

Impact of Debt Maturity on Firm Performance Evidence from Pakistan

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Abstract

The manuscript is articulated to check the impact of debt maturity on organization performance. In today's cut throat competition, organizations need high performance. The study tends to measure the effects of debt maturity over the organization performance. For this purpose, data was collected from non-financial scheduled firms in Pakistan stock exchange for the period of 2014-2018. To find the good results estimation techniques used were Stata11 software for regression analysis. The research found that operating cycle and growth have a considerable effect on the dependent variable i.e. debt maturity while asset maturity, size and tax have an insignificant effect on debt maturity. It is concluded that long term debt is better for the growth.

KEY WORDS: Debt Maturity, Firm Performance, Non-financial, Pakistan Stock Exchange, Regression

1. Introduction

Debt maturity is the date on which a liability becomes suitable for compensation. Debt maturity is also notorious as debt maturity date. On maturity date the issuer has to pay back the nominal sum. After that date, the issuer has no extra responsibility when the whole expenses are being paid. There can be several extents of maturity on the bases of time. Debt securities which are less than one year are generally nominated as money market instruments. The majority bonds have different maturities such as some have a maturity period of 30 years while others have maturities of round about 100 years, while the remaining does not mature. At the start of the year 2005, a Euro market for bonds is developed with fifty years of maturity. In U.S market for Treasury securities, they have classified three categories of bond maturities: 1) Short-term (also known "bills"): maturities round about 1 year; 2) Medium-term (also known as "notes"): maturities longer than 1 year up to 10 years; 3) Long-term (also known as "bonds"): maturities longer than 10 years.

On the basis of maturity and some extra qualities debt securities are classified as, bonds, debentures, notes or commercial papers, and deposits. The possessor of a debt security is usually eligible to compensation of actual amount and interest, collected to other prescribed privileges in the standings of issue, like to obtain assured evidence. Usually debt securities are allotted for predetermined period and exchange able by the issuer at the end of the term. Debt securities may be sheltered may be unsafe or by collaterals. Organizations always

look for short-term and long-term operations of the cash. Liquidity levels essentially appropriately are observed to compensate loan amount at maturity.

Initial studies like Merton (1974) supposed that precise capital markets show the inappropriateness of debt maturity that affects the firm value, but the imperfect market used both long term as well short-term debts.

The debt maturity structure assortment is imperative to firms as an incorrectly mix may cause the positive NPV project unproductive. The selected mix can be exercised as a signaling device for the market which is imperfect. It also gives necessary information related to firm credibility, quality and future outlooks. Signaling models describe that undervalued and overvalued firms deliver short term or long term debt indication for their under or over valuation. Definitely, Fama (1990) recommends that debt maturity arrangement provide facts and figures, monitor and connecting the appropriate deals of firms.

The seminal debt maturity theories are as follows. The leading aspect is grounded on tax opinions. Brick and Ravid (1985) showed that as soon as the term-structure of interest rates is up-ward sloping then the long-term debt is optimum. Subsequently the savings from leverage payable because of interest tax shield is enhanced (sentiments for borrower) otherwise the interest income was late (sentiments for lender). Brick and Ravid (1991) also proved that with the increase of long-term debt cause yield curve flat or else downward sloping showing that interest rates are unclear. The results of Stohs and Mauer (1996) support the tax effect whereas the Guedes and Opler (1996) did not support the tax. Second aspect is related to information asymmetries. Flannery (1986) showed that high quality firms favor the short-term debt to signal good news. The analysis of Stohs and Mauer (1996) also supported this results .According to Diamond (1991) that firms with low-quality would have a preference on short-term debt for liquidity risk while medium-rated firms prefer the long-term debt. These points of view were statistically defended by different authors, Barclay and Smith (1995). The third aspect based on the contracting costs point of view. Myers (1977) claims that short-term debt minimizes the underinvestment problems, if it exercised earlier then the growth options. Consequently the chances exist for creditors as well firms to contract again. In the same way, Barnea et al. (1980) debate that short-term debt may not decrease the problem related to asset changeover, because the value of short-term debt is fewer sensitive to produce changes in the asset value of firms.

Guedes and Opler, 1996 as well Barclay and Smith, 1995, supported the contracting cost hypothesis but Stohs and Mauer (1996) did not support that hypothesis. Pakistan is developing country. The basic motivation behind this topic is to empirically recognize the aspects that affect the debt maturity choice in emerging countries such as Pakistan.

1.1 Research Objectives

The main objective of this research study is to identify variables that affect the debt maturity.

- To investigate the impact of debt Maturity on firm Performance.

2. Literature Review

Aziz and Abbass (2019) investigate that how debt financing effect the firm performance. They studied fourteen sectors from Pakistan. The sample period was from 2006 to 2014. The findings of this study showed that debt financing was significantly negative associated to the firm's performance. The researchers recommended that firms try to depend on his internal financing. The basic reason behind this was that internal financing is the cheapest and reliable source of financing in developing country like Pakistan.

Ruslan (2018) studied the financial performance of Malaysian logistic companies. The researcher used four variables which were firm age, size, growth and leverage. Also used return on assets (ROA) and Tobin's Q. The results showed that q is positively related to leverage and size while growth and age showed negative association with Tobin's q. on the other side only firm age showed negative association.

Ilhan (2018) explored financial leverage and profitability relationship of chines manufacturing firms. The sample was composed of listed firms from manufacturing sector of china. The sample period was 2008-2016. The data was collected from ORBIS data base. The researcher used regression analysis. The result revealed that positive impact of financial leverage on profitability is due to tax and negative impact was due to other factor like bankruptcy cost, financial distress, agency problem and information asymmetry.

Ben Said Hatem (2017) examined the influence of capital structure on firm performance. According the researcher debt maturity was calculated by three proportions (short-term capital structure, long-term capital structure and total debt ratio). The researcher studied 116 firms from Malaysia as well 92 firms from Mexico. The sample period was 7 years from 2005 to 2011. The results did not reveal any clear indication that long-term debt ratio affect the firm performance. Yet, firms that have higher short-term capital structure were

not as much profitable. The result was effective for firms of Malaysia as well Mexico. The results related to total debt ratio were mixed and accomplished an encouraging influence for firms of Malaysia and a discouraging influence for firms of Mexico.

Sorana (2015) studies the capital structure and firm financial performance of Romania. The sample consist of 196 manufacturing companies from Romania, which were listed on the Bucharest Stock Exchange from the period of 2003 to the 2010 was examined. The capital structure was studied by short term debt, long-term debt total debt as well total equity. The return on assets and return on equity were used for financial performance. The analysis was based on cross sectional regressions. The results indicated that performance was high when the companies avoid the debt and just use equity. Furthermore indicated that manufacturing companies did not have necessary internal funding for profitable investment and did not used their assets effectively. But the companies use debt when they were in financial difficulties.

Vithessonthi and Tongurai (2015) analyze the effect of firm size on the leverage. The researcher investigated Thailand's firms for the period of 2007-2009. the sample was consisted of 170,013 firms and 496,430 observations. The results from regression analysis was showed negative relation between large firms and Leverage. While the positive association for small firms and leverage. The results also showed that 75% of Thailand firms had managed themselves from global crises because they simultaneously deleverage and liquidate their assets.

Hajiha and Akhlaghi (2011) examined the influence of ownership structure on debt maturity of firm. They token sample of Iranian firms listed on Tehran Stock Exchange from 2002 to 2009 as example of emerging market. They take managerial ownership, institutional investor and the presence of large stockholder as a proxy for ownership structure. The researcher controlled the effects of some key variables including growth opportunity, tax effects, firm size, profitability and leverage. Their regression analysis presented that managerial ownership as well institutional investor had significant positive influence on debt maturity.

Shah (2010) considered the judicial efficiency's influence on leverage and debt-maturity structure. He used a sample of 370 firms scheduled on the KSE. The principal economic effect on leverage ratio was the size of firm. The results also showed that with the decrease of judicial efficiency the leverage ratio get reduced; but this relationship was not important.

Judicial efficiency improved leverage ratio of large firms and reduced leverage ratio of small firms, which proved that creditors transfer credit far away from small firms to large firm when judicial system is inefficient. Results also indicated that the effect of inefficient courts was superior on leverage ratio of firms that have smaller amount of tangible assets as percentage of total assets than on leverage ratio of firms that have more tangible assets.

Shah and Khan (2009) investigated the determining factors of debt maturity structure in Pakistan. They gave first time verification about how scheduled firms in Pakistan select among their long-term and short-term debts. For understanding the debt maturity nature, they used OLS, Within Group (WG) and GMM estimation. Main findings were that more short-term debt was utilized by smaller firms, although there was no confirmation that additional of short-term debt was used by growing firm. It also showed that assets which are long lived surely linked with structure of debt maturity.

3. Research Methodology

Analytical method was used, in analytical method the researcher has use the facts as well information which was already available and analyze that information to create some decision. For the investigation purpose the technique of penal data were used and the sample rang was 2014-2018. The data were collected from textile sector which was non-financial firms in Pakistan stock exchange. This study was predominantly based on the secondary data and for this research the data were taken from balance sheet and income statements which were published of State Bank of Pakistan Statistics Department.

3.1 Dependent Variable:

Dependent variable in this research study was Debt maturity.

3.1.1 Debt Maturity

Empirically, quite a lot of proxies have been used for debt-maturity. Such as Ozkan (2000) had used the proportion of liabilities having maturation of 5 years or 1 year to total liabilities. Barclay and Smith (1995) and also Varouj, *et al.* (2005) was used the proportion of debt maturing in greater than 3years to total debt. But data source is not on dissimilar debt maturities. Agreed to the constraint, this research assess of maturity of debts as follows:

$$\text{Maturity of debt} = \text{long term debt} / \text{total debt}$$

3.1.2 Independent Variable

The independent variables in this study were asset maturity, growth, size and tax.

3.1.2.1 Asset Maturity

According to Stohs and Mauer (1996), when a firm has larger assets maturity than Debt maturity, then in order to meet the debt obligation the cash flow from its assets will not be adequate. But if a firm finances short-term asset as well as long-term debt maturity then because of little activity, the funds will remain useless. So researcher was concluding from this that asset maturity has optimistic association with maturity of debt. The researcher “used two proxies for maturity of assets”; 1) Assets, which were calculating by dividing net fixed assets on annual depreciation charge. This proxy was receiving the maturity of fixed assets. 2) Oppcycle was a ratio of net sales/net fixed assets. It captures the yearly fluctuations in operational activities

3.1.2.2 Growth

To measure growth two approaches can be used, market-value or book-value based. A lot of research studies on maturity of debt use market value approach. But researcher used the book-value approach which provides a reliable determine of growth. The proxy used for growth was annual percentage increase in asset.

3.1.2.3 Size

Agency theory tells us that for small firms the agency costs are superior. With the assist of short-term financing these costs can be guarded. This shows optimistic association among firm size and maturity structure of debt. The proxy which researcher used for the firm size was the natural logarithm of total asset.

3.1.2.4 Tax

According to Kane *et al.* (1985) the maturity of debt increases by means of floatation costs and decreases through tax-shield settlement of debt. Tax was calculated from this equation
Tax rate= Annual tax expense/taxable income

3.2 Research Model

This is the estimated equation for this research.

$$\ln \text{Debtmaturity}_{jt} = \alpha_0 + \beta_1 \ln \text{Assmt}_{jt} + \beta_2 \ln \text{Oppcycle}_{jt} + \beta_3 \ln \text{Chgasst}_{jt} + \beta_4 \ln \text{Tax}_{jt} + \beta_5 \ln \text{Logasst}_{jt} + e_{jt}$$

Where,

Ln was used for natural (normal) logarithm.

lnDebtmaturity was used for debt maturity.

lnAssmt was used for asset maturity.

lnOppcycle was used for operating cycle.

lnChgasst was used for change in asset. This was the proxy of growth.

lnTax was used for tax.

lnLogasst was used for log of asset. This was the proxy of size.

4. Results

This section of the research is consists of the descriptive statistics, correlation matrix, and in last the regression analysis.

4.1 Descriptive Statistics

variable	observations	mean	std.deviat ion	minim um	maximu m	median
lnDebtmat urity	300	0.301784 6	0.193236 4	0	0.90804 37	0.1932
lnAssmat	300	26.3198	85.25208	3.1478 91	1002.67 2	85.39
lnOpcycl	300	2.066593	1.472812	0	9.75038 2	1.4728
lnChgasst	300	120.1124	137.0419	0	1862.28 8	137.04
lnTax	300	0.243981 6	2.596927	- 15.851 5	27.8958 7	1.5391
Logasst	300	6.14285	.4486182	4.6874 4	7.14945 7	0.4486

Total numbers of observations for every variable are equivalent, 300. lnDebtmaturity has mean 0.3017846, std deviation 0.1932364, minimum 0, maximum 0.9080437 and median 0.1932. lnAssmat has mean 26.3198, std deviation 85.25208, minimum 3.147891, maximum 1002.672, median 85.39. lnOppcycle has 2.066593 mean, 1.472812 std deviation, 0 minimum, 9.750382 maximum, 1.4728 median. lnChgasst has 120.1124 mean, 137.0419 std deviation, 0 minimum, 1862.288 maximum, 137.04 median. lnTax has 0.2439816 mean, 2.596927 std deviation, -15.85156 minimum, 27.89587 maximum, 1.5391 median. Logasst has mean 6.14285, std deviation 0.4486182, minimum 4.68744, maximum 7.149457, median 0.4486.

4.2 Correlation

Linear association between two variables refers to the correlation. Positive correlation shows that rise in one value will increase the second one. Negative correlation shows that decrease in one value also reduce the other one.

Correlation Matrix

Variable	lnDebtmaturity	lnAssmt	lnOppcycle	lnchgasset	lnTax	Logasset
lnDebt maturity	1.00					
lnAssmt	0.0522	1.00				
lnOppcycle	-0.2591	-0.0683	1.00			
lnChgasset	0.1664	-0.0181	0.0639	1.00		
lnTax	0.0093	-0.0134	-0.0155	0.0690	1.00	
Logasset	-0.1218	-0.0412	0.0530	-0.2324	0.0127	1.00

In the above table lnDebtmaturity is the proxy for debt maturity, lnassmt for asset maturity, lnOppcycle for operating cycle, lnchgasset for change in asset (growth), lnTax for tax, longest for size. lnDebtmaturity has a weak and positive correlation with lnassmat, lnchgasset, lnTax. lnDebtmaturity is negatively correlated to lnOppcycle, longest. lnassmt is weakly and negatively correlated with lnOppcycle, lnchgasset, lnTax, logasset. lnOppcycle is weakly and positively correlated with lnchgasset and longest, and weakly and negatively correlated with lnTax. lnchgasset is weakly positive correlated with lnTax, and weakly and negatively correlated with longest. lnTax is positively and weakly related with longest.

4.4 Regression Analysis

Regression analysis is carried out to verify the reliance of one variable on other variables i.e. dependent variable on independent variables. It is applicable to ensure the grades are also considerable or of no consequence. In this study the debt maturity is the dependent variable and growth, asset maturity, tax and size are independent variables.

Variable	1	2	3	4	5
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Assmat	.0001183 (.0001311)	.0000785 (.0001272)	.0000843 (.0001251)	.0000835 (.0001253)	.0000774 (.0001254)
Oppcycle		-.033695 *** (.0073655)	-.0352103 *** (.0072573)	-.0352811*** (.0072685)	-.034752 *** (.0072807)
Chgasst			.0002597*** (.0000778)	.0002623 *** (.0000781)	.0002398 *** (.0000804)
Tax				-.0019209 (.0041146)	-.0017736 (.004114)
Logasst					-.0286378 (.0245014)
No. Of observations	300	300	300	300	300
R-squared	0.0027	0.0683	0.1021	0.1028	0.1069

***, **, *, shows significance at 1%, 5%, 10% respectively.

The beta for *lnassmat* is 0.0001183. It is statistically inconsequential. The beta value for *lnoppcycle* is -.03368 and negatively associated to the debt maturity. It shows that a 1 unit increase in *lnoppcycle* would lead to 0.0336 unit decrease in debt maturity. It is significant at 1 percent which is a high significance. The beta for *lnchgasst* is .0002597. It is positively associated to the debt maturity. It means that a 1 unit increase in *lnchgasst* would lead to a 0.00023 unit increase in debt maturity. This variable is also statistically significant at 1 percent level. The beta for *lntax* is -.0019209. It is statistically insignificant. The beta for *lnlogasst* is -.0286378. It is statistically insignificant.

The results of Ruslan (2018) showed that *tobins q* is positively associated to leverage and size while growth and age showed negative association with Tobin's *q*. Ilhan (2018) also revealed that positive impression of financial leverage on profitability is due to tax. Sorana (2015) and Vithessonthi and Tongurai (2015) showed negative relation between debt and firm profitability. The result of Zeatun and Tian (2014) showed that long term debts are not good for high performance.

5. Conclusion

This study investigates maturity of debt of textile in non-financial sector for the period 2014-2018. The basic objective of this research study is to explore the effect of debt maturity on firm financial performance. This is second study on debt maturity from Pakistan. Stata11 software is used for analysis. The actual results are concluded from descriptive, statistics, correlation matrix and as well as regression analysis. The dependent variable is debt maturity and independent variable is asset maturity, growth, size and tax.

Descriptive statistics shows the whole numbers of observations, which is 300 and that's similar for all the variables. It moreover shows about, variance, minimum, maximum, medians and mean of all variables. From correlation matrix it is found that maturity of debt has a weak and positive correlation with asset maturity, growth, tax. Debt maturity is negatively associated to operating cycle and size.

From different interpretations researcher found that operating cycle and growth has a major consequence on debt maturity while asset maturity, tax and size have an inconsequential effect on debt maturity. It is determined that growth and debt maturity have positive relation. For supplementary growth purpose the firm has to use long term debt. Debt maturity and operating cycle is negative relation. So long term debt is not good for operating cycle. For high proportion of Operating-cycle the firm may require short-term financing to sustain sales.

6. Limitations of the Research

This is an exploratory study and the data of Pakistan is taken. The data is taken from the year 2014 to 2018. The data is taken from textile sector (non financial sector) scheduled on Pakistan stock exchange. This research work is completed in the five months period. This research does not illustrate any considerable association among maturity of debt and size of firm. According to this investigation dues have no consequence on debt maturity.

7. Recommendation

It recommended for future researcher to study debt maturity structure of Pakistan. Investigate debt maturity and taxation relationship. Also find out how investment of a firm is influenced by debt maturity structure. Investigate debt of short-term is in good health for firms or long-term debt.

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