Does cost of common equity capital effect on financial decisions? Case study companies listed in Tehran Stock Exchange

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Abstract

The aim of this study was to evaluate the effectiveness of common equity cost of capital on financial decisions of companies listed in Tehran Stock Exchange. The independent and dependent variables of the research are cost of common equity capital and financial decisions (book leverage and market leverage) respectively. The sample consists of 87 companies listed on the Tehran Stock Exchange between 2009 and 2015 and the software used for statistical analysis is Stata 12. Hypotheses have been tested based on single-variable linear regression test. Based on the results from hypothesis testing, the first and second hypothesis suggests that there is a positive and significant relationship between capital costs and office financial and market leverages.

Keywords: Financial Decisions Cost of Common Equity Capital, Finance Market, Emerge Stock Market.
1. Introduction

Finance is one of the most important aspects of business management. Decision-making about financing as well as to understand the factors that challenge corporate financing decisions are undeniable elements in financing and capital structure for managers, shareholders and creditors so that Modigliani and Miller (1963 and 1958) started to formulate an appropriate proportion of the capital structure of the equity and the capital formed from debt. Myers (2001) announced that the companies are to follow the level of debt that supplies them with a balance of tax benefits and the cost of financing through its debt. Whether how much debt must be included in the financial portfolio, one model is capital structure based on critical assumptions that managers of large corporations are trying to better promote the interests of owners by expanding property; the Modigliani-Miller theory, theory of static exchanges, theory of leverage order are in this class (Ayyoub Mahar, 2002).

The main issue for chief financial officers is that which financial resource should be elected maximize the firm's value (Agoto Krenusz). The capital required for the various investment projects of the company is provided by different groups of investors with various claims against the company's expected future earnings. These funds needed for the company may be supplied through accumulated profits of the company, sale of new shares, debt (loan and bonds) or by a combination of these sources. Lenders to the company are entitled to receive fixed interest and certain rates and have priority for other obligations of the company (ordinary shares and preferred stock). The remaining profits after payment of profit costs and taxes preferred shareholders interest, are owned by ordinary shareholders. (Alan et al.)

Double taxation of dividends has raised the cost of capital and reduced the overall level of investment in the corporate segment. Fans of new insights of accumulated profit, believe that profit Signaling should not be considered too much. Those investing in a company, expect their own rate of return due to the risk of the company, because only common shareholders of companies can make decision in relation to accept or reject any investment project. Rapid economic growth and development of technology, investment opportunities available for companies increase their need to new financing methods for Project implementation. The capital cost plays a vital role in financing decisions and investment. The cost of capital is conceptually defined associated with the expected return. In other words, the cost of capital is applied to the minimum rate of the return expected. If the expected return is less than the cost of capital, the value of economic unit will decrease; therefore, the management must strive to preserve the economic value of the expected return at least to the level of its cost of capital; cost of capital is the key to success in this regard (Osmani, 2002). Since the cost of capital is based on the investors' expected rate of return, it is related to the risk rate (changes in interest) accepted by them (Sufiyani, 2005). Providing information through quality, companies are trying to increase
the ability to predict future cash flows and reduce information risk (Ardestani, 2006). Cost of capital, is the weighted average of cost the debt and equity sources. Given that the rate of financing cost through debt (interest rates) are not competitive and are usually determined through the banking system and for the command in Iran and also, considering the importance of this research, financing and investment decisions, are the decisions that are both made by providence. In financial decisions, the company now uses the funds needed, so that it can meet its obligations towards suppliers in the future. In investment decisions, companies ignore some current benefits with the hope to attain more resources in the future. Such decisions ultimately create the company's capital structure that affects the value of the company. To supply the needed resources, companies face the two internal and external resources as solutions for financing (Safari Graily, 2008); The significant question is what influence factors such as cost of capital have on financing structure (creditors). In Iran, there has been found research in examining the impact of cost of equity on financial decisions in the Tehran Stock Exchange and listed companies on Tehran Stock Exchange so far, so the theoretically, the integration and statistical population can be considered innovative.

Therefore, it is attempted in this study to experimentally study the impact of capital cost on financial decisions that is formed of two benchmarks (book leverage and market leverage) at the Tehran Stock Exchange. The main questions, for which the answers are to be found in this research, are as follows:

1. Is there a significant relationship between the cost of equity capital and book leverage of listed companies on Tehran Stock Exchange?

2. Is there a significant relationship between the cost of equity capital and market leverage of listed companies in Tehran Stock Exchange?

**Research hypotheses**

According to the literature and mentioned purposes for the research, the following assumptions have been considered:

1. There is a significant relationship between the cost of equity capital and book leverage of listed companies on Tehran Stock Exchange.

2. There is a significant relationship between the cost of equity capital and market leverage of listed companies in Tehran Stock Exchange.

**Regression models to test the hypotheses**

Model(1)

According to the model 1, the first hypothesis is examined:
(1) \( \text{Book}_\text{Levit} = \alpha + \beta_7 (\text{Ke})_{it} + \beta_1 (\text{Tang})_{it} + \beta_2 (\text{Profit})_{it} + \beta_3 (\text{Size})_{it} + \beta_4 (\text{M/B})_{it} + \beta_5 (\text{Liq})_{it} + \beta_6 (\text{Risk})_{it} + \mu_{it} \)

In which:
- \( \text{Book}_\text{Levit} = \) book leverage;
- \( \text{Ke} = \) cost of capital;
- \( \text{Tang} = \) tangible corporate assets;
- \( \text{Profit} = \) profitability of the company;
- \( \text{Size} = \) size of the company;
- \( \text{M/B} = \) the company's growth opportunities;
- \( \text{Liq} = \) liquidity;
- \( \text{Risk} = \) systematic risk

Model(2)

According to the model 2, the second hypothesis is examined:

(2) \( \text{Market}_\text{Levit} = \alpha + \beta_7 (\text{Ke})_{it} + \beta_1 (\text{Tang})_{it} + \beta_2 (\text{Profit})_{it} + \beta_3 (\text{Size})_{it} + \beta_4 (\text{M/B})_{it} + \beta_5 (\text{Liq})_{it} + \beta_6 (\text{Risk})_{it} + \mu_{it} \)

In which:
- \( \text{Market}_\text{Levit} = \) Market Leverage

Research variables and how to measure them

According to the hypothesis expressed in the present study, the variables are defined as follows:

**Independent variable:** cost of capital (cc): How to calculate the cost of capital through the Gordon Growth Model (Damodaran, 2002); In this model, assuming that \( k \) represents the cost of equity capital (rate of return expected by common shareholders), \( k \) can be obtained by the following equation:

Equation(1)

\[
\text{cost of equity} = \frac{D_1}{P_0} + g
\]

In the above model: \( D_1 \) is cash dividend payments at the end of the first year, \( P_0 \) is the price per share at the beginning of the year, and \( g \) is dividend growth rate, which is obtained from the following equation.
Equation (2)

\[ g = \left( \frac{EPS_t}{EPS_0} \right)^{\frac{1}{\tau}} - 1 \]

**Dependent variable:** The dependent variable in this research is financial decisions

Book leverage: that is calculated from the ratio of financial debt to book value of assets.

Market Leverage: that is calculated from the ratio of financial debt to market value.

**Control variables**

Company size: natural logarithm of total assets book value has been used for measuring the size of the company; Tangible assets of company: the ratio of tangible asset to total assets has been used for measuring tangible corporate assets; Company liquidity: the proportion of current assets to current liabilities has been used to measure liquidity of the Company; Company profitability: the ratio of net profit to total assets has been used for measuring company's profitability; Company systemic risk: beta coefficient has been used for measuring systematic risk of the company; Company growth opportunity: the ratio of market value to book value has been used for measuring company's growth opportunity.

**Research results**

**Descriptive statistics of research:**

It has been tried to describe research data in descriptive methods providing tables and descriptive statistics means such as central tendency and dispersion. This would help to transparency of the topic. The following table includes descriptive statistics for all variables used in the research. The number of valid and accurate observations to each variable is 7 years. Underlying data for 87 companies listed on the Tehran Stock Exchange was prepared that included the period from 1387 to 1393 in this study. In the first section, the central tendency and dispersion of the research variables is presented. In addition, a maximum and minimum is also provided for each variable. Average, is the main central indicator used the amount of which, is exactly located in balance point or gravity center of distribution. And finally, the standard deviation is the most important dispersion parameter that is obtained from the square root of the variance. These indicators are presented in Table 1. The figures in this table have been calculated by the application Excel, Stata version 12.

**Table 1: Descriptive statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book</td>
<td>0/03</td>
<td>0/18</td>
<td>0/079</td>
<td>0/11</td>
</tr>
</tbody>
</table>
F Limer test: F Limer test was conducted to determine the use of fixed effects model against the integration of data; and this test determines the fixed effects model (panel) or Integrated Model (money). If significance level of the test is less than 5%, it indicates that the fixed effects model (panel) is applied and if more than 5%, it indicates the use of consolidated version (money) that the results are shown in the table below.

H0: random effect model.
H1: fixed effects model.

Table 2. F Limer test

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Testing effects</th>
<th>Statistics</th>
<th>Significance level</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>first</td>
<td>F</td>
<td>10/93</td>
<td>0/000</td>
<td>Fixed effects</td>
</tr>
<tr>
<td>first</td>
<td>F</td>
<td>13/16</td>
<td>0/000</td>
<td>Fixed effects</td>
</tr>
</tbody>
</table>
The results show that significance level of the models is under 5%. So the assumption H0 (consolidated version) can not be confirmed.

**Hausman test**

H0: random effects model.

H1: model with fixed effects.

Table 3. Hausman test

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>test summary</th>
<th>chi-square statistic</th>
<th>Significance</th>
<th>test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>first</td>
<td>Random period</td>
<td>0/13</td>
<td>0/86</td>
<td>random effects model</td>
</tr>
<tr>
<td>second</td>
<td>Random period</td>
<td>0/147</td>
<td>0/843</td>
<td>random effects model</td>
</tr>
</tbody>
</table>

As it is evident from the figures, Significance amount for research hypotheses is more than 5%. Therefore, the null hypothesis of random effects model was confirmed. This means the relationship between independent variables and the estimated regression error. According to the results obtained, the data panel method is used to test the hypotheses.

**Heterogeneity of variances and autocorrelation test**

To search for heterogeneity of variance in panel data, the test suggests an adjusted Wald that, unlike other tests in this respect, in case of violating the assumption of error components normality, is still applicable and provides reliable results.

H0: model variables, do not have autocorrelation and heterogeneity of variance.

H1: model variables have autocorrelation and heterogeneity of variance.

Table 4. autocorrelation and variance heterogeneity test

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>variance heterogeneity test</th>
<th>autocorrelation test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi2</td>
<td>Significance level</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td>--------------------</td>
</tr>
<tr>
<td>First</td>
<td>0/19</td>
<td>0/813</td>
</tr>
<tr>
<td>Second</td>
<td>0/71</td>
<td>0/304</td>
</tr>
</tbody>
</table>

Investigations of the variance heterogeneity test results indicate significance level greater than 5%. Therefore, the null hypothesis is not rejected, this means that research variables have the same variance and lack autocorrelation.

**The first hypothesis test**

H0: there is no relationship between the cost of equity capital and book leverage of listed companies on Tehran Stock Exchange.

H1: there is relationship between the cost of equity capital and book leverage of listed companies on Tehran Stock Exchange.

Variable of equity capital cost is known as the independent variable, book leverage as the dependent variable and size, Profitability, intangible assets, liquidity, systemic risk and growth opportunity are known as control variables in the research. Variable of equity capital cost, due to the significance level (0.000) in the following table, and book leverage variable have positive and direct relationship. There is relationship between controlling variables of size, Profitability, intangible assets, liquidity, systemic risk, and growth opportunities of the company and book leverage. Given that there is relationship between the cost of equity capital and book leverage of the companies listed in Tehran Stock Exchange, the first hypothesis of the research is approved.

The concept of significance in correlation is whether the correlation between the two variables can be seen as chance and random or there is really a correlation between the two variables. That the number obtained is significant or not, is more important than the number obtained. Correlation is shown by \( R \). Determination coefficient \( (R^2) \) between the two variables is obtained by squaring the correlation coefficient. The coefficient of determination shows what percentage of changes in the dependent variable is explained by the independent variable. This coefficient is widely applied in the regression. Based on the result of this hypothesis, determination coefficient of this study is 0/34 percent.
Table (5) testing the first hypothesis

\[ \text{Book Levit} = \alpha + \beta_1(Tang)_{it} + \beta_2(Profit)_{it} + \beta_3(\text{Size})_{it} + \beta_4(M/B)_{it} + \beta_5(\text{Liq})_{it} + \beta_6(\text{Risk})_{it} + \beta_7(Ke)_{it} + u_{it} \]

<table>
<thead>
<tr>
<th>variable</th>
<th>Abbreviation</th>
<th>coefficient</th>
<th>statistics z</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of capital</td>
<td>Ke</td>
<td>0/21</td>
<td>3/64</td>
<td>0/000</td>
</tr>
<tr>
<td>profitability</td>
<td>Prof</td>
<td>0/17</td>
<td>2/23</td>
<td>0/031</td>
</tr>
<tr>
<td>Size of the company</td>
<td>Size</td>
<td>0/57</td>
<td>2/82</td>
<td>0/009</td>
</tr>
<tr>
<td>Tangible assets</td>
<td>Tang</td>
<td>0/136</td>
<td>3/84</td>
<td>0/000</td>
</tr>
<tr>
<td>liquidity</td>
<td>Liq</td>
<td>-0/28</td>
<td>-2/64</td>
<td>0/011</td>
</tr>
<tr>
<td>Growth opportunity</td>
<td>Mb</td>
<td>-0/69</td>
<td>-3/71</td>
<td>0/000</td>
</tr>
<tr>
<td>Systematic risk</td>
<td>b</td>
<td>0/792</td>
<td>2/51</td>
<td>0/021</td>
</tr>
<tr>
<td>Intercept</td>
<td>(\beta_0)</td>
<td>0/34</td>
<td>2/99</td>
<td>0/003</td>
</tr>
<tr>
<td>Adjusted coefficient of determination</td>
<td>0/34</td>
<td>Wald statistics</td>
<td>20/19</td>
<td></td>
</tr>
<tr>
<td>Durbin Watson</td>
<td></td>
<td>2/28</td>
<td>Significance level</td>
<td>0/000</td>
</tr>
</tbody>
</table>

**The second hypothesis test**

H0: there is no relationship between the cost of equity capital and market leverage of listed companies on Tehran Stock Exchange.

H1: there is relationship between the cost of equity capital and market leverage of listed companies on Tehran Stock Exchange.

Variable of equity capital cost is known as the independent variable, market leverage as the dependent variable and size, profitability, intangible assets, liquidity, systemic risk and growth opportunity are known as control variables in the research. Variable of equity capital cost, due to the significance level (0.000) in the following table, and market leverage variable have positive and direct relationship. There is relationship between controlling variables of size, Profitability, intangible assets, liquidity, systemic risk, and growth opportunities of the company and market leverage. Given that there is relationship between the cost of equity capital and market leverage of the companies listed in Tehran Stock Exchange, the second hypothesis of the research is approved. The concept of significance in correlation is whether the correlation between the two variables can be seen as chance and random or there is really a correlation between the two variables. That the number obtained is significant or not, is more important than the number obtained. Correlation is shown by \(R\). Determination coefficient (\(R^2\)) between the two variables is
obtained by squaring the correlation coefficient. The coefficient of determination shows what percentage of changes in the dependent variable is explained by the independent variable. This coefficient is widely applied in the regression. Based on the result of this hypothesis, determination coefficient of this study is 0.41 percent.

Table (4-11) testing the second hypothesis

<table>
<thead>
<tr>
<th>variable</th>
<th>Abbreviation</th>
<th>coefficient</th>
<th>statistics z</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of capital</td>
<td>ke</td>
<td>0/84</td>
<td>3/65</td>
<td>0/000</td>
</tr>
<tr>
<td>profitability</td>
<td>prof</td>
<td>0/29</td>
<td>2/75</td>
<td>0/009</td>
</tr>
<tr>
<td>Size of the company</td>
<td>Size</td>
<td>0/71</td>
<td>2/88</td>
<td>0/000</td>
</tr>
<tr>
<td>Tangible assets</td>
<td>Tang</td>
<td>0/48</td>
<td>3/31</td>
<td>0/031</td>
</tr>
<tr>
<td>liquidity</td>
<td>Liq</td>
<td>-0/33</td>
<td>-2/72</td>
<td>0/016</td>
</tr>
<tr>
<td>Growth opportunity</td>
<td>Mb</td>
<td>-0/109</td>
<td>-2/93</td>
<td>0/004</td>
</tr>
<tr>
<td>Systematic risk</td>
<td>B</td>
<td>1/03</td>
<td>3/21</td>
<td>0/000</td>
</tr>
<tr>
<td>Intercept</td>
<td>C</td>
<td>0/41</td>
<td>3/019</td>
<td>0/001</td>
</tr>
<tr>
<td>Adjusted coefficient of determination</td>
<td></td>
<td>2/06</td>
<td>Wald statistics</td>
<td>9/12</td>
</tr>
<tr>
<td>Durbin Watson</td>
<td></td>
<td>2/28</td>
<td>Significance level</td>
<td>0/000</td>
</tr>
</tbody>
</table>

Conclusions and discussion

The effect of equity capital cost on financing decisions was studied in this research. Based on the assumptions proposed, it is expected that equity capital cost has impact on financial decisions as well as the reaction of the capital market. The results of testing hypotheses using the information relating to companies listed on Tehran Stock Exchange during the period 1387 to 1393 shows that:

According to the first hypothesis that examined the impact of cost of equity capital on book leverage, the conclusion was that the cost of equity capital has a positive impact on book leverage. The results show that any increase in the cost of equity capital will increase book. The results of this research are in line with results obtained by Mc. Taggart, 1977; Marsh, 1982; Jalilvand and Harris, 1984; Asquith and Mullins, 1986, Baker and Wurgler (2002) and Tatiana (2015). According to the second hypothesis that examined the impact of cost of equity capital on market leverage, the conclusion was that the cost of equity capital has a positive impact on
market leverage. The results of this research are in line with results obtained by Mc. Taggart, 1977; Marsh, 1982; Jalilvand and Harris, 1984; Asquith and Mullins, 1986, Baker and Wurgler (2002) and Tatiana (2015).

**Suggestions based on results of hypotheses:**

The results of this research could lead to improve decision-making of economic units managers, researchers and Tehran Stock Exchange and investors and shareholders in particular and thus lead to better planning for the capital cost and debt ratios. It is recommended to investors, who consider financial leverage as an important measure when making their decisions, to pay more attention to the criterion of capital cost about the financial leverage; And its cause can be known the inefficient capital market as a source of finance for the company to provide their capital, since the companies cannot easily provide their capital. The shareholders, investors and other stakeholders are recommended to consider this matter when taking investment decisions.
References

1. Ardestani, M., (2009); the relation between financial reporting quality and proprietary cost; MA thesis of Accounting, Allameh Tabatabaei University.

2. Sufiyani, A., (2005); the relationship between economic added value and capital structure; MA thesis, University of Al-Zahra


5. Agoto Krenusz-(2003) "Determination of capital structure: A Future Comparision

6. Ayub mehar-(2002) "Is debt a substitute of equity?"

7. Alan A bevan& jo donbolt –(2004) "Testing for inconsistencies in the estimation of the uk capital structure determinants


