

## EXPLORING RELATIONSHIP BETWEEN INDEXES OF EARNING QUALITY AND INFORMATION ASYMMETRY IN TEHRAN SECURITIES AND STOCK EXCHANGE

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**Abstract:** *The main role of accounting information in financial market is providing necessary fields for optimum attribution of resources. After recent financial scandals, investors' confidence and trust has been weakened on financial reporting system, and earning quality has been stabilized as an important factor in determination of validation and reliability of reported figures. Consequently, determination of accounting information and its obtained results are favorited by investors, managers, lawmakers, and regulators of standards. Financial analyzers, managers, and investors have highly focused on corporates beneficiaries in recent years. Managers are interested in protecting earnings, because their reward is mostly depends on corporate earnings. Therefore, the purpose of this study is exploring effect of earning quality indexes on informational asymmetry in Tehran securities and stock exchange. In this research, hypotheses test was performed using pooling statistical method and information of 124 selected corporates in 2007-2012 period by systematic elimination- sampling method. Obtained findings show negative relationship between indexes of earning quality (earning persistence, timely, and quality of earning accrual items) and informational asymmetry. In other words, increase in indexes of earning quality reduces informational asymmetry.*

**Keywords:** *Informational asymmetry, earning persistence, earning timeliness, quality of earning accrual items*

### 1. PROBLEM STATEMENT

What has been considered in capital markets is that many investors are ordinary people whose only access way to important information of corporates is what are published by them. A sample of these announcement is known as corporates approximated earning of each stock that suggested earning of each stock is predicted by corporates and announce to public. (Jahankhani and Zarif Fard, 2008).

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An important role of accounting information in financial markets is providing necessary fields to attribute resources optimally. After recent financial scandals, investors' confidence and trust has been weakened on financial reporting system, and earning quality has been stabilized as an important factor in determination of validation and reliability of reported figures. Consequently, determination of accounting information and its obtained results are favored by investors, managers, lawmakers, and regulators of standards. Financial analyzers, managers, and investors have highly focused on corporates beneficiaries in recent years. Managers are interested in protecting earnings, because their reward is mostly depends on corporate earnings. Accounting earnings and elements are considered as data while decision making. Accounting earning based on accrual figures is a tool to evaluate corporates performances according to users of financial statements information. The purpose of evaluating corporates performances is general evaluation of financial conditions and operations results for logical decision makings. (Khajavi and Nazemi, 2009)

Stockholders, who are the most important group of information users in financial statements, search their earnings in information. Accounting earning is a sign that changes investors' beliefs and behaviors. Earning quality can influence on investors in financial markets in financial reporting of investors' confidence and trust. An effective and important factors on earning quality can named as various methods of accounting, defects in estimation processes and predictions, authority of managers, and earning being impressed by bases of earning reporting. Accrual items may include selection among accounting principles and standards, using estimations and scheduling transactions to identify non-ordinal items in earning. (Desay *et al.*, 2009)

Earning quality is proposed when analysts determine how much the reported earnings reflect the real earning. The public perception of investors from real earning is obtained earning from ordinary operations repeatable in future financial years and provider of cash flows. (Stable earning) the conception of earning quality refers to 2 features of being beneficial in decision making and relationship between earning quality and economic earning. On the other hand, one important factor about cash and financial market, especially in stock and exchange market, is market efficiency on which all exited information in market reflects its effect on stock price. Probably, according to working market hypothesis, existence of accounting can be stated as informational asymmetry in which one side of transaction have more information than another side. This matter is for internal information and transaction. (Ghaemi and Vatanparast, 2005) Informational symmetry exists when they have similar managers and informational market about corporates. Therefore, managers and markets tolerate

unreliability similar to corporates. Nonetheless, if informational symmetry exists, managers will have more and better information than market for having privates and confidential information about corporates. It means they access to corporate information before market accesses to information. Certain information of corporate transfers to market during time by disclosing events. Market has uncertainty about information before disclosing about corporate.

Informational asymmetry of corporate equals uncertainty about corporate, because it is probable that managers and market have similar awareness about effect of market variables on corporate value. Reaction to earning announcement can be the first criterion of informational asymmetry of corporate by information disclosing. Informational asymmetry can be determined based on informational environment, fluency of public announcements and number of corporate transactions and gets influenced by managers or market behavior. For example, when news about corporate is publicly announced, market may be more informed about corporate present conditions and information asymmetry reduces by considering other factors constant. (Ahmadpour and Rasaeiyan, 2006)

In capital markets, many investors are ordinary people and their only access way to important information is announcements published by corporates. Samples of these announcements is estimated profit of each stock that suggested earning of each stock is predicted by corporate and is announced to public. Now, if there are people with better informational situation among active investors in capital markets and be aware of announcements by earnings for them as an example, they can influence on supply and demand and, so called, lead to price gap. Its main reason is existence of informational asymmetry in capital market based on which it places people aware of earning announcement (or any other important news) in better decision making situation than theirs. (Ahmadpour and Ajam, 2010).

In this regard, in this research, effect of earning quality on informational asymmetry is tested in 3 hypotheses in Tehran securities and stock exchange. (Behatacharay *et al.*, 2013). Three features of earning persistence, earning timeliness, and quality of earning accrual items have been used in order to evaluate earning quality. Therefore, research hypotheses are stated as following:

### **1.1. First Hypothesis**

There is significant relationship between earning persistence and informational asymmetry.

$$Spread_{IT} = \alpha_0 + \alpha_1 EPersistence_{it} + \alpha_2 leve + \alpha_3 size + \varepsilon_{it}$$

### 1.2. Second Hypothesis

There is significant relationship between earning timeliness and informational asymmetry.

$$Spread_{it} = \alpha_0 + \alpha_1 NEG_{it} + \alpha_2 RET_{it} + \alpha_3 NEG_{it} * RET + \alpha_4 leve + \alpha_5 size + \varepsilon_{it}$$

### 1.3. Third Hypothesis

There is significant relationship between quality of earning accrual items and informational asymmetry.

$$Spread_{it} = \alpha_0 + \alpha_1 Acc\ Quality_{it} + \alpha_2 leve + \alpha_3 size + \varepsilon_{it}$$

## 2. METHODS AND MATERIALS

Since the purpose of the present research is exploring the relationships between indexes of earning quality and informational asymmetry, this research is applicable according to purpose and descriptive according to methodology. Exploring correlation among variables according to nature is casual and according to time is retrospective research.

In this research, criterions of earning quality include earning persistence, relation of earning and quality of earning accrual items s independent variables and informational asymmetry is considered as dependent variable. In addition, financial leverage and firm size are considered as controlling variable.

In this research, informational asymmetry is dependent variable and evaluated using difference range of buying and selling suggested price. Independent variables include EPersistence: earning persistence, AccQuality: quality of earning accrual items, NEG\*RET: earning timeliness and controlling variables includes LEVE: financial leverage, Size: corporate size. Research data was directly collected from financial statements of accepted corporates in Tehran securities and stock exchange by website of this organization and also Tadbirpardaz software. The corporates in statistical population was 124 corporates that was divided to 16 industries. Models estimations and research hypothesis test of Eviews and Excel have been used to calculate dependent and independent variables.

### 2.1. Quantitative Calculation of Earning Quality Criterions

Quantitative values of earning quality as dependent variables of research, means, earning timeliness and quality of accrual items were calculated by relations of (1-4), (3-4), and (2-4) for 124 corporates in 2007-2012 and drawn and classified in Excel software.

Persistence means earning repetition in future periods and predictability of future earnings, Riosin *et al.* (2002), Demerjian *et al.* (2010) in their studies used this measurement to evaluate earning quality. If earning persistence is high in a corporate, we find informational asymmetry. Earning persistence was evaluated by estimation of model (1-4). As correlation between earning of the present and future year is more, earning of present year becomes more stable. Criterion for evaluating correlation is slope of regression line or coefficient ( $a_1$ ) obtained from test of model (1-4).

**Model (104)**

$$Earnings_{i,t+1} = a_0 + a_1 Earnings_{i,t} + e_{it}$$

In this research, offered model by Francis *et al.* (2004) and Namazi *et al.* (2012) has been used for earning timeliness as one of earning quality features:

**Model (2-4)**

$$E_{it} = \alpha_0 + \alpha_1 NEG_{it} + \alpha_2 RET_{it} + \alpha_3 NEG_{it} * RET_{it} + \varepsilon$$

E: Earning before non-ordinary items of corporate

RET: return of corporate stock price

NEG: index of negative return equals 1, if  $RET < 0$ ; otherwise, it will be 0.

Net earnings is made of 2 accrual and cash parts. It can be claimed earning has quality when accrual items have quality. In other words, earning accrual items is high quality when it changes into cash flows and be predictor of future operational cash flows. As much liquidity as accrual items have, quality of these items and consequently earning quality increases. Accrual items equal to differences between net earnings and operational cash flows. Measurement tool of quality of accrual items is size of determination coefficient ( $R^2$ ) modified from estimation of model (3-4) in each level of industry.

$$CFO_{i,t+1} = a_0 + a_1 Accruals_{i,t} + e_{it}$$

**Model (3-4)**

After calculation and collection of measurement criterions of earning quality for six years from 2007-2-12, data was drawn in columns in excel software, then final data was transferred to Eviews software to do research tests. Since number of observations of 24 corporate were for 6 years, we had 744 observations in regression model (year-corporate).

Table 1 shows various sizes of criterions of earning quality including earning persistence (to explore the first hypothesis) earning timeliness (to explore the second hypothesis), quality of earning accrual items (to explore the third hypothesis). The mentioned values in this table for earning persistence, earning timeliness, and quality of accrual items show more earning quality.

**Table 1**  
**Size of Criterions of Earning Quality for Research Period**

<i>No. corporates</i>	<i>Earnings Persistence (<math>\alpha_1</math>)</i>	<i>NEG*RET (<math>\alpha_3</math>)</i>	<i>Accruals Quality (<math>R^2</math>)</i>
1245960		300	160

### 3. RESULTS AND DISCUSSIONS

In the first part of discussion we explore descriptive statistics of research variables, then obtained results of research hypotheses are provided by pooled data:

**Table 2**  
**Results of Descriptive Statistics of Research Period in 2007-2012**

<i>Variable</i>	<i>Average</i>	<i>Middle</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Standard deviation</i>	<i>Skewness</i>	<i>Observations</i>
<i>sp</i>	0.014	0.010	0.068	0.001	0.012	1.33	744
<i>EPersistence</i>	224202	49640	580142	-1063831	0.087	0.11	744
<i>E</i>	348939	73639	852580	-338918	0.17	0.78	744
<i>NEGRET</i>	-0.138	0.00	0.00	-0.94	0.22	-1.64	744
<i>AccQuality</i>	-62,779	-8404	7650866	-130802	0.12	-0.27	744
<i>SIZE</i>	5.8	5.75	8.64	2.89	0.62	0.56	744
<i>LEVE</i>	0.65	0.66	0.89	0.000	0.17	-0.69	744

#### 3.1. Analysis of Hypotheses Using Pooled Data

Before starting to test hypotheses, we talk about estimating models. Estimation of equations using pooled data was performed for all sample corporates in 2007-2012. Based on obtained estimations and help of *t* statistical test, calculated probability (P-value) and index of error percentage absolute average, research hypotheses have evaluated.

The most proposed question in applicable studies is whether the witnesses on ability to pool data or this model are different for all crossover unites. For this purpose, first we explore whether heterogeneity or personal differences are among crossovers or not. If there is heterogeneity, panel data; otherwise, pooled data method by ordinary least square approach (OLS) have been used to estimate model.

**Test-1-5-4F Limmer or Chow (exploring equity of intercepts from crossovers)**

F test of Limmer (or Chow) was used to select panel data and pooled data methods. In F test, H0 hypothesis of intercepts equity (pooled data) is placed against opposite hypothesis H1 hypothesis of intercepts inequity from origins (panel data). Summary of F Limmer test results are provided in table (3):

**Table 3**  
**Results of Chow (Constrained F) in Exploring 3 Research Models**

<i>Chow Test</i>	<i>Research Model</i>	<i>F statistics</i>	<i>p-v</i>	<i>Test result</i>	<i>Test</i>
<i>Inequity of crossovers intercepts</i>	First model	2.67	0.02	H0 is rejected	Pooled data
<i>Equity of crossovers intercepts</i>	Second model	1.19	0.15	H0 is not rejected	Pooled data
<i>Inequity of crossovers intercepts</i>	Third model	2.59	0.02	H0 is rejected	Panel data
<i>Hausman Test</i>	Research model	Chi.sq	p.v	Test result	Test result
<i>Relationship among independent variables and regression estimation error</i>	First model	1.30	0.72	H0 is not rejected	Accidental effects
<i>Relationship among independent variables and regression estimation error</i>	Third model	5.42	0.14	Ho is not rejected	Accidental effects

Reference: Researcher calculations

If F statistics is bigger than critical value, fixed effect model is accepted; otherwise, pooled data model is used to test hypotheses if research data is proper. Results obtained from constrained F and Hausman show that needed method to estimate first and third hypotheses is panel data and for the second hypothesis, it is pooled data. In addition, the selected model will be “random effects”, because Hausman test probability in the first and third model is more than 5%.

**3.2. Testing Hypotheses**

***First hypothesis***

There is significant relationship between earning persistence and informational asymmetry.

**Table 4**  
**First Hypothesis : The Relationship between Informational Asymmetry and Earning Persistence Using Panel Data Method**

<i>Description</i>	<i>EPersistence</i>	<i>Level</i>	<i>Size</i>	<i>Durbin-Watson</i>
<i>T statistics (p-value)</i>	-3.07(0.00)	2.58(0.00)	-2.09(0.04)	1.65
<i>Coefficient</i>	-0.13	0.04	-0.38	
<i>F statistics (p-value)</i>	88.650.000			
<i>Moderated R<sup>2</sup></i>	0.36			

*References:* Researcher calculations

As it is seen in table (4), *F* statistics is significant by confidence level of 0.99 (*p*-value: 0.000). Therefore, research model in generally significant and independent variables have ability of describing dependent variable. The moderated determination coefficient was obtained 0.36 from model test. This figure shows that about 36% of dependent variable, means informational asymmetry, is originated from dependent variable in model and rested 60% originates from other factors. Durbin-Watson statistics is 1.65 showing non-existence of correlation in model error values.

According to results of table (4), *T* statistics related to earning persistence (*EPersistence*) and significance level (*p*-value) are -3.07 and 0.00, respectively. As the error level for this research is considered 0.05, it is concluded about this variable that earning persistence has significant relationship with informational asymmetry by 5% error level. Variable coefficient (*EPersistence*) is negative; consequently, there is negative and adverse relationship between earning persistence and informational asymmetry. In other words, increase in earning persistence reduces informational asymmetry.

### *Second Hypothesis*

There is significant relationship between earning timeliness and informational asymmetry.

**Table 5**  
**Second Hypothesis : Relationship between Informational Asymmetry and Earning Timeliness Using Pooled Data**

<i>Description</i>	<i>NEG</i>	<i>RET</i>	<i>NEG*RET</i>	<i>Level</i>	<i>Size</i>	<i>Durbin-Watson</i>
<i>T statistics (P-value)</i>	-2.07(0.04)	2.48(0.00)	-2.22(0.01)	1.38(0.16)	3.32(0.000)	1.98
<i>Coefficient</i>	(-0.014)	(0.05)	(-0.35)	(-0.03)	(-0.02)	
<i>F statistics (p-value)</i>	138.45					
<i>Moderated R<sup>2</sup></i>	0.26					
<i>No. observations</i>	744					

*References:* Researcher calculations



As it is seen in table 5, F statistics is significant by 99% significant level ( $p$ -value = 0.000). Therefore, research model is significant totally and independent variables are able to describe dependent variable. The moderated determination coefficient was obtained 0.26 from model test. This figure shows that about 26% of dependent variable changes, it means informational asymmetry originates from dependent variables in model and rested 74% originates from other factors. Durbin-Watson statistics was obtained 1.98 showing nonexistence of correlation in model error values. According to results of table 5, t statistics related to independent variable of earning timeliness (NEG\*RET) and its significance level ( $p$ -value) were -2.22 and 0.01. As error level was considered 0.05 in this research, it is concluded that earning timeliness has significant relationship with informational asymmetry by error level of 5%. (NEG\*RET) variable is negative. So the relationship between earning timeliness and informational asymmetry is negative and adverse.

**Third hypothesis**

There is significant relationship between earning accrual items and informational asymmetry.

**Table 6**  
**Third Hypothesis : Relationship between Informational Asymmetry and Earning Persistence Using Panel Data**

<i>Description</i>	<i>Accquality</i>	<i>Level</i>	<i>size</i>	<i>Durbin-Watson</i>
<i>T statistics (p-value)</i>	-2.90(0.00)	1.49(0.13)	-3.05(0.00)	1.92
<i>Coefficient</i>	-0.08	0.03	-0.04	
<i>F statistics (p-value)</i>	115.370.000			
<i>Moderated R<sup>2</sup></i>	0.34			
<i>No. observations</i>	744			

*Reference:* Researcher calculations

As it is seen from table (4-8), F statistics is significant by 99% confidence level ( $p$ -value : 0.000). Therefore, research model is totally significant and independent variables are able to explain dependent variable. Moderated determination coefficient was obtained 0.34. This figure shows that about 34% of dependent variable, informational asymmetry, changes originate from independent variables in research model and rested 66% originates from other factors. Durbin-Watson statistics was obtained 1.92 showing non-existence of correlation in amounts of model error.

According to results of table (6), *t* statistics related to independent variable of accrual item quality (Accquality) and significance level (*p*-value) are -2.90 and 0.000, respectively. Since error level was considered 0.05 for this research, it can be concluded about this variable that earning accrual items quality is significant with informational asymmetry by 5% error level. Accquality variable coefficient is negative. Consequently, increase in accrual items quality of earning and informational asymmetry is negative and adverse. In other words, increase in earning of accrual items quality reduces informational asymmetry.

#### 4. CONCLUSION AND RESULTS APPLICATION

This research explores the relationship between informational asymmetry and earning quality (by 3 criterions of earning timeliness, earning resistance, and accrual item quality) and results show that earning quality is effective on informational asymmetry of accepted corporates in Tehran securities and stock exchange. Results of this research help to identify the relationship among earning quality indexes and informational asymmetry of managers, investors and other decision makers to select more conscious decisions based on these results. Investors can intend to favorite performances of corporates to real amount of earning of each stock and earning quality and giving stockholders and beneficiaries rights. Securities and stock exchange can also formulate proper vital laws for corporates and their management according to obtained results.

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