

The role of earnings management and dividend announcement in explanation of information asymmetry: Evidence from Tehran Stock Exchange

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ABSTRACT

This study examines the relationship between earnings management and information asymmetry based on some companies listed in Tehran Stock Exchange over the period of 2005-2010. The study only uses qualified samples by taking into account all limitations and necessary criteria. Based on the results of this survey, we can conclude that there is not a significant relationship between earning management and information asymmetry in Tehran Stock Exchange. There is also not a significant relationship between low or high earning management and information asymmetry. Estimated dividend announcement has information content and it can influence on information asymmetry. Finally, in Tehran Stock Exchange, there is information asymmetry and after dividend announcement, its value is more than before.

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1. Introduction

Accounting plays an important role on controlling costs and revenues, it helps take necessary actions on time and keeps track on managerial actions. A big portion of accounting information is in terms of financial statements and they are the primary sources of different users such as potential investors, financial analysis and decision makers. One of the effective factors in decision-making is to access the relevant and proper information with decision subject and they also need to be gathered, properly.

The other condition in perfect competition is transparency in information and lack of it causes possible frauds. With some bias, information transparency is like information asymmetry and this could happen for example when some people have the access to some information while others do not. In many countries, in order to protect small investors, there are some laws and regulations, which require publicly traded firms to make their financial statement open to everyone at the same time. When there is a lack of transparency on financial information, retail investors normally gets hurt more severely than financial institutions who own a big chunk of stock shares. In such

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circumstances, many small investors prefer to leave investing on stock market or they may be unwilling to invest since they are under the impression that they always know less than many important people do. This will create liquidity issue since small investors play important role on increasing the number of shareholders.

As a result, the information asymmetry has undesirable and different consequence such as increased transaction costs, weakness of market, low liquidity, and reduction in profits from trading in capital market. Regulations related to financial disclosure can modify the consequences of reduction of information asymmetry. Market efficiency is one of the important issues influencing the capital market, which means that information affects on stock prices. This information is the estimated annual earnings and company's dividend announcement. When there are sufficient levels of information on the market, there will be a less chance on having information asymmetry. Asymmetric distribution of information among individuals can cause different results than the single issue. If there is asymmetry in the stock market, a large numbers of shareholders may exit from the market. Leaving large numbers of low informed shareholders from the stock market will reduce trading volume and liquidity and it will reduce incentives to produce information.

2. Background

Empirical research that has recently been studied considers the effect of dividend announcement on the bid-ask spread. According to conducted studies on 25 companies, Morse and Ushman (1983) performed a comprehensive study on the bid-ask spread changes after dividend announcement. According to information asymmetry model, information asymmetry leads to increase the bid-ask spread (Copeland & Galai, 1983; Glosten & Milgrom, 1985). Kyle (1985), Easley and O'Hara (1992) founded that when information asymmetry increase, trading volume will increase too.

There are other observation, which indicates there is a significant changes in the bid-ask spread after the dividend announcement, only when important information from company was not released within 30 days after dividend announcement. Patell and Wolfson (1991) claimed that the bid-ask spread will increase after dividend announcement. Skinner did not observe significant increase in the bid-ask spread about dividend announcement time schedule (Skinner, 1991). By using daily information, Lee et al. (1993) provided some evidences that the bid-ask spread in the period after the dividend announcement during one day have more expansion from before dividend announcement. Based on the model developed by Kim and Verchia (1994), dividend announcement will increase trading volume and information asymmetry.

There are some other studies on security market activities before dividend announcement (Demski, & Feltman, 1994; Mc Nichols, & Trueman, 1994). According to Mac Nicholas and Trueman (1994), before the dividend announcement, we will witness a high level of information asymmetry. Krinsky and Lee (1996) reported that dividend announcement could increase information asymmetry. According to Yohn (1998), there are factors, where traders encourage to gather more information. He founded that there was a positive relationship between variability of profits and market reaction to unexpected earnings with changes in the bid-ask spread before dividend announcement. Hence the bid-ask spread has rising trend in before, announcement day and after it.

Acker et al. (2002) reported little difference in the bid-ask spread and increase in trading volume about dividend announcement time. Libby et al. (2002) performed a survey on active companies in Toronto Stock Exchange and reported that the bid-ask spread had been increased before dividend announcement. Ghaemi and Vatanparast (2010) considered the role of accounting information in reducing of information asymmetry. They studied levels of information asymmetry and its impact on stock price and trading volume in 21 days after and before estimated dividend announcement. The results showed that there was information asymmetry in Tehran Stock Exchange and the amount of

information asymmetry after dividend announcement is more than amount of information asymmetry before dividend announcement (Ho & Stoll, 1981). Ahmadpour and Rasa'ian (2006) considered relationship between risk criteria and the bid-ask spread in Tehran Stock Exchange. In this study, information related to 14 independent variables were studied. The result included all the independent variables and could explain more than 68 percent change in the bid-ask spread. Khodamipour and Ghadiri (2010) considered accruals and information asymmetry. Their results showed that there was a significant and positive relationship between irregular accruals and information asymmetry. Nevertheless, the results did not show a significant relationship between absolute value of total accruals and information asymmetry. Ahmadpour (2010) considered relationship between accrual quality and information asymmetry. They showed that accrual quality of listed companies in Tehran Stock Exchange did not have a significant effect on information asymmetry. Ghaemi et al. (2010) considered the effect of seasonal dividend announcement on information asymmetry. They concluded that after seasonal dividend announcement, information asymmetry did not decrease significantly in studied period.

3. Research Hypotheses

Research hypotheses were designed as follows:

1. There is a significant relationship between earnings management and information asymmetry.
 - 1-1. There is a significant relationship between low earnings management and information asymmetry.
 - 1-2. There is a significant relationship between high earnings management and information asymmetry.
2. There is a significant difference between information asymmetry in companies with high earnings management and companies with low earnings management.
3. There is a significant difference between information asymmetry after dividend announcement and information asymmetry before dividend announcement.

4. Research Methodology

In this section, we present details of our empirical study on the effects of information asymmetry on earning based on the survey accomplished on selected stocks on Tehran Stock Exchange. In order to test the first hypothesis we use is correlation test. First, the bid-ask spread is calculated 21 days before and 21 days after dividend announcement. Then for each sample, the bid-ask spread of before dividend announcement is deducted from the bid-ask spread after dividend announcement. By using of their means, the bid-ask spread is calculated. Next, the current accruals is calculated for each sample and the earned estimation error is used to determine earnings management for related sample by calculating estimation error from the difference between current accruals and estimated accruals for each sample.

When the estimated error is less, earnings management is also low and vice versa. On this basis, we have calculated estimation error and determined their medians. We expect that when the estimated error is greater than median errors, there is higher earning management and vice versa. The relationship between earnings management (low or high) and information asymmetry is studied using correlation test.

Second hypothesis shows presence or absence of significant difference between information asymmetry in companies with high earnings management and companies with low earnings management. For doing this, average t-test is used. First, companies are divided into two groups

namely low earnings management and high earnings management. Then t-test is done between amounts of information asymmetry in above groups.

Third hypothesis shows presence or absence of significant difference between information asymmetry after dividend announcement and information asymmetry before dividend announcement. For doing it, average t-test is used. First, the information asymmetry is calculated in before and after dividend announcement and then the average t-test is performed between amounts of information asymmetry in above two periods.

5. Research Samples

This study is performed in Tehran Stock Exchange listed companies from 2005 until the end of 2010. By applying some conditions and limitations, qualified samples were selected as studied samples. Therefore, the following scheme is used to select samples:

1. Companies must be productive.
2. Companies must be listed in Tehran Stock Exchange before 2005.
3. Companies must be in group of active companies or at least in study period, they must be active.

Therefore, it was decided that 21 days before and 21 days after the declaration of estimated dividend is selected as an index for active companies.

6. Research Variables

6.1. Information Asymmetry

Information asymmetry is a qualitative concept. To be able to express it in numbers, a model is needed to quantify it. For doing it, the bid-ask spread is used. According to Venkatesh and Chiang (1986), this model to determine the bid-ask spread is as follows,

$$\text{Bid-Ask Spread} = (\text{AP} - \text{BP}) / ((\text{AP} + \text{BP})/2) * 100$$

Bid-Ask Spread: proposed price range of buying and selling of shares

AP (Ask Price): Average selling price of shares

BP (Bid Price): Average buying price of shares

To do the calculations, the best proposed buying and selling price of shares are extracted for 21 days before and after estimated dividend announcement. The purpose of the best proposed selling price is the highest price for share sold per day and the purpose of the best proposed buying price is the lowest price for share bought per day. Then by using of their average, the Bid-Ask spread is calculated.

6.2. Earnings Management

For calculating earnings management, the adjusted model of Decho and Dicho (2002) is used:

$$\text{TCA}_{i,t} = \beta_0 + \beta_1 \text{CFO}_{i,t-1} + \beta_2 \text{CFO}_{i,t} + \beta_3 \text{CFO}_{i,t+1} + \beta_4 \Delta \text{REV}_{i,t} + \beta_5 \text{PPE}_{i,t} + \varepsilon_{i,t}$$

$\text{TCA}_{j,t}$: Total Current Accruals

$\Delta \text{REV}_{j,t}$: Change in Net Sale from t-1 to t

CFO: Operational Cash Flow

$\text{PPE}_{j,t}$: Gross value of Property, Plant and Equipment

$$\text{TCA}_{i,t} = \Delta \text{CA}_{i,t} - \Delta \text{CL}_{i,t} - \Delta \text{Cash}_{i,t} + \Delta \text{STDEBT}_{i,t}$$

ΔCA : Change in Current Assets

ΔCash : Change in Cash

ΔCL : Change in Current Debts

ΔSTDEBT : Change in Current Share of Long term Debts

First, the current accruals is calculated for each sample and then the earned estimation error is used to determine earnings management for related sample by calculating estimation error from the difference between current accruals and estimated accruals for each sample.

7. Statistical Analysis

7.1. Descriptive Statistics

Table 1 shows some of the descriptive information associated with the proposed study. Note that, in our study, there are 287 observations and Skewness and Kurtosis coefficients of all variables show that all variables had asymmetry and disproportionate distribution. The results are provided in Table 1. In addition, correlation Coefficients are listed in Table 2.

Table 1
Descriptive Statistics

	A-SPREAD	B-SPREAD	PPE	ΔREV	CFO	ΔSTDEBT	ΔCash	ΔCL	ΔCA
Mean	0.148825	0.05799	4.656	3.439	3.982	1.58	8.18	2.73	2.33
Median	0.085880	0.013930	7.206	3.821	4.933	1.04	9.08	2.63	2.98
Std. Dev	0.217633	0.152615	1.241	1.3114	1.0568	8.2605	1.091	1.227	1.0554
Variance	0.047	0.023	1.542	1.627	1.24	8.566	2.14	1.86	1.507
Skewness	2.226	3.513	9.089	6.686	7.998	7.691	7.652	8.675	6.204
Kurtosis	11.016	15.724	106.753	53.245	44.611	78.813	78.813	91.474	66.150

Table 2
Correlation Coefficients

	ΔCA	ΔCL	ΔCash	ΔSTDEBT	CFO	ΔREV	PPE	B-SPREAD	A-SPREAD
ΔCA	1								
ΔCL	0.848	1							
ΔCash	0.09	0.215	1						
ΔSTDEBT	0.851	0.725	0.006	1					
CFO	0.664	0.595	0.032	0.760	1				
ΔREV	0.685	0.781	0.113	0.572	0.476	1			
PPE	0.693	0.667	0.133	0.679	0.894	0.462	1		
B-SPREAD	-0.032	-0.36	-0.034	-0.029	-0.025	-0.059	-0.015	1	
A-SPREAD	-0.069	-0.076	-0.026	-0.061	-0.085	-0.093	-0.063	0.416	1

ΔCA: Change in Current Assets, ΔCL: Change in Current Debts, ΔCash: Change in Cash, ΔSTDEBT: Change in Current Share of Long term Debts, CFO: Operational Cash Flow, ΔREV: Change in Net Sale, PPE: Cost of Property, Plant and Equipment, B-SPREAD: Bid-Ask Spread before dividend announcement, A-SPREAD: Bid-Ask Spread after dividend announcement.

7.2. Inferential Statistics

We have used regression analysis to test all hypotheses. One of the conditions of regression analysis is normalizing data. To this end, first normalizing data related to the accruals was studied by Kolmogorov-Smirnov test. Because earned sig is higher than 0.05 for all years, so the distribution of accruals is normal for all years. The result is shown in Table 3.

Table 3
Normality Test of Accruals

Variable	Year	Kolmogorov-Smirnov	Sig	Result
Accruals	2005-2010	2.757	0.255	Normal Distribution

Then normalizing data related to the Bid-Ask Spread was studied by using Kolmogorov-Smirnov test. In this test, obtained sig is higher than 0.05, so thus normalizing the data was confirmed (Table 4).

Table 4

Normality Test of the Bid-Ask Spread

Studied variable	Year	Kolmogorov-Smirnov	Sig	Result
Bid-Ask Spread	2005-2010	1.391	0.118	Normal Distribution

8. Test of Hypotheses*8.1. Test of First Main Hypothesis*

This hypothesis indicates that there is a significant relationship between earning management and information asymmetry. To test this hypothesis, Pearson correlation test, with error 0.05 was carried between obtained estimate error for tested companies and amount of their information asymmetry. In this test, obtained sig is higher than 0.05, so there was no significant relationship between two variables. The result is shown in table 5.

Table 5

Test of First Main Hypothesis

Hypothesis	Level	Number of sample	Pearson Correlation	Sig	Result
Main	0.05	287	0.031	0.6	There is not a significant relationship between earning management and information asymmetry.

8.1.1. Test of First Sub-Hypothesis

This hypothesis indicates that there is a significant relationship between low earnings management and information asymmetry. To test this hypothesis, Pearson correlation test, with error 0.05 was carried between obtained estimate error for the companies have low earnings management and amount of their information asymmetry. In this test, obtained sig is higher than 0.05, so there was no significant relationship between two variables. The result is shown in Table 6.

Table 6

Test of First Sub- Hypothesis

Hypothesis	Level	Number of sample	Pearson Correlation	Sig	Result
First Sub-hypothesis	0.05	144	0.050	0.555	There is not a significant relationship between low earnings management and information asymmetry.

8.1.2. Test of Second Sub-Hypothesis

This hypothesis indicates that there is a significant relationship between high earnings management and information asymmetry. To test this hypothesis, Pearson correlation test, with error 0.05 was carried between obtained estimate error for the companies have high earnings management and amount of their information asymmetry. In this test, obtained sig is higher than 0.05, so there was no significant relationship between two variables. The result is shown in table 7.

Table 7

Test of Second Sub- Hypothesis

Hypothesis	Level	Number of sample	Pearson Correlation	Sig	Result
Second Sub-hypothesis	0.05	142	- 0.070	0.404	There is not a significant relationship between high earnings management and information asymmetry.

8.2. Test of Second Main Hypothesis

This hypothesis indicates that companies with high earnings management have higher information asymmetry than companies with low earnings management. To test this hypothesis, with error 0.05, two-sample t-test was used, between bid–ask spread in companies with low and high earnings management. For this purpose, normalizing the data was confirmed by using Kolmogorov–Smirnov test. Because obtained sig is higher than 0.05, so data is normally distributed. Then equality of variance based on Fisher statistics was done. The result is shown in Table 8 and based on it, equality of variance can be accepted.

Table 8

Test of Variances Equality

Hypothesis	Level	H ₀	F-statistic	Sig	Result
Second Main-hypothesis	0.05	$\sigma^2_1 = \sigma^2_2$	0.828	0.364	$\sigma^2_1 = \sigma^2_2$

Also T-statistics is 0.592. So, H₀ is accepted with 95% confident coefficient. It can be concluded that there is not a significant difference between bid–ask spread in these 2 groups (Table 9).

Table 9

Test of Second Main-Hypothesis (Test of Means Equality)

Hypothesis	Level	H ₀	T-statistic	Sig	Result
Second	0.05	$\mu_1 = \mu_2$	0.592	0.554	$\mu_1 = \mu_2$: There is not a significant difference between information asymmetry in companies with high earnings management and companies with low earnings management.

8.3. Test of Third Main Hypothesis

This hypothesis indicates that there is a significant difference between information asymmetry after dividend announcement and information asymmetry before dividend announcement. For test this hypothesis, average test was carried out between bid–ask spread in before and after dividend announcement. The results showed that the bid–ask spread after the dividend announcement are significantly more than the bid–ask spread before the dividend announcement. In another words, the information asymmetry after the dividend announcement, is more than the amount of information asymmetry before dividend announcement. The result is shown in Table 10.

Table 10

Test of Third Main-Hypothesis

Hypothesis	Level	H ₀	T-statistic	Sig	Result
Third	0.05	$\mu_1 = \mu_2$	- 7.15	0.027	$\mu_1 \neq \mu_2$ There is a significant difference between information asymmetry after dividend announcement and information asymmetry before dividend announcement.

9. Conclusion

The result showed that earnings management of listed companies in Tehran Stock Exchange had no effect on information asymmetry. This result is largely consistent with results of other scientists such as Khodamipour and Ghadiri (2010) and Ahmad Pour Kasegari and A'jam (2010). Also, there was not a significant difference between information asymmetry in companies with high earnings management and information asymmetry in companies with low earnings management. However, there was a significant difference between information asymmetry in before dividend announcement and information asymmetry in after dividend announcement. These results showed that estimated dividend announcement had information content and it can affect on information asymmetry. Therefore, after dividend announcement, the amount of information asymmetry is higher than

information asymmetry before dividend announcement. These findings are in agreement with Morse and Ushman (1983), Kyle (1985), Venkatesh and Chiang (1986), Patell (1991), Skinner (1991), Lee and Mucklow and Ready (1993), Kim and Verchia (1994) and Acker (2002). On the other hand, these results are not in agreement with the findings of Vatanparast (2006), Ghaemi et al. (2010), Easley and O'Hara (1992), Mc Nichols and Trueman (1994), Demski and Feltman (1994), Krinsky and Lee (1996), Yohn (1998), Libby and Mathew and Trueman (2003).

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