

Does Institutional Investor Ownership Influence Corporate Inefficient Investment? Evidence from China

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ABSTRACT

In recent years, researchers focus on studying main factors that result in an inefficient corporate investment. We designed a regression model to show institutional investor ownership's influence on a firm's inefficient investment. We disclose that manager's actions that violate the employment of institutional investors can reduce shareholder's interests. Consequently, employing institutional investors plays an important role in helping a firm's corporate governance and positively affects the firm's development.

Keywords: *Corporate Inefficient Investment; Institutional Investor Ownership*

1. INTRODUCTION

Macroeconomic concepts suggest that investment is the main component of GDP measurement. Further, an increase in investment leads to short-run economic growth and enhances aggregate demand. However, the phenomenon that managers violate the principle of maximizing shareholder's interests but focus on their personal gain appears. Giving up some projects with positive net present value, whereas investing in positive NPV projects when there are sufficient enterprise resources, is considered an inefficient investment. Automatically, macroeconomists focus on the studies of investment efficiency to seek out how it affects the company's revenue. In general, a company's investment occupies an enormous percentage of the financial market. Thus, many studies were designed to seek out the method of reducing inefficient corporate investment.

There exists plenty of research on internal factors that result in inefficient corporate investment. It takes two forms: overinvestment and underinvestment. A company with poor corporate governance is associated with lower equity prices and making an inefficient investment.

Further, the segregation between ownership of assets and capital management is considered the main conflict source[1], referred to as the agency problem. Managers' self-interest led to some decision-making that is a conflict with shareholder's willingness. Gerent overinvests while having private benefits and underinvest when they have private costs[2]. Other internal factors such as quality of accounting information and corporate transparency are positively correlated with inefficient investment. Manager's disclosure significantly affects enterprise resource allocation, thus generating overinvestment[3]. In the meantime, quality accounting information contributes to efficient resource allocation[4]. On the other hand, external factors, including local government intervention[5], expressively increase a firm's overinvestment. Some studies find that loose monetary policy removes some financing constraints and boosts a company's investment efficiency[6]. Unlike other perspectives, our research focuses on the role of institutional investor ownership in restraining the ineffective investment of listed companies.

The existing literature is controversial about the role of institutional investors. On the one hand, some researchers believe that institutional investors have a

supervisory role (the positive role of institutional investors). Bushee believed that more professional, institutional investors reduced the opportunistic motivation of the management through stricter monitoring of the behavior of senior executives[7], and this regulatory effect was directly reflected in corporate governance and implicitly reflected in the information acquisition and dissemination in the stock market. Chung et al. believe that institutional investors can supervise the earnings management behavior of the management[8]. The higher the proportion of shares held by institutional investors in a company, the lower the possibility of earnings management. Based on the literature on this aspect, institutional investors should significantly inhibit inefficient investment.

On the other hand, in China, the retail characteristics of institutional investors may weaken their positive influence. As individual investors lack proficiency at investing bonds or shares, they will generally be assumed to invest the relative companies to earn money. They have professional nature of operations[1], prediction, and greater access platform with dignified finance capacities and supports. These comparatives' may have eroded obviously during those years while the information has become more transparent, fluent, and accessible. Even the regulation in China has limited the disclosure by the companies[2]. However, institutional investors could always force the company to list in the market, but it needs IPO (initial public offerings). Under the pressures that the investors have given, the company might choose to invest in low-risk and inefficient produces or programs that may not be efficiently beneficial to meet the key performance indicator (KPI). For example, private pension funds[3], insurance companies, saving institutions, endowments, and foundations. Therefore, assets have been reallocated into inefficient the less effective investment. The retribution is undefended, either earn in sharp income, which is not realistic to a great extent or entirely offset.

Based on the above analysis, the impact of institutional investors on company decisions is still an empirical research issue worthy of study. Unlike previous literature, this paper analyzes the influence of institutional investors on inefficient investment based on China's stock market. Based on the sample of A-share listed companies in China's stock market, this paper finds that institutional investors significantly inhibit the inefficient investment of listed companies. This conclusion effectively supports the supervisory effect of institutional investors. These results are still significant after a series of robustness tests, including some omitted variables and multi-fixed effects model analysis. Furthermore, this paper finds that the inhibition effect of institutional investors on inefficient investment is more significant in state-owned enterprises and companies that the Big Four accounting firms do not audit. It indicates that institutional investors may play a stronger

supervisory role in companies with imperfect governance mechanism.

This paper's contribution to the literature demonstrates the impact of institutional investors on a firm's inefficient investment. By employing a sample from listed companies in China's A-shared market, we integrate the controversy about institutional investors' supervisory and speculation effect from previous studies. Our conclusion indicates that institutional investors take the existing literature is controversial about the role of institutional investors. On the one hand, some researchers believe that institutional investors have a supervisory role (the positive role of institutional investors). Bushee believed that more professional[7], institutional investors reduced the opportunistic motivation of the management through stricter monitoring of the behavior of senior executives, and this regulatory effect was directly reflected in corporate governance and implicitly reflected in the information acquisition and dissemination in the stock market. Chung et al believe that institutional investors can supervise the earnings management behavior of the management[8]. The higher the proportion of shares held by institutional investors in a company, the lower the possibility of earnings management. Based on the literature of this aspect, institutional investors should have a significant inhibiting effect on inefficient investment increasingly effect on emerging market surveillance. Thus further manifest institutional investor ownership from newly developing capital market is gradually improve and exert corporate governance effect.

2. RESEARCH DESIGN

2.1. Sample and data

Data are retrieved from the CSMAR and WIND database. Our sample covers China's A-shared listed firms from 2008 to 2017. We exclude financial and ST firms, and observations without our relevant research variables are also eliminated. In addition, We winsorize the first and 99th percentiles of our observations. Finally, 9211 observations are involved in the sample.

2.2. Measurement of firm's inefficient investment

According to Richardson (2006) and Wang et al. (2020), we establish the following model that researches on structure of the inefficient investment.

$$Invest_{i,t} = \beta_0 + \beta_1 TobinQ_{i,t-1} + \beta_2 Size_{i,t-1} + \beta_3 LEV_{i,t-1} + \beta_4 Cash_{i,t-1} + \beta_5 Age_{i,t-1} + \beta_6 RET_{i,t-1} + \beta_7 Invest_{i,t-1} + \sum Industry + \sum Year + \varepsilon_{i,t} \quad (1)$$

In which, $Invest_{i,t}$ represents company i 's new investment expenditure in year t . Also, factors including

firm's previous Tobin's Q ($TobinQ_{i,t-1}$); previous size ($Size_{i,t-1}$); previous leverage ratio ($LEV_{i,t-1}$); previous cash holding ($Cash_{i,t-1}$); years of listing from the beginning of year $t-1$ ($Age_{i,t-1}$); equity returns at the beginning of year $t-1$ ($RET_{i,t-1}$). $\sum Industry$ and $\sum Year$ are the controlling variables of the fixed effect of industry and year. The influence of inefficient investment could be exposed by the variation of a firm's investment.

Finally, $Ine_Inv_{i,t}$ is the firm i 's inefficient investment in year t and was defined as the absolute residual of the above regression model. The higher value of the absolute residual represents the lower percentage of the companies' efficient investment.

2.3. Measurement of institutional ownership

In our model, Institutional investment ownership ($INST_{i,t}$) is the shareholding ratio of institutional investors of firm i in year t . Institutional investors possess abundant resources, thus, takes great influence in the investment market. Also, they take advantage of collecting and analyzing information that makes them intend to protect the security of assets and diversify risks.

2.4. Model specification

To verify the impact of institutional investor ownership on corporate inefficient investment, we formulate the following year and industry fixed effects model:

$$\begin{aligned}
 Ine_Inv_{i,t} = & \beta_0 + \beta_1 INST_{i,t} + \beta_2 Size_{i,t} \\
 & + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} \\
 & + \beta_5 TobinQ_{i,t} + \beta_6 Age_{i,t} \quad (2) \\
 & + \beta_7 Cash_{i,t} + \sum Industry \\
 & + \sum Year + \epsilon_{i,t}
 \end{aligned}$$

Where $Ine_Inv_{i,t}$ stands for firm i 's inefficient investment at year t , higher values reveal much more investment that is not efficient.

We select controlling factors that could affect firm's inefficient investment at year t , including firm i 's size ($Size_{i,t}$) which takes the natural logarithm value of the book value in year t ; financial leverage ($LEV_{i,t}$) calculated as the book value of total debt divided by the book value of the total assets in year t ; return on assets ($ROA_{i,t}$) calculated as net profit divided by the book value of total assets in year t ; Tobin's Q ($TobinQ_{i,t}$) which represented by the ratio total market value of equity to total book value of equity in year t ; listing age ($Age_{i,t}$) calculated as the natural logarithm of the current year minus the year of listing in year t ; cash holding level ($Cash_{i,t}$) that defined by the ratio of cash equivalents to total assets at year t . Also, the fixed effect of industry and year are considered as controlling factors in our model.

3. EMPIRICAL RESULTS

3.1. Descriptive Statistics

As Table 1 described the parameters and the different moments in the formula, all the variables were remained positive figures within the normal index, not particularly high or low of the certain moment. In the total observatory, the mean of X: Ine_Inv is 0.110, the standard deviation is 0.095. The mean of Y: $INST$ is 0.376, the standard deviation is 0.229. It is not hard for the analyst that most of the variables were stable, and the standard deviation is close to each other.

Table 1. Descriptive statistics

Variables	N	Mean	Std. dev.	25th	Median	75th
$Ine_Inv_{i,t}$	9211	0.110	0.095	0.054	0.096	0.142
$INST_{i,t}$	9211	0.376	0.229	0.172	0.383	0.555
$Size_{i,t}$	9211	22.117	1.399	21.191	21.847	22.701
$LEV_{i,t}$	9211	0.399	0.210	0.231	0.385	0.547
$ROA_{i,t}$	9211	0.043	0.052	0.015	0.037	0.068
$TobinQ_{i,t}$	9211	2.282	1.873	1.008	1.780	2.968
$Age_{i,t}$	9211	1.914	0.501	1.609	1.946	2.303
$Cash_{i,t}$	9211	0.202	0.166	0.086	0.153	0.264

Table 2 has illustrated the parameters under the VIF model. It has measured the amount of multicollinearity in the cross-section regression variables. The ratio of each parameter in percentage has indicated the multicollinearity of each other. The VIF of $INST$ and $Size$ is 1.304, 1.828. All the variables were having an

acceptable VIF that below ten. Therefore, they do not have multicollinearity across the examined group under the variance inflation factor test.

Table 2. VIF tests of key variables

	VIF	1/VIF
<i>INST_{i,t}</i>	1.304	0.767
<i>Size_{i,t}</i>	1.828	0.547
<i>LEV_{i,t}</i>	1.821	0.549
<i>ROA_{i,t}</i>	1.332	0.751
<i>TobinQ_{i,t}</i>	1.515	0.660
<i>Age_{i,t}</i>	1.222	0.818
<i>Cash_{i,t}</i>	1.222	0.818
Mean	VIF	1.463

3.2. The effect of institutional investor ownership on inefficient corporate investment

The X variable is *INST*. We assumed all the other variables were dependent variables that need to be the exam. As the baseline regression model has run out the results in model 1 on table 3 and the ordinary least squares regression results in model 2, most independent variables are not identified as independent in the model. The coefficient β_1 of *INST* is -0.008 in model 1 at 5% significant level, -0.01 in model 2 with two consistent effects at 1% significant level. The negative sign of *INST* coefficients in both models strongly indicated that institutional investor ownership will affect inefficient investment and support the model results in the previous studies. The control variables in this model are largely consistent alone with the *ROA*, *TobinQ*, etc. The control variables were positively listed in the *Ine_Inv* results.

Table 3. The influence of institutional investor ownership on inefficient corporate investment

Dependent variable=	<i>Ine_Inv_{i,t}</i>	
	(1)	(2)
<i>INST_{i,t}</i>	-0.008** (-2.30)	-0.010*** (-3.81)
<i>Size_{i,t}</i>	-0.018*** (-16.22)	-0.022*** (-24.20)
<i>LEV_{i,t}</i>	0.016*** (3.69)	0.026*** (7.91)
<i>ROA_{i,t}</i>	0.066*** (5.32)	0.041*** (4.38)
<i>TobinQ_{i,t}</i>	0.000 (0.67)	0.004*** (10.89)
<i>Age_{i,t}</i>	0.078*** (40.94)	0.033*** (15.67)
<i>Cash_{i,t}</i>	0.033*** (8.42)	0.026*** (8.67)
Constant	0.359*** (16.38)	0.453*** (20.69)
Year	No	Yes
Industry	No	Yes
Observations	9211	9211
Adjusted R ²	0.250	0.569

3.3. Robustness checks

3.3.1. The inclusion of some omitted variables

Table 4. Robustness checks: The inclusion of some omitted variables

Dependent variable=	<i>Ine_Inv_{i,t}</i>	
	(1)	(2)
<i>INST_{i,t}</i>	-0.008** (-2.21)	-0.010*** (-3.75)
<i>Size_{i,t}</i>	-0.018*** (-15.94)	-0.022*** (-23.85)
<i>LEV_{i,t}</i>	0.017*** (3.79)	0.026*** (8.01)
<i>ROA_{i,t}</i>	0.066*** (5.36)	0.041*** (4.43)
<i>TobinQ_{i,t}</i>	0.000 (0.51)	0.004*** (10.79)
<i>Age_{i,t}</i>	0.077*** (39.88)	0.033*** (15.58)
<i>Cash_{i,t}</i>	0.033*** (8.36)	0.025*** (8.64)
<i>Dual_{i,t}</i>	0.001 (0.63)	-0.001 (-0.76)
<i>Board_{i,t}</i>	-0.006 (-1.23)	-0.004 (-1.14)
<i>INDP_{i,t}</i>	0.032** (1.99)	0.026** (2.15)
Constant	0.358*** (14.25)	0.451*** (19.10)
Year	No	Yes
Industry	No	Yes
Observations	9211	9211
Adjusted R ²	0.250	0.569

To improve the model, the results is based on a robustness check model, where the main regression coefficient has been estimates and exam as the regression specification. It has included the new 3 factors into the model: *Dual*, *Board*, *INDP*. The coefficient β_1 The same

results of *INST* are -0.008 in model 1 at 5% significant level, -0.01 in model 2 with two consistent effects at 1% significant level. The negative sign of coefficients of *INST* in both models remains unchanged. Therefore, even though the new variables had been involved in the model, the interpretation of the fact that inefficiency performance caused by the institutional investor ownership had not been eliminated. It is supporting the previous finding of the regression models.

3.3.2. Multi-fixed effects model analysis

To counter the influence of all other factors that are largely unobservable and have the potential to influence firm CSR performance, a robustness test is conducted by including various fixed effects. Columns (1) and (2) of the given Table report the results of institutional investors and inefficient investments, respectively. To summarize the results, the coefficients of *INST_{i,t}* are negative and statistically significant in both columns. Therefore, our baseline results still hold after ruling out the influence of other unobservable factors.

Moreover, significantly negative *INST_{i,t}* indicates that after these two fixed effects, institutional investors' shareholding still has an inhibitory effect on the inefficient investment of enterprises, indicating that the result of basic regression is robust.

Table 5. Robustness checks: Multi-fixed effects model analysis

Dependent variable=	<i>Ine_Inv_{i,t}</i>	
	(1)	(2)
<i>INST_{i,t}</i>	-0.009*** (-3.28)	-0.008*** (-2.94)
<i>Size_{i,t}</i>	-0.022*** (-21.29)	-0.022*** (-20.88)
<i>LEV_{i,t}</i>	0.024*** (7.25)	0.024*** (6.96)
<i>ROA_{i,t}</i>	0.054*** (5.79)	0.051*** (5.43)
<i>TobinQ_{i,t}</i>	0.003*** (9.12)	0.003*** (8.40)
<i>Age_{i,t}</i>	0.064*** (21.84)	0.063*** (21.05)
<i>Cash_{i,t}</i>	0.035*** (11.72)	0.035*** (11.68)
Constant	0.440*** (20.29)	0.444*** (18.73)
Year	Yes	No
Firm	Yes	Yes
Province*Year	No	Yes
Observations	9211	9211
Adjusted R ²	0.576	0.605

This table reports the results of analyzing a model with multiple fixed effects. Columns 1 and 2 report results from institutional investment and inefficient investment and fixed effects for both interactions. The variable *CSR_{i,t}* measures firms' CSR performance, which is calculated as the CSR scores published by Hexun, scaled by 100. The other variables are defined in Table 2, and *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10 %, 5%, and 1% confidence levels, respectively.

3.4. Heterogeneity analysis

3.4.1. Property rights

In heterogeneity analysis, a comparison is made between SOE and Non-SOE. Here the SOE means the state-owned enterprises, and the latter is about the private firms and enterprises. Here the influence of SEO and Non-SEO is studied on firm CSR performance. Columns (1) and (2) of the given tablet report the results for SEO and Non-SEO through fixed effects model regression, respectively. We see that the coefficients of *INST_{i,t}* are negative and significant at the 5% level for SEO and are non-significant for Non-SEO columns. Therefore, suggesting that the impact of SEO is Negative on the firms, and Non-SEO have no significant impact. This result is consistent with our baseline regression.

This table reports the influence of SEO and Non-SEO on the CSR performance of firms. The SEO results are reported in column (1), and the Non-SEO results o are reported in column (2).

Table 6. Heterogeneity analysis: Property rights

Dependent variable=	<i>Ine_Inv_{i,t}</i>	
	SOEs	Non-SOES
<i>INST_{i,t}</i>	-0.012** (-2.42)	0.000 (0.15)
<i>Size_{i,t}</i>	-0.017*** (-9.73)	-0.028*** (-27.49)
<i>LEV_{i,t}</i>	0.004 (0.68)	0.042*** (11.26)
<i>ROA_{i,t}</i>	0.027 (1.52)	0.044*** (4.28)
<i>TobinQ_{i,t}</i>	0.004*** (4.43)	0.003*** (8.11)
<i>Age_{i,t}</i>	0.008* (1.82)	0.037*** (16.57)
<i>Cash_{i,t}</i>	0.039*** (6.80)	0.024*** (7.53)
Constant	0.392*** (9.04)	0.572*** (23.97)
Year	Yes	Yes
Industry	Yes	Yes
Observations	3231	5980
Adjusted R ²	0.381	0.692

3.4.2. Audit quality

Table 7. Heterogeneity analysis: Audit quality

Dependent variable=	<i>Ine_Inv_{i,t}</i>	
	Big4	Non-Big4
<i>INST_{i,t}</i>	-0.020 (-1.61)	-0.006** (-2.35)
<i>Size_{i,t}</i>	0.001 (0.22)	-0.027*** (-30.46)
<i>LEV_{i,t}</i>	-0.020 (-1.38)	0.033*** (10.59)
<i>ROA_{i,t}</i>	-0.118** (-2.15)	0.050*** (5.73)
<i>TobinQ_{i,t}</i>	0.002 (0.64)	0.003*** (10.26)
<i>Age_{i,t}</i>	-0.042*** (-4.04)	0.039*** (19.30)
<i>Cash_{i,t}</i>	0.029 (1.50)	0.030*** (10.70)
Constant	0.159 (1.19)	0.562*** (25.81)
Year	Yes	Yes
Industry	Yes	Yes
Observations	613	8598
Adjusted R ²	0.113	0.654

The heterogeneity analysis table compares the audit quality between Big 4 and Non-Big 4 companies. The first column contains the data for Big 4, including values of different variables. At the same time, the second column entails the figures for the Non- Big 4 group. The results show that Big 4 auditors are important because are high quality standards than the non-big 4 group. As a result, the Big 4 are costly but effective. The Big 4 group offers high quality audits since they sense grossing management practices efficiently. *INST_{i,t}* coefficients are negative for both of Big 4 and Non- Big 4 groups columns. The effect of Big 4 is negative on the companies, and Non-Big 4 does not influence the companies.

4. CONCLUSION

To conclude, this article illustrates the effects of institutional investor ownership on inefficient corporate investment, based on the data provided by the listed companies in china. It has pointed out and demonstrated that institutional investor has massively been influenced by emerging market surveillance. Any newly developing capital market or information provided will strongly improve or exert corporate governance efficient. The results provided by different methodologies under VIF, OLS, regression tests had proved that institutional investor has a positive supervisory role in the market and helps the operational market system to observe and barrage the low rational investment issues in the public company effectively. The processes of adding and

removing the variables had an exam the plausible results of the studies, omitted variables, and multi-fixed effects model. The institutional investors are largely inhibited in the less efficient investment of the public companies provided information. It proves and draws a plausible reference to the new investment market of Chinese enterprises and investors.

Appendix. Definitions of variables

Variables	Definitions
<i>Ine_Inv_{i,t}</i>	Inefficient investment, the deviation from the optimal level of investment, which is the absolute value of the residual error of the Eq. (1).
<i>INST_{i,t}</i>	Institutional investor ownership, the shareholding ratio of institutional investors of firm <i>i</i> in year <i>t</i> .
<i>Size_{i,t}</i>	Firm size, the natural logarithm value of the book value of total assets of firm <i>i</i> in year <i>t</i> .
<i>LEV_{i,t}</i>	Firm financial leverage, calculated as the book value of total debt divided by the book value of total assets of firm <i>i</i> in year <i>t</i> .
<i>ROA_{i,t}</i>	Return on assets, calculated as net profit divided by the book value of total assets of firm <i>i</i> in year <i>t</i> .
<i>TobinQ_{i,t}</i>	Tobin's Q, the ratio of total market value of equity to total book value of equity on firm <i>i</i> in year <i>t</i> .
<i>Age_{i,t}</i>	The listing age, calculated as the natural logarithm of the current year minus the year of listing of firm <i>i</i> in year <i>t</i> .
<i>Cash_{i,t}</i>	Cash holding, the ratio of cash and equivalents to total assets of firm <i>i</i> in year <i>t</i> .

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