

## A study of correlation between the board features and the information asymmetry in companies listed on Tehran Stock Exchange

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**Abstract:** This research is applied based on the objective, analytical-descriptive in terms of inference method and is a kind of post-event research based on the research proposal. This study investigates the correlation between the board features and the information asymmetry in companies listed on Tehran stock exchange. Evaluating the asymmetry has been done through the mean difference between the highest and lowest offered price per share during 12 months of a financial year and the board features such as the members' financial knowledge, number of meetings, and composition of executive and non-executive board members. First, the significant correlation of dependent and independent variables was studied through Pearson correlation coefficient test and then the reliability-determining tests such as Dickey-Fuller unit root test were used in order to determine the reliability or stability of variables applied in different forms. Investigating the stability (statics or reliability) of variables was done by the software EViews and the statistics  $R^2$ , Statistics F and Durbin-Watson Statistics were used in the analysis as the software outputs. It is concluded in this study that the independent variables of research (board financial knowledge, number of board meetings, board composition or the number of executive and non-executive board members) have a positive effect on the information symmetry and the significant correlation with the information symmetry. Therefore, non complying and considering the obtained correlation from the calculations of this study in the field of mentioned variables will lead to increased level of information asymmetry and the society (especially the main stakeholders) will loss financially due to this asymmetry.

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### 1. Introduction

There is the information symmetry if the market and managers have the same information about the company. Therefore, the managers and market endure the same uncertainty about the company, but in the case of information asymmetry, the managers have the higher and better information than the market due to the privacy and confidential information about the company. In other words, they have access to the information of company before the market awareness. Specific information of company is transferred to the market through disclosing information events over time. Market has some uncertainty about the company before the disclosure. Information asymmetry of company is equal to the total uncertainty about the company because it is likely that the managers and market have the same knowledge about the effect of market variables on the value of company. Market reaction to earnings announcements may be the first measure of information asymmetry in the company through disclosing the information. Information Asymmetry can be determined in terms of information environment, increased public announcements and the number of company trades and also be affected by the managers' behavior or market. For instance,

when the news is announced publicly, it is likely that the market may be better informed of company actual situation when the other factors are assumed constant and the information asymmetry is reduced (Duchin et al, 2010).

One of the important points about the stock exchanges is the market efficiency according to which all Information in the market reflects its impact on the stock price. According to the efficient market hypothesis, the information asymmetry is perhaps the reason for the existence of accounting in which one of the parties of exchange has more information than the other party. This occurs due to the intra-group transactions and information. Most of the investors in the capital markets are the ordinary people and the only way for them to access the important information is the announcements which are published by the companies. An example of this kind of announcements is the announcement of estimated profit per share in which the offered profit per share is predicted by the company and is made available to the public. If there are individuals among the active investors in capital markets in better positions than others in terms of information and for instance informed of announcements, which are going to be done for the profit, they will be able to

affect the supply and demand of market and thus lead to the price gap. It is mainly due to the information asymmetry in the capital market according to which the people with knowledge of profit announcement (or any other important information) will be in better decision-making positions than others. (Mackay, P., et al, 2006)

The company board feature is another issue which in fact can intensify the effects of information symmetry or asymmetry concept. In other words, the board members' behavioral characteristics may reduce the asymmetry and thus help the stock holders' proper decision making (Sai D., et al, 2011).

## 2. Literature review

Information transparency is one of the conditions of a perfect competition and the lack of it will lead to the Economic Rent. By a little bias, the information transparency can be defined as the information symmetry. The issue of information asymmetry, which is known as Lemon Theorem, was introduced in a paper by Mr. Akerlof in 1970 and brought the Nobel Prize in 2001 for him and in two other scientists. According North Douglass's view point, the more we move from the traditional to modern society, the more the level of information asymmetry will be increase because if a society is more developed, the division of labor and expertise will be also enhanced. Diversity of production and increased expertise and division of labor will increase the information asymmetry (lack of information by experts and other individuals). In the case of information asymmetry, not only the awareness of one of the parties in the exchange will be more important than the other party in terms of some of the features, but probably he profits from hiding this information (North, D.; T. Moeini, 1998). Here, the main hypothesis is that when the investors have different information about the securities or mechanisms of market in the capital market, their understanding of a situation will be different, or in other words there will be the information asymmetry (opportunity inequality). This case follows the way that the economic models of information follows and indicates that the information asymmetry is the main reason for different and systematic modifications of return based on the risk by the investors; in other words, the opportunity equality is obtained when the equal information is provided for all investors because in this case, the expected modified return based on risk will be equal among the investors. The position of company board, as a leading unit with the role of supervising and monitoring the executives' actions, is so important for maintaining the shareholders' ownership interests and also managing the type of information disclosure. Drobotz et al. (2005) point out that the investments in companies

with strong corporate governance system or the efficient board will lead to higher returns. Preliminary studies on the board features have focused more on four features including the size of board, level of board independence, number of meetings, and chairing the board by managing director. Features of board are analyzed in this paper in terms of three factors which are the board financial knowledge, number of board meetings, board composition or existence of executive and non-executive board members. Some of the most important studies in this regard are discussed as follows.

Jahankhani and Kanani-Amiri (2006) introduced a relatively simple model to determine the amount of capital expenditure in companies listed on Tehran Stock Exchange by using the accounting information. Bagherzadeh (2003) sought to explain the model of capital structure in companies listed on Tehran Stock Exchange in a research. In a paper and by using the financial data of companies listed on Tehran Stock Exchange during the years 2000 to 2006, Reza Tehrani and Reza Hesarzadeh (2009) have empirically examined the correlation between the free cash flow and overinvestment and also the correlation between the financing constraints and underinvestment. Hassan Qalibaf-Asl and Selma Izadi (2009) have investigated the correlation between the factors such as size, profitability, collateral assets, commercial risks and liquidity with the usage of debts in the capital structure of companies in a survey in order to test a new theory of capital structure like the Static trade-off theory in Iranian companies. Gholamreza Kordestani and Mazaher Najafi Omran (2008) in an article have sought to investigate the factors which determine the capital structure. Ali Mohammad Kimiagari and Soudabeh Eynali (2008) sought in the article entitled as "Providing a comprehensive model of capital structure" to identify the variables affecting the capital structure and provide an appropriate model. Hassan-Ali Sinaei (2007) examined the effect of different factors on the use of leverage financing method in a survey. Mohammad Namazi and Morteza Heshmati (2007) sought to investigate the effect of effective factors and delayed information on the changes of financial leverage in companies in an article entitled as "Investigating the effect of structures and delayed variables on the capital structure of companies listed on Tehran Stock Exchange". Ahmadi (2001) studied the correlation between the capital structure and different types of short-term and long-term financing through the debt with the return of companies listed on Tehran Stock Exchange. Jahankhani and Yazdani (2004) studied the effect of four variables including the industry

type, company size, business risk and degree of operating leverage on the use of financial leverage in companies listed on Tehran Stock Exchange. Mohammad Kashanipour and Bijan Naghinejad investigated the financial constraints on the changes of Cash Holdings levels towards the changes in cash flows. They examined the financial information of 78 companies listed on Tehran Stock Exchange during the years from 2001 to 2006.

Timmermann et al (2000) found that the stock returns of small companies are particularly sensitive to the recession and monetary policies. The results, obtained from the small companies, are not significant because the size of a company and the level of financial constraints are not fully connected with each other. By mere consideration of risk in a different time period, Turner, Astartez and Nelson concluded that the correlation between the expected return and volatility of return is negative (Lamont, O. et. al, 2001). In 2002 and while investigating the correlation between the managers' overinvestment phenomenon and mechanisms which prevent the corporate governance, Ardeson found that \$0.44 overinvestment are created on average in companies for every dollar of free cash flow (Micah, S., 2007). Lambert et al (2003) found that the agency problems can have an impact on the efficiency of investment and increase the cost of financing if the investor predicts that the managers can take advantage of resources (Biddle, G., et al, 2008). By using the model Q for an ideal investment and considering the corporate financial constraints, Saprizza et al (2004) analyzed their effect on corporate risk and expected returns. In the study of correlation between the financial leverage and the overinvestment, Lyandres et al (2005) have found that there is no significant correlation between the financial leverage and overinvestment statistically. Biddle et al (2006) have found that the higher accounting quality reinforces the investment efficiency by reducing the information asymmetry between the managers and foreign capital suppliers. Beatty (2007) has found that the access to the private information and monitoring will reduce the sensitivity to the cash flow and the investment. Guariglia (2008) in a research has investigated the correlation between the internal financial constraints, external financial constraints, and investment choice.

### 3. Research Methodology

This research is applied based on the objective because it can be used by the Stock Exchange, financial analysts and stock brokers, corporate financial managers, universities and centers of higher education, and researchers, and the audit organization. This research is descriptive-analytical according to the inference technique and it is a kind of post-event studies in terms of research plan. These

kinds of studies aim to investigate the available correlations among the variables and the data is collected and analyzed from the environment, which has been existed naturally or from the past events which have been happened without the researcher's direct intervention. Research hypotheses have been determined as follows.

- There is a significant correlation between the board members' financial knowledge and the information asymmetry.
- There is a significant correlation between the number of board meetings and the information asymmetry.
- There is a significant correlation between the board composition (Number of non executive members) and the information asymmetry.

Here the contents related to the statistical population, sample size and sampling method are presented along with the reason for using this method, the methods for testing the data and their applications, research tool and its reliability and validity, and finally the data analysis method with providing the research model, respectively.

#### 3.1 Statistical Population

Statistical population of this research includes the companies listed on Tehran Stock Exchange with defined features as follows. The following conditions are considered for including a company in the statistical population.

1. The corporate financial year should be ended to the month March of each year.
2. It should be accepted on Tehran Stock Exchange during the research period.
3. It should not be among the banks and financial institutions (investment companies, financial brokers, holding and leasing companies).
4. All required information of companies should be available for the research.

Therefore, the companies, which do not have the mentioned conditions, are not considered as the member of statistical population. The companies listed on Tehran Stock Exchange are the spatial scopes for conducting this study. The companies listed on Stock Exchange are chosen because the financial information of these companies is more available. Furthermore, the information of financial reports in these companies is more homogeneous due to the existence of regulations and standards of Tehran Stock Exchange. The temporal scope of this study is limited to the years 2001-2011.

#### 3.2 Sample Size and Sampling Method

First, the random sample with the size equal to 15 companies was randomly selected from the statistical population and then the sample variance related to the dependent variable was calculated in the selected pilot sample. Then, the size of statistical

population of pilot was determined by using the following sampling formula. Sampling method was done randomly and the number of samples was estimated equal to 113 by using Cochran formula.

$$n_{\text{cochran}} = \frac{\frac{P(1-p)Z_{1-\alpha/2}^2}{d^2}}{1 + \frac{1}{N} \left( \frac{P(1-p)Z_{1-\alpha/2}^2}{d^2} - 1 \right)}$$

$$= \frac{\frac{0.5 \cdot 0.5 \cdot (1.96)^2}{(0.05)^2}}{1 + \frac{1}{160} \left( \frac{0.5 \cdot 0.5 \cdot (1.96)^2}{(0.05)^2} - 1 \right)}$$

$$= \frac{384.16}{3.3948} \cong 113$$

Since, it is expected that some of the respondents would not complete their questionnaires, 7 companies were added to the number of statistical sample and the total number of questionnaires was increased to 120 of which 118 questionnaires were completed.

### 3.3 Data Collection

For data collection and extracting the questionnaires, two methods of library and field studies have been used according to the following points.

1. The receipt has been used for summarizing the library studies or research literature.
2. The data summarization table has been used for describing, classifying and the summarizing the results based on the past experience and financial information of companies.

### 3.4 Reliability and Validity of Data Collection Tool

The measurement tool should have the necessary validity and reliability so that the researcher will be able to collect the data proportional to the research and test the target hypotheses and respond the research question through this data and analyzing them. Measurement tool and standard and regulated tests usually have the appropriate validity and reliability and the researcher should be sure of their validity and reliability. Validity in terms of research plan refers to the accuracy of research results and the reliability refers to the repeatability and generalizability of research. The following measure has been used in line with the reliability and validity of research tool.

B) Using the data of audited financial statements (audited documents). Since it is possible to manipulate the information or not providing the

appropriate information in the tool reports, his issue cannot be occurred in using the audited information especially the revised financial statements.

B) Relying on the parallel data resources. It has been sought to use the parallel data resources such as the software of financial statement exchange in the lack of information or inconsistency among the information.

### 3.5 Research Variables

#### Dependent Variable

Information asymmetry is the dependent variable of study and has been defined based on the model by Bowen Fu et al (2011). This variable will be calculated and extracted by using the mean difference between the lowest and highest offered price per share, the average number of traded shares per year, the average price per share, and the standard deviation of daily stock return over the fiscal year in order to obtain the information symmetry during a research year.

#### Independent Variable(s)

Independent variables of this research include the board features (board financial knowledge, number of meetings, board composition or the existence of executive and non-executive board members).

The research subject is to determine the correlation between the board features and information asymmetry in selected companies listed on Tehran Stock Exchange. It should be noted that the information symmetry has been considered for necessary calculations for dependent variable and thus the lack of correlation or negative correlation of results has indicated the information asymmetry.

$$y = f(x_1, x_2, x_3)$$

y = Information symmetry

X<sub>1</sub> = First independent variable (Board Financial Knowledge)

X<sub>2</sub> = Second independent variable (Number of board meetings)

X<sub>3</sub> = Third independent variable (Board composition or the existence of executive and non executive members)

Mathematical correlation between the dependent variable (information asymmetry) and independent variables is estimated by the help of compound linear regression equation as follows.

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3$$

In which,  $\alpha$ ,  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the compound linear regression equation parameters which are obtained by using the linear regression estimates based on the corporate stock performance per year for the period time (2001-2011).

Research data should be normal in using the parametric methods and tests, otherwise we have to use nonparametric methods in order to analyze and



test the hypotheses. In this paper, Kolmogorov-Smirnov test has been used in order to investigate the normality of variables. Calculated significant level of target variables is less than 0.05 and the normality hypothesis of variables is rejected, thus the transformations such as the logarithm should be used for normalizing them. After using the logarithmic transformation, it is observed that the significant level (P-value) of variables of the mean difference between the lowest and highest offered price per share, the average number of traded shares each year, the average price of share, and the standard deviation of daily stock returns during the fiscal year are less than 0.05, thus the data normality is not rejected.

At this stage, the following equation will be used in order to test the research hypotheses or investigating the correlation between the board features and the information symmetry.

$$INFA = f (\beta_0 + \beta_1 AVOL + \beta_2 PRICE + \beta_3 VOLATILE + \beta_4 EXPERT + \beta_5 MEET + \beta_6 OUT + \varepsilon)$$

In which,

*INFA*: The natural logarithm of the mean difference between the lowest and highest offered price per share

*AVOL*: The natural logarithm of the average number of traded shares per year

*PRICE*: The natural logarithm of the average price per share

*VOLATILE*: The natural logarithm of standard deviation of daily returns during the financial year

*EXPERT*: Square root of percentage of managers with financial or accounting expertise (Board Financial Knowledge)

*MEET*: The natural logarithm of number of board meetings during each year of research

*OUT*: The composition of board members (ratio of non executive members to the total number of board members) in each year of research

$\varepsilon$ : Error Term of model

### 3-6 Conceptual model of research

In this research, a multi-variable regression model has been utilized in order to test the first to third hypotheses according to three research hypotheses. This model is described in Figure 1 as follows.

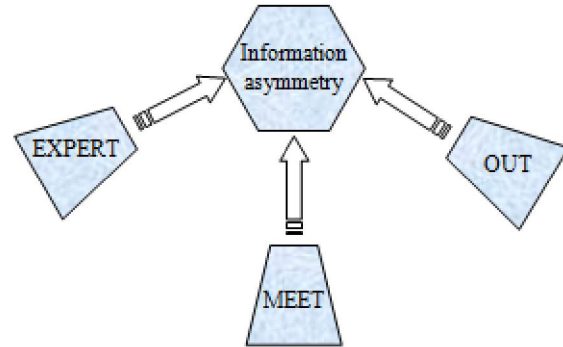


Figure (1) Conceptual model of research

### 4. Conducting the research

#### 4.1 Pearson Correlation Coefficient test

Pearson correlation coefficient shows the correlation between the dependent and independent variables of model. This test has been used in order to determine the correlation among the variables and the size of this correlation and the results are shown in Table 1.

Table (1) Results of Pearson Correlation Coefficient Test

		Correlation	INFA
Natural logarithm of the average number of shares	AVOL	Pearson Correlation	0.619
		P-value	0.000
Natural logarithm of the average share price	PRICE	Pearson Correlation	0.564
		P-value	0.006
Natural logarithm of the standard deviation of returns	VOLATILE	Pearson Correlation	0.191
		P-value	0.004
Board Financial knowledge	EXPERT	Pearson Correlation	0.366
		P-value	0.023
Number of Board meetings	MEET	Pearson Correlation	0.434
		P-value	0.031
Board Composition	OUT	Pearson Correlation	0.494
		P-value	0.009

The results of correlation coefficients between the natural logarithm of the mean difference between the lowest and highest prices and other variables of the model are as follows. The P-value

has been estimated less than 0.05 in all calculations and the significant direct correlation for all variables is confirmed by the coefficient 0.95.

- The correlation coefficient of natural logarithm of the average number of shares is equal to 0.619 and this correlation is direct.
- The correlation coefficient of natural logarithm of the average share price is equal to 0.564 and this correlation is direct.
- The correlation coefficient of natural logarithm of the standard deviation is equal to 0.191 and this correlation is direct.

According to these three correlations, we conclude that there is a direct and significant correlation between considered variables and the information symmetry. The results of correlation between the independent variables and the dependent variable of symmetry information are presented as follows.

- Correlation coefficient of board financial knowledge is equal to 0.366 and the correlation is direct and significant.
- Correlation coefficient of the number of board meetings is equal to 0.434 and the correlation is direct and significant.
- Correlation coefficient of board composition is equal to 0.494 and the correlation is direct and significant.

**4.2 Static test of research variables**

Table (2) The results unit root reliability test for natural logarithm of mean difference between the lowest and highest price at the level

has a unit root Null Hypothesis: Price			
Exogenous: Constant			
Lag Length: 0 (Automatic based on SIC, MAXLAG=5)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.307664	0.9997
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	
*MacKinnon (1996) one-sided p-values.			

As shown in the following table, the value of calculated statistics (2.30) is higher than the estimated critical values (at all levels of one percent, five percent and ten percent). Therefore, it can be

Conducted studies indicate that the variables are unstable in most of the economic time series. Therefore, in accordance with the cointegrated theory in modern econometrics it is essential to investigate their reliability or non-reliability. Dickey-Fuller unit root test is the most appropriate test. The null hypothesis  $p=1$  means that the time series has the unit root and is not static. According to this hypothesis that the actual process of data production is without the y-intercept, if the calculated quantity of target statistics is greater than the critical quantity provided by Dickey and Fuller (McKinnon quantity), the null hypothesis will be rejected in favor of the alternative hypothesis and we will have the non-static time series. In other words, in this method we compare the statistics of ADF test or the calculated t of delayed variable with McKinnon critical values. If the obtained t is smaller than the critical value, we conclude that the variable is static. Given the prolonged results, the process of this test is described for one of these variables by the software EViews and the results are presented for the other variables. Static test has been done for the Gross Domestic Product variable (GDP) by using Dickey-Fuller unit root test and the results are shown in the table below.

concluded that this variable is not static at the level. Thus, we measure the reliability of this variable in the first order difference. The results are presented in Table 3.

Table (3) The results of unit root reliability test for natural logarithm of the mean difference between the lowest and highest price in the first order difference

has a unit root Null Hypothesis: Price			
Exogenous: Constant			
Lag Length: 0 (Automatic based on SIC, MAXLAG=5)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.804393	0.0000
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	
*MacKinnon (1996) one-sided p-values.			

As it can be seen, the calculated statistic (-5.80) is less than the estimated critical values (at all levels). Therefore, it can be concluded that this variables is static (in first order difference). The

result summary of mentioned tests at the level and in first order difference of time series of model is presented in Table 4 for all variables of model.

Table (4) Results of IPS reliability test for the research variables in the first-order difference

	Variable	Statistics	Prob *	Result	Degree
AVOL	Natural logarithm of the average number of shares	-7.31233	0.0000	Reliable	I (1)
PRICE	Natural logarithm of the average share price	-5.56692	0.0000	Reliable	I (1)
VOLATILE	Natural logarithm of standard deviation of returns	-3.12512	0.0009	Reliable	I (1)
EXPERT	Board Financial Knowledge	-4.37547	0.0000	Reliable	I (1)
MEET	Board number of meetings	-7.49720	0.0000	Reliable	I (1)
OUT	Board Composition	-3.95226	0.0000	Reliable	I (1)

Thus, the final result of statics tests indicates that other variables of research also become static at the level. Therefore, the target models can be fitted by specifying the statics degree of variable and no problem will be occurred for the models in this regard. Furthermore, given that all variables of model are static, there is no need to do the cointegration test.

### 4.3 Estimating the model coefficients and variables

The results of estimating the above model by the least squares method and by the help of software EViews are presented in Table 5.

Table (5) Estimating the econometric model by using the ordinary least squares method

Dependent Variable: Information asymmetry				
Method: Least Squares				
Sample (adjusted): 2001 2011				
Included observations: 10 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPERT	0.0061	19.26426	2.136452	0.002
MEET	0.0048	65413.54	4.125441	0.003
OUT	0.0009	564.3215	1.984289	0.001
$\varepsilon$	2345682.	12954648	0.256415	0.8145
R-squared	0.89315	Durbin-Watson stat.		1.96431
F-statistic	114.36			
Inverted AR Roots	1.00	0.05		

Using the Table 5, the coefficients of model are calculated as follows.

Estimation Equation:

$$\theta = \varepsilon + \beta_1 * \text{EXPERT} + \beta_2 * \text{MEET} + \beta_3 * \text{OUT}$$

Substituted Coefficients:

$$\theta = 2345682 + 0.0061 \text{ EXPERT} + 0.0048 \text{ MEET}$$

(3.29)                      (5.86)                      (2.76)

$$+ 0.0009 \text{ OUT}$$

(2.03)

$$R^2 = 0.89 \quad D.W = 1.96 \quad F\text{-statistic} = 114.36$$

### 4.4 Interpretation of test results

The result of estimating the final model, calculations, and tests are presented as follows. Statistics t indicates the significance of all explanatory variables at the significant level 95 percent.

- Statistics  $R^2$  indicates that 89% of changes in changes in the dependent variable (information asymmetry) can be explained by the explanatory variables of model and this indicates the high explanatory power of model.

- High statistics F of model (114.36) indicates the significance of whole regression.
- Durbin-Watson statistics equal to 1.96 in the model rejects the self-correlation hypothesis among the components of model.

The estimated results of model and statistics t of variables indicate the confirmed three hypotheses of research. In other words, the results of research indicate that

- Board financial knowledge has a significant and direct correlation with the information asymmetry.
- The number of board meetings has a significant and direct correlation with the information asymmetry.
- Board composition or the existence of executive and non executive board members has a significant and direct correlation with the information asymmetry.

#### 4.5 Estimating Ramsey Reset Test

This test is one of the most reliable diagnostic tests for structural stability of model and is designed in order to evaluate the error of explaining the regression model. Results are presented in Table 6.

Table (6) The results of estimating Ramsey Reset Test

Ramsey RESET Test			
F-statistic	4.637240	Probability	0.4230
Log likelihood ratio	2.648102	Probability	0.1263

The above table shows that the hypothesis based on the structural stability of model is not rejected according to the significant level 0.423.

### 5. Conclusion and suggestion

#### - Conclusion

In this study, the effects of board features on the information asymmetry have been assessed by applying the model by Bowen Fu et al (2011) in companies listed on Tehran Stock Exchange during the years 2001-2011. After explaining the theoretical principles of research, developing the hypotheses in consistence with the research objectives, developing the appropriate research method, determining the statistical population and sample, and finally collection the necessary data and information of research by using the valid sources and tools, testing of research hypotheses through the appropriate statistical methods and analyzing the results of these

tests, the summary and conclusion of research will be presented.

- The results of Pearson correlation coefficient test indicate the confirmed hypotheses about the significant correlation between the independent variables with the information asymmetry. Moreover, for determining the amount of information asymmetry, the considered variables have significant and positive correlations.

Investigating the statics (reliability or durability) of variables by software EViews has indicated that the variables of board members' financial knowledge, number of board meetings and board members composition are reliable in the first order difference. Therefore, the target models can be fitted by specifying the statics degree of variable and no problem will be occurred for the models in this regard. Results, obtained from estimating the model coefficients and variables by the least squares method and by the help of software EViews are as follows.

- There is a significant correlation between the board members' financial knowledge and the information asymmetry.
- There is a significant correlation between the number of board meetings and the information asymmetry.
- There is a significant correlation between the board members composition (the number of non executive members) and the information asymmetry.

Furthermore, the statistic  $R^2$  Indicates that 89 percent of changes in the dependent variable (energy consumption) can be explained by the explanatory variables of model and this indicates that the high explanatory power of model, high statistics F in the model (114.36), and indicates the significance of whole regression. Moreover, Durbin-Watson statistic is calculated equal to 1.96 in the models, thus the self-correlation hypothesis among the components of model is rejected.

It is concluded in this study that the independent variables of research (board financial knowledge, number of board meetings, board composition or existence of executive and non executive board members) have a positive impact on the information symmetry and have a significant correlation with the information symmetry. As the result of not complying and considering the obtained correlation due to the calculations of this research in terms of above variables, the lack of information asymmetry will be enhanced and the population (especially the major stakeholders) will be suffered from the financial losses



**- Suggestions**

1. Given the accepted first hypothesis based on the significant correlation between the board members' financial knowledge and the information symmetry, it is suggested that the companies should employ the individuals with financial knowledge and expertise related to the management accounting and financial management, refine the data and separate the correct data from invalid ones in order to reduce the amount of asymmetric information and help the main stakeholders in decision making.
2. Given the accepted second hypothesis based on the significant correlation between the number of board meetings and the information symmetry, it is suggested that the companies should hold the fewer and public meetings if possible and distribute the information equally among the members in order to reduce the amount of asymmetric information and help the main stakeholders in decision making.
3. Given the accepted third hypothesis based on the significant correlation between the board composition (number of non-executive members) and the information symmetry, it is suggested that the companies should select more the non-executive members, involve them in the meetings, use their professional information, and do better refinement of information in order to enhance the amount of information symmetry and help the stakeholders in decision making.

**Suggestions for Future Research**

Some of the suggested cases and issues, which should be considered in the future research, are as follows.

1. Generally, it is suggested that the new dimensions and features of board should be identified and the effect or lack of effect of these new factors on the information asymmetry in companies should be studied by the structural study.
2. It is suggested that the effect of independent variables in this research (board features) on main organizational factors such as performance, productivity, Bankruptcies, etc. should be also studied in the correlation between the information asymmetry and the changes of mentioned outputs in two reasonable time periods.
3. It is suggested that other factors underlying the asymmetry of information should be extracted and analyzed and the identified features in this

study should be used as the control variables in order to achieve more accurate results.

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