



# Investigating the Effect of Ownership Structure on Earnings Manipulation: Evidence from Actual Earnings Management in Tehran's Securities Exchange Market

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**Abstract:** *One of the most important discussions in corporate ownership structure pertains to ascertainment of the exertion of correct governance by the shareholders on the company administration. Therefore, the present study aims at investigation of the corporate structure's effect on earnings manipulation via presenting actual earnings management documents from Tehran's securities exchange market. In the literature on corporate governance, there are two attitudes towards the institutional investors. Thus, information and entries of the financial statements were gathered for a time span between 2012 and 2016 to do so. The study is an applied research in terms of its objectives and it is of descriptive-correlation type based on its nature and method. The extracted data have been organized in Excel 2013 and EViews 8 and Stata 12 Software have been employed to analyze the data. The results obtained from the hypotheses test indicated that there is a significant relationship between managerial ownership and abnormal operating cash flows in Tehran's securities exchange market. Also, a significant relationship was found between managerial ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market. There was additionally found significant relationships between institutional ownership and operating cash flows as well as between institutional ownership and abnormal discretionary expenses in the firms accepted to Tehran's securities exchange market. Furthermore, the relationship between foreign ownership and operating cash flows was also found statistically significant and it was made clear that there is a significant relationship between foreign ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market. The managers and boards of directors of the companies can take advantage of the present study's results to improve the organizational work processes in the area of cash flows besides utilizing the structural model to create an appropriate ownership system.*

**Keywords:** *Institutional Ownership, Foreign Ownership, Managerial Ownership, Earnings Management*

## INTRODUCTION

Responding to the information needs of the investors and economic decision-makers and supplying transparent and comparable financial information that are the essential factors influencing the informed economic decision-making set the ground for the correct market functions and winning the investors' trust. Profit is a scale of performance evaluation that is used for the determination of the companies' value and performance. Deficiency in the process of estimations and predictions of the future of the performance and dividends of the companies has made the actual earnings and the profit reported in the companies' financial statements an important and

investigable issue. Therefore, the quality of the financial reports, especially the profit quality, is focused on by the investors and financial decision-makers in their proper and reliable making of decisions (Deng et al, 2013). The real activities' manipulation occurs comes about when managers are assigned to activities changing the timing or the structure of an operation, an investment and/or financial transactions with the purpose of influencing the (output) product of the accounting system (Gunny, 2010). Since accrual-based earnings management is usually carried out in the end of the fiscal year and the actual earnings management is usually undertaken during the financial period, it is expected that the managers' decisions for the manipulation of the real activities during the financial year influences the accrual-based earnings management in the end of the period. The critics are of the belief that the managers misuse the authority and freedom of action they are entrusted by means of the accepted accounting principles and they intentionally vitiate the information inserted in the financial statements (Rahmani, 2010).

Institutional and substantial ownership is the amount of shares owned of a company by investment firms, organizations and public institutions, governmental organizations and others. Institutional stock holders acquire a considerable share of the capital market and play an essential role in the company's decision- and policy-making (Setayesh and Kazemnejad, 2010).

Researches have shown that corporate governance can cause upgradation of companies' business standards as well as encouragement, supply and equipment of the capitals and investors and also improvement of their executive affairs and it has been demonstrated to be one of the primary elements of economic efficiency improvement of the companies because it incorporates the relationships between the shareholders, board of managers, managers and the other stakeholders (Kohandel, 2011). According to the results obtained from prior research that is suggestive of the inefficiency of Tehran's securities exchange market, the Iranian investors are less willing towards making investments in the financial assets and this is reflective of their uncertainty and lack of recognition of the financial markets, financial reports of the companies and factors influencing them. The investigation and study of the real items of financial statements and profits reported by the managers and evaluation of factors influencing earnings manipulation make the investors not to take investment measures upon acquiring correct and sufficient information thereby to lower the risks of their investments. The major problem posited in the present study is that whether corporate ownership, as one of the essential factors in the companies, has a significant effect on the managers' earnings manipulation through real items or not?

### **Theoretical Foundation and Study Background:**

The goal of management is showing a dynamic and stable company to the investors and capital market because the majority of the investors and managers believe that the companies featuring appropriate profitability trends not undergoing substantial changes are more valuable, more predictable and more comparable than their opposite counterparts (Nowravesht et al., 2005). Nowadays, the scattering of the owners in the joint-stock companies has made the conjecturing of their relationships with the company within the format of traditional ownership barely possible. Except being entitled to the reception of part of the company's income and interests in proportion to the amounts of their shares, the shareholders of these companies do not enjoy much of a right in other cases. This is demonstrative of the conflict between the owners and managers and the product of such a conflict is nothing other than the vitiation of the shareholders' proprietary right. It is made clear this way that the shareholders of the public joint-stock companies are so scattered that they lack the required power and desire for correcting and limiting the direction along which the company managers are moving. The preservation of public interests, observation of the shareholders' rights, enhancement of the information transparency and requiring the companies to the fulfilling of their social responsibilities are amongst the most important ideals drawing the attentions of the various supervisory and executive authorities from more than a decade ago. The actualization of these ideals entails the existence of stable criteria and appropriate executive

works the most important of which is the correct system of corporate ownership (Nokoumaram and Mohammadzadeh, 2010).

The most fundamental pillar of the discussion about the corporate ownership structure is making sure of the enforcement of correct governance by the shareholders over the company administration. However, the presence of certain states makes the exertion of governance face impediments, especially for the minority shareholders. Due to the same reason, awareness of the ownership structure and rating it based on standard scales is one of the important topics by way of which strategies needed for the establishment of corporate governance can be codified (Astami et al, 2006). Minority shareholders and real persons own parts of the companies. This group predominantly relies on the information available to general public, such as the published financial statements, to supervise the managers' performance while another part of the company is possessed by the majority professional shareholders (institutional shareholders) who, unlike the first group shareholders, are provided with valuable internal information regarding the future vistas and business strategies and long-term investments of the company through their relationship with the company managers. In the literature on corporate governance, there are two attitudes towards the institutional investors: efficient supervision assumption and interest convergence assumption. The efficient supervision assumption states that more investment by institutional shareholders paves the way for a more efficient supervision over the company and many of the agency problems can be subsequently removed whereas the interest convergence assumption states that the interests of substantial institutional investors are in the same line with the management interests and this can encourage the managers to make non-optimal decisions (Arslan et al, 2006).

More concentrated ownership structure is positively associated with higher profitability and the more the ownership is less scattered the higher the profitability will be increased (Kapopoulos and Lazaretou, 2007). Company ownership and the owners' exertion of supervision can be weak but sufficient provided that the agency issue is in its lower level when it is commenced. Thus, lower profit management can be expected in such companies. The exertion of supervision by company owners can be strong (mighty) but insufficient in which case profit management can become problematic even with the exertion of strong supervision by the company owners. Due to the owners' being away from control in these companies, the first evidences are obtained regarding the effect of ownership and control on the company performance. Hence, it is logical that a company with majority stock owners possessing a larger share fraction to outperform the company in which the majority stockholders have lesser shares. Institutional investors are the main players of the financial markets and their effects on the corporate governance structure as a result of privatization policy are increasing. Institutional investors play key roles in controlling of the joint-stock companies. Institutional ownership constitutes one of the main mechanisms of the corporate governance. There is a shortage of the required budget for the exertion of control over the managers in a company part of the ownership of which is in the hands of minority stockholders while the minority stockholders of the institutional owners who have the largest quotient of the company's capital are more willing to exercise control over the management performance and this can be objectified via the majority stockholder's voting right and the resources it can apply to this goal (Reza'ei and Taimuri, 2012).

### **Study Method and Data Analysis:**

The study population included the companies accepted to Tehran's securities exchange market out of which 100 companies were selected as the study sample volume for 2012-2016-time span. The data required for the calculation of the study variables were collected using Rah Avard Novin Software from the internet website of Iran's center for financial information processing (FIPIRAN) following which they were sorted out in Excel 2013. To perform data analysis, Eviews 8 and Stata 12 Software were employed.

- **Study Hypotheses:**

**First Primary Hypothesis:** the companies with high-level managerial ownership structure feature more actual earnings management activities than the companies with low-level managerial ownership structure.

**First Subordinate Hypothesis:** there is a significant relationship between managerial ownership and abnormal operating cash flow in the companies accepted to Tehran's securities exchange market.

**Second Subordinate Hypothesis:** there is a significant relationship between the managerial ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

The regression model of the first primary hypothesis and its subordinate hypotheses:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 MO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t} \quad (1)$$

**Second Primary Hypothesis:** companies with high-level institutional ownership structure feature more actual earnings management activities than the companies with low-level institutional ownership structure.

**Third Subordinate Hypothesis:** there is a significant relationship between institutional ownership and the operating cash flow in the companies accepted to Tehran's securities exchange market.

**Fourth Subordinate Hypothesis:** there is a significant relationship between the institutional ownership structure and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

The regression model of the second primary hypothesis and its subordinate hypotheses:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 IO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t} \quad (2)$$

**Third Primary Hypothesis:** companies with high-level of foreign ownership structure feature more actual earnings management activities than the companies with low-level foreign ownership structure.

**Fifth Subordinate Hypothesis:** there is a significant relationship between foreign ownership and the operating cash flow in the companies accepted to Tehran's securities exchange market.

**Sixth Subordinate Hypothesis:** there is a significant relationship between the foreign ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

The regression model of the third primary hypothesis and its subordinate hypotheses:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 FO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t} \quad (3)$$

Where,

$Y_{i,t}$  = actual items management of the company i at t;

$MO_{i,t}$  = managerial ownership structure of the company i at t;

$IO_{i,t}$  = institutional ownership structure of company i at t;

$FO_{i,t}$  = foreign ownership structure of company i at t;

$Size_{i,t}$  = the size of company i at t;

$MTB_{i,t}$  = the ratio of market to book value of the shares of company i at t;

$Net\ Income_{i,t}$  = net income of company i at t

- **Method of Study Variables' Calculation:**

**Real Activity Management (RAM):**

Two scales, namely abnormal operating cash flow and abnormal discretionary expenses, were utilized in the present study as they were used in the research by Roychowdhury (2006).

**Abnormal Cash Flow from Operating Activities (ACFO):**

To compute this variable, the following regression model was used:

$$\frac{CFO_{it}}{A_{i,t-1}} = \alpha_{i,t} + \beta_1 \left( \frac{1}{A_{i,t-1}} \right) + \beta_2 \left( \frac{S_{i,t}}{A_{i,t-1}} \right) + \beta_3 \left( \frac{\Delta S_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (4)$$

**Abnormal Discretionary Expenditures (ADE):**

To calculate this variable, the following regression model was used:

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \alpha_{i,t} + \beta_1 \left( \frac{1}{A_{i,t-1}} \right) + \beta_2 \left( \frac{S_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (5)$$

Where,

CFO<sub>i,t</sub>= cash flow of operating costs of company i in year t;

DISEXP<sub>i,t</sub>=discretionary costs of company i in year t;

A<sub>i,t-1</sub>=total assets of company i in year t-1;

S<sub>i,t</sub>=sales of company i in year t;

ΔS<sub>i,t</sub>=sale variations of company i in years' t and t-1.

**Ownership Structure (OS):**

Based on the analysis performed by Shayan Nia et al (2017), the present study made use of three scales, namely corporate ownership, institutional ownership and foreign ownership.

**Managerial Ownership (MO):**

To measure the managerial ownership in the present study, a dummy variable was used in such a way that a value equal to one will be scored if a percentage of the stock is held by the executive managers of a company and zero in the otherwise case.

**Institutional Ownership (IO):**

To measure the institutional ownership, a dummy variable was used in such a manner that a value equal to unity will be given if a percentage above 20 of the stock is held by the institutional shareholders and zero in an otherwise case.

**Foreign Ownership (FO):**

To measure the foreign ownership for the assessment of institutional ownership, the present study made use of a dummy variable in such a manner that a value equal to one will be scored in case that over 20% of the shares is held by the foreign shareholders and zero in the otherwise case.

**Company Size (Size):**

To calculate the size of the company, the natural logarithm of the total assets of company i was used for the entire year.

The Market to Book Value (M/B):

The ratio is calculated as designated in the formula below:

$$M/B = \frac{\text{Market value}}{\text{Book value}} \quad (6)$$

**Net Income (NI):**

It is equal to the company's net income in the studied year that can be extracted from the financial statements.

**Study Results:**

- **Descriptive Statistics:**

This section gives the descriptive analysis of the study data and presents descriptive statistics of the study variables. The descriptive statistics encompass methods that are applied for the collection, summarization, classification and the description of the numerical realities.

The descriptive statistic indices offered in the table include mean, median, maximum, minimum, standard deviation and Jarck Bera test. The most original central index is mean expressing the balance point and gravity center of the distribution and it is a good index for showing the data centricity. Standard deviation is amongst

the most important parameters of scattering and it is a scale for showing the scattering rates of the observations from mean. One of the most important uses of the descriptive statistic tables is making judgements about the data normality or abnormality. Jarck Bera test is generally applied to figure out the abnormality or normality of data distribution. According to the following table, some study variables enjoy normal distribution and some others do not.

**Descriptive Statistics of the Study Variables:**

**Table 1: Descriptive Statistics**

Variable name	Abnormal operating cash flows	Abnormal discretionary expenses	Market to book value	Company size	Income	Foreign ownership	Institutional ownership	Managerial ownership
Mean	0.24	0.22	7.44	11.40	603822.2	0.22	0.66	0.56
Median	0.23	0.29	7.37	12.07	598128.4	0.00	1.00	1.00
Maximum	0.68	0.51	11.52	16.59	1087580	1.00	1.00	1.00
Minimum	0.02	0.001	4.94	6.47	297802.5	0.00	0.00	0.00
Standard deviation	0.11	0.14	1.31	2.10	164787.3	0.41	0.47	0.49
Jarck Bera test	49.16 0.00	12.31 0.002	14.19 0.00	6.03 0.04	14.51 0.00	147.35 0.00	87.91 0.00	83.43 0.00
Number of observations	500	500	500	500	500	500	500	500

(Source: study findings)

- **Investigating the Collinearity (Correlation) of the Study Variables:**

After the statistical description of the data and investigation of their reliability, the correlation relationship between the study variables was evaluated. The intensity of two variables' relationship with one another is called correlation. The correlational analysis is a statistical instrument for the determination of the type and degree of the relationship between a quantitative variable with another quantitative variable. The correlation coefficient ranges between 1 and -1 and the relationship between two variables can be positive or negative; the more the correlation coefficient approaches unity the higher the dependency of the two variables will be. Due to the abnormality of some of the variables, Spearman Method was utilized to test the correlation between variables. According to table 2, there is no high correlation between the study's independent variables.

Study Variables' Correlation:

**Table 2: Correlation of the Study Variables**

Variables	Abnormal operating cash flow	Abnormal discretionary expenses	Market to book value	Company size	Income	Foreign ownership	Institutional ownership	Managerial ownership
Abnormal operating cash flow	1							
Abnormal discretionary expenses	-0.0411 (0.4037)	1						
Market to book value	0.0203 (0.6791)	0.0124 (0.8000)	1					
Company size	0.0501 (0.3080)	-0.0361 (0.4622)	-0.0716 (0.1450)	1				
Income	0.1421 (0.0037)	0.0392 (0.4249)	-0.0780 (0.1123)	0.0032 (0.9481)	1			
Foreign ownership	-0.0170 (0.7287)	-0.0934 (0.0570)	0.0464 (0.3451)	-0.0723 (0.1410)	-0.796 (0.1052)	1		
Institutional ownership	0.0501 (0.3080)	-0.0361 (0.4622)	-0.0716 (0.1450)	0.7466 (0.0000)	0.0032 (0.9481)	-0.0723 (0.1410)	1	

Managerial ownership	0.0567 (0.2483)	-0.0270 (0.5824)	-0.0927 (0.0590)	0.8873 (0.0000)	-0.0117 (0.8112)	-0.0722 (0.1419)	0.9819 (0.0000)	1
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(Source: study findings)

• **Hypotheses Test:**

This section investigates and examines each of the study primary and subordinate hypotheses.

➤ **Brosh-Pagan and Husman Test:**

Brosh-Pagan test was applied in this section to determine the combined or blended nature of the study data and Husman test was utilized to determine the combined model type (fixed or randomized effects). According to table 3 and the study data, the hypotheses were found of the blended or pooled type.

**Brosh-Pagan-Husman Test:**

**Table 3: Brosh-Pagan-Husman Test**

Result	Husman test		Limer's F test		Hypotheses
	Statistical probability	Statistic	Statistical probability	Statistic	
Pooled	-	-	0.6866	0.7845	First subordinate hypothesis
Pooled	-	-	0.4752	0.9965	Second subordinate hypothesis
Pooled	-	-	0.4063	1.0654	Third subordinate hypothesis
Pooled	-	-	0.4855	0.9803	Fourth subordinate hypothesis
Pooled	-	-	0.6068	0.8836	Fifth subordinate hypothesis
Pooled	-	-	0.5392	0.9743	Sixth subordinate hypothesis

(Source: study findings)

➤ **Final Hypotheses Test:**

✓ **First Subordinate Hypothesis:**

**First Subordinate Hypothesis:** there is a significant relationship between the managerial ownership and abnormal cash flow of the companies accepted to Tehran's securities exchange market.

Model related to the hypothesis:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 MO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t}$$

According to Previous Entries, the first subordinate hypothesis data do not have variance inconsistency and autocorrelation problem and the data obtained for this hypothesis are of the pooled type and OLS method can be used for model estimation.

**First Subordinate Hypothesis Test:**

**Table 4: First Subordinate Hypothesis Test**

Variable	Coefficients	t-statistic	Probability
Managerial ownership	-0.0022	-0.2358	0.813
Size	0.0002	0.1050	0.916
MTB	0.02550	7.0905	0.000
Income	7.30E-09	0.2535	0.8
Fixed variable	0.04998	1.1948	0.023
Determination coefficient	0592		
Adjusted determination coefficient	0.585		
Durbin-Watson statistic	1.645		
F-statistic	12.646		
Probability	0.000		

(Source: study findings)

The results pertaining to F-statistic indicate that the models are generally significant and there is no autocorrelation as can be observed based on Durbin-Watson statistic (1.645). Furthermore, the results of the

determination coefficient indicate that 0.59 of the dependent variable’s variations have been influenced by the dependent and control variables for the study period in regard of this hypothesis. According to the results obtained from table 4, it can be stated that there is a significant relationship between managerial ownership and abnormal operating cash flow in the companies accepted to Tehran’s Securities Exchange Market.

✓ **Second Subordinate Hypothesis:**

**Second Subordinate Hypothesis:** there is a significant relationship between the managerial ownership and abnormal discretionary expenses of the companies accepted to Tehran’s securities exchange market.

Model related to this hypothesis:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 MO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t}$$

According to Previous Entries, the data obtained for the second hypothesis do not have variance inconsistency and autocorrelation problems and the data obtained for the hypothesis are of the pooled type and OLS method can therefore be applied for model estimation.

**Table 5: second subordinate hypothesis test**

Variable	Coefficients	t-statistic	Probability
Managerial ownership	-0.0037	1.6212	0.1056
Size	0.0005	1.0686	0.2856
MTB	0.1106	125.35	0.0000
Income	-1.71E-08	-2.4145	0.0161
Fixed variable	-0.3711	-36.145	0.0000
Determination coefficient	0.4996		
Adjusted determination coefficient	0.4261		
Durbin-Watson statistic	1.705		
F-statistic	3947.2		
Probability	0.0000		

(Source: study findings)

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.705). Moreover, the results of the determination coefficient indicate that 0.49% of the dependent variable’s changes are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 5, it can be stated that there is a significant relationship between managerial ownership and abnormal discretionary expenses of the companies accepted to Tehran’s securities exchange market.

✓ **Third Subordinate Hypothesis:**

**Third Subordinate Hypothesis:** there is a significant relationship between institutional ownership and operating cash flow in the companies accepted to Tehran’s securities exchange market.

The model related to this hypothesis:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 IO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t}$$

According to Previous Entries, the third hypothesis data do not have variance inconsistency and autocorrelation problems and the data are of the pooled type so OLS method can be used to perform model estimation.

**Table 6: Third subordinate hypothesis test**

Variable	Coefficients	t-statistic	Probability
Managerial ownership	0.0074	0.746	0.455
Size	0.0002	0.124	0.9
MTB	0.0257	7.148	0.000



Income	7.65E-09	0.266	0.79
Fixed variable	0.0411	0.972	0.331
Determination coefficient	0.3936		
Adjusted determination coefficient	0.3863		
Durbin-Watson statistic	1.635		
F-statistic	12.784		
Probability	0.000		

(Source: study findings)

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.635). In addition, the results of the determination coefficient indicate that 0.39 of the dependent variable’s variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 6, it can be stated that there is a significant relationship between institutional ownership and operating cash flow in the companies accepted to Tehran’s securities exchange market.

✓ **Fourth Subordinate Hypothesis:**

**Fourth Subordinate Hypothesis:** there is a significant relationship between institutional ownership and abnormal discretionary expenses of the companies accepted to Tehran’s securities exchange market.

Model related to the hypothesis:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 IO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t}$$

According to According to Previous Entries, the fourth hypothesis data do not have variance inconsistency and autocorrelation problems and the data are of the pooled type so OLS method can be used to perform model estimation.

**Table 7:** fourth subordinate hypothesis test

Variable	Coefficients	t-statistic	Probability
Managerial ownership	0.069	1.822	0.069
Size	0.2836	1.0735	0.2836
MTB	0.000	125.21	0.000
Income	0.015	-2.4207	0.015
Fixed variable	0.000	-35.920	0.000
Determination coefficient	0.6696		
Adjusted determination coefficient	0.6793		
Durbin-Watson statistic	1.704		
F-statistic	3952.92		
Probability	0.000		

(Source: study findings)

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.704). Besides, the results of the determination coefficient indicate that 0.66 of the dependent variable’s variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 7, it can be stated that there is a significant relationship between institutional ownership and abnormal discretionary expenses of the companies accepted to Tehran’s securities exchange market.

✓ **Fifth Subordinate Hypothesis:**

**Fifth Subordinate Hypothesis:** there is a significant relationship between foreign ownership and operating cash flow in the companies accepted to Tehran’s securities exchange market.

Model related to the hypothesis:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 FO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t}$$

According to Previous Entries, the fifth hypothesis data do not have variance inconsistency and autocorrelation problems and the data are of the pooled type so OLS method can be used to perform model estimation.

**Table 8:** fifth subordinate hypothesis test

Variable	Coefficients	t-statistic	Probability
Managerial ownership	0.024	2.129	0.033
Size	0.0004	0.183	0.85
MTB	0.0253	7.095	0.000
Income	9.28E-09	0.323	0.746
Fixed variable	0.0409	0.996	0.319
Determination coefficient	0.416		
Adjusted determination coefficient	0.425		
Durbin-Watson statistic	1.646		
F-statistic	13.879		
Probability	0.000		

(Source: study findings)

The results pertaining to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.646). Furthermore, the results of the determination coefficient indicate that 0.41 of the dependent variable’s variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 8, it can be stated that there is a significant relationship between foreign ownership and operating cash flow in the companies accepted to Tehran’s securities exchange market.

✓ **Sixth Subordinate Hypothesis:**

**Sixth Subordinate Hypothesis:** there is a significant relationship between foreign ownership and abnormal discretionary expenses of the companies accepted to Tehran’s securities exchange market.

The model related to the hypothesis:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 FO_{i,t} + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Net\ Income_{i,t} + \varepsilon_{i,t}$$

According to Previous Entries, the sixth hypothesis data do not have variance inconsistency and autocorrelation problems and the data are of the pooled type so OLS method can be used to perform model estimation.

**Table 9:** sixth subordinate hypothesis test

Variable	Coefficients	t-statistic	Probability
Managerial ownership	0.004	1.479	0.139
Size	0.0006	1.0866	0.277
MTB	0.1105	125.29	0.000
Income	-1.69E-08	-2.392	0.0171
Fixed variable	-0.369	-36.409	0.000
Determination coefficient	0.369		
Adjusted determination coefficient	0.378		
Durbin-Watson statistic	1.900		
F-statistic	394.63		
Probability	0.000		

(Source: study findings)

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.9). Furthermore, the results of

the determination coefficient indicate that 0.36 of the dependent variable's variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 9, it can be stated that there is a significant relationship between foreign ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

### **Interpretation of the Results:**

Ordinary least square (OLS) is the simplest and most common estimation method for linear regression models. The underlying idea in OLS is that the model coefficients should be scored with quantities that make the sample regression model feature the highest closeness to the observed values and, in other words, they show the lowest deviation. OLS method does not need any condition on error term for estimating the coefficients but it is necessary for the classic linear regression assumptions to hold so that the estimated coefficients could become unbiased and the statistical inference via them could be rendered feasible.

In case that autocorrelation or variance inconsistency is observed, generalized least square (GLS) can be applied for coefficient estimation. Of course, the use of this method needs guesses regarding the variance-covariance matrix of the error terms in which case the use of error term's variance-covariance matrix in the estimated OLS model will be considered as the starting point and the utilization of the iterative methods can be a solution.

**First Subordinate Hypothesis:** there is a significant relationship between managerial ownership and abnormal operating cash flow in the companies accepted to Tehran's securities exchange market.

According to Previous Entries, the data of the first hypothesis do not feature variance inconsistency and autocorrelation and they are of the pooled data type so OLS method can be applied for model estimation.

The results pertaining to F-statistic indicate that the models are generally significant and there is no autocorrelation as can be observed based on Durbin-Watson statistic (1.645). Furthermore, the results of the determination coefficient indicate that 0.59 of the dependent variable's variations have been influenced by the dependent and control variables for the study period in regard of this hypothesis. According to the results obtained from table 4, it can be stated that there is a significant relationship between managerial ownership and abnormal operating cash flow in the companies accepted to Tehran's Securities Exchange Market. The results of this hypothesis are consistent with the findings of the studies by Amini et al (2013), Barzideh et al (2015), Bani Mahd and Salehi Serajeh (2016), Kumar (2003), Chan et al (2005), Otman and Zagal (2006), Yu (2008), Zang (2009), Gonzalez et al (2010), Sanjaya and Saragih (2012), Shayan Nia et al (2017) and they do not conform to the findings of the studies by Khedmati Hampa (2009), Setayesh and Kazemnejad (2010), Sadr Esfahani et al (2013) and Jones (2015).

**Second Subordinate Hypothesis:** there is a significant relationship between managerial ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

According to Previous Entries, the data of the second hypothesis do not feature variance inconsistency and autocorrelation and they are of the pooled data type so OLS method can be applied for model estimation.

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.705). Moreover, the results of the determination coefficient indicate that 0.49% of the dependent variable's changes are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 5, it can be stated that there is a significant relationship between managerial ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market. The results obtained for this hypothesis are in compliance with the findings of the studies by Khedmati Hampa (2009), Setayesh and Kazem Nejad (2010), Sadr Esfahani et al (2013), Amini et al (2013), Barzideh et al (2015), Bani Mahd and Salehi Serajeh (2016), Kumar (2003), Chann et al (2005), Otman and Zagal (2006), Yu (2008), Zang (2009), Gonzalez et al (2010) and they are not in consistency with what has been found by Sanjaya and Saragih (2012), Shayan Nia et al (2017).

**Third Subordinate Hypothesis:** there is a significant relationship between the institutional ownership and operating cash flows in the companies accepted to Tehran's securities exchange market.

According to Previous Entries, the data of the third hypothesis do not feature variance inconsistency and autocorrelation and they are of the pooled data type so OLS method can be applied for model estimation.

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.635). In addition, the results of the determination coefficient indicate that 0.39 of the dependent variable's variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 6, it can be stated that there is a significant relationship between institutional ownership and operating cash flow in the companies accepted to Tehran's securities exchange market. The results obtained for this hypothesis are in compliance with the findings of the studies by Khedmati Hampa (2009), Barzideh et al (2015), Bani Mahd and Salehi Serajeh (2016), Kumar (2003), Chan et al (2005), Otman and Zagal (2006), Yu (2008), Zang (2009), Gonzalez et al (2010), Sanjaya and Saragih (2012), Shayan Nia et al (2017) and they are inconsistent with the findings of the studies by Setayesh and Kazemnejad (2010), Sadr Esfahani et al (2013), Amini et al (2013) and Edward (2015).

**Fourth Subordinate Hypothesis:** there is a significant relationship between institutional ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

According to Previous Entries, the data of the fourth hypothesis do not feature variance inconsistency and autocorrelation and they are of the pooled data type so OLS method can be applied for model estimation.

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.704). Besides, the results of the determination coefficient indicate that 0.66 of the dependent variable's variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 7, it can be stated that there is a significant relationship between institutional ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market. The results obtained for this hypothesis are in accordance to what has been found by Setayesh and Kazem Nejad (2010), Sadr Esfahani et al (2013), Amini et al (2013), Barzidehh et al (2015), Bani Mahd and Salehi Serajeh (2016), Kumar (2003), Chan et al (2005), Otman and Zagal (2006), Yu (2008), Zang (2009), Gonzalez et al (2010), Sanjaya and Saragih (2012), Shayan Nia et al (2017) and they are inconsistent with the findings of the studies by Khedmati Hampa (2009) and Jones (2013).

**Fifth Subordinate Hypothesis:** there is a significant relationship between foreign ownership and operating cash flow in the companies accepted to Tehran's securities exchange market.

According to Previous Entries, the data of the fifth hypothesis do not feature variance inconsistency and autocorrelation and they are of the pooled data type so OLS method can be applied for model estimation.

The results pertaining to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.646). Furthermore, the results of the determination coefficient indicate that 0.41 of the dependent variable's variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 8, it can be stated that there is a significant relationship between foreign ownership and operating cash flow in the companies accepted to Tehran's securities exchange market. The results obtained for this hypothesis are consistent with the findings of the studies by Khedmati Hampa (2009), Setayesh and Kazem Nejad (2010), Sadr Esfahani et al (2013), Bani Mahd and Salehi Serajeh (2016), Kumar (2003), Chan et al (2005), Otman and Zagal (2006), Yu (2008), Zang (2009), Sanjaya and Saragih (2012), Shayan Nia et al (2017) and they are not in consistency with what has been found by Amini et al (2013), Barzideh et al (2015) and Gonzalez et al (2010).

**Sixth Subordinate Hypothesis:** there is a significant relationship between foreign ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market.

According to Previous Entries, the data of the sixth hypothesis do not feature variance inconsistency and autocorrelation and they are of the pooled data type so OLS method can be applied for model estimation.

The results pertinent to F-statistic indicate that the models are generally significant and there is no autocorrelation problem as can be observed based on Durbin-Watson statistic (1.9). Furthermore, the results of the determination coefficient indicate that 0.36 of the dependent variable's variations are influenced by the independent and control variables of the test for the study period in regard of this hypothesis. According to the results given in table 9, it can be stated that there is a significant relationship between foreign ownership and abnormal discretionary expenses of the companies accepted to Tehran's securities exchange market. The results obtained herein for this hypothesis are consistent with the findings of the studies by Setayesh and Kazem Nejad (2010), Sadr Esfahani et al (2013), Amini et al (2013), Barzideh et al (2015), Kumar (2003), Chan et al (2005), Otman and Zagal (2006), Yu (2008), Zang (2009), Gonzalez et al (2010), Sanjaya and Saragih (2012), Shayan Nia et al (2017) and they do not conform to what has been found by Bani Mahd and Salehi Serajeh (2016), Khedmati Hampa (2009) and Jones (2013).

### Study Suggestions:

- 1) It is suggested that the companies should transfer percentages of the company stock to the managers as a result of which the grounds can be set for the reduction of the discretionary expenses.
- 2) It is suggested that the companies' boards of directors should increase the quotient of the institutional ownership to cause an increase in the operating cash flows that will eventually lead to the improvement of the organization work process.
- 3) It is suggested that the foreign ownership extent should be evaluated and controlled in the companies by the managers so that the grounds could be set parallel to the reduction of the discretionary and accessory expenses.
- 4) It is suggested that the Manages should sell part of the company's ownership to the investors from outside the organization to improve the internal cash flow.
- 5) It is suggested that the joint-stock companies should increase the percentage share of the managers to set the grounds in line with enhancement of profitability and reduction of costs in the company.
- 6) It is suggested that the companies should make use of structural models to create an appropriate ownership system for optimization of ownership so that the financial conditions could be improved.

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