DETERMINANTS OF CAPITAL STRUCTURE OF FINANCIAL FIRMS IN PAKISTAN

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Abstract

The study was designed to examine the determinants of capital structure of financial firms in Pakistan. Tangibility, non-debt tax shield, profitability, firm size, earning volatility and growth were used as the determinants of the study. The study used the financial firms as a population of the study and took 27 banks out of 128 via random sampling technique over the period of 2005-2015. The study used panel data regression model for the data analysis (Fixed Effect Model and Random Effect Model). According to the Fixed Effect Model; Non debt tax shield, profitability have significant effect while tangibility, firm size, growth and earnings volatility have insignificant effect on the capital structure. The empirical result shows that non debt tax shield have significant relationship and positive correlation with leverage of the firm confirmed Trade Off Theory. Size of the firms has negative relationship and statistical insignificant correlation with leverage. Earning volatility having positive correlation with leverage of the firm, this relationship is insignificant while supporting Trade Off Theory. Tangibility positive relationship and growth has negative but insignificant correlation with leverage, profitability is significant while negative relationship with the capital structure thus which confirm Pecking Order Theory.

Keywords: Tangibility, Firm Size, Profitability, Financial Firms, PSX
1.1 Background of the Study

Miller and Modigliani in 1958 point out that under certain condition the estimation of a firm is free of its capital structure choice given that specific conditions are fulfilled. The MM superfluity theory expressed the company's prestigious position is affected by its speculation strategy while, financing choice is optional. The MM theory depended on the accompanying presumption; the company's director is caring, continually acting to speculator's greatest advantage (no office cost); data about the firm is similarly appropriated amongst administrators and financial specialists; firm debt is chance free. This theory in addition neglected the impacts of corporate assessments. Despite the fact that this theory depended on improbable presumptions however it determines a pathway for the advancement of present day capital structure theories. It is contended that the cutting edge theory of capital structure started with the idea of Modigliani and Miller (1958). Truth be told, MM brought up the bearing that capital structure speculations must take by appearing under what conditions capital structure is superfluous (Harris and Raviv, 1991). Myers & Majluf (1984) argues that Pecking Order Theory for individual firm there is no favorable capital structure that can increase the firm’s value. Manager of the firm will used Pecking Order Theory for new investment project. First of all they will start with the internal funds and then the low risky debt after that it the end they will issue a new securities because of disproportionate information and due of high risk. Titman and roberto (2008) records some principal conditions that influence the MM to recommendation hold: No (distortionary) charges, no exchange costs, no liquidation costs, finish and immaculate market supposition and flawless contracting suspicion. Since the distribution of MM's unimportance suggestion, many articles on the theory of capital structure have been completed. Some of worth saying hypotheses among these are exchange off theory, pecking request theory and organization cost theory. Static-exchange off theory trusts that a company's capital structure choices include an exchange off between the tax reductions of firm debt financing and cost of money related misery. What's more, conversely, the pecking request theory precludes the presence from securing ideal capital structure and claims that the ventures lean toward inside money related sources as compared to outside sources.
1.2 Objectives of the Study

The main objectives of the current study were:

1. To find out the effect of tangibility on firm leverage in banking sector of Pakistan.
2. To evaluate the firm effect of non debt tax shield on leverage in Pakistani banking sector.
3. To check the effect of profitability on leverage in Pakistani banking sector.
4. To understand the bank’s size effect on leverage in banking sector of Pakistan.
5. To check the effect of sales growth on firm’s leverage in banking sector of Pakistan.
6. To understand the role of Earning volatility in the leverage level in banking industry of Pakistan.

1.3 Hypotheses of the Study

H$_0$: Fixed assets have no effect on bank’s capital structure.
H$_1$: Bank’s fixed assets has effect on capital structure.
H$_0$: Bank’s non debt tax shield has no effect on capital structure.
H$_2$: Bank’s non debt tax shield has effect on capital structure.
H$_0$: Bank’s profitability has no effect on capital structure.
H$_3$: Bank’s profitability has effect on capital structure.
H$_0$: Bank’s firm size has no effect on bank’s firm size capital structure.
H$_4$: Bank’s firm size has effect on capital structure.
H$_0$: Bank’s firm sales growth has no significant effect on capital structure.
H$_5$: Bank’s firm sales growth has effect on bank’s firm capital structure.
H$_0$: Earning volatility has no effect on bank’s capital structure.
H₀: Earning volatility has effect on bank’s capital structure.
The study conducted by Shah and Khan (2007), who analyzed the capital structure determinants in Pakistan recorded non-money related firms for the time of 1994-2002. They suggested that substance of advantages, size of the firm and development were altogether identified with firm debt proportion, where benefit and non-firm debt charge shields were not essentially identified with firm debt proportion. Akbar and Bhutto (2012), carried an examination to decide the capital structure of recorded firms in the Food and Personal Care Industry of Pakistan. Six factors i.e. firm size, substantial quality of assets, productivity, development, imposed rate, winning instability, were tried as determinants of capital structure. They observed to be huge and these six factors decide 89% of firm leverage. Development and size of the firm were discovered huge and having positive association with the firm leverage. Rafiq et al., (2008), directed an examination to decide the capital structure of recorded firms in the compound business of Pakistan. The outcomes showed that six study factors indicated 90% of variety in subordinate variable, and with the exception of firm substantial quality, comes about were observed to be exceptionally critical. Awan and Amin (2014), investigate the factors which have affected the textile industries and which type of theory are more powerful influence in textile sector of Pakistan. The result of these factors was that liquidity, NDTS, Net commercial trade position and tangibility of the firms were positive impact on leverage and while size, earning of the firm and profitability have negative impact on leverage. This study nearly supported both theories equally: Pecking order and Trade of theory. Shah and Khan (2017), investigated in the study to discover the factors that determine the capital structure decision of non-financial firm. They investigated from PSX ten non-financial firms for the period of 2005-2014. They used fixed effects panel method. Finding of the study was that leverage ratio negatively affected profitability and current ratio of a firm. Ting and Chin (2017), examined the relationship between capital structure and its determinants of textile sector listed in Pakistan for the period 2003-2012 by using panel data estimation. Finding of the study suggest that the profitable, growth, large and old textile companies having more liquidity in assets tend to their debit levels decrease and focus on external debt of financing. Farrukh and Muzaffar (2017), found that liquidity and profitability have significant effect, if these factor raised leverage will be decrease.
3. Research Methodology

3.1 Population and Sample Frame

The current study was carried out in the financial sector of Pakistan because of the fact that the majority of the studies were conducted on capital structure in the other sectors and the current study was in financial sector. Population of the current study was financial firms comprising of 128.

The sample unit has been drawn from the population i.e. the population of the study was financial firms and the study took the banking sector as the sample unit of the current study. The main objective of the study was to evaluate the capital structure determinants. The study was based on the panel data from 2005 to 2015. The central idea of the study was in banking sector, so the study took 27 banks working in Pakistani market.

3.2 Data Collection

The data of the study is quantitative in nature and that’s why the study firm leveraged quantitative methodology for the data analysis. The data was also collected from the financial statement analysis of the financial firms from State Bank of Pakistan.

Figure 3.1 Conceptual Framework

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Tangibility of asset (TG)
Non-debt tax shields (NDTS)
Profitability (PF)
Size (SZ)
Expected Growth (EG)
Earning volatility (EV)

Capital Structure (CS)
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3.3 Panel Data Technique

The Panel data regression model i.e. Fixed Effects Model or Random Effects Model as recommended by diagnostic test is firm leveraged for studying relationship between the variables under consideration. One reason for this is an increased availability of panel data, but also an increased awareness of the advantages of panel data over cross-section or time-series data (Song, 2005, Shah, & Hijazi, 2004). The model can be represented as bellow:

\[
\text{Debt}_{it} = \alpha + \beta_1 \text{TG}_{it} + \beta_2 \text{NDTS}_{it} + \beta_3 \text{PF}_{it} + \beta_4 \text{SZ}_{it} + \beta_5 \text{EG}_{it} + \beta_6 \text{EV}_{it} + e
\]

Where:
Debil represents Debt ratio of company i at time t;
TG is Tangibility of firm’s assets;
NDTS represents Non-debt tax shields of firm;
PF is Profitability of the firm;
SZ represents the Size of the firm;
EG represents the Expected Growth of the firm;
EV represents the Earning volatility of the firm;
\( e \) represents the error term.
4. RESULTS AND DISCUSSIONS

Table 4.1

Correlation of the Variables

<table>
<thead>
<tr>
<th></th>
<th>CS</th>
<th>TG</th>
<th>NDTS</th>
<th>PF</th>
<th>LogFS</th>
<th>Growth</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TG</td>
<td>0.1422</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDTS</td>
<td>0.5831</td>
<td>0.3929</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF</td>
<td>-0.6193</td>
<td>-0.3336</td>
<td>0.0969</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogFS</td>
<td>-0.0838</td>
<td>0.2717</td>
<td>0.1321</td>
<td>0.1373</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>-0.0692</td>
<td>-0.0565</td>
<td>0.0191</td>
<td>0.0114</td>
<td>0.2720</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>EV</td>
<td>0.1192</td>
<td>-0.0022</td>
<td>-0.1001</td>
<td>-0.0749</td>
<td>0.0144</td>
<td>0.0061</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Table 4.1 of Correlation of the variables shows the relationship between variables and positive or negative direction. The value of capital structure is positive correlated with TG, NDTS, and EV while negative correlation with PF, Size and growth of the firms. The value of correlation for capital structure and tangibility is 0.1422 which means that the CS and TG are positively correlated about 14 percent with each other. The value of correlation for capital structure and non debt tax shield is 0.5831 which means that the CS and NDTS are positively correlated about 58 percent with each other. The value of correlation for capital structure and profitability is -0.6193 which means that the CS and PF are negatively correlated about 61 percent with each other. The value of correlation for capital structure and firm size is -0.0838 which means that the CS and FS are negative correlated about 8 percent with each other. The value of correlation for capital structure and growth is -0.0692 which means that the CS and GR are negative correlated about 6 percent with each other. The value of correlation for capital structure and earning volatility is 0.1192 which means that the CS and EV are positively correlated about 11 percent with each other.
### Diagnostic Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Objective</th>
<th>Findings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow Test</td>
<td>Fixed Effect Vs Pooled OLS</td>
<td>0.000</td>
<td>Fixed Effect</td>
</tr>
<tr>
<td>Breusch Pagan</td>
<td>Random Effect Vs Pooled</td>
<td>0.000</td>
<td>Random Effect</td>
</tr>
<tr>
<td>Hausman Test</td>
<td>Fixed Vs Random Effect</td>
<td>0.006</td>
<td>Fixed Effect</td>
</tr>
<tr>
<td>Heteroskedasticity</td>
<td>Presence of Heteroskedasticity</td>
<td>0.000</td>
<td>Heteroskedasticity</td>
</tr>
</tbody>
</table>

### Table 4.3

**Fixed Effect for Variance Explanation**

<table>
<thead>
<tr>
<th>CS</th>
<th>Coefficient</th>
<th>Std error</th>
<th>t-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibility</td>
<td>0.0215</td>
<td>0.1071</td>
<td>0.20</td>
<td>0.841</td>
</tr>
<tr>
<td>Non debt tax shield</td>
<td>1.0015</td>
<td>0.4842</td>
<td>2.07</td>
<td>0.039**</td>
</tr>
<tr>
<td>Profitability</td>
<td>-2.8339</td>
<td>0.5356</td>
<td>-5.29</td>
<td>0.000***</td>
</tr>
<tr>
<td>Firm size</td>
<td>-0.0270</td>
<td>0.0325</td>
<td>-0.82</td>
<td>0.408</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.0273</td>
<td>0.0175</td>
<td>-1.55</td>
<td>0.120</td>
</tr>
<tr>
<td>Earning volatility</td>
<td>0.0273</td>
<td>0.1947</td>
<td>1.09</td>
<td>0.272</td>
</tr>
<tr>
<td>Cons</td>
<td>0.8135</td>
<td>0.3120</td>
<td>2.60</td>
<td>0.009*</td>
</tr>
</tbody>
</table>

**R-square:** 0.5675, **F-value:** 10.82, **P-value:** .000

Tables 4.3 findings are taken from the model of fixed used in the current study to evaluate the effect of independent variable on the dependent variable. The study check the effect tangibility, non debt tax shield, profitability, firm size, earning volatility and growth on the firm leverage of the financial firms listed in Pakistan Stock Exchange. This study main objective was to know the cause and find out the effects the study used the model of regression to know the effect of tangibility, non debt tax shield, profitability, firm size, earning volatility and growth on the firm’s capital structure with the help of coefficient of determination. The value of coefficient of determination in the above table is 0.5675 which means that the tangibility, non debt tax shield, profitability, firm size, earning volatility and growth have 56 percent effect on the firm capital structure. The finding of F-value shown in the table is 10.60 which were used to know
The model significance. The value is more than 4 which means that the model used in the study is statistically significant.

The tangibility of bank in the study have positive relationship with the firm capital structure and is confirmed by the positive beta of tangibility. The positive sign of beta means that the firm will be in favor of having less investment in fixed assets and the firm will not favor debt financing while support Trade Off Theory. The current study finding of beta for tangibility is 0.0215 which shows that the capital structure of banks will be changed by 0.0215 units when the tangibility of the bank is changed by 1 unit. The t-value of tangibility in the table is 0.020 which is lower than the value which can reject the alternate hypothesis so the findings of tangibility shows that it has insignificant effect on the firm’s capital structure.

The non debt tax shields of bank in the study have positive relationship with the firm capital structure which is confirmed by the positive beta of non debt tax shields. The positive sign of beta means that the firm will be in favor of having less investment in fixed assets and the firm will not favor of debt financing while support Trade Off Theory. The beta of the current result for non debt tax shields is 1.001 which shows that the capital structure of banks will be changed by 1.001 units when the non debt tax shields of the bank is changed by 1 unit. The t-value of non debt tax shields in above table is 2.07 which is more than the value which can accept the alternate hypothesis so the findings of non debt tax shields shows that it has significant effect on the firm’s capital structure.

The profitability of bank in the study have negative relationship with the firm capital structure and is confirmed by the negative beta of profitability. The findings of beta for profitability is -2.834 which shows that the capital structure of banks will be changed by -2.834 units when the profitability of the bank is changed by 1 unit. The t-value of profitability in the table is -5.29 which is more than the value which can accept the alternate hypothesis so the findings of profitability shows that the it has significant effect on the firm’s capital structure.

The firm size of bank in the study has negative relationship with the firm capital structure which is confirmed by the negative beta of firm size. Size of the bank having
negative relationship with leverage while support Pecking Order Theory. The negative sign of beta means that the firm will not in favor of having less investment in assets and the firm will favor of debt financing. The beta for firm size is -0.0270 which shows that the capital structure of banks will be changed by -0.0270 units when the firm size of the bank is changed by 1 unit.

The sales growth of bank has negative relationship with the firm capital structure which is confirmed by the negative beta of sales growth. The negative sign of beta means that the firm will be in favor of having less income from their sales or having low sales and the firm will not favor of debt financing. The finding of beta for sales growth is -0.0273 which shows that the capital structure of banks will be changed by -0.0273 units when the sales growth of the bank is changed by 1 unit. The t-value of sales growth of table 4.5 above is -1.55 which is lower than the value which cannot accept the alternate hypothesis so the findings of sales growth shows that the it has insignificant effect on the firm’s capital structure.

The current findings of beta for earnings volatility is 0.214 which shows that the capital structure of banks will changed by 0.2141units when the earnings volatility of the bank is changed by 1 unit. The t-value of earnings volatility in the table is 1.09 which is less than the value which can accept the null hypothesis so the findings of earnings volatility show that it has insignificant effect on the firm’s capital structure.

5. Conclusion

The study was conducted in financial sector of Pakistan to determine the factor of capital structure in the banking sector of Pakistan. The study used the financial firms as a population of the study and took the banks working in Pakistan and took 27 banks as a sample of the study. The data of the sample banks were collected from 2005 to 2015. The study used random sampling technique in selection of banks. The data of the banks were collected from the annual reports and financial statement analysis of financial firms. The study used panel data regression model for the data analysis. According to the Fixed Effect Model; Non debt tax shield, profitability have significant effect while tangibility, firm size, growth and earnings volatility have insignificant effect on the capital structure. The empirical result shows that non debt tax shield has
significant relationship and having positive correlation with leverage of the firm supporting Trade Off Theory. Tangibility and earning volatility having positive correlation with leverage of the firm, this relationship is insignificant while support Pecking Order Theory. Size of the firm and growth of the firm has insignificant relationship while negative correlation with leverage, profitability is significant while negative relationship with the capital structure thus confirmed Pecking Order theory. The findings suggests that the firm who have more in fixed assets will borrow on high rates and the firm will give focus on their current assets to invest and other sources of financing.
References


