. This result is in line with Hizazi and Tariq (2006), Rafiq *et al.* (2008), Hossain and Ali (2012) and Srivastava (2012).

Liquidity

Beta coefficient of liquidity show negative relationship of liquidity and leverage. But as the p-value is more than 0.05, so the relationship is statistically insignificant. It means firms with high liquidity ratio tend to employ less amount of debt in their capital structure. But due to insignificant relationship liquidity is not said to be the important determinant in deciding the capital structure of selected companies. The results are in line with previous studies Cuong and Canh (2012), Niu (2008) and Eldomiaty, (2007) and also support pecking order theory.

Effective Tax Rate

The table shows that effective tax rate is positively related to leverage with beta coefficient 0.125. But this relation is statistically insignificant as the p-value is more than 0.05. The results show that with increase in tax rate leverage also increases as the firms use more debt to avail the advantages of increasing tax as interest payments are tax deductible. So present study suggests that tax rate is not statistically significant determinant deciding capital structure in selected firms.

Growth

The results show insignificant but positive relationship of growth with leverage of the selected firms with beta coefficient of 0.0004. The relationship is statistically insignificant as the p-value is more than 0.05. The results of this study revealed that growing firms need more funds, but due to insufficient retained earnings these firms arrange funds through debt capital and hence prove positive relationship. This positive relationship supports the predictions of pecking order theory. The results of this study are in consistent with the results of Hossain and Ali (2012).

It is evident from the above discussion that the variables such as profitability, business risk and non debt tax shield are significant variables whereas tangibility, sales, debt service capacity, uniqueness, liquidity, effective tax rate and growth are insignificant variables. Among these variables profitability, tangibility, size and liquidity are negatively associated with leverage whereas business risk, non debt tax shield, sales, debt service capacity, effective tax rate and growth are positively associated.

IMPLICATIONS

Empirical results reveal that more profitable firms should employ internal funds to fulfill additional fund requirements than issuing debt capital. Business risk factor should also be taken into consideration while deciding capital structure. The results of this study have shown positive relationship between leverage and business risk as against the predictions of both theories of capital structure that expect negative relationship between business risk and leverage. The reason behind negative relationship is that in case of higher risk it is difficult for the firms to raise funds through debt, so the firms have to depend on equity. But as per the results of the study, positive relationship indicates that equity shareholders also not interested to increase their holding in case of extended risk and if they do they expect higher returns which in turn increase the cost of capital. So firms acquire funds through debt as the cost of debt is less than cost of equity. Non debt tax advantages should also be availed by the firms as this study revealed the positive relationship. The most suitable explanation for the positive relationship of non debt tax shield to leverage can be given from the relevance of non debt tax shield to the capital structure in the selected firms. Depreciation thus does not work as an alternate to debt capital to stop net income from going into a higher tax bracket. Hence, the positive relationship is just a matter of chance.

Overall this study can be beneficial for the financial experts and managers of computer software companies in deciding financial structure.

LIMITATIONS

This study also encompasses with some limitations. The study is based on secondary data that is available on prowess data base. The study sample is restricted to computer software and IT sector. The leverage is measured by taking one proxy, so other measures can be taken to study the relationship of leverage with other factors.

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