DETERMINANTS OF CAPITAL STRUCTURE IN NON-FINANCIAL SECTOR OF PAKISTAN: A CASE OF LISTED COMPANIES IN KSE

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ABSTRACT
This research is an effort to empirically test the factors influencing financial leverage of firms listed at Karachi Stock Exchange of non-financial sector in Pakistan. For this purpose, 322 firms are incorporated in the study and nine years of annual data from 2006 to 2014 related to capital structure of these firms is investigated. Liquidity, profitability, firm size and growth are taken as determinants of financial leverage and regression analysis is used to analyze their relation and significance level. Results are found to be as expected however few converse relations between variables are identified.

Keywords: Leverage, Capital Structure, KSE, Non-financial sector.
JEL Classification: G32

1. INTRODUCTION

The non-financial sector plays a significant role in the economy of both developed as well in developing countries. It is considered as lifeline of every economy for its socioeconomic development by stabilizing economy of a country. Moreover, future of any country is dependent on equitable progress of its non-financial sector. As it is one of the essential elements of the economy, without it structure of economy may cause ill and resulted to an abnormality.

The non-financial sector of Pakistan showed large diversification with several industries such as textile, sugar, food products, medical and pharmaceuticals, manufacturing, mineral products, cement, motor vehicle, trailers and auto parts, fuel and energy, information, communication, transport services, coke and refined petroleum products, paper and paper board products, electrical and machinery apparatus and other service activities. The primary objective of any sector like non-financial sector is to increase the shareholder's wealth. This goal can be achieved by financing and capital structure decisions. Furthermore, it comprises on the capital structure management decisions. It is considered one of the important decisions to choose the right combination of debt and equity. The capital structure management decision is defined by the leverage of firm (the combination of debt and equity). Leverage is the use of fixed costs to increase profitability of a firm. Therefore, Leverage is a spontaneous tool which gives an accurate image of firm profitability in long term span.

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Typically, it has been observed that higher financial leverage would provide more benefit during economic boom but on the other side financial leverage is criticized with negative impact during the period of economic recession. This may be due to the volume of sales has been reduced in the recession which creates the problem for a firm to pay the interest payment to the creditors. Whereas, shareholder's wealth has considered as in term depart of profit. Because profitability is a mirror which shows the ability of business to ensure adequate return to its shareholders. It shows how much income left after deducting all the expenses. Since this study is based on the domain of finance keeping other factors constant like political instability, exchange rate, market price, etc. on the profitability of non-financial sectors. Thus, positive changes in this sector would also bring positivity in whole economy of Pakistan which would further lead to the path of prosperity.

The purpose behind this investigation is to find out the relationship between leverage and profitability with respect to non-financial sector of Pakistan. However, performance of non-financial sector in Pakistan has been quite good. By analyzing the different ratios of this area like gearing ratio which shows constancy in the tenure of 2006 to 2011 which reflect the reality of the degree to which a firm's activities are funded by owner's funds against creditors funds. Gearing is a concern with the liquidity. Current ratio showed little fluctuation over a period which means all companies in this sector are keeping their net working capital near to constant. But debt to equity ratio is increasing every year which means most of the companies used debt to finance their assets. Gearing ratio showed least numerical figures than current and debt to equity ratio of this sector. The standard measure of leverage is total liabilities (current and noncurrent) to equity. Historical studies describes that if a firm takes internal resources of financing to fulfill its need, the profitability of firm will not bring any negative impact on leverage because of firm's shows self-sufficiency. It also suggests that financial leverage affected by cost of capital and firm's profit and stock prices increases. But when it comes to the ground of external sources it brings negative change in the given

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correlation. In the trade-off theory, a different conclusion has to be given by saying this; if firms are making profits they should use more debt to protect them from tax shield. Past profitability of the firm is a key indicator to forecast the future income (profitability), and profitable firms can involve much in borrowing as the chances of returning the loans is larger. Debt is considered worthwhile when it is using to increase the firm's operations which would contribute in income generation process and finally reach the real goal by increasing shareholder's wealth. It acts as a tool to forecast the plan of a firm because here fixed cost rewarded by a firm is already calculated. The literature review in the following part shows us assorted results on the relationship between financial leverage and profitability of a firm.

2. LITERATURE REVIEW

Previous research identified that companies that contain a high amount of leverage are got a beneficial view to reduce their free cash flow. Free cash also refer the cash that firm require preserving their assets. If companies used their leverage to improve capital so their free cash flow as an alternative way for management of debtors and interest expense. Free cash flow from investment perspective is used to improve shareholder’s wealth. Capital structure is dependent on two theories largely which are; trade off theory and Pecking Order Theory (POT). Trade off theory describes that whenever company incurred debt it cost and benefits that related to such debt should be focused thus the aimed could be achieved. The best decision of debt selecting would be impact the future earning of company as balancing the cash inflow (raising funds) and cash outflow (payments). It has both impacts positive like tax shield and negative like costs of bankruptcy. It based on a structure that is a combination of debt financing (borrowing) and equity financing (owner's capital). The POT says if company considered both internal funding as well as external funding, the company must use external one when it is needed by company hardly otherwise internal funding should be considered as a safest way. External funding deemed to be second preference for companies. Because whenever the external funding increases it would create a burden on company like interest payment which shrinks the profit of the company. Sometimes company also faces a dispute between debt holders and equity holders. The pecking theory also defines the other factors like improper information (asymmetric) which causes new investors to shift their


interest to other company. Leverage is considered obligations, liabilities, borrowing. It has positive impact (more resources to generate the income) as well as negative impact (bankruptcy).

Moreover, capital structure is also defined as options available to finance firm’s assets. Three theories are used to find out the factors that affects capital structure namely: Static Trade off Theory (STT); explains if a firm has targeted debt to equity ratio then the benefits are more than cost. Because interest expense is reduced the payment of tax. So, firm’s tax liability would be minimized in this way. Even though, tradeoff hypothesis of capital structure describes the relationship between the organization obligation in term of fund and the amount of value money which is used for adjusting the expenses and advantages. This hypothesis is also reflecting in the pecking theory’s hypothesis of capital structure. It expresses that if there is favorable position to financing with obligation then it helps in tax reductions of obligation which also diminish the other misery including expenses of obligation and non-liquidation costs (e.g. staff leaving, suppliers requesting disadvantageous installment terms, bondholder/stockholder infighting, and so forth).

According to Titman and Wassels, if firm utilizes its internal sources like earning rather than external resource like capital can increase the circle of its profit. Firm's stock price is also an indicator through which firm's performance can be determined. Meanwhile, it is considered as a best option to issue the stock if stock prices are high rather than using external resources. Results suggested firms are considered to be unique if they have low debt ratios. It means unique for making expenditures in research and development side and selling expenditures. It has been observed that small firms use more efficiently short-term debt as compared to large firms. The negative relationship between growth and leverage because those firms highly engaged in leverage with dominant figure would have lesser growth. The reason behind this is, leverage would decrease not only the current funds for investment but also affect the firm's ability to raise additional funds. It shows the double effect of leverage. Here operating capital place more importance than leverage. It is quite difficult to determine the extent to which leverage is affecting the factor of growth. If the interest rate on debt is lesser than the firm's return on asset so leverage is considered a positive element but if the amount of interest paid on debt exceed to the firm's return on asset, so leverage is considered a negative element for a firm. Therefore, literature review indicates several studies have already been conducted

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describing the relationship between leverage, profitability and capital structure by collecting the data of different industries like cement industry (Pakistan), vehicle industry (Pakistan), service and industrial sectors (Jordon). But this study is analyzing the relationship between leverage and profitability of whole non-financial sector of Pakistan. Data used in this study is most recent from time horizon of 2006 to 2011 to investigate such relationship from Pakistan’s economy perspective.

3. DATA DESCRIPTION AND VARIABLES

This research is based on the data published by Statistics and DWH Department of State Bank of Pakistan in the form of Financial and Balance sheet statement of listed companies in KSE. This study covers annual characteristics of non-financial sector from 2006 to 2014. The non-financial sector of Pakistan includes 396 firms listed in KSE and our study is tested impact of financial leverage on the profitability of 322 firms from this sector. Hence the period of 9 years is considered with the total observations of 2898 approximately. We have excluded firms with missing figures and data to balance the sample of every company to 9 observations each. The purpose of this research is to analyze the determinants of financial leverage therefore the dependent variable of total debt to equity is used. Where, return on equity (ROE), sales growth, current ratio and firm’s size are measured as independent variables.

3.1. Capital Structure

Debt to equity ratio is taken as a dependent variable and it has been typically used as a proxy for capital structure following the research of Rafique\(^{10}\). This ratio indicates the combination of both debt and equity financing of a company to support its assets reported in balance sheet. The objective of this research is to determine the effects of firm size, profitability, growth and liquidity on the capital structure of a firm.

3.2. Profitability

The profitability of a firm has been measured through variety of variables like; return on assets (ROA), earning before taxes (EBT) to total assets and EBIT to total assets\(^{11}\). However, in this research return on equity (ROE) has been taken as an indicator of firm’s profitability as an independent variable of leverage effects. According to SBP in FSA, return on equity measures the efficiency of generating profits by a firm from every unit of equity. ROE is also

\(^{10}\) Mahira Rafique, Effect of profitability & financial leverage on capital structure: A case study of Pakistan’s automobile industry, (Economics and Finance Review), 1, no. 4 (2011) 52.

\(^{11}\) Ibid., 54.
beneficial to compare two or more companies in terms of profitability. It is calculated as net profit before taxes to average of shareholder’s equity. As per prior studies, it is expected to see the negative relation between the profitability of a firm and level of leverage to reflect the predictions of POT.

3.3. **Liquidity**

Financial ratios which are used to measure the liquidity of firm are quick (acid test) and current ratio. These ratios examine the capability of a firm to pay off its short-term liabilities through current assets. In this research, current ratio is used to measure the level of liquidity of firms following the research of Alkhatib.\(^\text{12}\) Previously in Pakistan, liquidity as a determinant of leverage is rarely been measured though it can be one of the important factors that influence the capital structure decisions. Current ratio is calculated as current assets to current liabilities of a firm. In previous studies both negative and positive insignificant relation between liquidity and leverage has seen so we have an ambiguous expectation regarding results here.\(^\text{13}\)

3.4. **Growth**

There have been several different measures of firm growth. Prior studies indicate percentage increase in total assets annually and market-to-book ratio are used to measure level of growth opportunities available to firm.\(^\text{14}\) We have taken annual percentage increase in sales as a proxy of firm growth following the research of Peterson and Rajan (1997). Since, sales ratio and percentage increase in sales rationalize the firm’s growth though this variable is never used in the previous researches of capital structure in Pakistan. Therefore, it is expected to get a positive coefficient of sales growth as these two variables are positively correlated.

3.5. **Size**

Firm size is examined through natural logarithm of total assets or sales. Larger firms have more stable cash flows, easy access to capital markets and lower risk of getting bankrupt. Hence, larger firms are likely to be more diversified and tend to have positive relation to leverage. In this study, logarithm of total assets has been taken as a

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\(^{12}\) Alkhatib, *The Determinants*, 79-81.


\(^{14}\) Titman and Wessels, *The determinants*, 9.


variable of firm size following the researches\textsuperscript{15}. Though, adverse results have also been identified in few of the prior studies presenting negative relation between these two variables.

4. ANALYSIS AND RESULTS

In this section, descriptive correlation coefficient and regression analysis are investigated. The summary of descriptive statistics for the variables in our sample is given in table 4.1.

\textit{Table 4.1: Descriptive Statistics of Leverage and Explanatory variables (N=322)}

<table>
<thead>
<tr>
<th>Variables</th>
<th>Observations</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt-to-equity</td>
<td>2898</td>
<td>1.8999</td>
<td>13.7615</td>
<td>-360.80</td>
<td>296.98</td>
</tr>
<tr>
<td>Current ratio</td>
<td>2898</td>
<td>1.6106</td>
<td>3.7808</td>
<td>0.00</td>
<td>114.46</td>
</tr>
<tr>
<td>Sales growth</td>
<td>2898</td>
<td>0.1980</td>
<td>0.9362</td>
<td>-1.46</td>
<td>23.87</td>
</tr>
<tr>
<td>Firm size</td>
<td>2898</td>
<td>6.4264</td>
<td>0.7268</td>
<td>3.71</td>
<td>8.70</td>
</tr>
<tr>
<td>Return on equity</td>
<td>2898</td>
<td>0.0507</td>
<td>1.4063</td>
<td>-27.93</td>
<td>26.88</td>
</tr>
</tbody>
</table>

Theoretically, debt to equity ratio should be less than one or one at the maximum though we have found firms having negative equity that justifies the ratio value which is more than one. Similarly, higher the current ratio means strength of a firm to pay its obligations as this ratio provides an idea about operating efficiency of a company. A current ratio of 2:1 is considered to be acceptable though value below 1 identifies problems, company may face to pay its current (short-term) obligations. To further examine the relation among variables correlation coefficient is checked among them as given in table 4.2.

\textit{Table 4.2: Correlation Coefficient of variables}

<table>
<thead>
<tr>
<th></th>
<th>Debt-to-equity</th>
<th>Current ratio</th>
<th>Sales growth</th>
<th>Firm size</th>
<th>Return o equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt-to-equity</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current ratio</td>
<td>-0.0185</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales growth</td>
<td>0.0055</td>
<td>-0.0326</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>0.0199</td>
<td>-0.0545</td>
<td>-0.0071</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>Return on equity</td>
<td>-0.6571</td>
<td>0.0037</td>
<td>0.0138</td>
<td>0.0350</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

In table 4.2 it can be evaluated that liquidity (CR) is negatively correlated with the growth and size, however positively correlated with the profitability. The negative correlation between firm size and growth indicates that in

\textsuperscript{15}Rajan and Zingales, \textit{What Do We}, 1434-1436
the non-financial sector of Pakistan the increase in assets is negligible. Moreover, profitability is positively correlated with all the variables, shows positive relation of firm size, growth and liquidity on the profitability of a firm.

The determinants of leverage resulting from the regressing the debt-to-equity on different variables is shown in table 4.3. A result of regression analysis indicates R-square of approximately 43 percent of variation in firm’s leverage that can be explained by the movements in the value of these independent variables. ROE and firm size are highly significant at 1 percent significance level. The larger firms in non-financial sector of Pakistan use more debt as compare to the smaller firms. Profitability is negatively associated with the leverage with slightly higher coefficient value of -6.257302 in comparison to other coefficients. It can be interpreted as 1 percent increase in net income relative to the equity will result decline of 6.257302 percent in debt to equity ratio. Hence, firms in non-financial sector of Pakistan prefer to finance investments through internal sources or external equity. These results are consistent with the studies of Rajan and Zingles (1995) and Ali (2011). Previously, growth (percentage change in total assets) has been indicating ambiguous relation to leverage though we have taken net sales percentage increase as a proxy of growth that turned out to be positively correlated but insignificant. This result suggests that growing firms use more debt than equity to finance in the non-financial sector of Pakistan. Measuring current ratio as liquidity reports negative correlation and no significant level to leverage. Yet, there is a further need to test this relationship in the context of Pakistan as we were expecting to have a significant relation between these two variables following the research of Alkhatib (2012). Table 4.3 given below summarizes the measuring tool and analyzes relationships of variables being determinants of financial leverage.

Table 4.3: Regressing D/E on variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratio</td>
<td>-0.0254 (0.6620)</td>
</tr>
<tr>
<td>Sales growth</td>
<td>0.1748 (0.4090)</td>
</tr>
<tr>
<td>Firm size</td>
<td>2.7096 (0.0110)</td>
</tr>
<tr>
<td>Return on equity</td>
<td>-6.2573 (0.0000)</td>
</tr>
</tbody>
</table>

R² = 0.43       N=322

16 Hijazi and Tariq, Determinants of, 65.
Table 4.4: Expected and Observed relationships

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Measurement</th>
<th>Expected relationship</th>
<th>Observed relation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>Net Income / Equity</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Current Assets / Current liabilities</td>
<td>Positive / Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Size</td>
<td>Natural log of total assets</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>Growth</td>
<td>Annual percentage change in sales</td>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

1 Not significant converse to previous researches conducted in the same sector in Pakistan
2 Not significant converse to previous research of Alkhatib (2012) conducted on firms from Jordanian Stock Exchange

5. SUMMARY AND CONCLUSION

In this study we investigated and analyzed a sample of 322 firms from non-financial sector of Pakistan using fixed-effects regression model to measure the determinants of capital structure of firms in this sector. Most of the results are found to be as expected whereas few inverse relations and insignificance between variables have seen which could be due to our sample size. Very few researches have been conducted covering such a large number of firms in Pakistan for determining the variables of leverage; Hijazi and Tariq (2006) – 16 to 22 firms of cement sector, Rafique (2011) – 11 firms of automobile sector, Inam and Mir (2014) – 12 firms from fuel and energy sector, Nawaz et al., (2015) – 18 cement manufacturers and Hussain et., (2016) – 10 listed firms of textile sector. Therefore, it can be suggested that whole non-financial sector show some different behavior than was found in the previous studies on separate industries from this sector.

Profitability and leverage are negatively correlated supporting POT of capital structure. Similarly, growth that is also has a positive relation with leverage supports the extended version of POT suggesting that internal financing may not be sufficient for the growing companies hence they may look forward to avail the option of debt financing. Firm size has positive impact on the leverage henceforth consistent with the trade-off theory indicating larger firms use more debt financing rather than firms with low level of total assets. Findings revealed that a relation between liquidity and leverage does exist though it does not have any significance.
References


