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Relationship between Institutional Ownership and Market Volatility: Empirical Evidence from China A-share Market

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Abstract: This study empirically investigates the link between institutional ownership and market volatility using Chinese A-share listed firms from 2008 to 2023 as the sample. The findings indicate a negative association between the proportion of sh ares held by institutional investors and stock price fluctuations, supporting the market stabilizer hypothesis for institutional investors. After a series of robustness tests, this conclusion is still valid. Heterogeneity analysis further indicates that the stabili zation effect is more obvious during bear market and when the shares are held by public funds and insurance funds. This study provides new empirical evidence for affirming the positive role of institutional investors in stabilizing China's capital market, and has policy implications for guiding the healthy development of institutional investors.

Keywords: Institutional Investors, Shareholding Ratio, Market Volatility, A-Share Market, Corporate Governance.

1. Introduction

As China's capital market continues to open up and reform, institutional investors have expanded swiftly in scale and impact, drawing significant interest regarding their market function. There is a continuing debate in the theoretical community about whether institutional investors are "stabilizers" to stabilize market volatility or "sources of volatility" to exacerbate volatility. Clarifying this problem based on the special market environment of China has important theoretical value and practical significance [1]. This paper empirically examines the causal relationship between institutional ownership and market volatility using A-share data from 2008 to 2023. Compared with existing studies, the contribution of this paper lies in: using longer sample period, more comprehensive control of endogenous problems, and heterogeneity analysis from market cycle and institution type dimensions to provide more accurate empirical evidence.

2. Study Design and Data

2.1. Theoretical Hypothesis Proposed

There are two competing theoretical explanations for the impact of institutional investors on market volatility [2]. On the one hand, based on the theory of information superiority, institutional investors have stronger information gathering and processing ability, and their value investment behavior based on fundamentals can effectively offset the irrational fluctuations of noise traders, thus playing the role of "stabilizer". On the other hand, based on herd behavior and shortsightedness theory, institutional investors may tend to follow market trends for homogeneous trading due to principal-agent problems and short-term performance ranking pressures, and instead amplify stock price fluctuations and become "shock sources". Based on these theoretical divergences, this paper proposes the following competitive hypotheses: H1 (stabilizer hypothesis): institutional investor ownership ratio and market volatility are significantly negatively correlated. H2 (Volatility Hypothesis): Institutional ownership is significantly positively correlated with market volatility.

2.2. Empirical Model Setting

To test the hypothesis, we construct the following two-way fixed-effects panel data model: $Volatility_{i,t} = \alpha + \beta_1 * Institution_{i,t} + \gamma * Controls_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$ where i and t represent company and year, respectively. The explained variable$Volatility_i,t$ is the volatility of stock price i in the t_{th} year. The core explanatory variable$Institution_i,t$ is the total institutional shareholding ratio of firm i at the end of t $Controls_i$, t is a set of firm-level control variables that affect stock price volatility. μ_i is an individual fixed effect and is used to control company characteristics that do not change over time; λ_t is a time fixed effect and is used to control common shocks such as macroeconomics and policies. $\varepsilon_{i,t}$ are random error terms. This paper focuses on the sign and significance of coefficient β_1.

2.3. Variable Definitions

Explained variable: market volatility. This paper uses the annualized volatility of individual stocks to measure, that is, calculate the standard deviation of daily return rate of each listed company in each year, and then multiply by 250 (calculated by 250 trading days per year) [3].

Core explanatory variable: Institutional ownership. Defined as the sum of the number of circulating A shares of the company held by all institutional investors (including public funds, insurance companies, social security funds, securities companies, QFII, etc.), accounting for the proportion of the total number of circulating A shares of the company.

Controls: Refer to previous studies, this article controls the following variables:

Size: Natural logarithm of total assets at year-end.

Lev: Ratio of total liabilities to total assets at year end.

Profitability (Roa): The ratio of net income to average total assets.

Book-to-market ratio (Bm): The ratio of owner's equity to market value at year end.

Turnover: Average annual turnover.

Return: Annual individual stock return, taking into account cash dividend reinvested.

2.4. Data Declaration

The initial sample comprises all A-share listed companies from 2008 to 2023. Data are sourced from the CSMAR and Wind databases. The sample is processed as follows: (1) excluding listed firms in the financial industry; (2) removing companies labeled as ST or *ST in a given year; and (3) dropping observations with missing primary variable data. To mitigate extreme values, all continuous variables are winsorized at the 1st and 99th percentiles. This yields an unbalanced panel of 32,815 firm-year observations spanning 2008 to 2023.

3. Analysis of Empirical Results

3.1. Descriptive Statistics and Baseline Regression

In order to investigate the basic characteristics of the main variables, descriptive statistics are first performed on the key variables of the sample [4]. Table 1 shows the mean, standard deviation, minimum and maximum values of institutional investor shareholding, market volatility and control variables.

Table 1. Descriptive statistical results

variable	sample size	mean value	standard deviation	least value	maximum
Volatility (stock price volatility)	32,815	0.358	0.124	0.103	0.821
Institution (institutional shareholding ratio)	32,815	0.217	0.163	0.001	0.842
Size	32,815	22.84	1.23	19.67	26.93
Lev (financial leverage)	32,815	0.438	0.216	0.021	0.879
Roa (Return on Assets)	32,815	0.048	0.061	-0.184	0.226
Bm (book to market ratio)	32,815	0.513	0.371	0.089	2.374
Turnover	32,815	0.742	0.462	0.083	2.618
Return (annual rate of return)	32,815	0.113	0.289	-0.641	1.354

Table 1 reveals that the mean value for institutional investors' shareholding ratio is 21.7%, signifying their emergence as a major participant in the A-share market, albeit with substantial variation in ownership distribution. The average annualized stock price volatility is 0.358, with a standard deviation of0.124, indicating considerable variation in volatility across different firms.

A benchmark regression analysis is subsequently conducted to investigate the association between institutional ownership and stock price volatility. The results from the bivariate fixed-effects model are presented in Table 2.

Table 2. Benchmark Regression Results

variable	regression coefficient	t value
Institution	-0.084***	(-6.71)
Size	-0.021***	(-5.24)
Lev	0.036**	(2.19)
Roa	-0.057**	(-2.48)
Bm	-0.019*	(-1.83)
Turnover	0.045***	(7.12)
Return	-0.031***	(-3.74)
constant term	0.617***	(9.31)
firm fixed effect	are	
Year fixed effect	are	
Adjust R^2	0.283	
observed value	32,815	

Note: *, * indicate significance at 1%, 5% and 10% significance levels, respectively.

The benchmark regression results indicate a coefficient of -0.084 for Institution, which is statistically significant at the 1% level. This significant negative relationship suggests that a higher shareholding ratio of institutional investors corresponds to lower individual stock volatility, thereby supporting the "stabilizer hypothesis." Regarding the control variables, firm size, the book-to-market ratio, and profitability show a negative correlation with volatility, whereas the leverage ratio and turnover ratio exhibit a significantly positive relationship, consistent with expectations. The model's adjusted R-squared value of 0.283 indicates a satisfactory goodness of fit.

3.2. Robustness test

In order to verify the robustness of the above results, the following methods are used for testing in this paper.

Variable Substitution: Replace market volatility with a volatility measure based on quarterly returns; and replace institutional ownership with the top ten institutional ownership. The results showed that the core conclusions remained unchanged.

Endogenous treatment: Two-stage least squares regression (2SLS) was performed using the institution ownership ratio (Institution_{t-1}) delayed by one stage as the instrument variable [5]. The F statistic of the first stage was 31.7, rejecting the weak instrument variable hypothesis, and the estimation coefficient of the second stage was still significantly negative (-0.079, p 0.01).

Sample adjustment method: Re-estimation after removing the sample of 2015 stock market crash and 2020 epidemic year, the result remains robust.

Table 3. Summary of Robustness Test Results

test method	Institution coefficient	significance level	conclusion
reference model	-0.084	***	significant negative correlation
volatility substitution	-0.072	***	fit
Share ratio of top ten institutions	-0.081	***	fit
lag instrumental variable method	-0.079	***	fit
Eliminate abnormal years	-0.087	**	fit

As can be seen from Table 3, no matter what method is adopted, the negative impact of institutional investors 'shareholding ratio is stable, further verifying its market stabilizing effect.

3.3. Heterogeneous Analysis

In order to explore the differences of stabilization effects of institutional investors under different market environments and institutional types, this paper analyzes heterogeneity from two dimensions: market cycle and institutional type.

Market cycle grouping: Based on the annual return of the Shanghai Composite Index, the sample is divided into two categories: "bull year"(index rise) and "bear year"(index fall). The results show that Institution coefficient is-0.102 (p 0.01) during bear market, which is significantly higher than-0.051 in bull market, indicating that institutional investors have more stable market function in falling market.

Institutional type grouping: institutional investors are divided into public offering funds, insurance funds, QFII and self-operated securities firms. Regression results show that the proportion of public funds and insurance funds has significant inhibitory effect on volatility (coefficients are-0.091 and-0.085 respectively), while QFII and securities trader self-operation have no significant inhibitory effect.

Table 4. Heterogeneity analysis results

grouping dimension	Institution coefficient	significance level	stabilizing effect
bull year	-0.051	**	relatively weak
Bear year	-0.102	***	strong
publicly offered funds	-0.091	***	outstanding
insurance fund	-0.085	**	outstanding
QFII	-0.028	non-significant	No significant effect
brokerage self-operated	-0.033	non-significant	No significant effect

The results show that there is significant heterogeneity in the stabilizing effect of institutional investors: it is more prominent in the downward stage of the market, and the long-term investment-oriented public funds and insurance funds play the most significant role. This shows that institutions with long-term capital characteristics and professional governance capabilities are more able to play a "ballast stone" role in volatile markets

4. Research Conclusions and Enlightenment

4.1. Summary of Main Conclusions

Employing data from China's A-share listed firms between 2008 and 2023, this study analyzes the connection between institutional shareholding and market volatility. The findings reveal a markedly negative relationship between institutional investors and stock price fluctuations, underscoring their market-stabilizing effect. With the increase of shareholding ratio, the short-term fluctuation range of enterprise stock price decreases, and the overall risk of the market is mitigated. Further robustness tests (including variable substitution, instrumental variable method and sample elimination) verify the robustness of this conclusion, indicating that institutional investors effectively suppress irrational volatility through rational trading and information dominance. In heterogeneity analysis, we find that the stabilizing effect is more prominent during bear market, and the stabilizing effect of long-term institutions such as public funds and insurance funds is most significant. Overall, institutional investors in China A-share market can not only improve the efficiency of price discovery, but also play the role of "ballast stone" in the downward stage of the market, supporting the "stabilizer hypothesis."

4.2. Policy Implications

The results show that institutional investors play an active role in market stability, so policy should focus on guiding their healthy development. First of all, we should improve the long-term capital investment mechanism, encourage pension funds, insurance funds and other institutions to increase the allocation of equity assets, and promote the long-term and stable structure of institutional investors. Secondly, we should strengthen information disclosure and governance responsibilities, require institutions to disclose investment strategies and shareholding changes, prevent short-term and herd trading, and promote them to play an active role in corporate governance. Thirdly, we should perfect the market system, optimize the trading supervision and risk prevention and control mechanism, perfect the management framework of short selling and high frequency trading, so as to prevent technical fluctuation from amplifying market risk. Finally, we should promote the diversification of institutional investors, form a balanced structure dominated by long-term institutions such as public offering, insurance, social security and private placement, so as to make rational funds become the dominant force of market pricing, thus improving the resilience and stability of capital market.

4.3. Limitations and Prospects of the Study

Although this paper makes a systematic analysis on data breadth and model robustness, there are still some limitations. First, there are limits to how volatility is measured. The annualized volatility based on daily returns fails to reflect extreme events and high frequency volatility. Future studies can combine high-frequency data or use GARCH family models to dynamically characterize the time-varying impact of institutional investors on volatility. Second, differences within institutional investors have not been fully revealed. This paper mainly divides the four types of institutions from public offering fund, insurance fund, QFII and securities trader's self-operation, failing to detail the behavioral differences between active and passive investment, value and growth strategies. Future research can further explore the market impact of different strategic institutions by combining fund style factors or position change frequencies. Third, the external environment and institutional factors need to be further analyzed. Macroeconomic fluctuations, policy adjustments, and regulatory changes can affect the relationship between institutional behavior and market volatility. In the future, we can combine exogenous variables such as macroeconomic cycle, financial openness and policy events to construct a multi-level model to analyze the regulatory role of macro-institutions on micro-stability effects. Finally, the identification of causal mechanisms still needs to be strengthened. Although this paper mitigates endogenesis problem by instrumental variable method, it fails to eliminate reverse causation or missing variable risk completely. Future research can rely on natural experiments or event research methods (such as policy reforms, index inclusion events, trading rule adjustments, etc.) to more accurately identify the

causal effects of institutional investor holdings on market volatility.

5. Concluding Remarks

Utilizing a sample of China's A-share listed companies from 2008 to 2023, this study systematically investigates the relationship between the shareholding proportion of institutional investors and market volatility. The results show that institutional investors can effectively reduce market volatility through rational investment, value discovery and long-term shareholding behavior, which verifies their role as "stabilizers" in A-share market. This conclusion is still valid under multiple robustness and heterogeneity tests, indicating that institutional investors play a key role in market stability and efficiency improvement. In the future, with the deepening reform of China's capital market and the perfection of institutional investor system, its function in pricing mechanism, risk dispersion and corporate governance will be further enhanced. This paper not only enriches the empirical evidence of institutional investors' behavior, but also provides useful reference for improving capital market structure and promoting long-term capital development.

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