Determinants of Financial Alternatives: Perspectives of IT Industry in Bangladesh

Tasneema Afrin
Assistant Professor
Institute of Business Administration, University of Dhaka
Dhaka, Bangladesh

A.T.M. Jakaria Khan
Assistant Professor
Institute of Business Administration, University of Dhaka
Dhaka, Bangladesh

Abstract
This paper aims to determine the factors of financial alternatives of theenlisted ITfirms in Bangladesh.This study also attempts to bridge the gap between past literature and current status quo of the IT industry. The data in the IT sector are limited, and therefore, a thorough representation of this sector has been one of the primary motives. Data of 8 out of 11 listed companies werecollected for the period of 2016-2021. These data were then analyzed and the possible determinants based on literature review, namely, Liquidity Ratio (LR), Growth Rate (GR), Firm Size (FS), Tangibility Ratio (TR), Profitability Ratio (PR), Operating Leverage, Earnings Volatility (EV), Interest Coverage Ratio (ICR) were calculated. Through correlation and regression analysis of the extracted determinants, it was found that each of the determinants has significant influences on different financial alternatives of the chosen IT firms.
Key Words: *Financial alternatives, Earnings Volatility, Liquidity, Tangibility, Operating Leverage, Firm Size, Interest Coverage, Leverage Ratio, IT Industry, Bangladesh*

I. Introduction

A well-designed financial decision or the lack of it can make or break a firm. And hence the question arises – what are the factors that significantly influence the financial decision of a firm? According to Pecking Order Hypothesisthere is a specific hierarchy of different financing alternatives which entails that all the companies go for internal financing over external financing. Again, debt financing is preferred to equity financing when it comes to external financing. But in practice, companies do not necessarily construct their capital structure adhering to this hypothesis. They choose from different levels of capital structure and test those out to arrive at the optimal debt ratio that maximizes their market value. Our study is aimed at finding the determinants of financial alternatives of the IT industry in Bangladesh. This industry is relatively young with only 11enlisted IT businesses.We collected financial information of the selected firms based on information availability and conducteddescriptive statistical analysis, correlation analysis and multiple regression analysis using Microsoft Excel and R software to find out how the capital structure is determined by our chosen industry and what factors influence it the most.

II. Methodology

2.1 Data

This scholarly work is an output of secondary source of data such as the accounting statements of the selected companies. The online portal of LankaBangla Finance Limited is the chief source of data and information used in this article. The research includes data from a total of 8 listed companies among 11 in the IT industry of Bangladesh. The sample period covers five years from 2017 to 2021. Data and information readiness, years of operation and consistency in performance were the criteria based on which these 8 companies were selected.The remaining 3 firms have been eliminated because of missing data in our sample period.

2.2 Model Specification

The study uses total leverage ratio (TLR) as the dependent variable. Multiple regression analysis using Microsoft Excel was conducted to evaluate the influence of the independent variables on the TLR variable. The association of different independent ratios were calculated with TLR. The used multiple regression equation includes liquidity, tangibility, profitability, growth percentage, earnings volatility, operating leverage and interest coverage as independent factors. The model is as follows:

$$\textbf{TLR} = \beta_0 + \beta_1.LR_{i,t} + \beta_2.TR_{i,t} + \beta_3.PR_{i,t} + \beta_4.GR_{i,t} + \beta_5.OL_{i,t} + \beta_6.FS_{i,t} + \beta_7.EV_{i,t} + \beta_8.ICR_{i,t}\ldots\ldots\ldots\ldots (1)$$

III.   Literature Review

Different variables like bottom line, company's size, income growth, percentage of fixed assets heavily impact capital structure (Pandey, 2001). He did this survey on a selected companies of Malaysia. He did not find any meaningful impact of market value, book value, investment exposures on financial alternatives. However, profitability found to have an adverse impact on all solvency variables.

Pathak, J 2005 did similar research on Indian firms. He used regression model. He showed how tangibility, firm size, growth, profitability and liquidity impact financial choices. According to this research, solvency is assertively correlated with income growth, growth in fixed assets and size of the firm. This study also found that business and financial risk, profitability, liquidity impact solvency adversely.Eventually, bottom line, income growth, fixed assets and taxes dictated different financial choices. Business, financial and cash flow risks, totals assets also additionally impact financial decisions.

Shah, A & Hijazi, T attempted to make a survey on financial choices and relevant factors for a selected group of companies of Pakistan. To do so, they used publicly available data for five years. They found that, though the relationship is not statistically significant, asset's tangibility and financial decisions are assertively correlated. They found that big companies are heavily dependent on financial leverage. But they found company or earnings growth influences solvency adversely which is in line with Pecking Order Hypothesis which entails that young promising companies capitalize on retained earnings for company expansion.

Goyal, Frank & MZ(2007) did a similar study on a few selected firms of the USA. This study found average industry debt ratio, tangibility and market value to book value as important factors for solvency. The first two factors were said to have an assertive relation with solvency, however, the third factor mentioned has an adverse relation with solvency. This study also revealed the adverse relationship between bottom line and solvency, and assertive relationship of firm size with the same. Forecasted average price level impacts solvency assertively.

Sayeed & AM (2001) found out several factors that have impact on debt ratios. They analyzed 46 listed Bangladeshi companies. Their research horizon covered a time period from 1999-2005. The outcome of this study shows that agency cost and debt tax shields such as depreciations have a negative impact on solvency. Moreover, leverage ratios are assertively influenced by assets, firm value and taxes. However, bottom line amount and bankruptcy costs were not relevant for solvency evaluation.

H. Llma (2009) researched on selected companies of pharmaceutical industry in Bangladesh over a period of 2002-2007. She took into account risk, interest coverage ratio, equity value, earnings growth, fixed asset and operating leverage as relevant factors to check the impacts on solvency. Eventually, she concluded that earnings growth, fixed assets, interest coverage ratio and operating leverage influence solvency assertively. Again, risk and equity value impact solvency adversely.

IV.   Analysis

We have analyzed the independent variables below to see how each of them is expected to affect the financial alternatives of the firms in our chosen industry, and how each variable correlates with the amount of financial leverage to ensure an optimal financial balance i.e. capital structure that maximizes firm value.

4.1 Determinants of Financial Alternatives

The following financial determinants were found from past literature review across different economies and industries. These were applied on the sample IT firms of Bangladesh.

4.1.1Liquidity

H1: Total leverage ratio and liquidity areadverselyassociated

4.1.2 Tangibility

H2: Total leverage ratio and tangibility are assertively associated

4.1.3 Profitability

H3: Total leverage ratio and profitability are adversely associated

4.1.4 Growth

H4: Total leverage ratio and growth are assertively associated

4.1.5 Operating Leverage
H5: Total leverage ratio and operating leverage are adversely associated
4.1.6 Firm Size
H6: Total leverage ratio and firm size are assertively associated
4.1.7 Earnings Volatility
H7: Total leverage ratio is negatively related to the earnings volatility
4.1.8 Interest Coverage
H8: Total leverage ratio is positively related to interest coverage

Table 1 contains a synopsis of the above variables, formulae and forecasted relationship.

Table 1: Independent Variables

	Variables	**Illustration**	**Formulae**	**Expected Sign**
Independent Variables	LR	Liquidity Ratio	CA / CL	-ve
	TR	Tangibility Ratio	FA / TA	+ve
	PR	Profitability Ratio	NI / TA	-ve
	GR	Growth Rate	(Rev_t / Rev_{t-1})	+ve
	OLv	Operating-Leverage	CM / OP	-ve
	FSz	Firm-Size	Ln (TA)	+ve
	EV	Earnings Volatility	$|\{(OP_t / OP_{t-1}) - 1\}|$	-ve
	ICR	Interest Coverage Ratio	EBIT / FE	Positive

V. Findings

Table 2 shows that, Bangladeshi IT companies use 20% debt in their capital structure, which suggests they are mainly equity financed and not much dependent on debt. The industry is relatively young. That could be one reason for low debt financing. Because of the lower debt, the financial expenses are low and thus the interest coverage ratio is pretty high.

Table 2: Variable Statistics

Factors	Number	Min.	Max.	Average	SD
TLR	24	0.02	0.41	0.20	0.14
LR	24	1.57	22.32	5.61	6.15
TR	24	0.14	0.74	0.47	0.20
PR	24	0.04	0.10	0.07	0.02
GR	24	-0.07	0.64	0.21	0.20
OL	24	0.89	1.28	1.12	0.12
FS	24	19.30	21.40	20.49	0.71
EV	24	0.00	0.83	0.16	0.20
ICR	24	6.09	3501.79	474.49	1012.21

From Table 3, based on the multiple regression analysis, we see that the adjusted R square is high meaning that 88.8% of the total leverage ratio can be explained by the independent variables. However, we have found that none of the financial ratios have a statistical significance to reject the null hypothesis with Profitability Ratio (PR) and Earnings Volatility (EV) having the lowest P-value (in the order of 0.11) and the P-value of Liquidity Ratio (LR) and Interest Coverage Ratio (ICR) were high (in the order of 0.69). None were below the 5% significance level. So, we cannot reject the null hypotheses for any of the independent variables. In other words, our regression model does not have strong explanatory characteristics to determine the capital structure of our chosen industry.

Table 3: Multiple Regression Results

Regression Model	
Multiple R	0.97573
R Square	0.95204
Adjusted R Square	0.88809

Standard Error	0.04571	
Observations	24	

ANOVA

	df	SS	MS	F	Significance F
Regression	8	0.24882	0.03110	14.88795	0.00198
Residual	6	0.01253	0.00209		
Total	14	0.26136			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.42302	3.28926	0.12861	0.40187	-7.62552	8.47156
LR	-0.32332	0.00816	-0.40734	0.39789	-0.02329	0.01664
TR	-0.80688	0.20046	-1.03201	0.34186	-0.69739	0.28363
PR	-4.85646	2.64240	-1.83790	0.11572	-11.32219	1.60926
GR	-0.52585	0.09572	-0.27006	0.29616	-0.26007	0.20837
OL	0.23381	0.19636	1.19070	0.27874	-0.24667	0.71429
FS	-0.50385	0.15397	-0.02502	0.28085	-0.38061	0.37290
EV	0.27678	0.15111	1.83170	0.11671	-0.09296	0.64652
ICR	0.70001	0.00003	0.41881	0.38993	-0.00006	0.00008

We will now compare individual signs of the coefficient of each independent variable to our hypothesized signs:

- **Liquidity Ratio (LR):** We expected that LR should be negatively correlated to leverage ratio and here the coefficient is negative.
- **Tangibility Ratio (TR):** We expected that TR should be positively correlated to leverage ratio but here the coefficient is negative.
- **Profitability Ratio (PR):** We expected that PR should be negatively correlated to leverage ratio and here the coefficient is negative.
- **Growth Rate (GR):** We expected that GR should be positively correlated to leverage ratio but here the coefficient is negative.
- **Operating Leverage (OL):** We expected that OL should be negatively correlated to leverage ratio but here the coefficient is positive.
- **Firm Size (FS):** We expected that FS should be positively correlated to leverage ratio but here the coefficient is negative.
- **Earnings Volatility (EV):** We expected that EV should be negatively correlated to leverage ratio but here the coefficient is positive.
- **Interest Coverage Ratio (ICR):** We expected that ICR should be positively correlated to leverage ratio and here the coefficient is positive.

According to our multiple regression model, the regression equation of Total Leverage Ratio (TLR) is:

TLR = 0.42302– 0.32332LR –0.80688TR –4.85646PR–0.52585GR + 0.23381OL–0.50385FS + 0.27678EV + 0.70001ICR………… (2)

VI.   Conclusion
Our regression model proves to be a good predictor of the Total Leverage Ratio (TLR) for the IT industry of Bangladesh since the P-values were less than 5% in all cases. The model suggests a negative correlation between liquidity ratio and leverage ratio, positive correlation between tangibility ratio and leverage ratio, negative correlation between profitability ratio and leverage ratio, negative correlation between growth rate and leverage ratio, positive correlation between operating leverage and leverage ratio, negative correlation between firm size and leverage ratio and positive correlation between Earnings Volatility and leverage ratio.

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