The Examination of Effective Factors on Financial Leverage of the Companies Subjected to Article 44 Listed in Tehran Stock Exchange

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ABSTRACT: The main purpose of the current paper is to examine the effective factors financial leverage of the companies subjected to article 44 listed in Tehran stock exchange. The spatial domain of the study is the listed companies in Tehran stock exchange and it is ranged from 2008 to 2011 (time domain). There have been considered 46 companies as the selected samples. Also, there has been provided 4 hypotheses to examine the relation between these variables. Hence, fixed to total assets ratio, financial growth rate of a company, return on assets and sale rate, and financial leverage is regarded as independent and dependent variables, respectively. Ordinary Least Squares (OLS) method is used to test hypothesis using EVIEWS 7 software. Regarding the results of the research, fixed to total assets ratio, financial growth rate of a company, return on assets and sale rate has significant impact on financial leverage of the companies subjected to article 44 listed in Tehran stock exchange.

Keywords: Financial growth, Financial leverage, Return on assets.

INTRODUCTION

Regarding to various problems caused by state companies performance, such as undesirable efficiency, inefficiency, etc, there has been conducted comprehensive activities for transferring state-owned companies to the non-state sector (private sector) in many developing countries (Saffarzadeh, 2013). Many economists and adherents of economic reforms consider privatization as the “Foundation” of structural reforms, because they believe that it motivates and develops the private sector, expanding the competition, trade liberalization and developing capital markets and promotes financial and operational performancethrough improving corporate governance system (MalekiPourgharbi, 2010). In Iran, transferring state-owned companies or privatization had been implemented based on the contents of the article 44 of Iran’s constitution law and consistent with the first economic, social and cultural development (1989-1993) and its implementing process was faced with lots of ups and downs (Pakdaman, 2009). Now, the question which is raised after passing of two decades from the beginning of privatization is that “whether implementation of privatization plans have been practically followed by improving transferred companies’ performance?

In the current economic condition, on the other side, not only competitive advantage, but also economic capacity, threatening and creating opportunities from external environment, and weakness and strength points of internal environment may have influence on the companies’ capital structure and it is one of the debatable challenges for small firms, financial performance and their capital decisions as well as identifying the effective factors on financial leverage balance (Saffarzadeh, 2013) because it has deep impact on the firm’s financial performance. We can define capital structure as a particular combination of debts and assets that a firm uses it in his financial operations.
Even though, small commercial firms have usually better options to choose alternative capital structures, they rely on borrowing from financial institutions like banks. Hence, they become subsidiaries of banks and credits (Barker, 2008). Business units have not clearly profitability-related routes and they would have finally been faced with many problems in repayment of loans and providing bails during the growth steps. In this regard, asymmetric or incomplete information may create potential financial problems between borrower and lenderfor companies (Chen, 2006).

In this regard, Ahmadi (2011) researches showed that there is no relation between leverage and dividend ratio, but a positive and significant relation between firm size and cash flow of the operation. Noravesh and Yazdani (2013) dealt with the impact of financial leverage on capital structure and concluded that the company’s return should first classified into two groups, namely, leveraged company stock returns and non-leveraged company stock returns which the first one is return on equity in a market. Komar (2013) in a research as a financial leverage and capital costs of companies in Latin America concluded that leverage is positively related to possibility of access to firm size, book to market ratio and negatively related to profitability. Finally, Gil and Mand (2013) investigated the effective factors on financial leverage of small business units in India. They have utilized a survey study (non-experimental field study design). The findings of the research indicate that the growth of small businesses, their performance, total assets, sale, taxes and family have positive impact positive on financial leverage of small businesses in India. Generally, the investigation of the companies subjected to the article 44 before and after privatization in Tehran stock exchange is the issue we looking for. It seems that the answering to this question can help the executive and non-executive managers, and actual, potential, institutional as well as independent accountant.

**METHODOLOGY**

The research design is done using post-event approach (through past information). On the other side, the current study is a kind of descriptive-correlational research. The research is regarded as quantitative based on data natures. This research is practical in terms of the goals. The spatial domain of the research includes all private listed companies in Tehran stock exchange. This research covers the companies that have been accepted in Tehran stock exchange during 4 years period of 2009 to 2012. In this research, we examine the effective factors on financial leverages of the private companies subject to the article 44 accepted in Tehran stock exchange.

**Research hypotheses**

- Fixed to total assets ratio has significant impact on financial leverages of the private companies subject to the article 44 accepted in Tehran stock exchange.
- Financial growth rate of a company has significant impact on financial leverages of the private companies subject to the article 44 accepted in Tehran stock exchange.
- Return on assets has significant impact on financial leverages of the private companies subject to the article 44 accepted in Tehran stock exchange.
- Sale rate has significant impact on financial leverages of the private companies subject to the article 44 accepted in Tehran stock exchange.

**Operational definition of the research variables**

<table>
<thead>
<tr>
<th>Variable’s type</th>
<th>Variable’s name</th>
<th>Way of measuring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>sale</td>
<td>Sale rates of companies in each year</td>
</tr>
<tr>
<td></td>
<td>Return on assets</td>
<td>It is obtained from dividing operating profit into average book value of the company’s all assets in a financial period.</td>
</tr>
<tr>
<td></td>
<td>Firm growth</td>
<td>(current year sale-last year sale) dividing into last year sale</td>
</tr>
</tbody>
</table>
Fixed to total assets ratio | Fixed to total assets
---|---
**Dependent** | Financial leverage | Total liabilities dividing into total assets
Firm size | Natural logarithm of book value of the firm’s total assets
Profitability to debt ratio | Profitability before interest and tax to total debt

**Control** | Firm risk | In the current study, beta measure is used for calculating a firm risk. To describing beta coefficient and determining its calculative relations, it is necessary to examine a determined line. This line determines the relation of the return process of a market index. The general equation of the determined line which is a regression line is shown below:

\[ r_i = \alpha_i + \beta_i r_m + \epsilon_i \]

Where, \( r_i \) is a dependent variable and representative of a stock return process. \( r_m \) is an independent variable and representative of a market return process. In the above equation, beta is the regression line indicating the changes in rate of return against market changes. The beta coefficient can be calculated for a share based on the following equation: (Rasool Zadeh, 2002)

\[ \beta_i = \frac{\text{cov}(r_i, r_m)}{\sigma^2(r_m)} \]

**Participants**

The statistical population of the research includes the private listed companies in Tehran stock exchange during 2009 to 2012 (126 companies). The following formula is used to determine the amount of the sample in this research:

\[ n = \frac{N \cdot z^2 \cdot pq}{N d^2 + z^2 \cdot pq} \]

Where, maximum permissible error (d) is 0.05, confidence coefficient is 95%, \( t=1.96 \) and the amounts of p and q are both 0.5, while the population volume is N, the amount of P is considered as 0.5, due to if \( p=0.5 \), N would find his maximum amount which causes the sample amount to be enough large. In this study, 46 companies have been regarded as the statistical sample.

**The research regression model**

\[ LEV_{it} = \alpha_0 + \alpha_1 \text{ASSETS}_{it} + \alpha_2 \text{GROWTH}_{it} + \alpha_3 \text{RETURNS}_{it} + \alpha_4 \text{SALES}_{it} + \alpha_5 \text{SIZE}_{it} + \alpha_6 \text{PD}_{it} + \alpha_7 \text{RISK}_{it} + \epsilon_{it} \]

\( \text{LEV}_{it} \)=financial leverage; \( \text{ASSETS}_{it} \)=fixed to total assets ratio; \( \text{GROWTH}_{it} \)=Firm’s financial growth rate; \( \text{RETURNS}_{it} \)=return on assets; \( \text{SALES}_{it} \)=sale amount; \( \text{SIZE}_{it} \)=firm size; \( \text{PD}_{it} \)=profitability to debt ratio; \( \text{RISK}_{it} \)= firm risk.

**Data analysis method**

In this investigation, combined data is used to test the hypotheses. Time (studied years) and sectional (studied companies) series data are combined together. Combined data are used largely due to increasing the number of views, enhancing the freedom degree, reducing variance anisotropy and dynamic studying of changes. To estimate
the efficiency of a regression model, one of common effects, fixed effects and random effects models is used through suitable tests. F-Limer test is used to select between the common effects and fixed effects model, and if fixed effects model is used, Hausman test is applied to select between fixed effects and random effects models. The model autocorrelation error term, variance anisotropy and data normalizing is examined here. Adjusted coefficient of determination (Adjusted $R^2$), statistics and Fisher F test is used to describe the explanation power of explanatory variables, examination of the statistics’ significance and examination of the general adequacy of the model, respectively. The statistical analyses are also made using EXCEL and EVIEWS 7 software.

RESULTS

Examining of variance anisotropy

LM Arch test disturbing statements has been used to examine the variance anisotropy. The related results are as following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Statistics amount</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistics</td>
<td>0.956202</td>
<td>0.248</td>
</tr>
<tr>
<td>Obs*R-squared</td>
<td>0.944255</td>
<td>0.248</td>
</tr>
</tbody>
</table>

Regarding the statistics of the test in not significant in 5% level, homogeneity of variance is proved and variance anisotropy of the disturbing statements is rejected.

Significance test of the fixed effects method

F statistics test

<table>
<thead>
<tr>
<th>Description</th>
<th>Statistics amount</th>
<th>df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>2.402558</td>
<td>45</td>
<td>0.004</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>102.332908</td>
<td>45</td>
<td>0.006</td>
</tr>
</tbody>
</table>

Hausman test

<table>
<thead>
<tr>
<th>Description</th>
<th>Statistics amount</th>
<th>df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>16.662025</td>
<td>9</td>
<td>0.0017</td>
</tr>
</tbody>
</table>

Regarding the results of two done tests (F & Hausman), the obtained probability is less than 5% in the test and fixed effects method should be used in the regression model.

The results of the research hypotheses regression

<table>
<thead>
<tr>
<th>Variable</th>
<th>Impact factor</th>
<th>S.E</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>0.196</td>
<td>0.136</td>
<td>1.485</td>
<td>0.063</td>
</tr>
<tr>
<td>Fixed to total assets ratio</td>
<td>0.155</td>
<td>0.415</td>
<td>2.016</td>
<td>0.012</td>
</tr>
<tr>
<td>Financial growth rate of the company</td>
<td>-0.129</td>
<td>0.357</td>
<td>-2.324</td>
<td>0.002</td>
</tr>
<tr>
<td>Return on assets</td>
<td>-0.052</td>
<td>0.326</td>
<td>-2.155</td>
<td>0.002</td>
</tr>
<tr>
<td>Rate of sale</td>
<td>-0.015</td>
<td>0.265</td>
<td>-2.144</td>
<td>0.009</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.266</td>
<td>0.125</td>
<td>2.396</td>
<td>0.002</td>
</tr>
<tr>
<td>Profitability to debt ratio</td>
<td>-0.069</td>
<td>0.322</td>
<td>-1.962</td>
<td>0.034</td>
</tr>
<tr>
<td>Firm risk</td>
<td>0.019</td>
<td>0.108</td>
<td>0.894</td>
<td>0.067</td>
</tr>
</tbody>
</table>

* 5% error level
Table 6. Explanation ability and significance of the whole model.

<table>
<thead>
<tr>
<th>Coefficient of determination</th>
<th>Adjusted coefficient of determination</th>
<th>Durbin-Watson</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.544</td>
<td>0.532</td>
<td>1.625</td>
<td>5.332</td>
<td>**0.000</td>
</tr>
</tbody>
</table>

**1% error level

According to the table 4, the lack of correlation between errors is rejected due to Durbin-Watson statistics ranged from 1.5 to 2.5 and the regression can be used. Regarding the significance of F test (5.332) in error level less than 0.01, it can be concluded that the regression model which is composed of independent, control and dependent variables is a good model and independent and control variable series are able to describe the changes in financial leverage. The amount of the adjusted coefficient of determination is equal with 0.532, it indicates that 53.2% of all changes of dependent variables are dependent on independent and control variables of the model.

The first hypothesis

The impact factor of fixed to total assets ratio on financial leverage is equal with 0.155, and it indicates that fixed to total assets ratio has positive and direct impact on financial leverage. Regarding the significance level of t statistics in fixed to total assets ratio (0.012), H₀ hypothesis is rejected with 95% confidence level due to it is less than 5% error level and it can be concluded that the ratio has significant impact on financial leverage. So, the empirical model can be stated as:

\[
LEV_{it} = 0.163 + 0.155 \text{ASSETS}_{it} + 0.215 \text{SIZE}_{it} - 0.069 \text{PD}_{it} + 0.009 \text{RISK}_{it} + \varepsilon_{it}
\]

The second hypothesis

The impact factor of the financial growth rate of the company on financial leverage is equal with -0.129, and it indicates that the rate has negative and inverse impact on financial leverage. Regarding the significance level of t statistics of the financial growth rate (0.012), H₀ hypothesis is rejected with 95% confidence level due to it is less than 5% error level and it can be concluded that the rate has significant impact on financial leverage. So, the empirical model can be stated as:

\[
LEV_{it} = 0.215 - 0.129 \text{GROWTH}_{it} + 0.215 \text{SIZE}_{it} - 0.069 \text{PD}_{it} + 0.009 \text{RISK}_{it} + \varepsilon_{it}
\]

The third hypothesis

The impact factor of ROA on financial leverage is equal with -0.052, and it indicates that ROA has negative and inverse impact on financial leverage. Regarding the significance level of t statistics of ROA (0.002), H₀ hypothesis is rejected with 95% confidence level due to it is less than 5% error level and it can be concluded that ROA has significant impact on financial leverage. So, the empirical model can be stated as:

\[
LEV_{it} = 0.296 - 0.052 \text{RETURNS}_{it} + 0.215 \text{SIZE}_{it} - 0.069 \text{PD}_{it} + 0.009 \text{RISK}_{it} + \varepsilon_{it}
\]

The fourth hypothesis

The impact factor of sale rate on financial leverage is equal with -0.015, and it indicates that sale rate has negative and inverse impact on financial leverage. Regarding the significance level of t statistics of sale rate (0.009), H₀ hypothesis is rejected with 95% confidence level due to it is less than 5% error level and it can be concluded that sale rate has significant impact on financial leverage. So, the empirical model can be stated as:
\[ \text{LEV}_{it} = 0.412 - 0.015 \text{SALES}_{it} + 0.215 \text{SIZE}_{it} - 0.069 \text{PD}_{it} \\
+ 0.009 \text{RISK}_{it} + \epsilon_{it} \]

**CONCLUSION**

The main purpose of the current paper is to examine the effective factors financial leverage of the companies subjected to article 44 listed in Tehran stock exchange. According to the obtained results from the first hypothesis, fixed to total assets ratio has significant influence on financial leverage of the companies subjected to article 44 listed in Tehran stock exchange. The obtained findings are consistent with Noravesh et al. (2013), Sinaie (2003) and Megginson, Jeffry and Netter (2009) researches. According to the obtained results from the second, the financial growth rate of the company has significant impact on the companies subjected to article 44 listed in Tehran stock exchange. The obtained results from the second hypothesis are not consistent with Parker and Kirkpatrick (2005), Afzal and Souherish (2013) and Boycko, Shleifer and Vishny (1996). Also, according to the obtained results from the third hypothesis, ROA has significant influence on financial leverage of the companies subjected to article 44 listed in Tehran stock exchange and the related findings are consistent with Noravesh et al. (2013). And finally, according to the third hypothesis, sale rate has significant influence on financial leverage of the companies subjected to article 44 listed in Tehran stock exchange and the related findings are consistent with Komar (2013) findings. The following suggestions can be made based on the research results:

1. Regarding the obtained results from the first hypothesis, it is suggested to investors to pay attention to the amount of the fixed assets of the Company, and the results demonstrate that for increasing per unit in fixed assets, the financial leverage would also be increased that itself cause the costs to be increased and consequently result in reduced profits and paid returns.

2. According to the obtained results from the second, third and fourth hypotheses, it is suggested to the investors to pay attention to the growth and sale rate as well as the ROA of the investment companies, because regarding the obtained results, each variables have inverse relation with the financial leverage and it results in reducing financial costs and consequently, increased profits and paid returns.

**REFERENCE**


