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Investigating the Relationship among Information Asymmetry, Dividend Policy and Ownership Structure

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ABSTRACT

The purpose of a financial manager in dividend policy is to maximize the wealth of its owners while providing adequate funds for the company. In this research, the aim is to determine the relationship between information asymmetry, dividend policies and ownership structure. After designing information asymmetry of evaluation indicators, the transaction information has been collected from the Stock Exchange in the five-year period of 2011-2015. A statistical sample of 155 companies was selected using a systematic elimination method, which was a total of 775 years-firm. In this research, linear regression and correlation were used to analyze the hypotheses of the research. Eviews software was used to analyze the data and test the hypotheses. What can be said in the summing-up and conclusion of the general test of research hypotheses is that the company with a higher information asymmetry is less likely to pay dividends, as well as government-affiliated companies with higher information asymmetry pay more dividends compared to non-governmental corporations. Finally, the results indicated that structural reform in order to increase the transparency of information leads to a positive moderating effect on the relationship between information asymmetry and dividend policies

1 Introduction

When information asymmetry increases in relation to a company's stock, the intrinsic value of those shares will be different from those that investors place in the capital market. Given the hypothesis of dividend signalling, managers who have more internal information about future growth of the company will transfer this information to foreign investors through paying dividends. Hence, the hypothesis shows that there is a positive relationship between information asymmetry and dividend payments. Dividends can be a tool to reduce the problem of agency. Through the distribution of free flow of liquidity as dividends, the possibility of expropriation by directors can be [10]. On the other hand, dividend policies are one of the most important decisions of companies. In many state-owned companies, corporate ownership tends to have several main shareholders. Concentration of ownership in countries with weak support mechanisms from shareholders, major shareholders can earn their own personal interests at the expense of shareholders. Previous studies in this area have shown that non-transparent

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information of companies with concentrated ownership may encourage executives to exaggerate in opportunistic profit management. In general, ownership concentration has a positive relationship with information asymmetry, that is, state ownership has a moderating effect on the relationship between information asymmetry and dividend payments. This research seeks to answer the question of whether there is a relationship between information asymmetry, dividend policies and ownership structure in companies listed on Tehran Stock Exchange.

2 Theoretical Foundations

Managers can reduce information asymmetry through the distribution of stock profits and the higher the level of information asymmetry, the profitable payments will be more. For investors, awareness of profit payments in organizations with higher information asymmetries should be emphasized more. Lee and Su [9] believed that information asymmetry was negatively correlated with payment, which is inconsistent with signalling theory. Cash profits can help to avoid the extraction of personal profits by government executives and dominant shareholders to price of minority shareholders. The extreme information asymmetry in organizational environment causes profits become a regulating mechanism that can reduce organizational costs, so the first hypothesis is presented as follows:

- **Hypothesis 1: Companies with higher information asymmetry are less likely to pay dividends.**

Bian, Huang and Lee [2] stated that centralized ownership might prevent data transfer. Anderson et al [1] pointed out that dominant stockholders could restrict information transfer in order to reduce the information transparency of organizations. In short, ownership concentration has a positive relationship with information asymmetry. In China, government owners not only control the seats of the boards, but also control the appointment of top managers. Chen, Jian and Shu [3], suggested that controlling shareholders have a great deal of motivation and ability to coordinate financial resources and corporate cash flow, causing a series of serious problems in organizations. Particularly when the ultimate controlling shareholder is the government, companies tend to pay higher dividends. According to previous studies, dividend distribution is an important source of tunnelling (illegal acts) of financial resources. Huang, Shen and San [6] argue that inappropriate corporate governance in developing markets is usually presented as unlawful behaviours. In addition, dividends are the main and legitimate income that shareholders can expect from holding their shares and may force companies to pay higher dividends. In short, it is argued that more government-owned companies have more organizational problems and therefore more information asymmetry. Therefore, the second hypothesis is expressed as follows:

- **Hypothesis 2: Government-owned companies with higher information asymmetry pay higher dividends as compared to non-governmental firms.**

The structure of share division causes many problems, including the conflict of interests between tradable and non-tradable stockholders and thus the expropriation of interests by non-tradable shareholders (mainly controlling shareholders) at the expense of tradable shareholders (mainly minority shareholders) [11,15].Typically, non-tradable shareholders use different ways to achieve their own interests, for example transaction with affiliated entities. Chen Jian and Khu [6] found that high dividend payments resulted from different pricing between tradable and non-tradable stocks in listed Chinese companies, with dividend payments turned into a canal for tunnelling and illegal behaviour. In

previous studies, it has been shown that if the ultimate shareholder is government, companies tend to pay more dividends, and this issue is more prominent and more prominent for concentrated-management companies. Hence, the shareholder structure not only affects the entire market, but also has a direct impact on corporate decision-making. The modification of the shareholder structure also affects the ownership structure and disclosure of information, which resulted in the alignment of interests between controlling shareholder and minority shareholder therefore; we have developed our third hypothesis as following [5].

- **Hypothesis 3: Correction of structure in order to increase the transparency of information leads to a positive moderating effect on the relationship between information asymmetry and dividend policies.**

3 Background Research

Lin et al. [10] showed that state-controlled companies with higher information asymmetries were paying higher dividends compared to nongovernmental firms. Lee & Mauck [9] provided evidence of the relationship between unconventional fluctuations and market responses to dividend payments and, ultimately, the extent to which unconventional fluctuations and other information asymmetric proxies are related to positive returns. Petacchi [13], using fair disclosure laws as a legitimate external shock to the information market of the equity market, has identified the effect of asymmetric information effect on the company's capital structure. Fairly disclosure laws provide a potentially useful environment that examines whether corporate financial asymmetry affects their financial decisions because of the standard requirement for disclosure of information between the stock market and the debt market.

Byan, Huang and Lee [2] studied the impact of ownership concentration on Korean organizations on asymmetric information and proved that centralized ownership may prevent data transfer. In addition, this negative impact of ownership concentration can prevail over the corporate environment or internal management of the company. Lee and Xio [9] examined the dividend policy of Chinese companies and found that investors had negatively evaluated companies that focus on ownership and payment of high dividends.

Kamali Ardakani and Ebrahimi [7] provided evidence of a significant relationship between earnings forecast error and unusual stock returns and the existence of a significant relationship between profit forecast error and systematic risk. Damouri et al. [4] found that companies with a higher disclosure rating and a higher level of information asymmetry have more trends to finance through debt. Damouri et al. [4] showed that the information asymmetry of the companies listed on Tehran Stock Exchange has a negative effect on the corporate dividend policy. These findings do not confirm the results of the signalling model. In addition, the final model shows that among other company characteristics, profitability, size and risk of the company affect the dividend policy. Kordestani and Fadayee [8] found that there is a significant negative relationship between information asymmetry and long-term debt changes, and between financial deficit and long-term debt changes. On the other hand, there is a significant relationship between information asymmetry and financial advantage, as well as information asymmetry and changes in financial advantage does not have a significant relationship, therefore, it can be expected that by reducing information asymmetry, financing through debt will be increased.

4 Methodology and Variables

This research is a kind of correlation study in terms of nature and method and is applied based on the purpose. Data was collected by library method and referring to the financial statements and explanatory notes and with the programs of Raheed Novin and Tadbir Pardaz. The statistical population of the research is all companies listed on Tehran Stock Exchange in the period of 2011-2015. The sample of 155 companies was selected by targeted sampling for testing statistical hypotheses. In this research, to comment on each research hypothesis, a model is presented that used model for the first hypothesis is as model (1):

$$Div_{i,t}= \beta_0 +\beta_1 ASY_{i,t} +\beta_2 Size_{i,t} +\beta_3 MB_{i,t} +\beta_4 ROA_{i,t} +\beta_5 Risk_{i,t} +\varepsilon_{i,t} \quad (1)$$

In order to investigate the second hypothesis, the model of the first hypothesis is estimated at two levels of governmental and non-governmental companies separately and the results are compared with each other. In order to examine the third hypothesis, the model (2) is used:

$$Div_{i,t}= \alpha_0+ \alpha_1 ASY_{i,t}+ \alpha_2 Reform_{i,t}+ \alpha_3 ASY_{i,t}*Reform_{i,t}+\alpha_4 Size_{i,t} +\alpha_5 MB_{i,t} +\alpha_6 ROA_{i,t} +\alpha_7 Risk_{i,t} +\varepsilon_{i,t} \quad (2)$$

Where:

DIV = Distribution of cash dividends of company i in period t

ASY = Information asymmetry of company i in period t

OWN = Ownership structure of company i in period t

Size = Size of company i in period t

MB = Growth opportunity of company i in period t

ROA = Return on assets of company i in period t

Risk = Risk of company i in period t

Reform: Reforming the structure to increase transparency of information

The method of measuring the variables of the research is presented below:

The dependent variable of this study is presented as follows:

A. Dividend policy calculated according to the following indices:

1- is the result of dividend of current period cash benefit on net profit of current period.

2 is the logarithm of the dividend paid to the shareholders at the end of the fiscal year

Independent variable of present study is presented as follows:

A: Information asymmetry: To measure the information asymmetry between investors and managers, we have used the model designed by Venkatesh & Chiang [17] to determine the price range offered for purchase and sale of stocks. This model has been used in several studies that is presented in model (3):

$$ASY\ it = \frac{AP-BP}{(AP+BP)/_2} \times 100 \quad (3)$$

where:

ASY it: The range of suggested price difference in stock buying and selling (information asymmetry)

AP: The annual average selling price of the company's stock

BP: The annual average buying price of a company's stock

Control variables are as follows:

A. Size of the company, which is the natural logarithm of the total assets of the company.

B. The growth opportunity equal to the ratio of market value to book value.

C. Return on assets equal to ratio of the net profit on total assets of the company.

D. The risk of the company, which is equal to the systematic risk of the company, and that part of the total risk of the portfolio of securities, which is indispensable, and due to factors affecting the total price of the securities, is existed. The stock price index is used to calculate the systematic risk. The beta coefficient for a particular share is determined by comparing the systemic risk rating of that share with the systematic risk of the stock price index:

$$\beta=\frac{COV(Rm,Ri)}{\sigma^2 Rm} \quad (4)$$

Ri = stock return of the company

Rm = Stock return of market index

σ^2Rm = variance of Rm

Moderator variables are as follows:

A. Ownership structure: Companies with governmental shares more than 50% are state-owned companies and are identified by one and otherwise equal to zero.

B. Reforming the structure in order to increase the transparency of information: To this end, the disclosure rating of the company (which is announced annually by the Stock Exchange) is compared to the previous year, if it is inhanced from the previous year, its number is one and otherwise, zero is used.

5 Research Findings

Before testing the research hypotheses, the variables are briefly summarized in Table 1. In Table 1, the average, which represents the equilibrium point and is a good indicator of the centrality of the data, is as high as 0.754439 for information asymmetry variable. Median is another central indicator that shows that half of the data is less than this and the other half is more than this value. In addition, the uniformity of average and middle median indicates the normality of this variable.

The information asymmetry variable is equal to 0.54. Dispersion indicators are a measure of how much data are scattered to each other or scattered over the average. The standard deviation is one of the most important dispersion indices, with information asymmetry variable equal to 0.672739.

Table 1: Indicators describing the variables of research

	Dummy variable for cash dividends	Information asymmetry	Ownership structure	Information asymmetry in ownership structure	Firm's size
Average	0.812903	0.754439	0.890323	2.963808	14.06017
Median	13.87000	0.000000	1.000000	0.540000	1.0000
Maximum	19.110000	1455.0000	1.000000	4.0800000	1.0000
Minimum	10.17000	0.00000	0.00000	0.100000	0.00000
Standard Deviation	0.390241	0.672739	0.312689	53.97173	1.530787
Skewness	-1.604676	2.520588	-2.498166	25.50178	0.666247
Kurtosis	3.574986	10.46502	7.240835	679.6090	3.840217
Jack-Bera	0.325500	0.265450	0.135880	0.145600	0.845550
Probability	0.684555	0.745555	0.78554	0.845500	0.165459
Total	630.0000	584.6900	690.0000	2296.951	10896.63
117.7810	2953	350	75.67742	0.2254621	1831.721
Observation	775	775	775	775	775
Sections	155	155	155	155	155
Average	5221.667	0.114090	1.276197	0.438710	0.359652
Median	454.3800	0.0900000	1.1500000	0.00000	0.00000
Maximum	2094541.0	0.630000	5.032000	1.000000	4.080000
Minimum	-42086.04	-0.780000	-0.940000	0.000000	0.00000
Standard Deviation	75755.67	0.144166	1.030493	0.496550	0.625480
Skewness	27.13100	0.193871	1.222197	0.247024	2.816892
Kurtosis	748.4886	6.291906	5.517848	1.061021	12.86920
Jack-Bera	0.185554	0.354150	0.395586	0.129855	0.415880
Probability	0.721456	0.654877	0.614546	0.884525	0.592544
Total	4046792.0	88.42000	989.0528	340.0000	278.300
117.7810	4.44E+12	16.08673	821.9232	190.8387	302.8088
Observation	775	775	775	775	775
Sections	155	155	155	155	155

Source: Researcher Findings

The amount of asymmetry of the curve is called skewness. The value of the skewness coefficient for the asymmetry of information variable is positive and close to zero, indicating that the distribution is normal and skewness is very low to the right. The dispersion index of Kurtosis is the frequency curve compared to the standard normal curve, which in this study is positive for all variables. In addition, since the values of the level of significance, the information asymmetry variable is more than 5%, so the null hypothesis, that is, the normality of the variable is verified; therefore, the information asymmetry variable has a normal distribution. Given that the probability level of the Jack-Bera statistic is more than 5%, it is not possible to reject the zero assumption of this statistic, so the data of the desired

variables are normal. In this research, we used the unit root test as presented in Table 2.

Table 2: Unit root test of the information asymmetry

Method	Statics of test	Probability	Sections	Observations
Zero hypothesis: existence of unit root (common unit root process)				
Levine, Lyn and Chow	-3.90043	0.0000	12	48
Zero hypothesis: existence of unit root (single unit root process)				
Iim and sun	-9.5166	0.00000	12	48
ADF-Fisher (Chi-square)	21.1457	0.00000	12	48
PP-Fisher	18.1323	0.0000	12	48

Source: (Researcher's findings)

Based on the values presented in Table 2, the zero hypothesis is based on the unit root by the Levine, Lane and Chaw method, as well as the Fisher's ADF method test, and the PP-Fisher method with 155 sections And 775 are all ignored at the 5% level. The results of unit root test on all variables indicate the absence of unit root.

5.1 F-Limer and Hausman test

The results of the F-limer and Hausman tests for the research hypotheses are given in Table 3:

Table 3: F-limer test results of research hypotheses

Hypothesis	F-statics	Freedom degree	Probability
First	4.836110	(154,613)	0.0000
Second	792.750888	(154,613)	0.0000

Source: (Researcher's findings)

Based on the values presented in Table 3, considering that the significance level of this test for all research models was less than 0.05, the panel data method will be used to estimate the pattern. Due to the fact that in the F-Limer test, the hybrid data method is not accepted, the Hausman test is performed as shown in Table 4.

Based on the values presented in Table 4 and based on the calculations, the method of constant effects is more appropriate for all hypotheses.

Table 4: Hausman's Test of Research Hypotheses

Hypothesis	Chi-square statics	Freedom degree	Significance level
First sub-hypothesis	47.907342	7	0.0000
Second sub-hypothesis	39.259474	7	0.0000

Source: (Researcher's findings)

5.2 Summary of Analyses

Hypothesis 1: Companies with higher information asymmetry are less likely to pay dividends.

The results are as described in Table 5:

Table 5: Results from the first hypothesis

Variables	Coefficient	Standard deviation	t-statics	Probability
y-Interception	0.296397	0.190653	1.554639	0.1204
Information asymmetry	-0.102808	0.029522	-3.482361	0.0005
Firm's size	0.032446	0.012876	2.519772	0.0119
Growth opportunity	0.008903	0.001424	6.53507	0.0000
Returns on assets	0.205286	0.098312	2.088118	0.0371
Firm's risk	-3.035626	0.020242	-1.759995	0.0788
Deterministic coefficient		0.909	Durbin-Watson	1.84
Adjusted Deterministic coefficient		0.89	F-probability level	0.000

Based on the values presented in Table 4, the probability of t statistics for constant coefficients and coefficients of information asymmetry variables, company size, growth opportunity and return on assets are less than 5%. Therefore, the estimated coefficients of these variables are statistically significant and the probability of t-statistic for the coefficient of y-interception and the company's risk variable is greater than 5%; therefore, the estimated coefficients of the above variables are not statistically significant; therefore, with 95% confidence, these variables are statistically meaningless in the model. The determination adjustment coefficient shows the explanatory power of independent variables that can explain 89% of the variations of the dependent variable. The probability of F-statistics indicates that the whole model is statistically significant, and the high level of Fisher's statistics indicates that there is a strong relationship between the variables in this model. As well as the Durbin-Watson index of 1.84 indicates that there is no self-correlation between the errors and due to the hypothesis that the information asymmetric variables in the model are meaningful. Therefore, the zero assumption is rejected and, as we see, companies with higher information asymmetry are less likely to pay dividends. Second hypothesis: state-owned companies pay higher dividends as compared to non-state-owned companies. The results are described in Table 6. Based on the values presented in Table 6, the probability of t statistics for constant coefficients and coefficients of information asymmetry variables, company size, growth opportunity and return on assets are less than 5%. Therefore, the estimated coefficients of these variables are statistically significant and the probability of t-statistic for the coefficient of y-interception and the company's risk variables is more than 5%; hence, the estimated coefficients of the above variables are not statistically significant; therefore, with 95% confidence, these variables are statistically reliable in the model.

Table 6: Estimation of the coefficients of the second hypothesis model

Variables	Coefficient	Standard deviation	t-statics	Probability
y-Interception	0.2543366	0.181553	1.403314	0.0915
Information asymmetry	-0.119607	0.038622	-3.131561	0.0016

Continue of Table 6:

Firm's size	0.024312	0.21355	1.144433	0.0215
Growth opportunity	0.006712	0.002101	3.253507	0.0000
Returns on assets	0.324312	0.074312	0.0043118	0.0071
Firm's risk	0.046512	0.031011	0.0015	0.0888
Deterministic coefficient		0.91	Durbin-Watson	1.77
Adjusted Deterministic coefficient		0.82	F-probability level	0.000

The determination-adjusted coefficient shows the explanatory power of independent variables that can explain 82% of the variations of the dependent variable. The probability of F statistics indicates that the whole model is statistically significant, and the high level of Fisher's statistics suggests that there is a strong relationship between variables in this model. As well as Durbin-Watson index of 1.77 indicates a lack of self-correlation between errors and according to the hypothesis that the information asymmetry variable is meaningful in the model, so the zero assumption is rejected and as it is seen, state-owned companies with higher information asymmetry compare with non-corporations pay higher dividends.

Hypothesis 3: Reforming the structure in order to increase the transparency of information leads to a positive moderating effect on the relationship between information asymmetry and dividend policies. The results are as described in Table 7.

Table 7: Estimation of the coefficients of the third hypothesis model

Variables	Coefficient	Standard deviation	t-statics	Probability
y-Interception	0.769830	0.050713	15.18021	0.0000
Information asymmetry	-0.038954	0.002168	-17.96907	0.0000
Reforming structure to increase the transparency of information	0.000938	0.0000239	3.925568	0.0041
Information asymmetry in reforming structure to increase the transparency of information	0.001284	0.000320	4.020051	0.0031
Firm's size	0.000348	0.0000157	2.208414	0.0413
Growth opportunity	8.77E-07	1.16E-07	7.588648	0.0000
Returns on assets	0.000276	4.57E-05	6.039778	0.0000
Firm's risk	-0.006597	0.032202	-0.204873	0.8377
Deterministic coefficient		0.97	Durbin-Watson	1.84
Adjusted Deterministic coefficient		0.969	F-probability level	0.000

Based on the values presented in Table 7, the probability of t statistics for constant coefficients and coefficients of information asymmetry variables, company size, growth opportunity and return on assets are less than 5%. Therefore, the estimated coefficients of these variables are statistically significant and the probability of t-statistic for the coefficient of y-interception and the company's risk variables is more than 5%; hence, the estimated coefficients of the above variables are not statistically

significant; therefore, with 95% confidence, these variables are statistically reliable in the model.

The determination-adjusted coefficient shows the explanatory power of independent variables that can explain 82% of the variations of the dependent variable. The probability of F statistics indicates that the whole model is statistically significant, and the high level of Fisher's statistics suggests that there is a strong relationship between variables in this model. As well as Durbin-Watson index of 1.84 indicates a lack of self-correlation between errors and regarding the hypothesis, because variables information asymmetry, reforming structural in order to increase the transparency of information and information asymmetry in structural reform in order to increase the transparency of information, in the model are meaningful. Therefore, the zero assumption is rejected and, as we see, reforming the structure to increase the transparency of information leads to a positive moderating effect on the relationship between information asymmetry and dividend policies.

6 Discussion and Conclusion

This research seeks to find the link between information asymmetry, dividend policies, and ownership structure, and according to regression results, we found that a company with a higher information asymmetry are less likely to pay dividends. In addition, state-owned companies with higher information asymmetry compared with nongovernmental firms pay higher levels of dividends; finally, the results indicate that structural reform in order to increase the transparency of information leads to a positive moderating effect on the relationship between information asymmetry and dividend policies. The results of this study are in line with theoretical foundations and research background and in accordance with the theory of signalling. Lin and Su [11] believed that asymmetry of information is negatively related to the payment of profits, which is incompatible with the theory of signalling and the results of this research; Given that dividend signalling theory, managers who have more internal information about future growth, transfer this information to foreign investors through paying dividends. Hence, the hypothesis shows that there is a positive relationship between information asymmetry and dividend payments. Chen Jian and Xuo [3] found that high dividend payments were due to different pricing between tradable and non-tradable stocks in listed Chinese companies, which dividend payments become a channel for tunnelling and illegal practices. In previous studies, it has been shown that if the ultimate shareholder is a government, companies tend to pay more dividends. In this study, we also find that state-owned companies with higher information asymmetry than non-state-owned corporations pay higher dividends and so our results are consistent [3].

According to the results of this research, in the first hypothesis, it is recommended that investors, before investing in a company's stock, use the fitted model in this research to determine the effects of information asymmetry on financial ratios of companies, including dividend profit and then use these results in their decision-making. In addition, financial brokers and financial advisers are advised to consider information asymmetry in addition to economic and accounting variables affecting dividend payments. Based on the results of the second hypothesis, it is recommended that the preparation and formulation of the theoretical fundamentals of financial reporting and national accounting standards be considered in the field of application. The results of this research and similar domestic research are considered and the position of theoretical foundations and qualitative features of financial reporting companies with regard to state ownership, determine the stock brokers and financial advisers. Whose task is to analyse the financial status of companies admitted to the stock exchange and to describe the future financial situation of companies for the purchase of shares, can find the models and results of

this research in select portfolios. According to the results of the third hypothesis, it is appropriate that the auditing organizations and other regulatory and oversight bodies, in the formulation of accounting standards and financial regulations, should place the information transparency category more intent and provide guidance for limiting the managers. The users of financial information are more likely to assist in making informed decisions. Finally, by comparing the results of this research with other internal researches, it seems that the issue of dividing profits requires designing a more precise method for examining hypotheses.

Researchers are encouraged to explore the following topics in their future research:

- Effect of financial reporting quality on dividend policies in Tehran Stock Exchange companies.

- Influence of information asymmetry on dividend policies in different stages of the life cycle.

- Impact of the board's characteristics on dividend policies.

- Impact of managers' localism on dividend policies.

- The effect of financial and non-financial variables on dividend policies using other methods such as Profit, neural network and multi-factor analysis.

The most important limitation of the present research is the lack of complete disclosure of information about the research variables. Information on all research variables for stock companies is not fully available. Therefore, in order to avoid the bias of the research results, some companies were excluded from the statistical sample, which reduced the sample size.

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