

The effect of poor earning quality on information asymmetry (Tehran Stock Exchange)

Yadollah Tariverdi ¹, Rezvaneh Haji ^{2,*}

¹*Department of Accounting, Assistant Professor, Central Tehran branch, Islamic Azad University, Tehran, Iran*

²*Master of Accounting, Central Tehran branch, Islamic Azad University, Tehran, Iran*

Abstract: The present study is going to study the effect of poor earning quality on information asymmetry. To measure poor earning quality we have used two patterns posed by Dichaw and Dichew (2002) and Olson (1996) and to measure information asymmetry we have utilized Vanctash and Chiang (1986) (crack in proposed stock exchange price, in first hypothesis and the difference between proposed stock sale price before earning announcement and proposed stock purchase price after earning announcement in second hypothesis). This research is correlation type and it is applied regarding goal. In order to test research hypotheses we have used statistical multiple variable regression technique and panel data method. The research findings using the data related to a sample entailing 138 firms enlisted in Tehran Stock Exchange during a 6 years period (from 2008 to 2013) showed a direct influence of poor earning quality on information asymmetry and information asymmetry before and after earning announcement

Key words: Earning quality; Information asymmetry; Agency problems; Stock market

1. Introduction

Accounting information plays an important role in financial markets in optimal appropriation of resources. Managers can only pay or increase stock profit when they feel that the reported earnings by them is not affected by accounting changes and stock earning reduction is improbable in future. Thus, stock earning not only presents information for future profitability, it also suggests some for earning quality. It is believed that earning quality and financial reporting quality is considered important for those that use financial reporting in order to sign contracts or make economic decisions. Additionally, the standard devisers consider financial reporting quality as an indirect criterion about financial reporting standards' quality. The investors consider that earnings with low quality are not appropriate because such earnings are considered as a caution for inappropriate resource appropriation.

Regarding efficient market theory, the existence philosophy of accounting can be attributed to information asymmetry that results from information advantage of some parties in exchanges compared to others in a business interaction. The amount of earning quality can affect information asymmetry and even when earnings' quality is low the information controversy between different beneficiary groups increase. Meanwhile, there are some people who incur the highest amount of losses due to poor quality earnings' announcements (Bhattacharay and et al., 2013). The goal of the present study is to show the effect of poor earning

quality on information asymmetry in firms enlisted in Tehran Stock Exchange.

2. Theoretical foundations of the research

Supplying information about a business unit's performance is one of the primary goals of financial reporting that can be carried out through measuring earning and its constituents. The financial statements' beneficiaries specifically try to measure net future cash flows of a business unit in order to estimate their expected return (Francis, 2005). In order to increase the predictability capability of future cash flows, the disclosed earning should be highly qualified. The general announcement of information with quality by management results in a reduction of information asymmetry between management and other users. Therefore, in addition to consider the earning amount reported for the investors as an important factor that affects their decisions, earning quality characteristics will be considered as one of the different dimensions of earning data considered specifically. In capital markets, many investors are common people and the only way to access important information for them is the announcements published by the companies. An example of these announcements is earning quality estimates for each share where the proposed earning for each share has been predicted by the company and announced publicly. Now, if there are some people with better position regarding having more information than others and being aware of announcements that would be published about earning quality, they can affect supply and demand in the market, and technically lead to cracks in

* Corresponding Author.

prices. The main reason for it is the existence of information asymmetry in capital market based on which the people aware of earning announcement would be placed in a better position regarding decision making.

According to agency theory, controversies in benefits can result in information asymmetry. Information asymmetry, as one of agency problems, is so important that it leads to forthcoming problems such as 'inappropriate selection' and 'moral hazards' that would be considered as the outcomes of information asymmetry by Scott. In fact information asymmetry occurs following information crack among information suppliers and its users. When it is said there is information asymmetry, the current value is not equal to current value of future cash flows (intrinsic value or economic value). William Scott has defined information asymmetry as the information advantage of some of transaction parties compared to others in a business interaction in his book, financial accounting theory.

Theoretical literature showed that both disclosure types, obligatory and optional, reduce information asymmetry among aware and unaware participants. Information asymmetry reduction increases transactions by reducing the crack between purchase and sales prices and finally reduces stock return changes.

Earning quality can be discussed regarding two perspectives: first, contract perspective: since accounting earning is used in business unit's contracts, the low quality of earnings results in improper transfer of wealth from a group to another. For example, in reward programs discussed in Hilly (1985), if earning quality is low, the wealth is transferred from shareholders to managers inappropriately. Regarding capital market perspective, one of important outcomes of capital market is optimal appropriation of resources. This means that most capitals are directed towards profitable projects. Now, if earning quality is low, there would not be optimal resources' appropriation and maybe capitals are led to lower profitability projects.

3. Research literature

Hugo and et al (2005) showed in a research project that in a complete competition market, the stockholders' information does not affect stock price and thus information asymmetry would not affect capital cost or expected return of stockholders in this market. Bhattacharay and et al. (2008) found out in their study that by reducing earning quality, information asymmetry increases. Information asymmetry results in increasing the risk of inappropriate selection for liquidity suppliers and this can reduce price announcement and thus liquidity will reduce. On the other hand they found that firms that have poor earning quality experience higher information asymmetry when earning is announced. Chiochi (2009) studied about the effect of financial reporting transparency on performance

and value of firms in Taiwan bourse. Results of the research showed that financial information disclosure transparency maximizes firm value and halts moral risks among manager and owner. Bhattacharay and et al. (2013) carried out a research entitled: "does earning quality affect information asymmetry?" they found out that poor earning quality increases information asymmetry meaningfully. Another finding of their research showed that in firms having poor information environments such as small firms or firms with institutional ownership or limited analysts, poor earning quality has more outstanding effects. Izadinia and Rasaeeyan (2009) carried out a research in 110 firms enlisted in Tehran Stock Exchange during the years between 2002 and 2006 showed that accounting earning quality has had a negative and meaningful relationship with the difference between proposed purchase and sales' prices. Results of analyzing research data by Khoddamipour and Ghadiri (2010) showed that there has been a positive and meaningful relationship between unusual accruals and information asymmetry. Jan Jani (2011) showed in a research that earning elements both entail information content, but the cash section of earning has more information content compared to its commitment element. Rahimian and et al. (2012) studied the relationship between earning quality and information asymmetry. Results of this research showed that there has been a meaningful relationship between earning quality and information asymmetry and the reduction of earning quality leads to information asymmetry increase.

4. Research hypotheses

The hypotheses in this research have been devised in two hypotheses. To measure poor earning quality we have used two patterns posed by Dichaw and Dichew (2002) and Olson (1996), and to measure information asymmetry we have utilized Vanctash and Chiang (1986).

First hypothesis: poor earning quality affects information asymmetry directly.

Second hypothesis: poor earning quality affects information asymmetry before and after earning announcement date directly.

5. Research methodology

The present research is correlation type and applied regarding its goal. It is considered to be among descriptive accounting researches and is carried out in post incidental mode.

6. Statistical population and sampling method

In this research the population under investigation was all firms enlisted in Tehran Stock Exchange during the time period between 2008 and 2013. In order to estimate sample and do sampling

we have used a deletion method and the sample selection conditions observed were as follows:

- 1- To observe comparability, the fiscal year of firms should end on end of Esfand (21st March) every year.
- 2- Firms selected should not have had any activity stop during the research period and they should not have changed their fiscal year.
- 3- All information about the firms should be accessible.
- 4- Firms should not be from among banks and financial entities (investment firms, financial intermediaries, holding firms, and leasing).

After applying the conditions above 138 firms from among those enlisted in Tehran Stock Exchange were selected as our sample.

7. Data collection method

In this research the information and data required to study and test research hypotheses were extracted from financial statements and reports presented by firms to bourse and also Tadbirpardaz software and CDs of financial information of firms.

8. Variables and research patterns

In this research the dependent variable was 'information asymmetry' and the independent variable was 'earning quality' and the calculation method for them was as follows:

Information asymmetry: to measure information asymmetry, we used a model posed by Vanctash and Chiang (1986) to determine the range of proposed exchange price for the stocks. The model is as follows:

$$SPREAD_{it} = \frac{(AP - BP) \times 100}{(AP + BP) \div 2}$$

Where,

SPREAD_{it} = the crack of stock exchange during difference range of stock transaction
 (ASK PRICE)AP_{it} = average stock price proposed for selling firm's stocks during the period
 (BID PRICE)BP_{it} = average proposed price to purchase firm i stocks during period t

It should be noted that in this model the higher number gained shows a higher price crack and the lower amount shows a lower price crack and if the equation is equal to 0, there would be no price cracks in the firm under investigations. Finally to calculate information asymmetry before and after earning announcement we have used the price difference between stock sales proposed price before earning announcement (the latest supply price in the day before earning announcement) and stock purchase proposed price after earning announcement (the latest demand price in the day after earning announcement).

Earning quality: in this research poor earning quality was calculated based on earning quality

models of Dichaw and Dichew (2002) and earning quality model of Olson (1996).

Poor earning quality of Dichaw and Dichew: in Dichaw and Dichew (2002) pattern the accruals were calculated based on the following equation:

$$TCA = (CA - CL - CASH + STDEBT)$$

Where,

TCA = total current assets

CA = change in current assets

CL = change in current liabilities

CASH = change in cash

STDEBT = change in long-term current liabilities

Then we have used the regression equation below to calculate earning quality:

$$TCA_{i,t} = \alpha_0 + \alpha_1 OCF_{i,t-1} + \alpha_2 OCF_{i,t} + \alpha_3 OCF_{i,t+1} + \alpha_4 Rev_{i,t} + \alpha_5 PPE_{i,t} + \epsilon_i$$

Where,

OCF_{i,t-1} = operational cash flow during previous period

OCF_{i,t} = current period operational cash flow

OCF_{i,t+1} = operational cash flow during future period

TCA_{accr_{i,t}} = total current accruals that equals the change in current assets except cash minus change in current liabilities except current long term liabilities

Rev_{i,t} = annual changes of sales

PPE_{i,t} = gross residual of tangible fixed assets

All variables in the regression above were de-indexed by assets at the start of year t. After estimating the regression pattern above regression residuals were used as a basis to measure earning quality. Higher fluctuation of the relationship between earnings and cash flows showed a lower quality for accruals because entering accruals in earning resulted in reducing earning quality. After calculating the regression above a new variable called FLOS EQ was measured and the absolute amount of residuals gained from the pattern for each of sample firms was achieved. After calculating FLOS EQ variable, sample firms were divided into different decimal scales. Firms in first and second rank were firms that have had the highest earning quality and other firms had a lower earning quality.

Slow one's poor earning quality: earning quality in slow one's pattern (1996) was as follows:

$$OPACC = (Earnings - CFO) / (Average Assets)$$

Where,

OPACC = operational accruals

Earnings = earnings before unexpected accruals

CFO = cash flows resulted from operation

Average Assets = average book value at the start and end of total assets period

After calculating OPACC for all sample firms a new variable called OPACCIND was identified in order to isolate sample firms into poor and strong earning quality. In order to analyze this variable first we calculated the mean of OPACC gained from sample firms. After calculating the mean of this variable, OPACCIND was calculated as follows:

$$OPACCIND = |OPACC_j - OPACC_{median}|$$

The absolute amount of OPACC difference of each firm was gained from the mean of all samples. After calculating this variable, sample firms were divided into different decimal scales. Firms in first and

second rank were firms that have had the highest earning quality and other firms had a lower earning quality. Therefore, research models were as follows:

8.1. First hypothesis's model

$$\text{Spread}_{2,it} = \beta_0 + \beta_1 \text{Size}_{it} + \beta_2 \text{stock price}_{it} + \beta_3 \text{Vol}_{it} + \beta_4 \text{FLOSEQ-D}_{it} + \beta_5 \text{OPACCIND-D}_{it}$$

8.2. Second hypothesis's model

$$\text{Spread}_{1,it} = \beta_0 + \beta_1 \text{Size}_{it} + \beta_2 \text{stock price}_{it} + \beta_3 \text{Vol}_{it} + \beta_4 \text{FLOSEQ-D}_{it} + \beta_5 \text{OPACCIND-D}_{it}$$

Where,

Spread_{2,it} = information asymmetry in firm i during year t

Spread_{1,it} = information asymmetry before and after earning announcement date in firm i during year t

Size_{it} = firm i size in year t

Stock price: stock price of firm i in year t

Vol_{it} = volume of transactions of stocks of firm i in year t

The three variables above were control variables
FLOSEQ-D_{it} = Dichaw and Dichew earning quality of firm i in year t

OPACCIND-D_{it} = Oslo one's earning quality of firm i in year t

9. Research data analysis

Results of descriptive statistics: by using descriptive statistics tools such as central tendency and dispersion, we will describe research data to help the transparency of the issue. For example, average sample of information asymmetry shows that information asymmetry has been more than information asymmetry before and after earning announcement date. The descriptive statistics of research variables for 828 year-firms have been represented in Table 1.

Table 1: Descriptive Statistics' Results

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
Spread1	0.154	0.112	2.005	0.000	0.182	3.687	2.161
Spread2	1.744	1.669	3.613	0.000	1.148	2.396	2.510
Size	13.553	13.342	18.817	10.031	1.501	0.865	4.282
Stock price	8.100	8.003	11.011	5.320	0.944	0.287	2.518
VOL	16.165	16.306	22.457	7.606	2.518	0.279	3.154
FLOSEQ_D	0.106	0.076	1.468	0.000	0.120	3.499	5.899
OPACCIND_D	0.042	0.0005	0.733	0.093	0.105	2.136	6.023

9.1. The correlation between variables

To study the correlation between quantitative variables we have used Pearson's correlation

coefficient (due to normality of dependent variables) and the results have been represented in Table 2.

Table 2: Pearson's correlation coefficient matrix for quantitative variables of the research

Correlation							
Probability	SPREAD1	SPREAD2	SIZE	STOCK_PRICE	VOL	FLOSEQ_D	OPACCIND_D
SPREAD1	1.000000						

SPREAD2	0.127165	1.000000					
	0.0003	-----					
SIZE	0.066343	0.253578	1.000000				
	0.0564	0.0000	-----				
STOCK_PRICE	0.130247	-	0.138584	1.000000			
	0.0002	0.033082	0.0001	-----			
VOL	-0.063614	0.497157	0.612067	0.023252	1.000000		
	0.0673	0.0000	0.0000	0.5040	-----		
FLOSEQ_D	0.069109	0.074843	-	0.144689	0.015829	1.000000	
	0.0412	0.0268	0.3100	0.0000	0.6492	-----	
OPACCIND_D	0.077720	0.101052	0.065338	0.277421	0.072732	0.275041	1.000000
	0.0253	0.0000	0.0602	0.0000	0.0364	0.0000	-----

9.2. Results of testing first hypothesis

First hypothesis: poor earning quality affects information asymmetry directly.

Regarding the results of testing first research hypothesis represented in Table 3, F statistic (0.000) has had a meaningfulness level of below %5. Thus, the regression has had identification capability and since the meaningfulness level of poor earning quality of Dichew and Dichaw and earning quality of Slow one (independent variables) have been less

than %5, we can say that poor earning quality of Dichew and Dichaw poor earning quality of Slow one have had a direct effect on information asymmetry. Also results of control variables showed that firm size has had a negative effect and stock transaction volumes have had a positive and meaningful effect on information asymmetry. The amount of identification coefficient showed that change in independent and control variables showed %52.1 changes in dependent variable.

Table 3: Results of testing first hypothesis

Variable	(Coefficient)	(t-Statistic)	Prob.
C	-2.404	-7.883	0.000
SIZE	-0.100	-4.692	0.000
STOCKPRICE	0.0001	0.006	0.995
VOL	0.334	25.734	0.000
FLOSEQ_D	0.117	2.077	0.000
OPACCIND_D	0.456	2.784	0.004
R Squar		0.521	
Adjusted R Square		0.518	
Durbin-Watson		1.618	
F	179.285	Prob. 0.000	
Godfrey	1.235	Prob. 0.231	
F-white	4.510	Prob. 0.000	
H-hausman	73.942	Prob. 0.000	
F-limer	12.969	Prob. 0.000	

9.3. Results of testing second hypothesis

Second hypothesis: poor earning quality affects information asymmetry before and after earning announcement date directly.

Regarding the results of testing second research hypothesis represented in Table 4, F statistic (0.000) has had a meaningfulness level of below %5. Thus, the regression has had identification capability and since the meaningfulness level of poor earning quality of Dichew and Dichaw and earning quality of Slow one (independent variables) have been less

than %5, we can say that poor earning quality of Dichew and Dichaw poor earning quality of Slow one have had a direct effect on information asymmetry before and after earning announcement date. Also results of control variables showed that firm size and stock price have had a negative effect and stock transaction volumes before and after earning announcement date. The amount of identification coefficient showed that change in independent and control variables showed %14.5 changes in dependent.

Table 4: Results of testing second hypothesis

Variable	(Coefficient)	(t-Statistic)	Prob.
C	-0.045	-0.649	0.516
SIZE	0.020	4.068	0.000
STOCKPRICE	0.013	2.115	0.034
VOL	-0.012	-4.291	0.000
FLOSEQ_D	0.101	2.049	0.040
OPACCIND_D	0.097	2.178	0.030
R Squar		0.145	
Adjusted R Square		0.139	
Durbin-Watson		1.652	
F	17.852	Prob. 0.000	
Godfrey	0.536	Prob. 0.585	
F-white	2.893	Prob. 0.000	
H-hausman	12.916	Prob. 0.024	
F-limer	3.332	Prob. 0.005	

10. Conclusion

In capital markets, specifically in Stock Exchanges, it is presupposed that the market is efficient and based on it all information in the

market reflect their effects on stock price in the market. Regarding efficient market theory, the existence philosophy of accounting can be attributed to information asymmetry. The amount of earning quality can affect information asymmetry and even when earnings' quality is low the information controversy between different beneficiary groups increase. Meanwhile, there are some people who incur the highest amount of losses due to poor quality earnings' announcements. Findings of testing the two research hypotheses showed that poor earning quality affects information asymmetry positively and meaningfully in overall conditions and also information asymmetry before and after earning announcement. Results showed that in Tehran Stock Exchange, the weaker earning quality in firms, increases information asymmetry more. In first hypothesis, information asymmetry has been investigated during one year (all firms during the same time period). But in second hypothesis, information asymmetry has been considered regarding one incident (when earning is announced and the time may vary from a firm to another). Results showed that information asymmetry during a fiscal year have been more than earning announcement time. This means, both hypotheses were approved. The difference lies in the fact that information asymmetry in second hypothesis has been less than first hypothesis and the authors believe that it so because management tries to reduce price cracks in earning announcement time. This means that if differences in prices before and after earning announcement are not much, the managers try to avoid losing their investors.

Regarding the results of first and second hypotheses and due to literature study and research backgrounds, we can conclude that our research results were compatible with those in foreign researches such as Bhattacharya and et al. (2013), Chiochi (2009), and Bhattacharya and et al. (2008), and some local researches such as Rahimiyan and et al (2012), Khoddamipour and Ghadiri (2010), Izadi and Rasaeeyan (2009).

11. Research suggestions

Regarding the results from testing hypotheses we can present some suggestions. The obligation of firms to present some information in addition to common data, as information about earning quality by considering a unique criterion in all firms to let investors assess their firm performance more easily and thus make logical decisions. On the other hand, the investors should consider accruals quality and the position of firms in different level of the market when they want to select their investment portfolios.

Also we can present some suggestions for future researches. Another research that can be appropriate in this field can be entitled 'measuring earning quality through questionnaire'. Also doing a research in the field of earning quality effect on information asymmetry by utilizing a concise pattern

for measuring earning quality which entails different dimensions of this structure can be suggested.

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