An Analysis of the Relationship between Information Asymmetry and Cost of Capital

Hashem Valipour¹, Behzad Dadou²

Abstract

The purpose of the present study is to examine the relationship between information asymmetry and cost of capital in firms listed in Tehran stock exchange. To measure information asymmetry, the difference measure between ask price and was used. Cost of capital included cost of common stock and cost of debt. To test the research hypotheses, Chow test was used to estimate appropriate models of testing the hypotheses on combined data. The results indicated that information asymmetry has a positive and meaningful correlation with the cost of common stock and cost of debt.

Keywords: Information asymmetry, cost of capital cost, cost of debt.

1. Introduction

Safe and transparent financial investment is of great importance for any person or society. In other words, investment has future prospects, as a result, our financial is shaped by investment decisions we make today.

Records show that safe investment involves trust and one of the essential components which supports trust is profitability and future cash flows. Global arena through the advancement of information technology and communications have made the world smaller and compact. Undoubtedly, the industrial revolution has had a great influence on life and work. Business and professional world today has undergone many changes. Globalization has extended to business as well as various professions. This means that the demand for more attention to the consequence of professional work and its cost has increased and we can no longer rely on traditional systems and procedures. (Nikbakht and Tanani, 2011).

Information has a vital role in economic decisions. Investors are not able to recognize investment opportunities and risks without sufficient information. For information to be effective in the financial consumers, decisions, it must be provided at the appropriate time. Punctuality is one of the characteristics of information and it is meat to provide financial information to consumers when they got the opportunity to decide, judge and act about a special subject. In other words, financial information should be provided to the consumers whenever they can judge or make decisions. If shareholders do not receive timely and complete information, information asymmetry will occur.

Statement of the Problem

Use of company’s financial information and appropriate decisions in the stock market is possible when the above-mentioned information is timely, relevant, complete and understandable.

On the other hand, the type of information the way to achieve it is important. When unequal and asymmetrical data transmission occurs between individuals, different results can be made about a special topic.

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Information asymmetry can have several adverse consequences such as loss of market efficiency, increase in transaction costs, market weakness, increase in shareholders' salary, low and generally reduced profits of the transactions involved in the capital markets (Glisten and Milgram 1991).

One of the conditions for perfect competition is the transparency of information, without which transparency of information can be defined as information asymmetry by using some. The more steps we take from traditional society toward a modern society, the more information asymmetry will occur.

The reason is that when a society is more advanced than the other societies, it will have more division of labor and specialization. Variety of products, increasing specialization and division of labor will increase information asymmetry (specialists' information and lack of it by others) (Peng He, Lepone, and Leung, 2013).

In the case of information asymmetry, not only one of the parties will have more awareness of some important characteristics, but also it is likely that he benefits from hiding this information.

According to the behavioral hypothesis which is based on wealth. Maximization, if doing some activities such as fraud, theft or lying are more profitable than other existing opportunities, the parties will dare to do them. In order to finance, companies benefit from two general sources of shares and debt financing is costly for companies (financial cost and cost of common stock). Financial management of the company has always followed the procedures of reduce capital costs. Reducing capital cost is beneficial for the company and increasing it will favor shareholders. Various studies have shown that accounting data is used to determine the cost of capital stack (Peng He, Lepone and Leung, 2013).

Information asymmetry occurs when shareholders do not access to managers confidential information. The existence of sufficient information in the market and its timely and fast reflection on exchange has a close relationship to the efficiency of market. In an efficient market, the market spread information quickly affects the price in this market, the price of exchange is close to its intrinsic value. In other words, one of the important features of an efficient market is that the determined price in the market is a good indicator of the real value of the exchange. An efficient market should be sensitive to new information when new information is announced to the public, the price of company's common stock will change in accordance to the above-mentioned information. A market is considered not efficient when it is indifferent to new information and does not reflect the reaction, in that there is no analyst in the market to evaluate the impact of new information on the price (Jahankhani and Abdol Tabriz, 2004).

Companies which disclose more information and provide it to the consumers of financial reports in a timely manner, will lead to a reduction in information asymmetry between different groups of shareholders. Transparency of information between shareholders will reduce investor's uncertainty and investment risk. As a result shareholders accept to invest in the company by receiving lower returns. This (reducing investment risk) makes the company issue its shares to lower costs (Peng He, Lepone, and Leung, 2013). In this study, it has been tried to empirically study the relationship between information asymmetry and cost of common stock in companies listed in Tehran stock exchange.

2. Research Background

Goel and Thakor (2003) based on asymmetric information argument state that higher profit variation leads to the advantage of higher information for informed investors compared to uninformed ones. Increased variability of reported profits will increase trading losses of uninformed investors and put them out of the market, so they prefer managers to pare reported profits as far as possible.

Bachtiar (2008) has examined the relationship between accruals and information asymmetry from 2005 to 2007 in Indonesia. The results showed a significant positive correlation between accruals and information
asymmetry. The findings also suggest that there is a positive and meaningful relationship between abnormal accruals and information asymmetry.

Bachtir et al. (2006) examined the relationship between earning quality and information asymmetry. The results suggest that low earnings quality will lead to information asymmetry.

Cormier and Ledoux (2012) examined the effect of voluntary disclosure regulator on the relationship between earning quality and information asymmetry in Canadian companies. The results showed that both earning quality and voluntary disclosure reduce information asymmetry and voluntary disclosure has a mediating effect on the relationship between earnings quality and information asymmetry.

Peng He, Le Pone, and Leung (2013) in their study of 368 companies from Australia during the period of 2001 to 2008 concluded that information asymmetry has a positive relationship with the cost of common stock.

Ahmadpour and Rasayan (2007) examined the relationship between financial information as measures of risk and the difference of ask price in Tehran stock exchange. The study population consisted of 156 companies for a period of 3 years (81-83). The results showed that all independent variables measure more than 68 percent of the difference between ask price and BID price.

Khadamipour and Ghaedi (2011) examined the relationship between accruals and information asymmetry and showed that there is a significant positive relationship between abnormal accruals and information asymmetry.

In their study, Rahimian, Hemmati, and Soleimanifard (2013) investigated the relationship between earnings quality and information asymmetry in 59 companies in Tehran stock exchange from 2005 to 2010. The results showed that there is a meaningful relationship between earnings quality and information asymmetry and a reduction in earnings quality leads to an increase in information asymmetry.

Research hypotheses

In capital markets in which people have a lot of confidential information or enjoy the advantage of advanced information, the probability of information asymmetry or inequality increases.

Market size, in turn, affects the cost of exchange. As a result, the extend of information asymmetry has a direct relationship with exchange costs.

Information asymmetry prevents all information to be completely available to all investors. This leads to different predictions of investors from the company's stock price based on different information. The inability to accurately predict the profitability and efficiency of the company's shares will increase investment risk for shareholders and creditors. (Peng He, Le Pone, and Leung, 2013)

By increasing investment risk, investors wish for higher efficiency. This means tolerating more costs in order to attract the attention of investors.

Therefore, an increase in the company's information asymmetry will increase the funding costs.

According to the theoretical bases of the research and previous studies, research hypotheses are formulated as follows. Investors in the company are generally divided into two groups of shareholders and creditors, therefore, the company faces two types of costs in order to provide the necessary fund. 1. Cost of common stock. 2. Cost of debt. The hypotheses are formulated as follows:

Hypothesis 1: Information asymmetry has a positive and meaningful influence on the cost of common stock.

Hypothesis 2: Information asymmetry has a positive and meaningful influence on the cost of debt.

3. Research Method

The purpose of the present research is functional and the method employed is descriptive.
In the present study, it is tried to predict the future of company's and help them in making appropriate economic decisions and investment by examining.

The influence of information asymmetry and cost of capital on investors and other users of financial information.

**Statistical Population and Sample Size**

The statistical population in the present study includes all the companies listed in Tehran stock exchange since the beginning of 2008 to the end of 2013 (426 companies, 2556 firm-year).

In the present study, to determine the statistical sample, we did not use a special method to estimate sample size and sampling, but in order to closely examine the information of listed companies in Tehran stock exchange, all the companies were categorized in 26 industries and for nonrandom selection and higher reliability, the following conditions were imposed by the researcher:

1. for the purpose of comparing items companies whose financial year. Did not end on March 20th and 21st were first removed.

2. Then banks financial institutions and financial investment companies (due to their different nature of activities from other commercial branches) were removed. The reason is that these companies have higher debt proportions compared to other companies, while this increase in debts does not reflect higher risks.

3. at this stage companies which did not include all the necessary information during the examining period were excluded.

It should be noted that companies are supposed to be listed in Tehran stock exchange before the year 2008 and do not change their financial year during the investigation in order to have equal number of statistical samples in the years of study.

By applying the above conclusions, 82 companies (492 firm-year) were selected to estimate models and fast research hypotheses.

**Models and Variables**

- **Independent Variable; Information Asymmetry**

Information asymmetry is a qualitative concept which needs a model to become quantitative and be expressed in terms of numbers. In order to do this following Cormier, Houle, Ledoux (2013) we use the scope of ask price. The more is the ask price of buyers and sellers of a company's shares, the more different and asymmetric will be the information affecting their decision making. This relationship is expressed as follows:

\[
Asy = \frac{|AP - BP|}{(AP + BP)/2} \times 100
\]

In this relationship:

- **Asy:** indicates the scope of the price of buying and selling the company's share which is used as an index of information asymmetry.
- **Ap:** is the average of ask price
- **Bp:** is the average of bid price

To do the calculations, first the best ask price for buying and selling each share is extracted for three weeks before and after declaring share earnings. The best ask price refers to the highest price to buy shares in each day and the best suggested selling price refers to the least suggested price to sell a share in each day. Then using their average, the scope of the difference between the price offer and for buying and selling stocks is calculated.
Dependent Variables

A- cost of common stock

This variable represents the cost of common stock. To measure this variable, the proportion of earnings per share and the price per share is used:

\[ COEC_{it} = \frac{EPS_t}{P_t} \]

\( COEC_{it} \): the cost of common price in the year \( t \) for the company \( i \)

\( EPS_t \): earnings per share

\( P_t \): price per share

B) Cost of debt

This variable represents the cost made by company's loan. To measure this variable the proportion of financial cost (interest) and the official value of all the interest bearers' debts is used:

\[ COD_{it} = \frac{I_t}{TD_t} \]

\( COD_{it} \): cost of debt in year \( t \) for company \( i \)

\( I_t \): financial cost and

\( TD_t \): total debts of the interest – bearer

Model of Hypothesis Testing

The models developed to test research hypotheses and examine the relationship between information asymmetry and cost of capital is as follows:

\[ COEC_{it} = \beta_0 + \beta_1LASY_{it} + \beta_2EPSVAR_{it} + \beta_3MV_{it} + \beta_4BETA_{it} + \beta_5CFO_{it} + \beta_6ADV_{it} + \varepsilon_{it} \]

\[ COD_{it} = \beta_0 + \beta_1LASY_{it} + \beta_2EPSVAR_{it} + \beta_3MV_{it} + \beta_4BETA_{it} + \beta_5CFO_{it} + \beta_6ADV_{it} + \varepsilon_{it} \]

In these models, 5 variables are used as control ones. The above model was introduced and employed by peng, he, lepono and leung (2013) variables employed in these models are explained as follows:

\( CoEc\): (dependent variable) cost of common price

\( CoD\): (dependent variable) cost of debt

\( LASY\): (dependent variable) information asymmetry

\( EPSVAR\): (control variable) represents fluctuations in profitability and is measured through the standard deviation of the company's earnings per share.

\( MV\): (control variable) represents the company size and is measured through the logarithm for company's share value

\( BETA\): (control variable) represents the systematic risk of share

To calculate the systematic risk (\( \beta \)), the following formula is used:

\[ \beta = \frac{Cov(R_i, R_m)}{\sigma^2(R_m)} \]

In which;
B: systematic risk of common stock  
**Ri**: return rate of company's common stock (for company i)  
**Rm**: market portfolio return rate (index of all stocks)  
**Cfo**: (control variable), represents operating cash flows and is derived from the statement of cash flows  
**ADv**: (control variable) represents total costs of marketing and advertisement (it is measured through the logarithm of marketing and advertisement) and  
**E**: is the amount of estimated error in the model.  

**Descriptive Statistics**  
In the present study the amount of variables are calculated using raw data. Descriptive statistics related to the dependent and independent variables of the study such as mean, median, maximum, minimum and the standard deviation were calculated and presented in table(1). The above mentioned amounts present a general view of distribution of research data.

```markdown
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>COEC</td>
<td>0.3387</td>
<td>0.2938</td>
<td>0.6892</td>
<td>-0.1298</td>
<td>0.1298</td>
</tr>
<tr>
<td>COD</td>
<td>0.2132</td>
<td>0.2379</td>
<td>0.4817</td>
<td>0.0078</td>
<td>0.0234</td>
</tr>
<tr>
<td>IASY</td>
<td>0.1894</td>
<td>0.1592</td>
<td>0.4269</td>
<td>0.0143</td>
<td>0.0219</td>
</tr>
<tr>
<td>EPSVAR</td>
<td>0.2136</td>
<td>0.2249</td>
<td>0.7244</td>
<td>-0.1169</td>
<td>0.0478</td>
</tr>
<tr>
<td>MV</td>
<td>0.3128</td>
<td>0.3241</td>
<td>1.2983</td>
<td>0.0635</td>
<td>0.0285</td>
</tr>
<tr>
<td>BETA</td>
<td>0.7538</td>
<td>0.8236</td>
<td>19.4651</td>
<td>-2.6348</td>
<td>0.4894</td>
</tr>
<tr>
<td>CFO</td>
<td>0.1108</td>
<td>0.1683</td>
<td>0.3685</td>
<td>-0.1866</td>
<td>0.1218</td>
</tr>
<tr>
<td>ADV</td>
<td>0.0215</td>
<td>0.0206</td>
<td>0.1972</td>
<td>0.0000</td>
<td>0.0192</td>
</tr>
</tbody>
</table>
```

**Definition of variables**  
Coec: (dependent variable) cost of common stock  
Cod: (dependent variable) cost of debt  
Iasy: (independent variable) information asymmetry  
Epsvar: (control variable) fluctuations in earnings per share  
Mv: (control variable) represents the value of stock market  
BETA: (control variable) represents operating cash flow  
ADV: (control variable) represents costs of marketing and advertisement  

**Intervention Statistics**  
- **Diagnostic Tests on Synthetic Data**  
  In order to measure the variables and test research hypotheses, data related to sample companies were collected and used from 2008 to 2013. The number of observations per section is 85 (companies). And includes a 6-year period. Therefore 492 observations (year-firm) were used to analyses the combined data.
Besides, there are different tests to determine the appropriate model to study data such as ………. And ………….. tests.

Research hypotheses seek to examine the relationship between information asymmetry and cost of capital among companies listed in Tehran stock exchange to test the two research hypotheses, two types of regression are used:

\[
COEC_{it} = \alpha + \beta_1 IASY_{it} + \beta_2 EPSVAR_{it} + \beta_3 MV_{it} + \beta_4 BETAR_{it} + \beta_5 CFO_{it} + \beta_6 ADV_{it} + \varepsilon_{it},
\]

\[
COD_{it} = \alpha + \beta_1 IASY_{it} + \beta_2 EPSVAR_{it} + \beta_3 MV_{it} + \beta_4 BETAR_{it} + \beta_5 CFO_{it} + \beta_6 ADV_{it} + \varepsilon_{it}.
\]

In order to accept the first and second hypotheses, the meaningfulness of parameter \( B1 \) in models (1) and (2) is used.

In test, if the test statistic is significant, the null hypothesis will be rejected and the fixed effect model (panel data) will be accepted. If the above-mentioned statistic is not meaningful, pool data will be used to test the hypotheses, in test, if the test statistic is meaningful, the null hypothesis will be accepted if the above-mentioned statistic is not meaningful, Random effect model will be used to test the hypotheses. The results of test are presented in table (2).

### Table 2: The Results of Determining an Appropriate Model in Combined Data

<table>
<thead>
<tr>
<th>Result</th>
<th>p-value</th>
<th>Test statistic</th>
<th>Type of test</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pooled data</td>
<td>0.3129</td>
<td>2.1996</td>
<td>Chow test</td>
<td>Model (1)</td>
</tr>
<tr>
<td>Panel data</td>
<td>0.0000</td>
<td>6.0894</td>
<td>Chow test</td>
<td>Model (2)</td>
</tr>
<tr>
<td>Fixed effect model</td>
<td>0.0082</td>
<td>3.2144</td>
<td>Hasman test</td>
<td></td>
</tr>
</tbody>
</table>

The results of test confirmed the first model of the null hypothesis claiming the similarity of in all the periods and rejected the null hypothesis. As a result, pooled data estimation method is a better option you estimate the first hypothesis. However, for the second model the results suggested that the model needed to be done in test. The results of test for model (e) indicates that the null hypothesis for this test is rejected. Therefore, the fixed effect model will be a better option to estimate the second model.

### 4. Results of Hypotheses Testing

Evaluation of hypothesis testing is done in two stages at the first stage, the first hypothesis is examined through estimating the first model at the second stage, testing the second hypothesis is done by estimating the second model.

- **Results of Testing the First Hypothesis**

Before estimating the first model of testing the first hypothesis, it is necessary to test the hypotheses related to the regression model. These hypotheses include: 1-normality of model remains 2-Homogeneity of the variance of remains 3-non linearity of explanatory variables 4-non correlation of error components.

The results of testing the normality of the remains of the first research model are provided in table (3)

JB test is used in software environment of Eviews6. The statistical hypotheses of Jarque-bera test are as follows.
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H₀: normality
H₁: abnormality

If sig is smaller then 0.05 , HO will be rejected and H1 will be accepted .if sig is larger than 0.05 H0 will be accepted and H1 will be rejected.

Table 3: Results of Testing the Normality of the First Model Remains

<table>
<thead>
<tr>
<th>Variable</th>
<th>test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual</td>
<td></td>
</tr>
<tr>
<td>2.6122</td>
<td>0.1128</td>
</tr>
</tbody>
</table>

As if can be seen from table 3 , the statistic of testing the normality of remains and its significance level rejects H0 and maintains H1. IN other words , remains of estimating the first regression model of the research do not have an abnormal distribution . the results of testing the homogeneity of variance related to the first model remains are provided in table (4).

Table 4: Results of Testing the Homogeneity of Variance Related to the Remains of First Regression Model

<table>
<thead>
<tr>
<th>White test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic f p-value</td>
</tr>
<tr>
<td>2.6671 0.1183</td>
</tr>
<tr>
<td>Lagranj coefficient p-value</td>
</tr>
<tr>
<td>143.0244 0.0989</td>
</tr>
<tr>
<td>Coefficient of determination</td>
</tr>
<tr>
<td>0.2907</td>
</tr>
<tr>
<td>Number of observations</td>
</tr>
<tr>
<td>492</td>
</tr>
</tbody>
</table>

Source: researcher's calculations

AS shown in table (4), the statistics of variance homogeneity test and their significance level confirmed the null hypothesis related to the homogeneity of variance. IN other words , the remains of the first research model have had a constant variance.

The reason for non linerarity of the dependent variables is that based on the correlation coefficients provided in table (4), small amounts are devoted to the correlation between explanatory variables in the research model . these low ratios indicate the absence of linearity between the explanatory variables of the first model.

In order to examine the correlation of the remains of the regression model , Watson test was employed. The results of this test , along with the estimation of the regression model are obtained in Eviews software. Its optimal amount for the lack for correlation is 2 if the value of this statistic falls between 1.5 to 2.5 , correlation will be rejected in the values of model error the statistic of Watson camera test related to the first regression model is 1.9276 which is observable in table (5). According to the statistic provided from Watson camera ..., the existence of correlation is rejected in the values of model error after reviewing the four assumptions of the model and the desirability of the model, the results of estimating the model will be examined.

Significant test results of model (1) and the examination of the above coefficients based on pooled data are provided in table (5) from 2008 to 2013.

As it is shown in table, statistic F is meaningful with the significance that in general, the research model is meaningful and the control and independent variables of the model Besides, modified determination coefficient of testing the model is 0.2936. This amount indicates that almost 29 percent of the changes related
to the dependent variable (i.e., Cost of common stock) is due to the changes in the control and dependent variables of the model. 67 percent of other changes are due to other factors.

Test of significance of the coefficients is what the researcher is looking for. In fact this is a test to determine the significance of the coefficients and the effect of the coefficients on the dependent variable the appropriate statistic used to determine the significance of the coefficients, is T student statistic according to the results of table (5), the T statistic related to the independent variable of and its significance level (p-value) are 2.9883 and 0.0185 respectively. Since the error level considered for this study is 0.05, it can be concluded for this variable that information asymmetry with the error level of 5% has a meaningful relationship with the common stock. The coefficient of the information asymmetry variable (B1) is positive. As a result, there is a direct relationship between information asymmetry and the cost of company's common stock. In other words increasing information asymmetry between member companies will increase the cost of common stock of these companies. Therefore the first research hypothesis is confirmed.

Table (5): Results of the First Regression Model Test First Hypothesis

<table>
<thead>
<tr>
<th>p-value</th>
<th>t-static</th>
<th>coefficient</th>
<th>parameter</th>
<th>explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>3.7682</td>
<td>-0.3244</td>
<td>α0</td>
<td>Fixed coefficient</td>
</tr>
<tr>
<td>0.0185</td>
<td>2.9883</td>
<td>0.2438</td>
<td>β1</td>
<td>IASY</td>
</tr>
<tr>
<td>0.0000</td>
<td>4.6879</td>
<td>0.1879</td>
<td>β2</td>
<td>EPSVAR</td>
</tr>
<tr>
<td>0.0373</td>
<td>3.2147</td>
<td>0.4435</td>
<td>β3</td>
<td>MV</td>
</tr>
<tr>
<td>0.0064</td>
<td>4.2144</td>
<td>0.0048</td>
<td>β4</td>
<td>BETA</td>
</tr>
<tr>
<td>0.0288</td>
<td>3.0079</td>
<td>-0.6578</td>
<td>β5</td>
<td>CFO</td>
</tr>
<tr>
<td>0.0000</td>
<td>5.1327</td>
<td>-0.1349</td>
<td>β6</td>
<td>ADV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F-stat</th>
<th>p-value</th>
<th>D-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2936</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2169</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9276</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Results of testing the Second Hypothesis

Before estimating the second research model related to testing the hypothesis, the hypotheses of the regression model should be examined. The assumptions include:

1. The normality of the remains of model
2. The homogeneity of the variance of remains
3. Non linearity of the explanatory variables
4. Lack of correlation between error components

The result of testing the normality of remains related to the second research model are provided in table (6). As illustrated, the statistic related to the normality of remains and its significance Level rejects H0 and confirms H1. In other words, the remains of estimating the second regression research model do not show an abnormal distribution.
Panel data analysis was used to estimate the second model. To test the homogeneity of variance the adjusted test was employed. The result of testing the homogeneity of variance related to the remains of the second model are illustrated in table (7).

Table 7: Results of Testing the Homogeneity of Variance Related to the Remains of the Second Regression Model

<table>
<thead>
<tr>
<th>x² statistic</th>
<th>Adjusted parent test</th>
</tr>
</thead>
<tbody>
<tr>
<td>105.532</td>
<td>Deamination coefficient</td>
</tr>
<tr>
<td>0.1096</td>
<td>0.2146</td>
</tr>
<tr>
<td>492</td>
<td>Number of observations</td>
</tr>
</tbody>
</table>

As if can be seen from table (7), the statistic of the adjusted test and its significance level confirmed the null hypothesis of the homogeneity of variance. In other words the remains of the regression model have fixed variance. In order to examine the correlation of the remains of the regression model test was employed. because according to the data of panel structure and the random effects method in estimating the model, using Watson camera test alone will not provide reliable results the results of testing the correlation of the remains of the second model are illustrated in table(8).

As it can be seen from the table, the statistic of test and its significance level confirmed the null hypothesis related to the lack of correlation. In other words, the remains of estimating the second research model lack correlation.

Table 8: Results of Testing the Homogeneity of Variance Related to the Remains of the Second Regression Model

<table>
<thead>
<tr>
<th>Statistic f</th>
<th>Valerie test</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6438</td>
<td></td>
</tr>
<tr>
<td>0.3292</td>
<td></td>
</tr>
</tbody>
</table>

Source: researcher's calculations

After reviewing the four hypotheses related to the regression model and making sure of the desirability of the model, the results of model estimations examined.

The results of the significance test of model (2) and the analysis of the above coefficients through panel data and the random effect for the years 2008 to 2013 are provided in table(9).

Table 9: Results of Testing the Second Regression Model – Second Hypothesis

<table>
<thead>
<tr>
<th>p-value</th>
<th>t-static</th>
<th>coefficient</th>
<th>parameter</th>
<th>explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0050</td>
<td>-2.5467</td>
<td>-0.0283</td>
<td>α₀</td>
<td>Fixed coefficient</td>
</tr>
<tr>
<td>0.0000</td>
<td>0.1136</td>
<td>0.1136</td>
<td>β₁</td>
<td>IASY</td>
</tr>
<tr>
<td>0.0182</td>
<td>4.5663</td>
<td>0.5462</td>
<td>β₂</td>
<td>EPSVAR</td>
</tr>
<tr>
<td>0.0044</td>
<td>2.4336</td>
<td>0.2436</td>
<td>β₃</td>
<td></td>
</tr>
</tbody>
</table>
As it is clear from the table, statistic F with a confidence level of 99% is significant. Therefore, it follows that the research model was generally significant and the independent and control variable of the second model in addition, the adjusted coefficient of determination of the model test is 0.3641. This figure shows that approximately 36% of the changes of the dependent variable (i.e., cost of debt) are due to the changes in the independent and control variables of the model. Other 64% of the changes are because of other factors.

According to the results of Table (9), the statistic T related to the independent variable of COD and its significance level (p-value) are 8.4459 and 0.0000 respectively. Since the result error level is less than 0.1, for this variable, we can conclude that information asymmetry with the significance level of 99% has a meaningful relationship with the cost of debt. The coefficient of the information asymmetry variable (B1) is positive. As a result, there is a direct relationship between information asymmetry and the company's cost of debt. In other words, by increasing the information asymmetry between member companies, the amount of companies' cost of debt has also increased; therefore, the second research hypothesis is confirmed.

5. Conclusion and Suggestion

The results of estimating the first regression research model showed that the coefficient of the target independent variable in the model (i.e., information asymmetry) is meaningful and there is a direct and positive relationship between information asymmetry and cost of common stock. In other words, research findings confirmed the first hypothesis.

As a result, it can be claimed that by increasing information asymmetry among companies listed in Tehran stock exchange, the amount of funding cast has also increased by distributing the common stock.

The results of estimating the second regression research model showed that the coefficient of the target independent variable in the model (i.e., information asymmetry) is meaningful and there is a direct and positive relationship between information asymmetry and cost of capital. In other words, research findings confirmed the second hypothesis. As a result, it can be claimed that by increasing information asymmetry among companies listed in Tehran stock exchange, the company's cost of debt has increased.

The result of these hypotheses can be expressed as follows:

The result of information asymmetry is that the information will not be completely provided to the price and efficiency of the stock of the company will be different from each other due to different information. The inability to appropriately predict the profitability and efficiency of the company stock will increase investment risk for the shareholders and creditors. Investors, by increasing investment risk, seek for higher efficiency this means tolerating more costs in order to attract the attention of investors.
Therefore, increasing information asymmetry in the company will increase the cost of funding the results of testing research hypothesis are in line with the results of Peng He, LePone, and Leung (2013).

The results of the present study indicated that by increasing information asymmetry among shareholders, the cost of funding will increase for the company as a result; it is suggested that in order to decrease the cost of funding in the company, managers do best to provide timely reports of information, increase the credibility of investors, develop accounting quality and transparency of financial statements and decrease opportunistic management of the interest to be able to make more information symmetry between shareholders and decrease investment risks.

The government and accounting organization can write down regulations and standards to better control the managing behavior of companies in choosing different accounting procedures and governmental regulations which can lead to unrealistic earnings manipulation.

Because this leads to greater transparency of information and comparability of earnings these guidelines should be developed to control the behavior of management as much as possible. Besides, Tehran stock exchange is recommended to include other indices in addition to the company's profitability index in the decisions made by the supreme council of stock such as decisions on the procedures for companies to enter the stock market since earnings are subject to manipulation and distortion.

Investors should focus on the information provided in audited financial statements of companies and the analyses made by financial analysts and stock brokers for the purpose of investment and based on this they can choose their appropriate portfolio and avoid making decisions based on emotions.

Reference


Nikbakt, M R and Tehnani, Mohsen. 2011 Analysis of the influential factors on accounting cost of financial statements.