The Impact of Capital Intensity, Size of Firm And Profitability on Debt Financing In Textile Industry of Pakistan

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Abstract
This study focuses on debt financing, being an important source of finance for all long term and short term needs of all the firms of the modern day. The weight of debt financing in capital structures is affected by the profitability and growth of companies. This study attempts to find out the determinants of debt financing in textile sector of Pakistan. For this purpose, three independent variables i.e. capital intensity, size of firm and profitability are taken into consideration to identify their impact on dependant variable i.e. debt financing. The population selected for this particular research is listed textile sector companies at the Karachi Stock Exchange of Pakistan. Convenience sampling has been used to select the companies for which data were available for the period of study. The data collected for this study was taken from annual reports of the selected companies. The study concluded that the proportion of debt financing in capital structures is affected by the profitability, size and capital intensity of the firms in textile sector of Pakistan. Hence the careful decisions ought to be taken in terms of capital structure changes, keeping in view the impact of profitability, size and capital intensity of the firms, which in turn would help in suggesting financial reforms for the sector in future.

Key Words Debt Financing, Capital Intensity, Size & Profitability

1. Introduction
Textile industry of Pakistan is one of the most important sectors contributing significantly to the economy of the country. It constitutes about 55% of total exports of Pakistan, and hence generates huge revenues for the country. Debt financing is a very important source of financing in the textile sector of Pakistan and almost all the firms of the sector are using debt financing in their capital structures to get tax benefits and to increase profitability of the firm. These companies can look for internal sources first which are the most preferred option but if that is not available then they have to be careful in choosing between issuing preferred shares and debt financing as it will affect the companies’ market standing and the management must also keep in view the risk factor associated with debt financing, since more debt means more risk of insolvency for the current and potential investors. It also affects the overall value of the firm.

Capital intensity is the amount of money invested in order to get one dollar worth of output. The more capital applied to produce that same unit the more capital intense the firm is said to be. There are some industries that are considered to be more capital intensive and in those industries, increasing the capital intensity results in improved quality of production and on time production. Now to increase the capital intensity of a firm the managers have to scavenge for the right financing alternative, to increase their market share and at the same time the market value. Firms do look to increase their capital intensity and improve quality as a result but getting the right mode of financing for this purpose becomes significant, because if the right mode is not selected it might prove counter productivity and might adversely affect the standings of the firm.

Size of a firm is the amount and variety of production capacity and capability a firm possesses or the amount and variety of services a firm can provide simultaneously to its clients. The size of a firm is very important in today’s world due to the phenomenon of economies of scale. Larger firms can produce items on much lower costs in comparison to smaller firms. Firms of the modern era look to increase their size in order to get a competitive edge on their competitors by lowering production costs and increasing their market share. The willingness of firms to expand in terms of size depends upon a number of external and internal factors such as the political and judicial situation of the country in which the firm is operating but in stable countries it largely depends upon the availability of internal and external sources of financing and the current market standing of the firm and the effect of applying those new resources upon the share price and market standing of the firm. Large sized firms are in a position to generate both internal and external sources of financing. Hence, they have the option to decrease the debt which
would result in a better market standing, firm value and share prices. On the other hand employing debt might provide leverage and increase profitability. Profitability is the amount of money a firm can generate with whatever resources the firm possesses. Increased profitability is the most desired and ultimate reward for all the hard work and planning of a firm's management and they are constantly on a look to find ways to increase it. Profitable firms can expand in size by generating internal sources of financing. They attract investors from the market and are better able to negotiate the prices of additional financing and get better bargains. However they have to be careful in the choice and price of financing as it affects their market standing and share price. The more they go for debt financing the more risk gets involved and the future gets uncertain which affects their share prices and market standing as the investors get detracted. Considering the challenges associated with debt financing for the firm, and the benefits associated to size, capital intensity and profitability, this study looks into how capital intensity, size of firm and profitability affect the debt a company employs in its capital structure and how does a firm debt financing is affected when the size, capital intensity and profitability of a firm is changing.

1.1 Objective of the Study
The purpose of the study is to analyze the effect of size, profitability, and capital intensity of the firm on the debt financing of the firm.

1.2 Research Question
How do the capital intensity, size of firm and profitability affect the debt financing in textile sector of Pakistan?

1.3 Significance of the Study
Textile sector is the backbone of the economy of Pakistan, hence this study will help us understand the effects of size profitability and capital intensity on debt financing which in turn would help in suggesting financial reforms for the textile sector in future.

2. Literature Review
Mitoo (2004) looked into how financial flexibility is viewed by managers while coping with the global financial recession. The study found that higher flexibility results in better handling of the situation. Hence, firms should look for optimal flexibility in order to cope with extreme situations. The study suggested that higher internal financing results in greater flexibility in such firms. Arlbjorn (2011) discussed the different approaches of total cost of ownership and how it effects the size of the firm. The study concluded that the effective use of total cost of ownership can increase the size of firm. Papadogonas (2009) found the relationship between size of firm, sales growth, investment, leverage and current assets with profitability. The research concluded that profitability had a positive relation with size of firm, sales growth, investment and negative relation with leverage and current assets. Haggar (2010) used stochastic frontier production model in order to find out the sources of total factor productivity growth. It was found that negative changes in efficiency have brought the average productivity growth down. Bond and Scott (2006) tested two theories of the capital structure decision. This research concluded that where firms employ external financing, debt is generally used for financing the needs. They also concluded that the financing deficit variable of the pecking order theory is unable to alter the significance of other factors and offers no empirical significance in this context. Guney (2003) analyzed that profitability of firms exerts a negative impact on their capital structure and positive relation between leverage and tangible assets also the empirical findings supported the predictions in the literature that firms with greater growth opportunities have lower leverage ratios. Another salient and interesting finding is that size exerts uncommonly a negative impact on firms’ debt ratios. Altunbas, Kara and David (2009) studied what financial factors are usually considered while issuing loans. They conducted the study on non-financial corporations, covering the period 1993-2006. They found that large firms having more financial leverage, extensive profits and more liquidation values generally prefer loan financing. Firms employing more short-term debt are having more growth opportunities. Myers and Majluf (1984) discussed that due to informational asymmetries firms prefers internal to external fund sources. This suggests that the companies with high profitability be inclined to avail internal financing for investments rather than using external financing. Fox (1998) studied to what extent leverage levels vary with the firm size. The study concluded that small firms find it very difficult to find external sources of financing at good costs. An internal source of financing was the most preferred source of financing by small firm managers as compared to debt financing. Fraering and Minor (1994) found the relation among market share and profitability. The results showed a mixed trend. In total 41.7 percent of firms earned high profitability with high market share. Bergendahl (1995) discussed the principals that are important for profitability
in case of banks that adopt bancassurance. The research concluded that banks with larger customer base benefitted more from giving bancassurance and increased their profitability and customer loyalty. Almeida and Campello (2007) predicted that there is an inverse relationship among internally generated funds and the need for externally generated funds. The literature argued the consistency of this result with a preference for internally generated funds to finance investments, when externally generated funds are expensive. However, there are evidences suggesting the negative relationship among firms that are facing high costs of external financing.

3. Research Methodology

3.1 Hypotheses
On the basis of the review of literature above following hypotheses have been developed
H1: There is a positive relationship between capital intensity and debt financing
H2: There is a negative relationship among size of firm with debt financing
H3: There is a negative relationship between profitability and debt financing

3.2 Operationalization of Variables

3.2.1 Debt to Capital Ratio
Debt-to-capital ratio is used as a proxy for measuring the debt financing component in the companies’ capital structure.
Debt to Total Capital Ratio = Debt/ Share Holder’s Equity + Debt

3.2.2 Capital Intensity Ratio
Capital intensity is the amount of money invested in order to get one dollar worth of output. Capital intensity is calculated as;
Capital Intensity Ratio = Average Total Assets/Sales

3.2.3 Size of Firm
Size of firm is calculated by taking natural logarithm of total assets

3.2.4 Profitability
The Gross Profit Margin on sales is taken as a proxy to measure the profitability of the companies. It is calculated as;
Gross Profit Margin on Sales = Sales – COGS/Sales*100

3.3 Population & Sampling
The population selected for this particular research is listed textile sector companies at the Karachi Stock Exchange of Pakistan. Convenience sampling has been used to select the companies for which data were available for the period of study.

3.4 Data Collection
The data collected for this study was taken from annual reports of the selected companies.

4. Discussion & Analysis
ANOVA is applied to test the differences in variables. The F test (significance value) in table 4.1 showed that the studied variables are significantly different in relation to each other, and so the level of debt financing is not same across the differences in capital intensity, size and profitability of firm. Hence changes in independent variables affect the debt financing of a firm.
Linear regression is used to identify and measure the relationship between the variables studied. The regression equation to explain the relationship between dependant and independent variables can be expressed as:

\[ \text{DTCR} = b_0 + b_1(\text{CIR}) - b_2(\text{SIZE}) - b_3(\text{GPM}) + e \]

Where

- \( b_0 \) = a constant
- \( b_1 \) = regression coefficient that measures the sensitivity of percentage change in debt to capital ratio to percentage change in capital intensity ratio
- \( b_2 \) = regression coefficient that measures the sensitivity of percentage change in debt to capital ratio to percentage change in size of firm
- \( b_3 \) = regression coefficient that measures the sensitivity of percentage change in debt to capital ratio to percentage change in gross profit margin on sales ratio
- \( \text{DTCR} \) = percentage change in the debt to capital ratio from one period to the next
- \( \text{CIR} \) = Capital intensity Ratio
- \( \text{GPM} \) = Gross profit margin on sales
- \( \text{SIZE} \) = Size of firm
- \( e \) = error term

The regression coefficient for debt financing and size, profitability and capital intensity are expressed as in table 4.2 below

### Table 4.2 – Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Non-standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.395</td>
<td>.182</td>
<td>-</td>
<td>2.165</td>
</tr>
<tr>
<td>CIR</td>
<td>-.173</td>
<td>.058</td>
<td>-.698</td>
<td>-2.954</td>
</tr>
<tr>
<td>SIZE</td>
<td>.083</td>
<td>.027</td>
<td>.818</td>
<td>3.106</td>
</tr>
<tr>
<td>GPM</td>
<td>-.001</td>
<td>.001</td>
<td>-.320</td>
<td>-1.415</td>
</tr>
</tbody>
</table>

Therefore on the basis of the results shown above, the regression coefficients for capital intensity, size and profitability in relation to debt financing can be expressed as:

\[ \text{DTCR} = 0.395 - 0.173(\text{CIR}) + 0.83(\text{SIZE}) - 0.001(\text{GPM}) + e \]

The above results support the rejection of H1 and H2, whereas H3 is accepted. Therefore it may be concluded that the debt financing responds positively to size of the firm and negatively to capital intensity and profitability.
The model summary showed that there is a strong relationship among dependent and independent variables. Moreover the R square value depicted that variation among variables shown by the model is not due to chance and about 36% of the changes in debt financing are explained by the changes in capital intensity, size of firm and profitability of the firm.

5. Conclusion
The study concluded that the proportion of debt financing in capital structures is affected by the profitability, size and capital intensity of the firms in textile sector of Pakistan. Hence this study help us understand the effects of size profitability and capital intensity on debt financing which in turn would help in suggesting financial reforms for the sector in future. Debt financing though very important source of financing in the textile sector of Pakistan, yet these companies have to be careful in it as it will affect the companies’ market standing and the management must also keep in view the risk factor associated with debt financing, the overall value of the firm. Moreover textile companies may look to increase their capital intensity and improve quality as a result but getting the right mode of financing for this purpose becomes significant, because if the right mode is not selected it might prove counter productivity and might adversely affect the standings of the firm. Large sized firms are in a position to generate both internal and external sources of financing. Hence, they have the option to decrease the debt which would result in a better market standing, firm value and share prices. Profitable firms can expand in size by generating internal sources of financing. However they have to be careful in the choice and price of financing as it affects their market standing and share price.

6. Recommendations
The textile sector of Pakistan is going through a tough time in due to the current recession and the energy crisis. So, the firms are finding it hard to survive and compete with the world. These drastic times demand for drastic measures to get the industry going. In such situation the firms need to manage the resources optimally in order to maximize profits and sustain. Hence the careful decisions ought to be taken in terms of capital structure changes, keeping in view the impact of profitability, size and capital intensity of the firms. The managers must know how their decision of increasing capital intensity, size and the changes in profitability would affect the debt financing level.
References


