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Studying the Relationship between Information Asymmetry and Capital Cost of Listed Companies in Tehran Stock Exchange

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ABSTRACT

The aim of this paper was to study the relationship between information asymmetry and capital costs of listed companies in Tehran Stock Exchange. In order to measure the information asymmetry, the offered price of buying and selling shares has been used and capital stocks included costs of common stocks and cost of debts. In order to test the hypothesis of the study, we collected data of 82 accepted companies in Tehran Stock Exchange using Combined Data Analysis. In order to estimate suitable models of data hypothesis, Chaw Test was used. Results showed that information asymmetry has significant relationship with the costs of equity capital and cost of debts.

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INTRODUCTION

Statement of the problem:

Using companies' financial information and making the right decisions in Stock Exchange is possible when the above information is on time, relevant and understandable. On the other hand, type of this information and how to assess them is also important. If data transmission between the individuals is unequal and asymmetrical; it can have different results towards the single cause. Information asymmetry can have several adverse consequences, such as reduction of market efficiency, increase in transaction costs, market weakness, increase in shareholder's income, low liquidity and generally reduction of the transactions' profit in capital market [22].

One of the conditions of a perfect competition is clearness of the information and lack of this clearness causes bribery. As we move from a traditional society to modern society, these asymmetry increase, because the more complex the society is, the more division of labor and specialization increases. Variety of production, division of labor and specialization increases when information asymmetry occur (having knowledge by specialists and lack of this knowledge by others).

Companies use two general sources of shares and debts to supply finances. Supplying finances is very costly for the company (financial costs and common stock costs). Financial management in the company always looks for ways to reduce capital cost. Reduction of capital cost increase the company's profit and its increase is in favor of shareholders. Various studies have shown that accounting data are used to determine the cost of capital stocks.

Information asymmetry occurs when stakeholders don't have access to the confidential data that is available for the managers. Companies which share this information with stakeholders more and on time, reduce the asymmetry between different groups of stakeholders. Clearness of this information among stakeholders reduces uncertainty among them and investment risks decrease. Therefore, investors accept to invest in the company by receiving lower revenue. Reduction of investment's risk causes the company to issue its shares with lower costs. In this study, we have tried to empirically investigate the relationship between information asymmetry and capital cost of listed companies in Tehran Stock Exchange. By evaluating the different groups of stakeholders, we can be able to reduce the uncertainty in investment decisions and achieve better opportunities to invest.

Necessity for Conducting This Study:

Importance of this study is to show the financial analysts, investors and other users of accounting information empirically that asymmetry of information and financial clearness can influence the capital cost.

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Considering the importance of timely reporting and investment risks for the stakeholders, conducting this research is necessary. If the results of this study prove the significant relationship of the information asymmetry and cost of equity capital, it informs stakeholders to consider this issue more than ever.

Research Purpose:

Overall objective: evaluating the effects of information asymmetry on capital cost.

Secondary objectives:

1. Evaluation of the information asymmetry and cost of equity capital in TSE companies.
2. Evaluation of the information asymmetry and cost of debts in TSE companies.

Practical purposes:

Providing the practical results about studying the effect of information asymmetry on cost of equity capital and cost of debts on the actual and potential investors and creditors and also managers and helping these groups in making correct and reasonable financial decisions.

Research hypothesis:

Hypothesis 1: there is a significant relationship between information asymmetry and costs of equity capital.

Hypothesis 2: there is a significant relationship between information asymmetry and cost of debts.

Methodology:

Thisis an applied descriptive study and it studies the correlation between the variables and it uses the historical data of the company as a sample.

Area of the study:

The area of the study: Tehran Stock Exchange.

Time of study: between 2012-2007

Data Collection Method:

In this study, in order to provide information about accepted companies in Tehran Stock Exchange, different sources such as CDs of Tehran Stock Exchange, Tadbir Pardaz software and Stock Exchange Information Center have been used. Therefore, data collection method in this study was field research. In order to study the theoretical principles, library research, books and articles in this context have been used.

Population and Statistical Samples

Population of this research was companies listed in Tehran Stock Exchange from the beginning of 2007 up to the end of 2012 for a period of six years. To achieve reliable results, companies that were entered the market after 2007 or leaved the stock market during the period of investigation were not included in the research population. Moreover, sample companies must have had fiscal year ending in the March 20th, and must not have been financial, investment and insurance companies. Given these conditions and elimination methods, companies that participate in the population of this research were determined. All of these companies were being used and no more data gathering method was being used. Sample companies were 82.

Sample companies in each industry:

Rows	Industry	Number of companies
1	Automobile and parts manufacturing	10
2	Basic metals	8
3	Cement	11
4	Food products	7
5	Machinery and equipment	10
6	Chemicals	10
7	Pharmaceutical products	6
8	Electrical devices	5
10	Ceramics and tiles	6
11	Rubber and plastics	4
12	Mine	5
	Total number	82

Definition of Key Words:

Asymmetry of information: the more the proposed prices by buyers and sellers of a company's stock is; the more asymmetrical and different will be information affecting the decisions between them. Asymmetry of information is a qualitative concept which becomes quantitative by the difference between proposed price of sellers and buyers of stocks.

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Cost of equity capitals: the proportion of the payments by the company to the stakeholders for financing through selling common stocks.

Cost of debts: proportion of funds paid by company to the creditors for financing it is done by debts to interest-bearing loans.

Empirical Basis of the Research:

Bachtiar [15] studied the relationship between accruals and information asymmetry during the period of 2005 to 2007 in Indonesia. The results showed there was a significant relationship between accruals and information asymmetry. The findings also suggested that there was a positive and significant relationship between abnormal accruals and asymmetrical information.

Batchiar et al. investigated the relationship between the quality of earnings and information asymmetry. The results revealed that low quality of earnings leaded to information asymmetry.

Ehsan Habib et al. investigated the stock market reaction to smoothness of earnings in highly unreliable environment. They concluded that the current stock value had more information about future profits in highly unreliable environment. In another words, the positive relationship between current stock profit and future profits of companies that smooth profits in an unreliable environment is stronger. In such environment, smoothing profits will increase certainty.

Cormier and Ledox [19] studied the effects of voluntarily exposing the moderation on relationship between quality of earnings and information asymmetry in Canadian companies. The results demonstrated that the quality of earnings and voluntarily exposure, both reduce information asymmetry and voluntarily exposure had moderating effects on the relationship between quality of earnings and information asymmetry.

Rahimian, Hemati and SalsmaniFard examined the relationship between quality of profit and asymmetry of information in 59 companies listed in Tehran Stock Exchange during the period of 2004-2009. Results indicated that there was a significant relationship between information asymmetry and reduction of the quality of profits leaded to information asymmetry.

Research Models and Methods of Measuring Variables:

Independent variables in this study were information asymmetry and dependent variables were common stock cost and cost of debt. Table.1 shows the main variables of the study and their abbreviations. All of the information related to the variables was derived from financial statements of the listed companies in Tehran Stock Exchange.

Variables	Abbreviated form
Information Asymmetry	IASY
Cost of Equity Capital	COED
Cost of Debt	COD

Measuring variables of the study was as follow:

Independent variables:

Information asymmetry is a qualitative concept, in order to be able to express it in numbers; we need a model to make it quantitative. To do so, we followed Chiang and Kyntash Cormier and Lidox [19] and used the scope of the proposed price of buying and selling Stocks. Because the higher proposed prices are, the more asymmetrical and different will be effective information on decision making. Aforementioned equation is as follow:

$$Asy = \frac{(AP - BP)}{(AP + BP)/2} \times 100 \quad (1)$$

In this equation:

ASY: The scope of buying and selling prices of the shares which is used as an index of information asymmetry,

AP: average of the proposed price for selling the company's stocks.

BP: average of the proposed price for buying company's stocks.

For the calculation of stocks, the best offered price for buying and selling of the last three weeks and the best prices after the announcement of the dividends was excerpted (the best offered price for buying means the highest price offered to buy shares each day, the best offered price for selling means the minimum price offered for sale each day), then by using the mean between these prices, the scope of price differences between offered price for selling and buying was calculated.

Dependent Variables:

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A) Cost of equity capital:

This variable represents the cost that common stock has for the company.in order to measure the first dependent variable, i.e. cost of equity capital, the ratio of each share per the price of each share is used.

$$COEC_{it} = \frac{EPS_t}{P_t} \quad (2)$$

$COEC_{i,t:}$ cost of equity capital in year t for company i

$EPS_{t:}$ earnings of each share

P_t: price of each share

B) Cost of debt:

This variable represents the cost that loan imposed on the company. In order to measure the second dependent variable, i.e. cost of debt, fiscal ratio (benefit) with the book value of total interest-bearing debts was being used.

$$COD_{it} = \frac{I_t}{TD_t} \quad (3)$$

$COD_{i,t}$: cost of debt in the year t for the company i

I_t: financial cost

TD_t: total costs of interest-bearing debts

Testing the Hypotheses Model

The formulated model to test the research hypothesis and investigation of the relationship between information asymmetry and capital cost in this model is:

$$COEC_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it} \quad (4)$$

$$COD_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it} \quad (5)$$

In these models five variables were used as control variables. The mentioned model was introduced and applied by Pong Hey et al.. Variables used in these models are described as follow:

COEC: (dependent variables) cost of equity capital

COD: (dependent variable) cost of debt

IASY: (independent variable) information asymmetry

EPSVAR: (control variable) fluctuations in profitability and they are measured by standard deviation of the company's earnings per share during the research period.

MV: (control variable) indicates size of the company and it measures the company's share value.

BETA: (Control variable) indicates the systematic risk of the shares.

To calculate the systematic risk (β) the following formula was used:

$$\beta = \frac{Cov(R_i, R_m)}{\sigma^2(R_m)} \quad (6)$$

In which:

β =systematic risk of the equity capital

R_i =returns of the equity capital of the company

R_m = portfolio return rate of the market (overall index of the stocks)

CFO: (control variable) represents the operating cash and it can be derived from the cash flow statement.

ε: the estimated error in the variable

Tools for Data Analysis and Hypothesis Testing

After collecting necessary data for research, choosing suitable tools to calculate and data analysis is very important. In this research, preliminary data entered from PDF files into Excel. Using this software, necessary data was prepared to be placed in the model. For data analysis and hypothesis testing, we used views statistical software.

Testing the significance of regression coefficients (t test)

We used t test for comparison and identification of the causal relationship to study the effects of independent variable or causal relationship. Therefore, significance test is a method, which uses sample data to determine the truth or incorrectness of the null hypothesis. Null hypothesis states that the independent variable has no effect on dependent variable. In other words, independent variable coefficient is zero. The decision

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whether to accept or reject the null hypothesis is based on the amount and probability of t. t is compared with table t and its probability is 0.05.

If it is less than 0.05, the null hypothesis is rejected and significant relationship between dependent and independent variable will be accepted.

Coefficient of Determination:

By using coefficient of determination R2, suitability of the determined regression line is investigated according to the regression line. R2 measures the total variation in Y by using the regression model. R2 is between zero and one; it is more desirable to be near zero.

Fisher Test:

Sometimes researcher seeks to determine the differences between the effects of several variables or choosing the best variable, to do so, t test is possible for paired comparison. But sometimes statistical errors and miscalculations make it impossible to use this method. Therefore, another test called F test is used. This method helps researchers to detect significant differences between groups and effects of variables (Hafez Nia 1389). In other words, in order to verify the regression model, F-test is used.

Statistical assumption based on this test is:

H_0: all coefficients are zero

H_1: at least one of the coefficients is zero.

If the possibility of F is less than 0.05, the null hypothesis will be rejected and the model is significant.

Econometrics of the Combined Data:

For data analysis and determining the models, we have used combined data approach. Combined data is very popular among behavioral scientists. At the same time, it answers a lot of questions correctly (Ashraf zadeh and Mehrgan, Other advantage of this model is that, variables of the dynamics will be calculable. However, it is not possible in cross-sectional studies, because of the lack of time estimation [7]. In this method, Chaw, F and Hauseman test were used. Chaw test is as follows:

$pooled\ model\ H_0 \Leftrightarrow width\ from\ the\ source\ are\ all\ equal \Leftrightarrow \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5$

$H_1: \exists\, r \neq s \Rightarrow \alpha_r \neq \alpha_s \Leftrightarrow$At least one of the widths from the source is different from others$\Leftrightarrow fixed\ effects\ model$

$$F = \frac{(R^2_{LSDV} - R^2_{Pooled})/(T-1)}{(1-R^2_{LSDV})/(NT-T-K)}$$

$$F = \frac{(RSS_{Pooled} - RSS_{LSDV})/(T-1)}{RSS_{LSDV}/(NT-T-K)}$$

In the above mentioned models, there are coefficient determination and sum square of the fixed effects model and coefficient determination and sum square of the pooled model respectively. N is the number of sections, (companies), K is the number of explanatory variables and T is time period. If the null hypothesis is rejected, the model will be accepted with the fixed effect model or pooled model. If we select fixed effect model, we have to examine it comparing to random effects model by using houseman test.

H_0: *there is no correlation between the explanatory variables and personal effects: random effects model*

H_1: *there is correlation between the explanatory variables and personal effects: fixed effect model*

$$H = \left(\hat{\beta}_{FEM} - \hat{\beta}_{REM}\right)' \left(V\hat{a}r\left(\hat{\beta}_{FEM}\right) - V\hat{a}r\left(\hat{\beta}_{REM}\right)\right)^{-1} \left(\hat{\beta}_{FEM} - \hat{\beta}_{REM}\right) \sim \chi^2$$

In the above equation, $\hat{\beta}_{FEM}$ is coefficient of the slope in fixed effect model, $\hat{\beta}_{REM}$ is coefficient of slope in random effect model and Var is variance symbol. This statistic has χ^2distribution. If the null hypothesis was rejected, then fixed effects model would be accepted, otherwise, random effect model was be used.

Descriptive Statistics of the Research:

Table 4.1: descriptive statistic of the research variables

average	mean	maximum	minimum	standard deviation	Variables
0.3387	0.2938	0.6892	-0.1298	0.0187	COEC
0.2132	0.2379	0.4817	0.0078	0.0234	COD
0.1894	0.1592	0.4269	0.0143	0.0219	IASY
0.2136	0.2249	0.7244	-0.1169	0.0478	

					EPSVAR
0.3128	0.3241	1.2983	0.0635	0.0285	MV
0.7538	0.8236	19.4651	-2.6348	0.4894	BETA
0.1108	0.1683	0.3685	-0.1866	0.1218	CFO
0.0215	0.0206	0.1972	0.0000	0.0192	ADV

Definition of the variables
COEC :cost of equity capital ؛(dependent variable)
COD: cost of debt: (dependent variable)
IASY:information asymmetry ؛ dependent variable
EPSVAR ؛fluctuations in earnings per share (control variable)
MV:represents market value of the shares (control variable)
BETA :represents systematic risk (control variable)
CFO: represents the flow of the operating cash (control variable)
ADV: represents advertisement and marketing cost (control variable)

Source: calculations of the researcher

Correlation Coefficient:

If the significance ratio of the variable is less than 5%, (***Sig*<5%),** H_0 will be rejected and H_1will be accepted and significance of the two variables will be acceptable, otherwise it is not acceptable.

Table 4-2: correlation coefficient

ADV	CFO	BETA	MV	EPSVAR	IASY	COD	COEC	
							1	COEC
						1	0.11	COD
					1	0.28	0.06	IASY
				1	0.22	0.32	0.04	EPSVAR
			1	0.17	-0.13	0.14	0.17	MV
		1	-0.06	0.00	0.16	0.12	0.02	BETA
	1	0.06	0.16	0.08	-0.04	-0.02	-0.01	CFO
1	0.06	0.00	-0.03	-0.06	-0.01	-0.00	-0.00	ADV

Source: calculations of the researcher

Colored squares represent significance of the coefficient in 1% or 5%

In order to use combined data, different models were used to test hypothesis. These models include methods for fixed effect models, random effect models and data integration models (pooled). Also, there are different tests to determine models which are appropriate with data of the research, like chaw and Hausman test.

Hypothesis of the research study was the relationship between information asymmetry and cost of capital among listed companies in Tehran Stock Exchange. To examine these two hypotheses of the research, two regression models were used.

$$COEC_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it} \quad (1)$$

$$COD_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it} \quad (2)$$

To accept the first and second hypothesis, the significance parameter β_1 was used in (1) and (2) models. All of the variables used in these models are described in detail in chapter 3. To study the test model in different periods of combined data, F test Limmer (Chaw) and Hausman were being used.

In Chaw test, if all the statics are significant, the null hypothesis will be rejected and fixed effects model (Pannel data) will be accepted. If the statistics is not significant, combined data (Pooled Data) will be used to examine the hypothesis.

In Hausman test, if statistics of the test are significant, the null hypothesis will be rejected and fixed effects model will be accepted. If the statistics are not significant, random effects model will be used to test the hypothesis. Results of the Chaw test are provided in Table (4-4).

Table 4-4: results of the determination of appropriate model in combined data

Test results	p-value	Test statistics	Type of test	Test models
Data integration model *Pooled data*	0/3129	2/1996	Chaw model	model (1)
	-	-	Hausman model	
Hausman test *Panel data*	0/000	6/0894	Chaw model	model (2)
Fixed effect model	./0 0 82	3/2144	Hausman model	

Source: calculations of the researcher

Results of the chaw test for the first model approve the similarities of the width from the source in all periods and reject the null hypothesis. Therefore, estimation of the combined data (Pooled data) is a more appropriate option to test the first hypothesis' model. But in the second model, results indicate that Hausman test is needed. Results of the Hausman test for the second model indicate that null hypothesis is rejected. Therefore fixed effects model is more appropriate for the second model.

Results of the Research Hypotheses

Evaluation of the hypotheses testing is done in two steps. In the first step, the first hypothesis is tested by the estimation of the first model. In the second step, the second hypothesis is tested by the estimation of the second model.

Results of the First Hypothesis:

Before estimation of the first model based on the first hypothesis, it is necessary to test the assumptions based on the regression model. These assumptions are: 1. Remains of the model are normal 2. Remain variances are homolog 3. Explanatory variables are nonlinear 4. Non-autocorrelation of the error compounds.

Results of the normalness of the remains in the first model can be seen in Table (4-5)

JB test is used in Eviewssoftware environment 6. Statistical hypothesis of the Jarque-Bera test is as follows:

$\boldsymbol{H_0}$: normality

$\boldsymbol{H_1}$: non-normality

If sig is less than 0.05, the null hypothesis will be rejected and H1 will be accepted. If sig is more than 0.05, null hypothesis will be accepted and H1 will be rejected.

Table 4-5: Results of the normalness of the remains in the first model

RESIDUAL	Variable's name test	
2/6122	*Jarque-Bera*	statistics
0/1128		p-value

Source: calculations of the researcher

As you can see in Table (4-5), statistics of the normalness of the remains in the first model rejects the null hypothesis and accepts the H1 hypothesis. In other words, remaining of the first regression of the research does not have abnormal distribution. Results of the homology of the remaining variance in the first model are visible in Table (4-6).

Table 4-6: Results of the homology of the remaining variance in the first model

	2/6671	statisticF	
	0/1183	p-value	White test
	143/0244	Statistics of Lagrange multipliers	
	0/0989	p-value	
0/2907			Coefficient of determination
492			Number of observations

Source: calculations of the researcher

As you can see in Table (4-6), statistics of the homogeneity variance and their significance have confirmed the null hypothesis. In other words, remainders of the first model's estimation have a fixed variance.

In the absence of the independent variablescolinearity, it should be mentioned that, due to the correlation coefficient presented in Table (4-3) there is small values to correlate between the explanatory variables in research models. These ratios indicate absence of colinearity among the explanatory variables of the first model.

To study the remaining autocorrelation of the regression model, Watson's camera was used. Results of this test were obtained along with the estimation of regression model in Eviews software. Its optimal amount for

lack of auto correlation is 2. If it is between autocorrelation of1.5 to 2.5, will be rejected. Statistics of the first regression model of the Watson's camera test which is shown is Table (4-7), is 1.9276. Considering the Watson's Camera Test, autocorrelation in error values is rejected.

Results of model will be analyzed after studying the results of our four hypotheses about the regression and desirability of the model

Significance test results of the first model and analysis of the related coefficients using Pooled Data in 2007 to 2010 is shown in Table (4-6).

As you can see in Table (4-6), statistics of F is significant with 99% of reliability. Therefore, we can conclude that the model is significant and dependent and control variables are able to explain the independent variable.

In addition, the adjusted coefficient of determination resulted from testing the model was 0.2936. This number indicates that 29%of variations of the dependent variable, i.e. cost of equity capital, was resulted from variations of the dependent and control variables in the model and the other 67% is because of the other factors. Significance of the coefficient test is what the researchers are looking for. In fact, this test is not only used to determine the significance of coefficient, it determines the direction of these coefficients on the dependent variable. T student statistic is used to determine the significance of coefficient. According to the Table (4-7) t statistic is related to the independent variable IASY and its significance level (p-value) was 2.9883 and 0.0185 respectively. According to the fact that fault level for this study was 0.05, we can conclude that information asymmetry with 5% fault level has significant relationship with cost of equity capital. Variable coefficient of information asymmetry is (β_1) positive. Therefore, there is a direct relationship between information asymmetry and cost of equity capital. In other words, cost of equity capital is increased by increasing the information asymmetry in listed companies. Therefore the first hypothesis will be accepted.

Table 4-7: results of the first regression model- first hypothesis

p-value	*t-static*	coefficient	parameter	description
0.0000	-3.7682	-0.3244	α_0	Constant coefficient
0.0185	2.9883	0.2438	β_1	IASY
0.0000	4.6879	0.1879	β_2	EPSVAR
0.0373	3.2147	0.4435	β_3	MV
0.0064	4.2144	0.0048	β_4	BETA
0.0288	-3.0079	-0.6578	β_5	CFO
0.0000	-5.1327	-0.1349	β_6	ADV
0.2936				Adjusted R^2
6.2169				F-static
0.0000				p-value
1.9276				D-W

Source: calculations of the researcher

4-6-2: Results of the Second Hypothesis Testing:

Before testing the second model, it is essential to test the hypotheses about the regression model. These hypotheses are: 1. Normalization of the remaining models 2. Homogeneity of the remaining variance 3.Non-linearity of the explanatory variables 4.Non self-dependence of the error components.

Results of the first hypothesis are shown in Table (4-8). As you can see, normality of the remaining and its significance rejects the null hypothesis and accepts the H1 hypothesis. In other words, remaining of the second regression model has normal distribution.

Table 4-8: results of the normalness of the second model's remaining

RESIDUAL	variable test	
1/2206	statistic	statistic
0/2179	*Jarque-Bera*	*p-value*

Source: calculations of the researcher

Given the fact that Panel Data was used to estimate the second model, in the homorganic variance test we used modified adjusted Wald test. A result of "homogeneity variance of the second regression model" is shown in Table (4-9).

Table 4-9: results of the homogeneity variance of the second regression model

statisticx^2 *p-value*	105/532 0/1096	test Adjusted Wald test
0/2146		Coefficient of determination
492		Number of observations

Source: calculations of the researcher

As you can see in Table (4-9), statistics of the adjusted Wald test and its significance level has approved the null hypothesis. In another words, remaining of the second model's estimation has a constant variance.

To study the self-dependence of the regression model, Waldrige Test is used. Because using Watson's Camera test is not sufficient to be used according to the Panel Structure data and random effects method. (Aflatuni, Nikbakht;2010).Results of the self-dependence residuals of the second model and its significance level are shown in Table (4-10).

As you can see, statics of the Waldrige Test and its significance level has approved the null hypothesis regarding the lack of self-dependency. In other words, remaining of the estimation of the second model did not have autocorrelation.

Table 4-10: results of the homogeneity variance of the second regression model

0/6438	Statistic F	Waldrige Test
0/3292	*p-value*	

Source: calculations of the researcher

After studying the regression model hypotheses and being ensured about its optimality, we will study the results of the estimation.

Results of the significance test and studying its coefficient, using panel Data for (2006-2010) is observable in Table (4-11).

$$COD_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it}$$

Table 4-11: results of the second regression model- second hypothesis

p-value	*t-static*	coefficient	parameter	Description
0.0050	-2.5467	-0.0283	α_0	Constant coefficient
0.0000	8.4459	0.1136	β_1	IASY
0.0182	4.5663	0.5462	β_2	Constant coefficient
0.0044	2.4336	0.2436	β_3	MV
0.0000	3.2387	0.0984	β_4	BETA
0.0231	-3.3465	-1.2213	β_5	CFO
0.0000	-6.8905	-0.2879	β_6	ADV
0.3641				Adjusted R^2
4.4489				F-static
0.0000				p-value
2.5134				D-W

Source: calculations of the researcher

As you can see in the above table, F statistic is significant with 99% reliability. Therefore, it can be concluded that the model is significant and independent variables can explain the second dependent variable model. In addition, modified coefficient of determination resulted from the test was 0.3441. It means that about 36% of the variations are dependent variables i.e. cost of debt resulted from dependent and control variables in the model and 64% resulted from other factors.

According to the table (4-11) t statistic of the independent variable COD and its significance level (p-value) are respectively 8.4459 and 0.000. Since the fault level was less than0.01, we can conclude that information asymmetry had significant relationship with 99% of reliability. Variable coefficient of information asymmetry ($\beta_{1)}$ is positive; therefore, there is a direct relationship between information asymmetry and cost of debt.

Table 5-1: summary of the hypotheses test results

Hypothesis	Expression of hypothesis	Test result	Type of Relationship
$COEC_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it}$			
1	There is a significant relationship between information asymmetry and cost of equity capital	Approval of the hypothesis	direct
$COD_{i,t} = a_0 + \beta_1 IASY_{i,t} + \beta_2 EPSVAR_{it} + \beta_5 MV_{it} + \beta_6 BETA_{it} + \beta_7 CFO_{it} + \beta_8 ADV_{it} + \varepsilon_{it}$			
2	There is a significant relationship between information asymmetry and cost of debt	Approval of the hypothesis	direct

Source: calculations of the researcher

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Recommendations Based on the Results:

Real or legal persons who can benefit from this research are:

The results shows that with the increase in information asymmetry between stakeholders cost of financing will also increase. Therefore, it is recommended that managers make more efforts in terms of reporting data on time in order to reduce capital costs, increase confidence in investors, increase the quality of auditing and clarity of financial statements to increase information asymmetry between stakeholders reduce the risk of investment. According to the results, these actions will decrease cost of equity capital and cost of debt.

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