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Research Paper

Investigating the Relationship between Information Asymmetry, Earnings Management and Investment Fund Monitoring in Tehran Stock Exchange

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Abstract
Disclosure of information reduces information asymmetry between managers and owners and limits the opportunities for earnings management. On the other hand, institutional investors can transmit confidential information from management to other shareholders, but to validate such monitoring, institutional investors should continue to invest for a period of time that is long enough and moreover, maintain sufficient stocks to reduce the free-rider problem. The present paper aims to investigate the relationship between information asymmetry, earnings management and investment fund monitoring in companies listed on the Tehran Stock Exchange; accordingly, three hypotheses have been proposed and tested. The research population consists of 84 companies listed in the Tehran Stock Exchange, whose data related to a 5-year period (2007-2011) have been collected and analyzed. The results of this study confirmed the first hypothesis and rejected the second and third hypotheses. According to the findings, the level of earnings management is directly and significantly related to the ratio of market value to book value, ownership concentration, state ownership, and financial needs of the sample companies. Also, in general, investment funds have no role in balancing managers' financial reporting behavior while the separation of samples into two groups including companies with high and low information asymmetry showed that in companies with low information asymmetry, ownership of investment funds leads to higher levels of earnings management.

Keywords: ownership concentration, short-term investment fund, long-term investment fund, information asymmetry, earnings management.

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Introduction

Accounting as an information system can provide valuable information on the economic decisions of investors and other users of financial information, but it should be noted that some accounting information is reflected in the form of accruals prepared by managers whose profit-seeking and opportunistic motives may affect the quality of the information. Optional procedures of financial reporting provide the opportunity for directors to impose their opinions on reported figures; in other words, management has some authorities to identify accruals. The authority may be used for signaling private information or opportunistic earnings management (Dechow et al., 2003). In fact, opportunistic earnings management reflects the poor quality of accounting information; in this case, some informed traders begin to exchange their shares while uninformed traders' tendency to exchange the shares is sharply reduced. Evidences show that although managers apply opportunistic earnings management in their own interests, traders recognize expenses of the wrong choice resulted from opportunistic earnings management (Kezia and Liu, 2005). Hence, it is necessary to apply mechanisms to control motives of managers in joint stock companies to protect the interests of owners. In this regard, some studies have investigated the role of institutional investors in the management and control of self-interested motives of managers and data transfer. According

to the Efficient Monitoring hypothesis, institutional investors and major shareholders outside the company, due to having higher facilities, expertise and experience as well as more franchise can monitor the performance of managers at lower cost compared to small shareholders. Evidences show that the General Assembly decisions have a significant relationship with institutional ownership (Bushee and Noe, 2000).
The present study attempts to explain the role of investment funds (as the most important group of institutional investors in the capital market of Iran) in monitoring the behavior of investees' managers; also, information asymmetry as an important motive for earnings management is assessed in this study.

The relationship between information asymmetry and earnings management
According to Houghton et al. (2006), from the perspective of information, an economic system is asymmetric when one of the parties of the transaction has information advantage compared to the other party. In accounting theory, the problem of asymmetric information is of utmost importance, because securities markets are under threat from information asymmetry which is due to inter-organizational information. Even if prices fully reflect all information of the market, it is possible people within the organization to have more information than the people outside the organization; in such circumstances, informed people, due to their information advantage, achieve more benefits. It is obvious that when external investors become aware of this issue, they do not pay the amounts that they were ready to pay in case of complete information; and in this way, they react to the potential losses resulting from confidential information (Houghton et al., 2006). Joe and Kim (2007) studied the relationship between the quantity and quality of corporate disclosure and earnings management. They found that companies with more extensive disclosure are less likely to engage in earnings management, because the disclosure of more information reduces the information asymmetry between managers and owners and limits the opportunities for earnings management; in other words, users of financial information are more likely to recognize deviations in information due to their more information (Joe and Kim, 2007). In this regard, Kezia and Liu (2005) studied the relationship between announcements of earnings forecasts and the level of earnings management. Their results indicated an inverse relationship between earnings management and earnings forecasts dissemination. They also argued that to control earnings, managers try to give less information to users. In general, according to theoretical and experimental evidences, asymmetry of information increases the level of earnings management in companies; therefore, it is argued that managers have more motives to achieve personal interests through earnings management in firms with high information asymmetry (Dai et al., 2013).

Investment funds and their regulatory role in earnings management
Chung, Firth and Kim (2002) concluded that there will be less earnings management in institutions with greater ownership of institutional investors, because the institutions exert pressure on companies either to apply conservative accounting methods or dismiss opportunistic managers from their positions. Some researchers believe that the involvement of institutional investors in regulatory and control activities can limit the agency's problems. These researchers argue that since all shareholders benefit activities of the supervisor shareholder without incurring the costs of monitoring, institutional investors only have enough incentive to monitor. Another potential role for institutional investors is to establish a credible mechanism for transferring information to financial markets or other shareholders (Hung, 2009). Hung believes that institutional investors can transmit confidential information from management to other shareholders, but to validate such monitoring, institutional investors should continue to invest for a period of time that is long enough and moreover, maintain sufficient stocks to reduce the free-rider problem (Dai et al., 2013).
Liu and Peng (2006) grouped investment funds into three categories and find that the accuracy of accruals is inversely related to short-term investors whereas long-term investors increase the accuracy of accruals. Koh (2007) showed that institutional investors can mitigate opportunistic earnings management, whereas transient institutional ownership only increases earnings management among firms that are trying to meet their earnings benchmarks (Dai et al., 2013). Thus, it seems that if the shares are owned by long-term investment funds, there will be less earnings management in comparison with conditions where the shares are owned by short-term investment funds.

The role of information asymmetry in the monitoring effect of investment funds on earnings management
Ramalingegowda and Yu (2012) showed that there is a positive relationship between institutional ownership and conservative accounting in companies with high levels of information asymmetry and the higher the information asymmetry is, the higher the demand for conservatism will be. They also argued that

information asymmetry increases the risk of investment and forces institutional investors to increase the level of supervision. In this regard, Coffee (1991) suggests that in the case of low information asymmetry, the monitoring cost of investment funds will be reduced and the shareholders are motivated to maintain their shares for a longer period (Dai et al., 2013). Accordingly, it seems that the level of information asymmetry affects the procedures applied by investment funds for monitoring earnings management of investees.

Considering the issues discussed so far, the main question of this research is proposed as follows: What is the role of long-term investment funds compared to short-term investment funds, in monitoring earnings management of companies in conditions of information asymmetry?

The research literature

The studies outside Iran

Boush et al. (2008) investigated whether institutional investors prefer to form their portfolio in companies with better governance mechanisms. The results of this study showed although institutional investors have incentives to invest in firms with better governance mechanism, but there is no significant relationship between institutional ownership and corporate governance.

Suntruruk (2009) investigated the relationship between board structure and institutional ownership as aspects of corporate governance. This research has been conducted among active firms of Thailand during 2000-2007. The important trait of this research is that both accounting and market indices have been used as a measure of performance. In this research, return on investment (ROI) and the Q-Tobin index have been respectively used as the accounting criterion and market index. The findings of this research show that there is a positive and significant relationship between the presence of major shareholders and ROI, namely, ownership concentration improves the ROI index. Also, the presence of institutional shareholders has similar effect on ROI, too.

Badertscher et al. (2011) conducted a study as "Optional procedures of accounting and predictive power of accruals based on future cash flows". In this study, a sample of revised financial statements provided by companies to classify companies according to opportunistic motives of managers in changing discretionary accruals has been used. The results showed that regarding the sample, earnings management based on opportunistic motives of managers, the initial reported earnings, and components of accruals, compared to revised figures, are less able to predict the estimate of future cash flows; but regarding other companies, inverse results were obtained. They also investigated motives of managers and found that the informational motives of managers are stronger than contractual ones in selecting optional procedures of accounting.

The studies conducted inside Iran

Noravesh and Ebrahimi K. (2005) investigated the relation of shareholders composition with information symmetry and the usefulness of accounting criteria. The findings of this research showed that in companies with higher institutional ownership, stock prices cover more data of future earnings. The findings are consistent with comparative advantage of institutional shareholders in collecting and processing information.

Izadinia and Rasaeian (2010) investigated the relationship between some mechanisms of corporate governance (including the percentage of non-executive board members, Q-Tobin to the percentage of institutional investors, and cash holdings) as independent variables and enterprise value as the dependent variable in the Tehran Stock Exchange. The results of this study showed that there is a positive and significant relationship between enterprise value of companies listed on the Tehran Stock Exchange and the percentage of institutional investors and cash holdings, but there is no significant relationship between the percentage of non-executive board members and enterprise value of companies listed on the Tehran Stock Exchange.

Poorheidari and Yazdi (2011) in an article as "A comparative study on prediction power and information content of the income statement elements" investigated the power of income statement elements in predicting dividends and returns of stock. The results of this study showed that sales variations, gross margin, and operating profit variations have higher prediction power and information content compared to net income in prediction of future earnings and explanation of stock returns. Considering the results of this study, it is concluded that the separation of income into its parts leads to its increased prediction power and information content.

Mojtahedzadeh and Valizadeh (2011) in a study as "The relationship between earnings management and future return on assets and future operating cash flows" investigated the impact of earnings management on future return on assets and future operating cash flows. They measured earnings management using the criteria "reduction of administrative, general and sales costs", "non-operating profits from the sale of long-term assets", and "overproduction". The model developed by Gani (2005) was used to test the hypotheses. The research population consisted of all companies listed in the Tehran Stock Exchange during 2001-2006. The results of this study showed that there is no significant relationship between earnings management and future return on assets and future operating cash flows.

The research methodology

The present research is a descriptive-correlational study, because it describes the conditions or phenomena under study and examines the relationship between variables. In this study, regression equations have been used to test the correlation between variables. On the other hand, this study is an applied research in terms of its purpose and uses a descriptive method to collect data.

The research statistical population and samples

The present research uses the classified and audited financial data of active companies listed on the Tehran Stock Exchange. Accordingly, the research statistical samples are extracted from the population based on the following conditions:

1- Companies' fiscal year should end on March 20.
2- Companies must have been listed in the Stock Exchange during 2007-2012.
3- Companies must not have changed their fiscal year during the period under study (2007-2012).
4- Companies must be known as active companies in terms of transactions; and their transactions stop must not lasted more than 6 month in a year.
5- The companies' financial information should be accessible in the period under study.

Hence, based on the above conditions, the screening sampling method has been used to select sample companies. After identifying the samples companies, their data has been applied to test the research hypotheses. The research has been conducted during a 6-year period from 2007 to 2012.

The data collection method

The library method has been used to collect the research data; here, library refers to both physical and digital libraries. In addition, ready databases such as the Rahavard Novin software or the official websites of the Stock Exchange such as "cadal.ir" "rdis.ir", and "irbourse.com" have been used to gather information.

The period and location of the research

The present research has been conducted in a 6-year period from 2007 to 2012. The hypotheses have been examined using the real data of the period under study. Actually, considering the research purpose, the data of sample companies in the period under study entered the hypotheses test.

The research hypotheses

The first hypothesis: there is a significant relationship between information asymmetry and earnings management.

The second hypothesis: there is a significant relationship between long-term and short-term investment funds in reducing the level of earnings management.

The third hypothesis: there is a significant relationship between information asymmetry and investment funds in reducing the level of earnings management.

The research variables

Variables are considered as key elements of any research. A variable is something that can change in terms of the amount and usually take different numerical values; therefore, everything that exists is indeed a variable; in other words, variables are features observed, controlled, or manipulated by researchers. The most important and useful way of classifying variables is to divide them into two types of independent and dependent ones. This type of classification is very useful and valuable due to its general applicability, simplicity and importance in research conceptualization and design and reporting its results. Also, there is another type of variables known as control variables which are used to reduce the effects of unwanted factors on the results in studies conducted based on correlational tests.

The dependent variable(s) of the research

In this research, the earnings management level of sample companies is considered to be the dependent variable. Here, the quality of current accruals is the measure used to examine earnings management. According to Francis et al. (2005), the model developed by Dechow (2002) has been used to estimate to the quality of current accruals. The model is as follows:

$$TCA_{i,t} = \beta 0 + \beta 1CF0_{i,t} - 1 + \beta 2CF0_{i,t} + \beta 3CF0_{i,t} + 1 + €_{i,t}$$

WC: Working Capital accruals which is achieved by calculating the difference between
operating profit and operating cash flow.
CFO: Cash Flow from Operations.
In the above regression model, the remaining amount (€) reflects the level of earnings management. Positive and negative values respectively represent the maximization and minimization of earnings.

The independent variable(s) of the research

In this research, the level of information asymmetry, the percentage of shares owned by investment funds, the percentage of shares owned by long-term investment funds, and the percentage of shares owned by short-term investment funds are considered to be the independent variables.

The calculation of these variables has been presented in the following sections.

Testing the research hypotheses

To test the research hypotheses, the regression models provided by Dai et al. (2013) have been used. In these models, the level of earnings management is considered as a function of independent and control variables of the research. The models are as follows:

The model for testing the first hypothesis

$$DD-eqi_{i,t}=\beta_0+\beta_1 SD_{i,t}+\beta_2 Con\,Vari_{i,t}+€_{i,t}$$

The way of making decision about the hypothesis is as follows:

$$H_0\colon \beta_1 \leq 0$$
$$H_1\colon \beta_1 > 0$$

The model for testing the second hypothesis

$$DD-eqi_{i,t}=\beta_0+\beta_1 Insti\,L_{i,t}+\beta_1 Insti\,S_{i,t}+\beta_2 ConVari_{i,t}+€_{i,t}$$

The way of making decision about the hypothesis is as follows:

$$H_0\colon \beta_1 \leq \beta_2$$
$$H_1\colon \beta_1 > \beta_2$$

The model for testing the third hypothesis

To test the third hypothesis, firstly, the statistical samples are ranked into three groups, so that the first and third groups respectively include companies with high and low information asymmetry; then, the first and second models are respectively fitted within the first and third groups.

$$DD-eqi_{i,t}=\beta_0+\beta_1 Insti_{i,t}+\beta_2 ConVari_{i,t}+€_{i,t}$$
$$DD-eqi_{i,t}=\alpha_0+\alpha_1 Insti_{i,t}+\alpha_2 ConVari_{i,t}+€_{i,t}$$

The way of making decision about the hypothesis is as follows:

$$H_0\colon \beta_1 \leq \alpha_1$$
$$H_1\colon \beta_1 > \alpha_1$$

The data analysis method

After data collection, the researcher should firstly classify and analyze them and then test the hypotheses to answer the research questions. Data analysis is a multistage process in which the data are summarized, classified, and finally processed in different ways to make relation between data to analyze them and test hypotheses. In this process, data are refined conceptually and empirically. Actually, there are various statistical methods which play an important role in inferences.

The regression models

There are many types of regression models from which it can be pointed to the simple and multivariate ones as the most common models. The simple regression analyzes the relationship between two variables while the multivariate regression shows the relation of one variable with two or more variables. A multivariate regression examines the relationship between the dependent variable and one of the independent variables in the conditions where the other independent variables remain constant.

In a simple (univariate) regression, the equation $y=\alpha+\beta x$ represents the regression line of the population and is estimated by $\hat{y}=\alpha+bx$. In a multivariate linear regression, the following equation represents the regression of the population:

$$y=\alpha+\beta_1 x_1+\beta_2 x_2+\cdots+\beta_n x_n$$

To estimate the above equation, the following equation is used:

$$y=\alpha+b_1 x_1+b_2 x_2+\cdots+b_n x_n$$

In above equation,

$$b=r(S_y/S_x)$$
$$\alpha=\bar{y}-b\bar{x}$$

y: The dependent variable
x: The independent variable
b:The regression coefficient
r: The correlation coefficient between x and y
S_y: The standard deviation of the dependent variable
S_x: The standard deviation of the independent variable
$b_1, b_2, \ldots, b_n$: The regression coefficients
$\bar{y}, \bar{x}$: The mean observations of x and y.

The discussion and conclusion

Accounting as an information system can provide valuable information on the economic decisions of investors and other users of financial information, but it should be noted that some accounting information is reflected in the form of accruals prepared by managers whose profit-seeking and opportunistic motives may affect the quality of the information. Optional procedures of financial reporting provide the opportunity for directors to impose their opinions on reported figures; in other words, management has some authorities to identify accruals. The authority may be used for signaling private information or opportunistic earnings management (Dechow et al., 2003).). Hence, it is necessary to apply mechanisms to control motives of managers in joint stock companies to protect the interests of owners.

The present study attempts to explain the role of investment funds (as the most important group of institutional investors in the capital market of Iran) in monitoring the behavior of investees' managers; also, information asymmetry as an important motive for earnings management is assessed in this study. In the following, the relationship between the main variables of the research is explained based on the available theoretical and empirical evidence.

In this regard, Ramalingegowda and Yu (2012) showed that there is a positive relationship between institutional ownership and conservative accounting in companies with high levels of information asymmetry and the higher the information asymmetry is, the higher the demand for conservatism will be. They also argued that information asymmetry increases the risk of investment and forces institutional investors to increase the level of supervision. In this respect, Coffee (1991) suggests that in the case of low information asymmetry, the monitoring cost of investment funds will be reduced and the shareholders are motivated to maintain their shares for a longer period (Dai et al., 2013). Accordingly, it seems that the level of information asymmetry affects the procedures applied by investment funds for monitoring earnings management of investees.

Hence, three hypotheses were proposed in this research, which have been focused on the relationship between the main variables of the research. The results obtained from testing the hypotheses have been presented in table 1.

Table 1: A summary of the results obtained from testing the hypotheses

Summary of Hypotheses		Independent Variable Coefficient	Significance Level of the Test	Results
First Hypothesis: there is a direct relationship between information asymmetry and earnings management.	SD	1.071	0.028	Confirmed
Second Hypothesis: the role of long-term investment funds in reducing the level of earnings management is more important than short-term investment funds.	Insti L	0.897	0.55	Rejected
Third Hypothesis: information asymmetry strengthens the role of investment funds in reducing the level of earnings management.	Insti S	-0.159	0.174	Rejected
	Insti Companies with low information asymmetry	-3.24	0.614	
	Insti Companies with low information asymmetry	1.364	0.043	

The results of this study confirmed the first hypothesis and rejected the second and third hypotheses. According to the findings, the level of earnings management is directly and significantly related to the ratio of market value to book value, ownership concentration, state ownership, and financial needs of the sample companies. Also, in general, investment funds have no role in balancing managers' financial reporting behavior while the separation of samples into two groups including companies with high and low information asymmetry showed that in companies with low information asymmetry, ownership of investment funds leads to higher levels of earnings management.

Summary and interpretation of the results obtained from testing hypotheses

The results of first hypothesis showed that there is a direct and significant relationship between information asymmetry and earnings management. The reason for information asymmetry is that directors, compared to shareholders outside the company, have more information about the company's value. In accounting theory, the problem of asymmetric information is of utmost importance, because securities markets are under threat from information asymmetry which is due to inter-organizational information. Even if prices fully reflect all information of the market, it is possible people within the organization to have more information than the people outside the organization; in such circumstances, informed people, due to their information advantage, achieve more benefits (Houghton et al., 2006). Meanwhile, many accountants have stated that management always tries to uniform earnings using accounting methods; namely, directors are trying to influence the securities market and change the opinion of stakeholders about the stock price (Hemati, 2003). These theoretical foundations potentially reflect the fact that in companies with high information asymmetry, directors have more opportunities for earnings management, because information asymmetry shows the low quality of information environment of the company and the lack of effective and efficient monitoring on managers' financial reporting behavior. The findings of the first hypothesis showed that such a situation was true for the statistical samples of this research; in other words, less disclosure of information provides more opportunities for managers to manipulate earnings; and companies with high information asymmetry apply a higher level of accruals in financial reporting.

The second hypothesis suggested that the role of long-term investment funds in reducing the level of earnings management is more important than short-term investment funds. According to the results obtained from testing the second hypothesis, the hypothesis was rejected. In this research, investment funds have been considered as institutional investors and it is focused on their regulatory role. In this regard, Zhang et al. (2007) believe that small shareholders do not have necessary facilities and motives to monitor management; hence, the presence of major and institutional shareholders are essential and useful in joint stock companies to protect the rights of other groups. That is why in companies with multiple and dispersed ownership structure, the supervision and control of directors is weak; and probably, the real shareholders cannot actively and effectively impose their views on information environment of the company or approaches of financial reporting due to the lack of regulatory leverage.

Considering the issues discussed so far, two general arguments can be concluded regarding the weak role of long-term investment funds in reducing the level of earnings management. Firstly, the reason may be that the investment funds have not properly played their regulatory role in monitoring the behaviors of financial reporting, which means that the funds have not effectively focused on managers' reporting behaviors. Secondly, the regulatory procedure of investment funds may not be able to change managers' financial reporting behaviors; in other words, managers do not react to the regulatory mechanisms of shareholders and their monitoring role has been unimportant.

The third hypothesis suggested that information asymmetry strengthens the role of investment funds in reducing the level of earnings management. According to the results obtained from testing the third hypothesis, the hypothesis was rejected. In this regard, Jiang and Kim (2000) investigated the effects of information asymmetry between managers and shareholders in relation to the profitability in terms of time and amount. The research has focused on information asymmetry differences between Japanese firms based on their ownership levels. According to the results of this study, the higher the ownership level is in companies, the lower, the information asymmetry will be among managers of companies and other beneficiary parties in the market. However, the findings of the present research are not consistent with these results. In this regard, it can be argued that information asymmetry cannot improve the control of managers' financial reporting behaviors when investment funds do not play their role effectively in this regard, because it is likely that this group of shareholders have not generally given importance to financial reporting practices.

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