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# The Impact of Institutional Investors' Shareholding on The Efficiency of Corporate Investment

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**Abstract.** This study investigates the impact of institutional shareholding on corporate investment efficiency and identifies the role played by information asymmetry as well as agency costs. The results show that (1) institutional shareholding promotes corporate investment efficiency, with state-owned institutions playing a more pronounced role. (2) Institutional investors' shareholding is negatively related to information asymmetry. (3) Institutional investors' shareholding is negatively related to agency costs. (4) Institutional investors' shareholding can improve corporate investment efficiency by reducing corporate information asymmetry and agency costs, which are reflected in reducing corporate information opacity and analysts' forecast divergence.

**Keywords:** institutional investors; information asymmetry; agency costs; corporate investment efficiency.

## 1. Introduction

Investment activities can generate capital gains for a business that can secure its future continuity and meet its needs for expansion. Effective investment practices will promote the continuous growth of a business, as well as generate sufficient cash flow. The Chinese market, however, exhibits a situation of inefficient corporate investment. The reasons for this situation are, firstly, the late development of the Chinese capital market and the imperfection of the existing system, which cannot provide a mature trading environment for both sides of investment and financing activities; secondly, the imperfect development of institutional investors in the market, whose own professional knowledge and skills need to be further improved and perfected; and thirdly, the low level of internal corporate governance and the lack of attention to corporate investment behaviour. For a number of reasons, this has resulted in a low level of overall investment efficiency in the market.

Therefore, based on the analysis and summary of previous research results, this paper empirically investigates whether institutional shareholding has an impact on corporate operations. A study of the path of action is also conducted. The mediation effects of information asymmetry and agency costs are empirically tested.

## 2. Theoretical Analysis and Research Hypothesis

### 2.1 Institutional Investor Shareholding and Corporate Investment Efficiency

Institutional investors are more likely to have privately owned information about their investee companies and are able to prevent some undesirable situations from occurring in a timely and effective manner. They also monitor the day-to-day operations and major decisions of the company to protect their own interests, as the results of the company's operations directly affect the returns of institutional investors. For investors, the capital they invest in a company is fixed and can be regarded as a "fixed cost", and institutional investors will urge the company to obtain more revenue in order to protect their own interests in order to return their capital in a timely manner. Finally, institutional investors themselves are under some pressure to make a profit. This is because when an institution raises capital from other individuals, it gives them a promise to make a profit. So how well the business is run also determines the level of returns for the institution, and in order to keep

their own performance levels secure, institutional investors also monitor the business decisions of the firm.

Based on the above inferences, the following hypotheses are proposed in this paper:

**H1:** The more institutional shareholdings, the more efficient the enterprise's investment; among them, state-owned institutions are more effective in improving the enterprise's investment efficiency.

### 2.2 Institutional Investor Shareholdings and Information Asymmetry

Existing research divides the impact of institutional investors on information asymmetry into two broad categories, with some scholars arguing that the entry of institutional investors has instead exacerbated information asymmetry in firms, while others argue that institutional investors hold a positive effect and thus alleviate information asymmetry in firms. maug (1998) argues that monitoring has a cost, and Kahn et al. (1998) state that shareholder participation in Kahn et al. (1998) argue that shareholders' participation in corporate governance is motivated by the fact that the marginal benefits outweigh the marginal costs. Liu, Jingjun et al. (2012) show that more institutional investors in China limit their focus to benefiting in a short period of time and therefore neglect to exercise their own shareholder rights.

However, there are still research findings that suggest that institutional investors mitigate information asymmetry to a certain extent when they hold shares in companies. A study by Gao Lei et al. (2008) shows that institutional investors pay more attention to the reports issued by listed companies after taking a stake, which in turn improves the quality of information about the company.

Theoretically: firstly, institutional investors have a clear purpose for their shareholding. The proportion of shares held by institutions is generally larger and they want to hold them for a long period of time and profit from it. Therefore, institutional investors are more willing to monitor the surplus management behaviours of listed companies, thus reducing the generation of unfavourable corporate development behaviours and thus improving the quality of accounting information. Secondly, Feng Minhong (2017) argues that institutional investors are more professional and able to accurately grasp and utilise information. Finally, Brandt (2009) points out that institutional investors hold a large number of shares, and their voice will play a more important role in the shareholders' meeting, so they can control corporate decisions in the first place, thus enabling the quality of corporate information to be improved.

Based on the above inference, the following hypothesis is proposed in this paper:

**H2a:** The higher the proportion of institutional shareholding, the better the transparency of the firm's intrinsic information;

**H2b:** The higher the proportion of institutional shareholding, the lower the analyst forecast error.

### 2.3 Institutional investor shareholdings and agency costs

Institutional shareholding will mitigate both types of agency problems to some extent. Yi et al. (2013) point out that institutional investors can directly influence the company's decisions because they have management rights. In addition, if the reasonable demands of institutions are not met, then their behaviour of selling their shares in hand can also have an impact on the company's decision making. Ertimur (2010) points out that institutional investors can act as intermediaries, bridging all parties in the company and aligning their interests as much as possible, which will help to reduce the agency costs involved.

It has been shown that institutional shareholding does not always have a positive impact on agency costs. It may also have some negative effects because the institutions themselves have different objectives.

This paper argues that institutional investors have stronger capital and their own information advantage, coupled with their professional analytical skills, makes their information advantage more pronounced. When their shareholding is larger, institutional investors can effectively monitor

management and thus mitigate the first category of agency costs to a certain extent. Their information advantage and their special status as intermediaries will mitigate the second type of agency costs by communicating with large and small shareholders.

Based on the above inferences, the following hypothesis is proposed in this paper:

**H3a:** The higher the percentage of institutional shareholding, the lower the first type of agency cost of the enterprise;

**H3b:** The higher the percentage of institutional shareholding, the lower the second type of agency cost of the enterprise.

## 3. Study Design and Data Description

### 3.1 Data Sources

This paper uses the WIND database, CSMAR database and Choice financial database to take listed companies in Shanghai and Shenzhen A-shares from 2015 to 2019. The following treatments were made to the sample data in this article, resulting in a total of 10,855 research samples: (1) excluding industries with less than 15 samples to ensure the validity of the samples; (2) supplementing samples with missing data to ensure the integrity of the samples; (3) excluding listed companies in the financial and insurance sectors; (4) excluding companies with ST and *ST in the study period; (5) Winsorizing all variables with Winsorize below 1% and above 99% to avoid extreme values affecting the article's research results.

### 3.2 Variable Selection and Definition

This paper draws on Dechow (1995) to measure the size of corporate manipulation of accrued surplus using a modified Jones model as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{\Delta REV_{i,t}}{A_{i,t-1}} - \frac{\Delta REC_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (3.1)$$

$$NDA_{i,t} = \widehat{\alpha_0} + \widehat{\alpha_1}\left(\frac{1}{A_{i,t-1}}\right) + \widehat{\alpha_2}\left(\frac{\Delta REV_{i,t}}{A_{i,t-1}} - \frac{\Delta REC_{i,t}}{A_{i,t-1}}\right) + \widehat{\alpha_3}\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) \quad (3.2)$$

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,\ t-1}} - NDA_{i,t} \quad (3.3)$$

The article draws on Richardson's (2006) classic model to measure inefficient investment by firms, as follows:

$$INV_{i,t} = \gamma_0 + \gamma_1 GROWTH_{i,t-1} + \gamma_2 LEV_{i,t-1} + \gamma_3 CASH_{i,t-1} + \gamma_4 AGE_{i,t-1} + \gamma_5 R_{i,t-1} + \gamma_6 SIZE_{i,t-1} + \gamma_7 INV_{i,t-1} + \sum INDUSTRY + \sum YEAR + \varepsilon_t \quad (3.4)$$

A description of the variables involved in this paper is shown in Table1.

Tab.1. The Definition and Measurement of Variables

| Variable Classification | Variable Name | Variable Symbols | Variable Description |
|---|---|---|---|
| Explained variables | Corporate efficiency investment | INVEFF | Absolute value of the regression residuals of the Richardson Expectation Investment Model |
| | Over-investment | OVER_INV | Positive residuals from the regression of the Richardson Expected Investment Model |
| | Underinvestment | UNDER_INV | Richardson Expected Investment Model regression residuals are negative |
| Explanator | Institutional investor | INSHOLDi,t | Sum of institutional investor holdings / total |

| y variables | shareholdings | | number of A shares outstanding |
|---|---|---|---|
| Control variables | Level of investment | INVEST | (Cash paid to build assets - cash recovered from disposal of assets + cash paid to purchase subsidiaries etc - cash received from disposal of subsidiaries etc) / Total assets at the beginning of the year |
| | Firm size | SIZE | Natural logarithm of total assets at the end of the period |
| | Corporate growth | TobinQ | TobinQ = (market value of equity + market value of net debt) / total assets at end of period |
| | Gearing ratio | LEV | Total liabilities at the end of the period / Total assets at the end of the period |
| | Return on Assets | ROA | Net profit / average total assets |
| | Cash holdings | CASH | (Money capital + short-term investments) / total assets |
| | Liquidity | CR | Current Assets / Current Liabilities |
| | Nature of ownership | SOE | SOEs = 1, 0 otherwise |
| | Age | AGE | Sample year - year of listing |
| | Annual Excess Return Yield | R | Annual return on reinvestment of cash dividends - Annual return on consolidated A-share market (market capitalisation weighted) |
| | Concentration of shareholding | TOP10 | Total number of shares held by top 10 shareholders / all shares of the company |
| | Annual | YEAR | Control year fixed effect |
| | Industry | INDUSTRY | By SFC industry classification standard |

### 3.3 Regression Models

To test hypothesis H1, the model (3.5) is designed in this paper.

$$INVEFF_{i,t} = \beta_0 + \beta_1 INSHOLD_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 \sum INDUSTRY + \beta_4 \sum YEAR + \mu_{i,t} \quad (3.5)$$

To test hypothesis H2, model (3.6) and model (3.7) are designed in this paper.

$$ADA_{i,t} = \beta_0 + \beta_1 INSHOLD_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 \sum INDUSTRY + \beta_4 \sum YEAR + \mu_{i,t} \quad (3.6)$$

$$FDISP_{i,t} = \beta_0 + \beta_1 INSHOLD_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 \sum INDUSTRY + \beta_4 \sum YEAR + \mu_{i,t} \quad (3.7)$$

To test hypothesis H3, model (3.8) and model (3.9) are designed in this paper.

$$ER_{i,t} = \beta_0 + \beta_1 INSHOLD_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 \sum INDUSTRY + \beta_4 \sum YEAR + \mu_{i,t} \quad (3.8)$$

$$ORT_{i,t} = \beta_0 + \beta_1 INSHOLD_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 \sum INDUSTRY + \beta_4 \sum YEAR + \mu_{i,t} \quad (3.9)$$

# 4. Empirical Results

Both the descriptive and correlation analyses in this paper met the criteria and are therefore not repeated.

## 4.1 Institutional Shareholding and Investment Efficiency

The results of regression (1) show that an increase in the shareholding of institutional investors has a negative impact on investment, showing a negative correlation, i.e. an increase in the total shareholding of institutional investors can curb inefficient investment, irrespective of their heterogeneity. Therefore, the first half of hypothesis H1 is tested.

The results of regression (2) show that the coefficient of INSHOLD is -0.172, i.e. it is negatively correlated with OVER_INV and significant at the 1% level, while the results of regression (3) show that the coefficient of INSHOLD is -0.148 and negatively correlated with UNDER_INV at the 1% level. After controlling for correlates, the variables all pass the test. This indicates that increasing institutional ownership has a negative impact on OVER_INV and UNDER_INV.

Next, inefficient investment in groups is examined. Based on the results of regressions (2) (3), it is clear that institutional ownership has a dampening effect on both overinvestment and underinvestment.

To validate the second half of H1, the data were entered into model (3.5) and the results are shown in Table 2.

The results of regression (4) show that the coefficient of INSHOLD_G is -0.293 and is negatively correlated with INVEFF at the 1% level. An increase in institutional ownership has a negative impact on INVEFF, which shows a negative correlation.

The coefficients on INSHOLD_G in regressions (5) (6) are both negative and correlated with OVER_INV and INSHOLD_G at the 1% level. Institutional ownership has a negative impact on OVER_INV and UNDER_INV.

The results of regressions (7)-(9) show that an increase in the shareholding of institutional investors has a negative impact on inefficient investment, showing a negative correlation. the coefficient of the INSHOLD_G regression has a higher degree of impact than the coefficient of INSHOLD_NG, thus the latter part of hypothesis H1 is verified, i.e. the shareholding of state-owned institutional investors is more effective in improving the efficiency of corporate investment.

Tab.2. Institutional investors and corporate investment efficiency

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| | INVEFF | OVER_INV | UNDER_INV | INVEFF | OVER_INV | UNDER_INV | INVEFF | OVER_INV | UNDER_INV |
| INSHOLD | -0.166*** | -0.172*** | -0.148*** | -0.293*** | -0.282*** | -0.279*** | -0.098*** | -0.091*** | -0.097*** |
| | (-4.12) | (-5.53) | (-4.99) | (-5.42) | (-6.56) | (-5.94) | (-11.024) | (-10.998) | (-11.023) |
| INV | 0.265*** | 0.358*** | 0.211*** | 0.321*** | 0.376*** | 0.320*** | 0.062*** | 0.038*** | 0.023*** |
| | -2.022 | -2.04 | -2.018 | -3.021 | -2.741 | -2.712 | -5.041 | -4.98 | -4.795 |
| SIZE | -0.006*** | -0.005*** | -0.001*** | -0.005*** | -0.006*** | -0.001*** | -0.039*** | -0.041*** | -0.053*** |
| | (-6.021) | (-6.002) | (-6.401) | (-5.645) | (-5.099) | (-5.901) | (-33.023) | (-34.027) | (-32.064) |
| Tobin Q | 0.002*** | 0.003*** | 0.001*** | 0.005*** | 0.004*** | 0.002*** | 0.007*** | 0.005*** | 0.009*** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | -8.001 | -8.002 | -8.001 | -8.657 | -8.427 | -8.341 | -1.203 | -0.929 | -0.986 |
| LEV | -0.052*** | -0.067*** | -0.014*** | -0.060*** | -0.069*** | -0.053*** | -0.052*** | -0.066*** | -0.056*** |
| | (-3.006) | (-3.013) | (-3.004) | (-4.506) | (-4.433) | (-5.002) | -0.405 | -0.521 | -0.452 |
| ROA | -0.077*** | -0.161*** | -0.023*** | -0.070*** | -0.095*** | -0.046*** | -0.321*** | -0.250*** | -0.299*** |
| | (-9.015) | (-9.032) | (-9.009) | (-8.998) | (-9.002) | (-8.809) | -0.054 | -0.067 | -0.059 |
| CASH | 0.019*** | 0.027*** | 0.023*** | 0.021*** | 0.031*** | 0.029*** | 0.051*** | 0.052*** | 0.049*** |
| | -6.008 | -6.019 | -6.005 | -6.908 | -6.01 | -6.704 | -5.605 | -5.534 | -6.002 |
| CR | 0.002*** | 0.000*** | 0.001*** | 0.001*** | 0.001*** | 0.002*** | 0.002*** | 0.003*** | 0.005*** |
| | -4.001 | -4.001 | -4 | -4.501 | -4.054 | -4.023 | -10.501 | -10.061 | -10.009 |
| SOE | -0.005*** | -0.003*** | -0.009*** | -0.004*** | -0.003*** | -0.006*** | -0.011*** | -0.009*** | -0.021* |
| | (-4.002) | (-4.004) | (-4.001) | (-4.202) | (-4.071) | (-4.504) | -0.006 | -0.001 | -0.002 |
| R | 0.001 | 0.008 | 0.001 | 0.001 | 0.001 | 0.001 | 0.034*** | 0.061*** | 0.074*** |
| | -0.902 | -0.905 | -0.901 | -0.932 | -0.951 | -0.971 | -10.042 | -10.607 | -10.498 |
| TOP10 | 0.024*** | 0.027*** | 0.014*** | 0.031*** | 0.029*** | 0.024*** | 0.038*** | 0.041*** | 0.050*** |
| | -10.036 | -10.013 | -10.004 | -9.006 | -9.013 | -8.994 | -33.081 | -32.888 | -31.908 |
| AGE | -0.001*** | -0.001*** | -0.005*** | -0.001*** | -0.001*** | -0.005*** | 0 | -0.001 | -0.001 |
| | (-5.000) | (-5.000) | (-5.000) | (-5.000) | (-5.000) | (-5.000) | (-0.000) | (-0.001) | (-0.000) |
| YEAR | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| INDU | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| F | 31.26*** | 28.79*** | 27.91*** | 27.29*** | 25.36*** | 24.75*** | 31.6*** | 27.89*** | 26.64*** |
| N | 10,855 | 4,238 | 6,617 | 5,085 | 1,994 | 3,091 | 5,770 | 2,244 | 3,526 |
| Adj_R2 | 0.079 | 0.07 | 0.077 | 0.074 | 0.072 | 0.071 | 0.071 | 0.07 | 0.074 |

Note: * represents significant at the 10% level, ** represents significant at the 5% level, *** represents significant at the 1% level

In summary, through the above nine regression tests, this paper's hypothesis H1 is verified; all other things being equal, the higher the percentage of institutional investors' shareholding, the higher the efficiency of corporate investment; and the better the effect of state-owned institutional investors' shareholding in improving corporate investment efficiency.

### 4.2 Institutional Shareholding and Information Asymmetry

As can be seen from Tab.3., without taking into account their heterogeneity, higher institutional ownership is generally associated with higher disclosure quality. The regression results for the group of inefficient firms show that institutional ownership slightly increases the level of disclosure for both the underinvested and the overinvested category of firms. This leads to the verification of H2a and H2b that institutional ownership improves information transparency and reduces analysts' forecast errors, which in turn leads to a reduction in the degree of information asymmetry of the firm.

Tab.3. Institutional investors' shareholdings and information asymmetry

| Variables | ADA | | | FDISP | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | INVEFF | OVER_INV | UNDER_INV | INVEFF | OVER_INV | UNDER_INV |
| INSHOLD | -0.168*** | -0.157*** | -0.165*** | -0.170*** | -0.154*** | -0.122*** |
| | (-10.004) | (-10.007) | (-10.006) | (-10.145) | (-10.225) | (-10.191) |
| INV | -0.059*** | -0.039*** | -0.109*** | -0.452*** | -0.394*** | -0.127*** |
| | (-4.021) | (-4.028) | (-4.036) | (-4.693) | (-4.915) | (-4.239) |
| SIZE | 0.029*** | 0.030*** | 0.034*** | 0.029*** | 0.034*** | 0.032*** |
| | (30.001) | (30.021) | (30.042) | (30.030) | (30.044) | (30.041) |
| TobinQ | 0.003*** | 0.001*** | 0.005*** | 0.009*** | 0.027*** | 0.007*** |
| | (0.901) | (0.921) | (0.891) | (0.026) | (0.037) | (0.035) |
| LEV | -0.033*** | -0.035*** | -0.039*** | -0.038*** | -0.031*** | -0.051*** |
| | (0.006) | (0.009) | (0.008) | (0.202) | (0.306) | (0.272) |
| ROA | -0.256*** | -0.190*** | -0.294*** | -0.583*** | -0.374*** | -0.310*** |
| | (0.014) | (0.022) | (0.018) | (0.465) | (0.722) | (0.608) |
| CASH | -0.047*** | -0.044*** | -0.039*** | -0.037*** | -0.048*** | -0.044*** |
| | (-5.008) | (-5.013) | (-5.010) | (-5.267) | (-5.422) | (-5.348) |
| CR | 0.001*** | 0.002*** | 0.001*** | 0.020*** | 0.001*** | 0.031*** |
| | (10.001) | (10.001) | (10.001) | (10.019) | (10.033) | (10.024) |
| SOE | -0.006*** | -0.007** | -0.005* | 0.001 | 0.099 | -0.067 |
| | (0.002) | (0.003) | (0.003) | (0.061) | (0.088) | (0.085) |
| R | 0.012*** | 0.011*** | 0.015*** | 0.022*** | 0.006*** | 0.033*** |
| | (10.002) | (10.003) | (10.003) | (10.065) | (10.103) | (10.085) |
| TOP10 | -0.030*** | -0.048*** | -0.041*** | -0.045*** | -0.052*** | -0.049*** |
| | (-30.006) | (-30.009) | (-30.008) | (-30.203) | (-30.306) | (-30.270) |
| AGE | 0.000 | 0.000 | 0.000 | -0.021*** | -0.005 | -0.025** |
| | (0.000) | (0.000) | (0.000) | (0.005) | (0.008) | (0.009) |
| YEAR | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| INDU | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| F | 45.88*** | 15.57*** | 26.64*** | 24.37*** | 22.29*** | 12.74*** |
| N | 10,855 | 4,238 | 6,617 | 10,855 | 4,238 | 6,617 |
| Adj_R2 | 0.073 | 0.075 | 0.072 | 0.075 | 0.071 | 0.078 |

Note: * represents significant at the 10% level, ** represents significant at the 5% level, *** represents significant at the 1% level

### 4.3 Institutional Shareholding and Agency Costs

As can be seen from Table 4, the higher the total institutional ownership, the lower the agency costs, controlling for their heterogeneity. In the group regressions on inefficient firms, institutional ownership has a reducing effect on agency costs for both over-invested and under-invested firms. Thus, H3a and H3b are verified. That is, the proportion of institutional ownership is negatively related to agency costs.

Tab.4. Institutional investors' shareholdings and agency costs

| Variables | *ER* | | | *ORT* | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | *INVEFF* | *OVER_INV* | *UNDER_INV* | *INVEFF* | *OVER_INV* | *UNDER_INV* |
| *INSHOLD* | -0.204*** | -0.303*** | -0.514*** | -0.306*** | -0.270*** | -0.425*** |
| | (-10.006) | (-10.010) | (-10.008) | (-10.002) | (-10.003) | (-10.002) |
| *INV* | -0.005*** | -0.054*** | -0.035*** | -0.049*** | -0.063*** | -0.060*** |
| | (-4.030) | (-4.041) | (-4.052) | (-4.008) | (-4.011) | (-4.013) |
| *SIZE* | 0.029*** | 0.017*** | 0.030*** | 0.019*** | 0.022*** | 0.038*** |
| | (30.001) | (30.002) | (30.002) | (30.000) | (30.001) | (30.000) |
| *TobinQ* | 0.023*** | 0.017*** | 0.027*** | 0.001*** | 0.006*** | 0.002*** |
| | (1.001) | (1.002) | (1.001) | (1.000) | (1.000) | (1.000) |
| *LEV* | -0.167*** | -0.155*** | -0.162*** | -0.150*** | -0.136*** | -0.144*** |
| | (-0.509) | (-0.514) | (-0.512) | (-0.502) | (-0.504) | (-0.503) |
| *ROA* | -0.245*** | -0.255*** | -0.235*** | -0.048*** | -0.059*** | -0.041*** |
| | (0.020) | (0.033) | (0.026) | (0.005) | (0.009) | (0.006) |
| *CASH* | 0.057*** | 0.043*** | 0.061*** | 0.006*** | 0.010*** | 0.006*** |
| | (5.012) | (5.019) | (5.015) | (5.003) | (5.005) | (5.004) |
| *CR* | 0.002*** | 0.007*** | 0.003*** | 0.002*** | 0.002*** | 0.001*** |
| | (0.011) | (0.012) | (0.011) | (0.010) | (0.012) | (0.013) |
| *SOE* | -0.009*** | -0.008*** | -0.001*** | -0.011*** | -0.021*** | -0.016*** |
| | (0.903) | (0.904) | (0.904) | (0.801) | (0.901) | (0.801) |
| *R* | -0.028*** | -0.018*** | -0.034*** | -0.003*** | -0.001*** | 0.002*** |
| | (10.003) | (10.005) | (10.004) | (10.001) | (10.001) | (10.001) |
| *TOP10* | -0.032*** | -0.028*** | 0.021*** | -0.007*** | -0.004*** | -0.007*** |
| | (-30.009) | (-30.014) | (-30.011) | (-30.002) | (-30.004) | (-30.003) |
| *AGE* | 0.000 | 0.001*** | 0.000 | 0.000 | -0.000*** | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| *YEAR* | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| *INDU* | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| F | 28.09*** | 20.36*** | 15.40*** | 30.10*** | 30.83*** | 18.14*** |
| N | 10,855 | 4,238 | 6,617 | 10,855 | 4,238 | 6,617 |
| Adj_$R^2$ | 0.075 | 0.077 | 0.071 | 0.074 | 0.075 | 0.0789 |

Note: * represents significant at the 10% level, ** represents significant at the 5% level, *** represents significant at the 1% level

## 5. Research Findings and Insights

Through theoretical analysis and empirical testing, this paper draws the following conclusions: (1) Institutional investors' shareholding has a positive impact on firms' investment efficiency. Institutional investors can effectively improve the investment behaviour of shareholding firms. Institutional investors can effectively curb over-investment and under-investment, thus improving the investment efficiency of enterprises. (2) Institutional investors' shareholding has a negative impact on information asymmetry. The shareholding of institutional investors can effectively monitor the behaviour of managers and improve the transparency of corporate information to a certain extent; at the same time, the reporting of high-quality and timely information by companies

can reduce the divergence of analysts' forecasts. (3) Institutional ownership has a negative impact on agency costs. Institutional investors can effectively reduce both Type I and Type II agency costs.

Based on the findings of this paper, relevant recommendations are made from the following three perspectives to further improve the governance mechanism of corporate investment efficiency: (1) Institutional investors should focus on long-term shareholding and value investment, and focus on the internal governance level of the company, as a better governance environment will help institutions play their role better. (2) Enterprises should strengthen the introduction of institutional investors internally and improve the corporate investment process to enhance the efficiency of corporate investment. (3) Regulatory authorities should actively guide institutional investors, improve information disclosure policies and regulations, and if illegal and unlawful practices are found, stop and punish such practices in a timely manner, so as to reduce corporate earnings manipulation through these measures.

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