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A study on relationship between institutional investors and earnings management: Evidence from the Tehran Stock Exchange

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A B S T R A C T

Institutional investors play important role on formation of different changes on corporate governance systems. They can significantly influence on companies by monitoring the performance of management and limiting their opportunistic behaviors and manipulating their financial statements. Therefore, the main objective of the present study is to investigate the relationship between institutional investors and earnings management on some listed companies on Tehran Stock Exchange by examining a sample of 700 firm-years data over the period 2006-2010. In this study, the discretionary accruals are used as an indicator for earnings management. The results indicate that there is a positive and significant relationship between institutional investors and earnings management and suggest that increasing the ownership percentage of institutional shareholders increases earnings management. In addition, the results of the control variables have shown that firm size had no impact on earnings management, but financial leverage and return on sales, respectively had negative and positive effect on the earnings management of companies.

1. Introduction

Daily growth of business activities of business units, their active presence in the capital market, on one hand, specialization of companies' management and an increasing trend on the number of shareholders, on the other hand, have created some challenges for business owners to have a desirable control on companies' management, which lead to the separation of management and ownership. When there is a separation between management and shareholders, management as the representative of owners and shareholders are responsible for management of the firm. As managers seek to maximize their own interests, in this way, it is possible to violate the rights of other shareholders.

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Therefore, by formation of agency relationship, each stakeholder seeks to maximize his/her own interests. There is a fact that utility function of managers is not the same as owners; hence, there is a conflict of interest between these two groups, where agency cost is created by the presence of such conflict of interest (Jensen & Meckling, 1976). Agency costs directly influence on the value of the company, which reduces shareholders' wealth. Since the main target of the shareholders in investment of companies' stock is to maximize their wealth, thus increasing shareholder wealth is required to control and reduce agency costs. One of the most important techniques for controlling and reducing agency costs is to use efficient corporate governance mechanisms.

Corporate governance is an important factor, which normally improves the company's performance. Some of the most important mechanisms in corporate governance include institutional investors, non-executive directors, independent auditing of company, internal controls, audit committee, and others (Vakilifard & Bavandpour, 2010). Among them, the role of institutional investors is getting more important. According to Bushee (1998), institutional investors are defined as large investors such as banks, insurance and investment firms, etc. It is generally thought that the presence of institutional investors may lead to behavior change of business units (Velury & Jenkins, 2006).

Institutional investors have the primary role in formation of many changes on the corporate governance systems. This group of shareholders influences firms' accounting and financial reporting procedures (Gillan & Astarks, 2003).

Net income is one of the main items in the financial statements, which has a considerable impact on investment decisions. However, from an economic perspective, with assumption of rational behavior, it is assumed that primarily all investors seek to maximize their own interests and managers are not excepted. Managers normally attempt in maximizing their own interests, social welfare and stabilizing their position and they are interested in presenting a good image in terms of the financial figures for shareholders and other interested parties. However, in some cases, an increase of shareholder's wealth does not necessarily mean an increase wealth of other groups including retail shareholders. This fact shows lack of alignment among managers' interests and other interested parties in the business unit. In view of the conflict of interest theory between managers and owners, managers of business units have necessary motivation to manipulate earnings in order to maximize their own interests (Mehrani & Bagheri, 2009). Therefore, there is an incentive for managers to manage the last item of the income statement that is net income.

Since institutional investors make up the largest group of shareholders, their role in monitoring the performance of managers is important and it is expected that the presence of these investors in shareholders composition influences on corporate earnings management, significantly. In addition, Mehrani and Bagheri (2009) stated that institutional investors spend their resources in some specific firms whether they have necessary motivation to control the opportunistic behavior of managers for gaining their own interests.

According to the above theoretical bases, the main objective of this study is to detect the role of institutional investors as one of the mechanisms of corporate governance on earnings management among some listed companies in Tehran Stock Exchange. In this context, we discuss whether there is a significant relationship between the ownership percentage of institutional investors and corporate earnings management or not.

2. Literature Review

Cheng and Reitenga (2009) examined the relationship between the characteristics of institutional investors and discretionary accruals among U.S. firms. In this study, they used Jones and modified Jones models to estimate discretionary accruals. Their statistical sample formed 710 firm-years over the period 1987-1996. The results showed that there was a significant and positive relationship between institutional investors and discretionary accruals.

Abdul Jalil and Abdul Rahman (2010) studied the impact of institutional investors on earnings management. They used the absolute value of discretionary accruals as an indication to earnings management. Statistical sample of this research included 94 listed companies in the Malaysian Stock Exchange over the period 2002-2007. Research findings showed that there was no significant relationship between institutional investors and earnings management. In another study, Hashim and Devi (2008) performed an investigation on 204 listed firms on Malaysian Stock Exchange in 2004 and reported that there was a positive and significant relationship between institutional investors and earnings quality.

Alves (2011) investigated the impact of board structure on earnings management of Portuguese firms. In this study, a sample of 303 firm-years over the period 2002-2007 was selected and the study defined two percentages of people or organizations that have company's common stock as ownership percentage of institutional shareholders. The results showed that there was a significant and negative relationship between ownership percentage of institutional shareholders and earnings management. Rouhi and Khalifehsultani (2012) conducted another investigation on 123 listed companies in Tehran Stock Exchange over the period 2005-2010 and reported that there was a positive and significant relationship between corporate governance and quality of earnings prediction. However, a significant relationship between control variable of financial leverage and quality of earnings prediction was not observed.

Yang et al. (2009), in their study, examined the impact of board structure and institutional ownership structure on earnings management on the 613 listed companies in the Malaysian stock market over the period 2001-2003. The results indicated that there was no significant relationship between institutional ownership and earnings management. In another study, Moradi and Namazi (2011) investigated some Iranian companies and reported that there was a positive and significant relationship between institutional ownership and earnings quality.

Salajeghe et al. (2012) investigated the impact of ownership structure on earnings management of 212 listed companies in Tehran Stock Exchange over the period 2006-2008. In their research, they defined institutional investors as dummy variable of zero and one (If the company has institutional investors is one and it is zero otherwise). The results showed that there was a positive and significant relationship between institutional investors and earnings management. In another study, Khodaei Valahzaghard and Shabanian Chaleshtori (2013) performed an investigation on 12 private banks listed on the Tehran Stock Exchange over the period 2005-2011 and reported that there was not any significant relationship between institutional investors and banking risk. However, there was a significant and negative relationship between firm size and banking risk.

Fayoumi et al. (2010) studied the relationship between ownership structure and earnings management on some 39 Jordanian companies over the period 2001-2005. In this study, they used discretionary accruals by modifying Jones' model as an indicator of earnings management. Research findings indicated that there was a significant relationship between institutional investors and earnings management. In addition, there was a positive and significant relationship between firm size and earnings management. However, the relationship between financial leverage and discretionary accruals was not observed.

Ramadan (2012) in his study investigated the impact of institutional investors on accounting flexibility on some 70 listed firms on the Amman Stock Exchange over the period 2002-2010. In this study, working capital accruals was measured by modified Jones' model as an indicator of corporate accounting flexibility. Research results showed that there was a significant and negative relationship between institutional investors and firms accounting flexibility. In addition, the results indicated that the firm size had significant and negative relationship with institutional investors and financial leverage had significant and positive relationship with discretionary accruals of working capital.

However, the significant relationship between return on sale and firms accounting flexibility was not observed.

3. Research Design

3.1. Statistical Population and Sample

In the present study, statistical population is formed by all listed companies in Tehran stock Exchange (TSE). To select statistical sample, the following constraints are considered:

1. They must have been listed on TSE exchange before the year 2006.
2. In order to compare the data, all firms maintained the same fiscal year.
3. In order to maintain information homogeneity, they were not among financial companies.
4. Their financial period should not have changed during the studied fiscal year.

Considering the above constraints, 140 companies over the period 2006-2010 were selected. Required data has been collected from the site of the Tehran Stock Exchange (http://www.irbourse.com) and CDs of financial information of companies TSE listed firms.

3.2. Methods of Data Analysis and Hypothesis Testing

The present study is description-correlation in terms of nature and method and it is an applied one in terms of target. The statistical model used in this study is a multivariate regression model. To test the significance of regression model in general, the Fisher *F* test is used. If significant level of *F* statistic is less than 5% (SigF<5%), it indicates the presence of a significant relationship in the model. To test the explanatory power of the model we use adjusted R^2 and to make sure there is no auto-correlatgion among residuals we use Durbin-Watson (DW). To investigate the significance of the main research hypothesis we use *t* student statistics at confidence level 95% and 99% and the main hypothesis is formulated as follows:

H₀: There is not a significant relationship between ownership percentage of institutional investors and earnings management of companies**.**

H₁: There is a significant relationship between ownership percentage of institutional investors and earnings management of companies**.**

3.3. Operational Definition of Research Variables

In this study, we examine the ownership of the percentage of institutional investors (INOWN) as the independent variable and firm size (SIZE), financial leverage (LEV) and return on sales (ROS) as control variables Table 1 shows the appropriate method for calculating each factor. However, variable of discretionary accruals (DACC) is used as the dependent variable and an indicator for earnings management. Dechow et al. (1995), in their study, evaluated the relative performance of Healy, DeAngelo, Jones, Modified Jones and industry models for knowledge of earnings management and concluded that the modified Jones model was more appropriate and stronger tool for investigating earnings management. Thus, in the present study, to estimate discretionary accruals we use the modified Jones model. In this way, first the total accruals are calculated as follows,

$$TACC_{it} = NI_{it} + OCF_{it}, \quad (1)$$

where:

TACC = Total accruals,
NI = Net income,
OCF = Operating cash flow.

After calculating the total accruals using the following equation, we estimate the following,

$$\frac{TACC_{it}}{A_{it-1}} = \alpha_1(\frac{1}{A_{it-1}}) + \alpha_2(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}) + \alpha_3(\frac{PPE_{it}}{A_{it-1}}) + \varepsilon_{it} \quad (2)$$

where
$TACC_{it}$ = Total accruals of firm *i* in the year *t*,
A_{it-1} = Total assets of firm *i* in the year *t-1*,
ΔREV_{it} = Change in revenue of firm *i* in the year *t*,
ΔREC_{it} = Change in accounts and notes receivable of firm *i* in the year *t*,
PPE_{it} = Gross value of property, machinery and equipment of firm *i* in the year *t*,
ε_{it} = Residuals of firm *i* in the year *t*,
α_1, α_2 and α_3 = estimated coefficients of the modified Jones model.
After estimating the coefficients of Eq. (2) to calculate nondiscretionary accruals (NDACC) we put them in the following equation:

$$\frac{NDACC_{it}}{A_{it-1}} = \alpha_1(\frac{1}{A_{it-1}}) + \alpha_2(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}) + \alpha_3(\frac{PPE_{it}}{A_{it-1}}). \quad (3)$$

Finally, discretionary accruals (DACC) are calculated by the following equation,

$$DACC_{it} = TACC_{it} - NDACC_{it} \quad (4)$$

Table 1
Explanatory variables and the methods of calculations

Variables	Symbol	Definition
Ownership Percentage of Institutional Investors	INOWN	If a person or company owns more than 5% total outstanding shares or more than 5 milliards Riyal of nominal value of common stock shares we consider it as institutional shareholder.
Firm Size	SIZE	Natural logarithm of total assets of company
Financial Leverage	LEV	Total debt to total assets ratio
Return on Sales	ROS	Operating profit to net sales ratio

3.4. The Model Used to Test Research Hypotheses

In this study, to investigate the relationship between institutional investors and earnings management of TSE listed companies the following is used,

$$DACC_{it} = \beta_0 + \beta_1 INOWN_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROS_{it} + \varepsilon_{it}$$

where

$DACC_{it}$ = discretionary accruals of firm *i* in the year *t*,
$INOWN_{it}$ = ownership percentage of institutional shareholders of firm *i* in the year *t*,
$SIZE_{it}$ = size of firm *i* in the year *t*,
LEV_{it} = financial leverage of firm *i* in the year *t*,
ROS_{it} = return on sales of firm *i* in the year *t*,
ε_{it} = Error component model of firm *i* in the year *t*,
β_0 = Constant coefficient (the intercept) and β_1 to β_4 = coefficients of independent and control variables.

4. Empirical Results

4.1. Descriptive Statistics

Descriptive statistics of the main variables is presented in Table 2. As can be seen, the average discretionary accruals (DACC) is equal to 0.0012 and indicates that studied companies on average had 0.12% of the discretionary accruals and its range is between -0.5116 and 0.6179. Average percentage of institutional investors is equal to 0.5425, which means 54.25% of the institutional shareholders control studied companies and its range is between 0.0563 and 0.8810. Average financial leverage (LEV) is equal to 0.6495 and indicates that on average, 65% of financial resources required investigated companies would provide from the debts. Also, return on sales ratio (ROS) shows that, on average, 17% of the operating profit obtain from selling the company's products.

Table 2
Descriptive statistics

Variables	Mean	Median	Max	Min	Std. Dev
DACC	0.0012	-0.0047	0.6179	-0.5116	0.1329
INOWN	0.5425	0.6923	0.8810	0.0563	0.1997
SIZE	13.0374	12.8178	19.7806	9.8215	1.4128
LEV	0.6495	0.6448	2.3713	0.0795	0.2278
ROS	0.1701	0.1432	0.7624	-1.1375	0.1739

4.2. Correlation Analysis

Table 3 shows the results of Pearson correlation test. As can be seen, there is no multicollinearity among research variables since the calculated correlation coefficient is less than 44%. Furthermore, the research results show that there is a significant and positive correlation between ownership percentage of institutional investors (INOWN) and Earnings management index (DACC) at the 1% error level. The results also suggest that there is no significant correlation between firm size (SIZE) and earnings management (DACC).

Financial leverage (LEV) and discretionary accruals (DACC) at the 1% error level have negative and significant correlation. In addition, there is a significant and positive correlation between return of sales (ROS) and earnings management (DACC). Among the independent variables, a significant correlation between financial leverage and return on sales (-0.444) is observed.

Table 3
Pearson correlation test

Variables	DACC	INOWN	SIZE	LEV	ROS
DACC	1.000				
INOWN	0.111**	1.000			
SIZE	0.046	0.057	1.000		
LEV	-0.298 **	-0.042	-0.094 *	1.000	
ROS	0.305 **	0.032	0.213 **	-0.444 **	1.000

** Correlation is significant at the 1% level, * Correlation is significant at the 5% level

4.3. Results of Regression Test

The results of the regression model test in two cases without control variables and with control variables are given in Table 4. The main research hypothesis states that there is a significant relationship between ownership percentage of institutional investors (INOWN) and earning management of companies (DACC). As can be seen from the results of Table 4, in both cases, without control variables and with control variables, statistically, there is a significant and positive relationship between ownership percentage of institutional shareholders and earnings management at

error level less than 1%. These results suggest that if ownership percentage of institutional shareholders increase, earning management in that company will increase. Thus, the research hypothesis is confirmed.

The test results of research control variables indicate that there is a significant and negative relationship between financial leverage (LEV) and earnings management (DACC) and significant and positive relationship between return on sales (ROS) and earnings management. However, a significant relationship between firm size (SIZE) and discretionary accruals (DACC) is not observed.

Table 4
Regression Results

Variables	Model (1)			Model (2)		
	Coefficient	t-Statistic	Sig.	Coefficient	t-Statistic	Sig.
Constant	-0.080	-2.756	0.006	-0.018	-0.253	0.800
INOWN	0.001	2.914	0.004	0.001	2.650	0.008
SIZE	-	-	-	0.002	0.414	0.679
LEV	-	-	-	-0.184	-4.986	0.000
ROS	-	-	-	0.238	5.011	0.000
R^2		0.012			0.135	
Adjusted R^2		0.011			0.130	
F-statistic		8.491			26.620	
Prob(F-statistic)		0.004			0.000	
Durbin Watson		2.009			2.055	

It is evident from Table 4, the adjusted R^2 value is 0.011 in the case of without control variables which suggests ownership percentage of institutional investors only explains just 1.1% of the changes in dependent variable (earnings management). However, the adjusted R^2 value in the case of with control variables is equal to 0.130, which indicate that control and independent variables explain 13% of the changes in dependent variable.

The value and significance level of *F* statistic in both cases indicates that the model is significant in general. Also in both cases, the value of Durbin-Watson statistic is between 1.5 and 2.5, which indicate that there is no autocorrelation problem in disruption components of model.

5. Conclusions

We have explained that institutional shareholders play important role on the success of business units. They have the ability to monitor the performance of managers and reduce inappropriate activities. We have presented an investigation to study the relationship between institutional investors and earnings management on a sample of 140 listed companies in Tehran Stock Exchange over the 2006-2010. In this study, the ownership percentage of institutional shareholders has been used as independent variable and discretionary accruals as an indicator for earnings management and dependent variable.

The research hypothesis stated that there was a significant relationship between ownership percentage of institutional investors and earnings management of companies and our results indicated that there was a positive and significant relationship between institutional shareholders and earnings management. The results is consistent with research results of Cheng and Reitenga (2009), Hashim and Devi (2008) and Salajeghe et al. (2012), but it is on the contrary to the research findings of Abdul Jalil and Abdul Rahman (2010), Alves (2011), Yang et al. (2009), Fayoumi et al. (2010) and Ramadan (2012).

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