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The Monitoring Role of Institutional Ownership on the Relationship between Free Cash Flow and Assets Efficiency

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Abstract This study investigated the moderating effect of institutional ownership on the relationship between free cash flow and assets efficiency in Tehran Stock Exchange over the period 2008-2012. The results showed that there is a significant and negative relationship between free cash flow and asset efficiency. It means that in those firms which have a high level of free cash flow, managers are opportunists. Therefore, it caused to decrease in asset efficiency and increase in agency costs. The evidence showed that institutional ownership has not a meaningful moderating effect on the negative relationship between free cash flow and asset efficiency; it means that institutional ownership could not monitore the use of the firms' assets. Those firms which have a high level of free cash flow and high level of institutional ownership, have not experienced high level of asset efficiency and low level of agency costs.

Keywords Free Cash Flow, Assets Efficiency, Institutional Ownership

1. Introduction

Economic entities continually face numerous investment opportunities requiring them to make rational decisions for the optimal investment. Decisions about investment opportunities will be made by managers. The importance of free cash flows is due to the fact that it allows managers to identify the appropriate growth opportunities and thus invest available funds in investment projects with high returns in order to increase value for shareholders. Positive free cash flows occur when cash is available following investments made by the company and the settlement of all expenses; and negative free cash flows means that the revenue is not sufficient for covering the expenses and doing investment activities. Considering the fact that information asymmetry and agency problems are ever present in inefficient markets; the possibility of biased decisions made by managers on the utilization of free cash flows exists. In other words, in the absence of efficient monitoring, instead of investing free cash flows in projects with a positive net present value, managers may, in an attempt for short term personal gain, use the cash in projects containing negative net present values resulting in negative outcomes such as an increase in agency costs, reduction in shareholder value and possibly a decrease in asset efficiency.

According to the generalities described above, the absence of an efficient monitoring pattern in instances where free cash flow levels are high may result in opportunistic behaviors by managers in utilizing free cash flows thus intensifying the conflict of interests between owners and managers and increasing agency costs. Various criteria exist for measuring agency costs; namely the asset turnover ratio. This ratio is used for measuring and evaluating agency costs. The asset turn over ratio measures asset efficiency and how managers use assets to increasing sales levels, given the resources available to them. It is also used as a reverse criterion for agency costs; such that as the ratio values increase (decrease), agency costs fall (rise).

In recent years, the role of institutional owners has increased as a one of the corporate governance mechanisms due to focus on managers performances. The ever expanding presence and ownership of these shareholders, turns them into professional investors who can efficiently monitor company management; results of such monitoring are namely a reduction in agency problems and the conflict of management and shareholder interests. Some evidences indicate that institutional ownership has a monitoring role in preventing of opportunistic behaviors displayed by managers. In this research, the specific effect of institutional ownership on the relationship between free cash flows and assets efficiency shall be discussed.

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2. Background

The free cashflow may increase or decrease company value depending on how it is used (Mc. Cabe and Yook, 1997). The effective and efficient usage of assets leads to an increase in company value, while on the other hand inefficiency in using up assets would result in a reduction in company value. When managers refrain from following an appropriate planning pattern and fail to disagree with the execution of projects containing a negative net present value, they are in fact displaying an inclination towards investing free cash flows in projects designated to fulfill their own personal needs and gains (Chang et al, 2005). Such investment activities would result in an average return much lower than the investment cost incurred. Empirical evidence suggest that companies with higher free cash flows have a increased tendency to invest their cash in activities with low return, compared to companies with lower free cash flow levels (Griffin, 1988; Shin & Kim, 2002). The free cash flow theory predicts that managers of companies with high levels of surplus cash experience a decrease in asset efficiency due to their tendency to fulfill personal needs and to invest in non profitable projects (Jensen, 1986). Managers of these companies face not only the absence of optimal performance but also the inefficiency of utilizing free cash flows in appropriate investment activities (Ang et al, 2000). Takia et al (2012) observed a negative significant relationship between free cash flows and assets efficiency. According to the agency cost theory of free cash flows introduced by Jensen (1986), the possibility of shareholders monitoring opportunistic behaviors of managers decreases in times when managers spend company cash merely for personal gain instead of directing their efforts towards optimizing company value, resulting in a conflict of interests. The theory claims that, the higher the free cash flow levels, the higher the possibility of occurrence of agency problems; this leads to higher agency costs on one hand and lower asset efficiency on the other (Harford, 1999; Opler et al, 1999; Fanolacender and Wang, 2006).

Past studies indicate the effectiveness of the monitoring role within the ownership structure in preventing opportunistic behaviors by managers (Jensen and Mc. Ling, 1976). Moreover, certain evidence support the fact that the possibility of investing free cash flows in unproductive projects in the absence of an effective corporate governance mechanisms or the presence of a weak one (Ditmar and Mart Smith, 2007; Pincowitz et al, 2006). The absence of effective monitoring in situations where there is a high level of free cash flows may result in the adoption of opportunistic behaviors in managers when handling cash and intensify the conflict of manager and shareholder interests leading to an increase in agency costs and a reduction in asset efficiency. It is expected to utilize ownership structure monitoring as a corporate governance mechanisms, to promote the relationship between free cash flows and assets efficiency. Owners have the required ability and motives for monitoring asset consumption (Ang et al, 2000). Moreover, monitoring the performance of owners leads to a reduction in agency costs arising from information asymmetry and the separation of ownership and management (Wats and Zimmerman, 1983). Chen et al (2011) found that in companies involved in agency problems of free cash flows, the monitoring role of shareholders and owners stand out in the reduction of capital costs. While investigating the effects of agency costs arising from free cash flows on capital costs, they discovered that companies with institutional and effective shareholders, agency costs from free cash flows are lower and subsequently the cost of capital is lower while their ability in controlling free cash flows is higher. Wang et al (2007) claimed that institutional and effective investors are able to reduce capital costs arising from free cash flows and to increase company value. Nowravesh et al (2009) studied the relationship between corporate governance mechanisms (institutional investors and the ratio of non-executive board members) and agency costs (interaction among company growth opportunities and free cash flows). Findings indicated that a negative significant relationship exists between institutional investors and the percentage of non-executive members of the board and agency costs. The results, in fact, represent the decreasing effects of corporate governance mechanisms on agency costs. Valipoor and Khorram (2011) researched the effectiveness of corporate governance mechanisms (institutional stockholders, management shareholders and the ratio of non-executive board members) in reducing agency costs (ratio of operational to salesexpenses). Results indicate the effectiveness of corporate governance mechanisms in the reduction of agency costs and thus the increase in company value. Mojtahedzadeh (2011) studied the relationship between the agency theory and management ownership and discovered that no relationship exists between management ownership and agency costs, independence auditors and management salaries. Mahdavi and Monfared Maharlooyi (2011) studied the structure of the board of directors and agency costs and discovered that non-executive board members have no significant influence on agency costs. Hassani and Mohseni (2012) researched the influence of corporate governance mechanisms and agency costs on company performance. Corporate governance was studied from two viewpoints namely, ownership structure (percentage of stock owned by institutional investors) and board structure (percentage of non-executive members). Results illustrated a negative and significant influence by ownership structures on company performance; while the influence of board structure on agency costs was considered positive and significant. Takia et al (2012) investigated the modifying effects of ownership structures on the relationship between free cash flows and asset utilization and discovered that a negative significant relationship exists between the two. They then evaluated the modifying effects of foreign, government and managerial ownership on the relationship. Results indicated that foreign and managerial ownership perform well in the monitoring role in handling assets, while no evidence has been provided on the monitoring and

modifyingrole of government ownership. Hassani and Najd (2013) claimed the existence of a significant negative relationship between agency costs and earnings management. Accordingly, managers do not direct earnings for personal gain and that earnings management within these companies is quite useful and efficient. Mahmoodabadi et al (2013) studied the influence of free cash flows and agency costs (asset efficiency ratio) on company performance. Results indicate a positive significant relationship between free cash flows and performance evaluation criteria and the absence of a significant relationship between agency costs and the latter. Hassani and Rajabi (2014) illustrated that a significant and negative relationship exists between free cash flows and investment opportunities; the relationship is significant and positive in companies with lower agency costs while no significant relationship was observed in those with higher such costs.

3. Hypotheses

Free cash flows provide a criterion for measuring firm performance and indicate the amount of cash available in the company following holding and investing in assets. Free cash flows have very important uses in evaluation of financial health for shareholders. It is quite significant for managers to efficiently direct available resources towards investments in projects with the highest returns in order to increase shareholder wealth and promote entity growth, however, the conflict of interests between managers and owners and numerous difficulties faced by shareholders in monitoring management performance, may result in biased decisions made by managers on the utilization of free cash flows. In other words, in the absence of efficient monitoring, instead of investing free cash flows in projects with a positive net present value, managers may, in an attempt for short term personal gain, use the cash in projects containing negative net present values resulting in negative outcomes such as an increase in agency costs, reduction in shareholder value and possibly a decrease in asset efficiency. Accordingly, the present research attempt to investigate in the first phase, whether or not a significant relationship is present between free cash flows and asset efficiency? Asset efficiency, for purposes of this research, refers to evaluations offered by fixed asset turnover ratio as one of the efficiency ratios. These ratios used as a reverse criterion for agency costs; such that as the ratio values increase (decrease), agency costs fall (rise). Efficiency ratios, measure company efficiency from the asset management viewpoint. Specifically, fixed asset efficiency is used to evaluate the efficiency of managers in utilizing fixed assets and planning for new investments in those assets. This ratio, measures the efficiency of investments in fixed assets (property, plant and equipment) in generating sales revenues. The calculation and evaluation of this ratio, is quite significant in manufacturing companies where large investments are made in these groups of assets. The high or low value of this ratio contains informational content and communicates positive or negative indications of the company's position; for instance, a high value for this ratio may indicate an appropriate investment in these assets, production at maximum capacity and the appropriate marketing and sales strategies, while a low value would signal overinvestment in these assets, producing lower than the company's capacity and low sales revenues.

H_1: There is a significate relationship between free cash flow and asset efficiency.

Past studies present evidence on the monitoring role of ownership structures as preventive means for opportunistic behaviors by managers. Some evidences indicate that institutional owners can force managers to focus on economic performance and prevent from opportunistic behaviors; it is due to the fact that institutional owners have ability to monitore the performance of managers. It is expected to use the monitoring procedures in reducing the agency costs and confilict of interest between owners and managers. In this research, the specific effect of institutional ownership on the relationship between free cash flows and assets efficiency shall be discussed. The ever expanding presence and ownership of these shareholders, turns them into professional investors who can efficiently monitor company management; results of such monitoring are namely a reduction in agency problems and the conflict of management and shareholder interests. Thus in the second phase, the question addressed would be whether or not institutional ownership modifies the significant relationship between free cash flows and asst efficiency.

H_2: Institutional ownership can modify the significant relationship between free cash flows and asset efficiency.

Also, in the third phase of the research, the question addressed is whether or not the significant relationship between free cash flows and asset efficiency is stronger in firms with high level of institutional ownership rather than low level ones.

H_3: The significant relationship between free cash flows and asset efficiency is stronger in firms with high level of institutional ownership rather than low level ones.

4. Model and Variables

The regression model of this research based on hyphotheses is stated as following in table (1); also the definition and description of variables is explained in table (1):

Table (1). Model and Variables

$FAE_{i,t} = \beta 0 + \beta_1 FCFF_{i,t} + \beta_2 INSTOWN_{i,t} + \beta_3 FCFF_{i,t} * INSTOWN_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 AUDSIZE_{i,t} + \varepsilon_{i,t}$			
Measures	Variables	Definition	Description
Dependent	$FAE_{i,t}$	Fixed Asset Efficiency	fixed assets turnover; sales to fixed assets ratio
Independent	$FCFF_{i,t}$	Free Cash Flow to Firm	operational cash flow minus capital expenditure divided by total assets
Moderating	$INSTOWN_{i,t}$	Institutional Ownership	percentage of shares held by institutional owners (based on Iranian Securites and Exchange Commision Rules) to total shares
Control	$DEBT_{i,t}$	Debt Ratio	leverage; total debt divided by total assets
	$ROA_{i,t}$	Return on Assets	net operational profit after tax divided by total assets
	$SIZE_{i,t}$	Size	natural logarithm of total assets
	$AUDSIZE_{i,t}$	Auditor Size	dummy variable; equal to one for firms audited by big auditor and zero otherwise

5. Statistical Population and Sample

The statistical population of the research involves companies listed in the Tehran Stock Exchange from 2008 to 2012. The sample was selected from companies fulfilling the following criteria:

* Having been active in the Tehran Stock Exchange from the year 2008 to 2012.
* Not having made changes in their fiscal year
* Not having extended their commercial in activity for more than 6 months
* To be involved in manufacturing (required to include sales of goods in asset efficiency calculations in manufacturing companies)

Ultimately, the systematic deletion sampling method was used to select sample companies; such that 207 companies from those listed in the Tehran stock Exchange were selected and tested for a 5 year period based on specific criteria.

6. Research Findings

Descriptive statistics of the research variables have been presented in table (2). These statistics have been separately offered for four different groups, including dependent, independent, moderation and control variables. The dependent variable of research is fixed asset efficiency as a reverse measure of agency costs. Average fixed asset efficiency is approximately 5.5 which indicate that revenues from net sales are 5.5 times the book value of tangible fixed assets. In other words, sample companies have generated Rials 5.5 in sales revenues for each Rial of investment in fixed assets. The fixed asset turnover ratio has been used as a reverse criterion for agency costs; meaning that the higher the ratio, the lower the agency costs. Free cash flow is the independent variable of research. In sample companies the average value for free cash flows is positive and comprises approximately 17 percent of their assets. The positive value indicates that cash flows from operations in these companies are higher on average than cash flows invested in capital assets. The modifying variable is institutional ownership. In sample companies approximately 65 percent of shares in average are owned by institutional owners. It means that institutional owners have a high level of ownership in firms.

Control variables include the debt ratio, return on assets, firm size and auditor size. Debt ratio indicates the ratio of debts to assets of a company. In sample companies, debt comprises approximately 65 percent of assets. The figure indicates that debts form a higher portion of financing structure of a company as compared to equity. Return on assets present the operational profitability generated from assets. In sample companies, operational profit after tax forms approximately 12 percent of the assets. Firm size is equivalent to the natural logarithm of assets which is used to measure the size of a company. A high value indicates the largeness of the company and its volume of activities. In sample companies, size is approximately 13.5 units. Auditor size has been considered as a symbol of audit quality, in the present research. On average 22 percent of sample companies have had their audits performed by the big auditor (Iranian Audit Organization), while 77 percent have been audited by other auditors.

To study the correlation among research variables, the Pierson correlation coefficients were used, results of which have been presented in table (3). Values for the correlation coefficient, t-statistic and probability are not significant strong between variables. It means that there is not any co-linearity between variables. So in test the models, whole of variables are intered to the model simultaneously.

Investigation the relationship between free cash flows and asset efficiency, as well as the modifying effect of institutional ownership on the aforementioned relationship, comprised the main objective of the present research. For this purpose, first, a model was used in to test the relationship between free cash flows and asset efficiency. Next, the relationships were tested in separate model to study the modifying effect of institutional ownership on a specific relationship. To test the hypotheses, 207 companies listed in the Tehran Stock Exchange throughout a 5 year period (from 2008 to 2012) were screened and the hypotheses were tested using statistical methods as discussed below.

Table (2). Descriptive Statistics

	FAE	FCFF	INSTOWN	DEBT	ROA	SIZE	AUDSIZE
Mean	5.408773	0.171063	0.650415	0.654725	0.117043	13.34510	0.226087
Median	3.800000	0.150000	0.760000	0.650000	0.110000	13.19000	0.000000
Maximum	71.70000	0.970000	1.000000	3.060000	0.570000	18.44000	1.000000
Minimum	0.080000	-0.400000	0.000000	0.100000	-0.370000	9.880000	0.000000
Std. Dev.	5.571013	0.172695	0.283920	0.234529	0.108029	1.437171	0.418498
Skewness	4.254485	0.623608	-1.094657	2.281709	0.301694	0.755522	1.309661
Kurtosis	40.02566	4.969810	2.976164	18.91394	5.522004	3.924441	2.715212
Sum	5598.080	177.0500	673.1800	677.6400	121.1400	13812.18	234.0000
Sum Sq. Dev.	32091.42	30.83743	83.35112	56.87380	12.06715	2135.685	181.0957
Observations	1035	1035	1035	1035	1035	1035	1035

(FAE): Fixed Asset Efficiency; sales to fixed assets ratio. (FCFF): Free Cash Flow to Firm; operational cash flow minus capital expenditure divided by total assets. (INSTOWN): percentage of institutionalshareholders. (DEBT): total debt divided by total assets. (ROA): net operational profit after tax divided by total assets. (SIZE): natural logarithm of total assets. (AUDSIZE): dummy variable that equal to one for firms audited by big auditor and zero otherwise.
*Source Data: Tehran Stock Exchange (TSE-Iran) Data Base.

Table (3). Correlation Test

Correlation Probability	FAE	FCFF	INSTOWN	DEBT	ROA	SIZE	AUDSIZE
FAE	1.000000 -----						
FCFF	-0.189946 0.0000	1.000000 -----					
INSTOWN	-0.035489 0.2540	0.125072 0.0001	1.000000 -----				
DEBT	0.102578 0.0010	-0.293756 0.0000	-0.009007 0.7723	1.000000 -----			
ROA	-0.005718 0.8542	0.519986 0.0000	0.183666 0.0000	-0.533218 0.0000	1.000000 -----		
SIZE	0.096599 0.0019	0.077098 0.0131	0.275388 0.0000	-0.034058 0.2737	0.160409 0.0000	1.000000 -----	
AUDSIZE	0.072342 0.0199	0.026781 0.3894	0.281482 0.0000	0.032363 0.2983	0.055229 0.0757	0.307791 0.0000	1.000000 -----

(FAE): Fixed Asset Efficiency; sales to fixed assets ratio. (FCFF): Free Cash Flow to Firm; operational cash flow minus capital expenditure divided by total assets. (INSTOWN): percentage of institutionalshareholders. (DEBT): total debt divided by total assets. (ROA): net operational profit after tax divided by total assets. (SIZE): natural logarithm of total assets. (AUDSIZE): dummy variable that equal to one for firms audited by big auditor and zero otherwise.

To test the research hypotheses, relationships were tested within the context of two models. In model (1), the relationship between free cash flows and fixed asset efficiency was studied. In model (2) the modifying effect of institutional ownership on the relationship between free cash flows and fixed asset efficiency were investigated, respectively; with due consideration to the fact that the influence of control variables on these relationships were also tested. Results of primary fitness evaluations of models for the selection of an appropriate regression model according to the types of fitness tests performed have been presented in table (4).

Based on statistical analysis, to choose the best method for fitting the regression model, chow test is used. This test indicates that which one of the panel or pooled data methods can be used. These methods are combination of time series and cross section data. The F statistic of Chow test was used to examine the above hypotheses. As it is shown in table (4), the F statistic and probability (less than 5%) in two models indicated that both models should be test based on Panel method. A central assumption in random effects estimation is the assumption that the random effects are uncorrelated with the explanatory variables. One common method for testing this assumption is to employ a Hausman test to compare the fixed and random effects estimates of coefficients. The Chi-square statistic was used to examine the above hypotheses. As it is shown in table (4), the χ^2 statistic and probability (less than 5%) in two models indicated that both models should be test based on Fixed Effect method. Finally, findings indicate that in two models studied, the panel data model is the most appropriate based on the F statistic and its probability. In the next stage, tests were performed for the selection of a model of fixed or random effects. According to the χ^2 statistic and probability, the application of a fixed effects model would be more appropriate.

Table (4). The monitoring role of institutional ownership in moderating the relationship between free cash flow and asset efficiency

$FAE_{i,t} = \beta 0 + \beta_1 FCFF_{i,t} + \beta_2 INSTOWN_{i,t} + \beta_3 FCFF_{i,t}*INSTOWN_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 AUDSIZE_{i,t} + \varepsilon_{i,t}$						
Dependent Variable: FAE						
Model: Panel Regression	Cross-Sections: 207			Periods: 5		Observatios:1035
Variables	Model (1)			Model (2)		
	Coeff.	t-stat.	Prob.	Coeff.	t-stat.	Prob.
C	-10.55581	-6.505381	0.0000	-7.777650	-4.447226	0.0000
FCFF	-0.955087	-4.870480	0.0000	-1.456578	-2.861171	0.0043
INSTOWN				-2.567020	-3.656413	0.0003
FCFF*INSTOWN				0.230436	0.319617	0.7493
DEBT	0.509436	1.255293	0.2097	0.308753	0.806787	0.4200
ROA	8.347899	15.21268	0.0000	8.577073	14.70946	0.0000
SIZE	1.117748	9.368800	0.0000	1.047397	8.331283	0.0000
AUDSIZE	-0.438337	-3.526460	0.0004	-0.466603	-3.604308	0.0003
F-stat.	58.07756			56.37646		
(F-statProb.)	(0.000000)			(0.000000)		
Adjusted R-squared	0.920932			0.919403		
Durbin-Watson stat	1.559515			1.580744		
Jarque-Bera stat	20.73431			21.25738		
(Jarque-Bera stat Prob.)	(0.0000)			(0.000024)		
F –stat. (Chow Test)	19.438915			19.420742		
(F-statProb.)	(0.0000)			(0.0000)		
χ^2 –stat. (Hausman Test)	49.178625			45.936393		
(χ^2 –stat Prob.)	(0.0000)			(0.0000)		

(FAE): Fixed Asset Efficiency; sales to fixed assets ratio. (FCFF): Free Cash Flow to Firm; operational cash flow minus capital expenditure divided by total assets. (INSTOWN): percentage of institutionalshareholders. (DEBT): total debt divided by total assets. (ROA): net operational profit after tax divided by total assets. (SIZE): natural logarithm of total assets. (AUDSIZE): dummy variable that equal to one for firms audited by big auditor and zero otherwise.

The F statistic and probability (less than 5%) in two models indicated that all regression models contain general significance in the context of linear relationships. The Durbin-Watson statistic (in the range 1.5 – 2.5) in two models illustrated that the model residuals are independent and that no auto correlation exists among them; this is in itself an approval of the goodness of fit of research models. The Jarque-Bera statistic and probability in two models indicated that residuals values of the models are not normally distributed; this is due to the abnormal distribution of main variables of the research which does not interfere with the analytic process due to the large number of observances. The Adjusted R-squared of the models has also indicated that explanatory variables are able to explain about 92 percent of changes in dependent variable.

In model (1), the relationship between free cash flows from firm and fixed asset efficiency has been tested. Results according to the t statistic and probability (less than 5%) have indicated that free cash flows have a significant relationship with fixed asset efficiency. Since the value for coefficients representing the effects of free cash flows is negative, hence a significant negative (reverse) relationship has been observed between the free cash flows and fixed asset efficiency. Free cash flows are a criterion for measuring the value and performance of companies and represent cash that is leftover following investments made and debts settled by the company. Free cash flows should be directed towards development of the company's activities and maximizing shareholder wealth and company value. As high levels of free cash flows induce opportunistic behaviors by managers in utilizing these funds and intensify the conflict of owners and managers interests, the absence of effective monitoring in circumstances where free cash flows are high, leads to an increase in agency costs and reduces asset efficiency which in turn results in loss of resources and devaluation of the company. When handling free cash flows, it is important to remember that managers can efficiently utilize their resources and to invest the funds in appropriate and profitable projects in order to increase shareholder wealth and promote company growth; however due to the managers and owners conflict of interests and difficulties in management monitoring by the shareholders, decisions made by managers in utilizing free cash flows may be biased. Agency costs result from conflict of ownership and management interests which leads to the separation of ownership and control; thus correlating the interests of these groups with the objective of maximizing ownership interests imposes expenses on owners referred to as agency costs. The

present research follows examples set by studies performed by Ang, Cole and Lin (2000) in using the fixed asset efficiency criterion (fixed asset turnover ratio) to measure and evaluate agency costs. The asset turnover ratio measures asset consumption and its methods by managers for purposes of inducing higher sales against available resources and is used as a reverse criterion for agency costs. Findings of the present research indicate the presence of a significant and negative (reverse) relationship between free cash flows and fixed asset efficiency. Meaning that higher (lower) levels of free cash flows results in lower (higher) fixed asset efficiency; in other words the lower (higher) the fixed asset efficiency ratio, the higher (lower) the agency costs incurred. A general conclusion indicates that in companies facing high levels of free cash flows, managers tend to display opportunistic behaviors and this leads to an intensified conflict of managers and owners interests. Such an event would, in fact, lead to a reduction in fixed assets efficiency and an increase in agency costs. The relationship is confirmed according to model (2) where the modifying effect of institutional ownership, respectively, on the relationship between free cash flows and fixed asset efficiency have been presented; in other words, the significant and negative (reverse) relationship between free cash flows and fixed asset efficiency has been observed in two models, and the first hypothesis of research has been approved accordingly. Considering the fact that where free cash flows levels are high, asset efficiency may be reduced due to opportunistic motives of managers in situations, one should look for alternatives to limit personal motives in managers when handling free cash flows, in order to reduce the negative effects on asset efficiency. In the absence of effective monitoring, high free cash flow levels can lead to an increase in agency costs and reduction of asset efficiency. Accordingly, past studies have provided evidence on the monitoring role of ownership structures in preventing opportunistic behaviors in managers and the reduction of agency costs.

In model (2) the modifying effect of institutional ownership on the relationship between free cash flows and fixed asset efficiency was tested. Institutional ownership is defined as a significant number of total shares, owned by legal entities or individuals. The presence and ownership of this group of investors, turns them into professional shareholders that can effectively supervise company managers, conflicts and agency costs. This type of monitoring can help direct free cash flows in increasing asset efficiency. When institutional ownership is presented as a modifying agent in the relationship illustrated in model (2), evidence indicates that according to the t statistic and probability (more than 5%) on the interaction relationship between institutional ownership and free cash flows, institutional ownership does not have a significant influence in modifying the significant and negative relationship between free cash flows and fixed asset efficiency. This means that institutional ownership in sample companies has not yet been able to perform well in its supervisory role in limiting personal motives in managers when handling free cash flows and on asset efficiency; accordingly, in the absence of monitoring by institutional managers, high levels of free cash flows lead to a reduction in fixed asset efficiency and an increase in agency costs. However, as expected, the presence of interaction between institutional ownership and free cash flow, leads to a positive influence by free cash flows on fixed asset efficiency (due to the positive value for the influence coefficient of the interaction variable of free cash flows and institutional ownership) and in other words, high levels of free cash flows in the presence of institutional owners leads to an increase in fixed asset efficiency and a reduction in agency costs; however the modifying influence is not statistically significant. Overall, no reliable statistical evidence was found on the approval of the second hypothesis. This means that institutional ownership can not modify the significantly negative relationship between free cash flows and fixed asset efficiency.

The influence of control variables has also been tested in each of the models. The remarkable point here is the homogeneity of results of the influence of control variables on the relationships in each model. Evidence according to the t statistic and probability (more than 5%) relating to the debt ratio, indicates that debt ratio do not have a statistically significant influence on fixed asset efficiency; although the direction is positive. This means that fixed asset efficiency or in other words agency costs are not influenced by the company's financial structure and its method of financing through liabilities. Evidence according to the t statistic and probability (less than 5%) relating to the return on assets, indicates that assets return has a statistically significant influence on fixed asset efficiency; and the direction is positive (direct). This means that fixed asset efficiency or in other words agency costs are influenced by the company's profitability. Thus in companies with higher (lower) profitability or higher (lower) returns on assets, managers have performed more (less) efficiently in utilizing fixed assets and as a result of increases (decreases) in fixed assets efficiently, agency costs have reversely decreased (increased). Evidence according to the t statistic and probability (less than 5%) relating to firm size, indicates that firm size has a statistically significant influence on fixed asset efficiency; and the direction is positive (direct). This means that fixed asset efficiency or in other words agency costs are influenced by firm size. Thus in larger (smaller) companies, managers act more (less) efficiently in utilizing fixed assets and that agency costs have reversely decreased (increased) due to increases (decreases) in fixed asset efficiency. Evidence according to the t statistic and probability (less than 5%) relating to auditor size, indicates that auditor size has a statistically significant influence on fixed asset efficiency; and the direction is negative (reverse). This means that fixed asset efficiency or in other words agency costs are influenced by auditor size. Thus when companies audited by larger (smaller) auditor, managers act less (more) efficiently in utilizing fixed assets and that agency costs have reversely increased (decreased) due to

decreases (increases) in fixed asset efficiency. Thus it can be generally claimed that in larger companies where profitability is higher and auditor size is small, higher efficiency in utilizing fixed assets and lower agency costs have been observed due to conflicts of interests between managers and owners; also in smaller companies where profitability is lower and auditor size is large, lower efficiency in utilizing fixed assets and higher agency costs have been observed due to conflicts of interests between managers and owners. Moreover, it should be mentioned that the debt ratio of sample companies has played no statistically significant role in efficiently utilizing fixed assets.

Throughout the process of analysis, in order to better describe the status of the variables used in sample companies, the type and arrangement of these variables were studied across various levels of institutional ownership, using the mean equivalence test. For this purpose, institutional ownership was first divided into quartiles and into four groups. Observations in the first quartile contained lower and those in the fourth quartile included higher values of variables. Next, variables were compared with each other in various levels, based on the mean equivalence test. Findings from comparisons made between research variables at various levels of the institutional ownership have been presented in table (5).

Table (5). Test for equality of means in different leves of institutional ownership

Variables	Different leves of Institutional Ownership			
	Low	High	Anova F-test	Prob
FAE	5.621836	5.024638	0.786291	0.3757
FCFF	0.133478	0.174541	5.924198	0.0154
INSTOWN	0.146280	0.923430	7094.607	0.0000

(FAE): Fixed Asset Efficiency; sales to fixed assets ratio. (FCFF): Free Cash Flow to Firm; operational cash flow minus capital expenditure divided by total assets. (INSTOWN): percentage of institutional shareholders.

Results indicated that mean values for institutional ownership at various levels are not equivalent according to the variance analysis performed and the F statistic and probability(less than 5%); and that a significant discrepancy exists between them. The significant discrepancy between mean values of this variable indicates an appropriate classification of companies, based on their institutional ownership, into lower levels (first quartile) and higher levels (fourth quartile). Moreover, results indicated that significant discrepancies exist among mean values for a company's free cash flows at lower and higher levels of institutional ownership according to the variance analysis performed and the F statistic and probability(less than 5%); while no significant discrepancy exists between mean values for fixed asset efficiency at lower and higher levels of institutional ownership according to the variance analysis performed and the F statistic and probability(more than 5%).

Companies with lower (higher) levels of institutional ownership, benefit from lower (higher) levels of free cash flows; while no significant difference was observed in fixed asset efficiency among companies with lower and higher levels of institutional ownership.

In order to test the third hypotheses, the relationship between fixed asset efficiency and free cash flows was tested within different levels of institutional ownership. Following are the results of model goodness of fit tests performed as presented in table (6).

The model displays significance only in observations of high levels of institutional ownership (fourth quartile). The only observable relationship within this model is the significant and negative relationship between fixed asset efficiency and free cash flows which is in fact an approval of the overall results of the first hypothesis. Although in observations of lower levels (first quartile) of institutional ownership the relationship is negative between fixed asset efficiencies and free cash flows, not only the model, but also the influence coefficient of the free cash flow variable is statistically insignificant. Overall, evidence supports the approval of the third hypotheses.

Table (6). The relationship between free cash flow and asset efficiencyin different leves of institutional ownership

Dependent Variable: FAE						
Model: Cross-Section Regression				Observatios: 207		
Variables	Different leves of Institutional Ownership					
	Low			High		
	Coeff.	t-stat.	Prob.	Coeff.	t-stat.	Prob.
C	6.201478	6.247365	0.0000	6.023099	11.37895	0.0000
FCFF	-4.342593	-0.909308	0.3643	-5.720496	-3.230805	0.0014
F-stat	1.488079			9.372827		
(F-statProb.)	(0.223916)			(0.002497)		
Adjusted R-squared	0.002364			0.039057		
Durbin-Watson stat	1.627897			1.504985		

(FAE): Fixed Asset Efficiency; sales to fixed assets ratio. (FCFF): Free Cash Flow to Firm; operational cash flow minus capital expenditure divided by total assets. (INSTOWN): percentage of institutionalshareholders.

7. Conclusions and Discussion

According to the theory of agency cost of free cash flows, the higher the level of free cash flows, the higher the possibility of agency problems arising in the company; which leads to the incurrence of higher agency costs on one hand and lower asset efficiency on the other. As mentioned in the section relating to results of testing the hypotheses, a significant and negative relationship was observed between free cash flows and fixed asset efficiency; in other words, according to evidence obtained from the Tehran Stock Exchange, as free cash flow levels rise in sample companies, fixed asset efficiency decreases, reflecting an increase in agency problems and costs. These results conform to those obtained from past studies and researches. Previous researches indicate the effectiveness of the monitoring role of ownership structures in preventing opportunistic behaviors by managers. Other evidence support an increase in chances of investing free cash flows in non-profitable projects in the absence of an effective corporate governance mechanisms or the presence of a weak one. In the absence of an effective monitoring system, high levels of free cash flows may lead to opportunistic behaviors displayed by managers in utilizing free cash flows and the intensification of the conflict between manager and shareholder interests, thus resulting in an increase in agency costs and reduction of asset efficiency. It is expected to use institutional ownership monitoring as a corporate governance mechanism in order to promote the relationship between free cash flows and asset efficiency. In the preset research, upon observing the presence of a significant and negative relationship between free cash flows of a company and fixed asset efficiency, the monitoring and modifying role of institutional ownership was tested. Evidence suggested that institutional ownership has not a significant influence in modifying the negative relationship between free cash flows and fixed asset efficiency. This means that institutional ownership in companies covered in this research has not been able to perform well in its monitoring role to limit personal motives in utilizing free cash flows and its adverse effects on asset efficiency; In the present research, however, no evidence was obtained on the significance of the modifying effects of institutional ownership on the significant and negative relationship between free cash flows and fixed asset efficiency which may be due to the absence of this type of owners in decisions made by the board of directors; since decisions related to company sales and assets are made at the board level. This means that institutional ownership as studied in the present research has not been able to perform well in their monitoring role in limiting personal motives of managers in utilizing free cash flows and their adverse effects on asset efficiency. These results do not conform to those of past researches indicated in the section of research history.

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