

The Impact of State-owned Capital Participation on Stock Returns of Listed Family Firms

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Abstract: Against the background of Chinas mixed-ownership reform, reverse mixed reform featuring state-owned capital participation in private family firms has gradually become a critical path to optimize corporate governance and boost market performance. This paper takes Chinas A-share listed family firms from 2018 to 2022 as the research sample, and empirically examines the impact of state-owned capital participation on stock returns of listed family firms through descriptive statistics, correlation analysis, baseline regression and robustness test. The results show that state-owned capital participation significantly improves the stock returns of family firms, verifying the governance supervision effect and resource support effect of state-owned shareholders. After replacing the core variable measurement method and adopting the fixed effect model for robustness test, the conclusion remains stable. This study enriches the research on the economic consequences of reverse mixed reform and provides empirical evidence for family firms to optimize equity structure and enhance market value.

Keywords: State-owned Capital Participation; Family Firms; Stock Returns; Corporate Governance; Empirical Analysis.

1. Introduction

Family firms are the core micro-subject of Chinas private economy, playing an irreplaceable role in promoting economic growth, creating employment and stimulating innovation. However, the inherent governance defects of family firms, such as concentrated ownership, insider control and lack of external supervision, often lead to information asymmetry and agency conflicts, which restrict the improvement of stock market performance. In the context of deepening mixed-ownership reform, state-owned capital participation in family firms (reverse mixed reform) has become an important institutional arrangement to break governance bottlenecks.

State-owned shareholders have dual attributes of resource endowment and supervision constraints. On the one hand, they can bring government credit endorsement, financing convenience and policy resources to family firms, reducing operational risks and improving market expectations; on the other hand, they can restrain the short-sighted behavior and tunneling behavior of family controlling shareholders, improving corporate governance quality. Existing studies mostly focus on the impact of state-owned capital participation on firm innovation, operating performance and risk resistance, but there is a lack of targeted research on stock returns, which is a core indicator of market performance. Therefore, this paper constructs a regression model to test the relationship between state-owned capital participation and stock returns of family firms, and verifies the reliability of the conclusion through robustness test.

2. Literature Review and Research Hypothesis

2.1. Literature Review

Scholars have carried out extensive research on the governance effect of state-owned capital participation in private firms. Some studies believe that state-owned capital can alleviate financing constraints, bring policy resources and

reduce operational risks, thereby improving firm value (Chen et al., 2021). Other studies hold that state-owned capital intervention may lead to inefficient investment and policy burden, which is not conducive to long-term development (Li & Zhang, 2020). For family firms, the particularity of family control makes the governance effect of state-owned capital more complex. Most empirical results show that moderate state-owned capital participation can balance family control, improve information transparency and enhance market recognition (Wang & Liu, 2022).

Stock returns reflect investors comprehensive evaluation of firm value and future expectations. The improvement of corporate governance and the acquisition of advantageous resources will directly enhance investors confidence and boost stock returns. However, few studies directly link state-owned capital participation with the stock returns of listed family firms, which is the research gap this paper aims to fill.

2.2. Research Hypothesis

Based on the resource dependence theory and principal-agent theory, this paper proposes the core hypothesis: State-owned capital participation is positively correlated with the stock returns of listed family firms. State-owned capital participation can restrain the self-interested behavior of family controlling shareholders, reduce agency costs and information asymmetry; meanwhile, it can bring stable resource support and credit endorsement, improve the firms market competitiveness and risk resistance, thus attracting investors and increasing stock returns.

3. Research Design

3.1. Sample Selection and Data Source

This paper selects Chinas A-share listed family firms from 2018 to 2022 as the initial research sample. The screening criteria are as follows: (1) Exclude financial and real estate firms; (2) Exclude ST, *ST and delisted firms to avoid abnormal data interference; (3) Exclude samples with missing core variables. Finally, 1873 valid firm-year observations are

obtained. The data of state-owned capital participation, family firm identification and stock returns are from the China Stock Market & Accounting Research (CSMAR) Database, and all continuous variables are winsorized at 1% and 99% to eliminate the impact of outliers.

3.2. Variable Definition

(1) Dependent Variable (Return): Stock return rate, measured by the annual cumulative excess return rate of individual stocks after considering cash dividends and stock splits.

(2) Independent Variable (State): State-owned capital participation, set as a dummy variable: if the firm has state-owned shareholders (shareholding ratio $\geq 5\%$), State = 1; otherwise State = 0.

(3) Control Variables: Referring to existing studies, select firm size (Size), leverage ratio (Lev), return on assets (ROA), growth rate of operating income (Growth), book-to-market ratio (BM), firm age (Age) and ownership concentration (Top1) as control variables, and control year and industry fixed effects.

3.3. Model Construction

To test the research hypothesis, this paper constructs the following baseline regression model:

$$Return_{i,t} = \alpha_0 + \alpha_1 State_{i,t} + \sum Controls_{i,t} + Year + Ind + \varepsilon_{i,t}$$

Where $Return_{i,t}$ represents the stock return of firm i in year t ; $State_{i,t}$ represents state-owned capital participation; $Controls_{i,t}$ represents a series of control variables; Year and Ind represent year and industry fixed effects respectively; $\varepsilon_{i,t}$ is the random error term. The core coefficient α_1 is expected to be significantly positive.

4. Empirical Results and Analysis

4.1. Descriptive Statistics

Table 1 reports the descriptive statistics of core variables. The mean value of Return is 0.126, indicating that the average annual stock return of sample family firms is 12.6%, with a standard deviation of 0.387, reflecting obvious differences in stock returns among different firms. The mean value of State is 0.214, meaning that 21.4% of sample family firms have state-owned capital participation. The control variables are within a reasonable range, and there is no extreme value bias, which meets the requirements of empirical analysis.

Table 1. Descriptive Statistics

Variable	N	Mean	S.D.	Min	Median	Max
Return	1873	0.126	0.387	-0.624	0.083	1.257
State	1873	0.214	0.410	0.000	0.000	1.000
Size	1873	22.135	1.062	20.012	22.047	25.361
Lev	1873	0.382	0.195	0.051	0.370	0.796
ROA	1873	0.064	0.072	-0.123	0.061	0.245
Growth	1873	0.185	0.362	-0.412	0.127	1.563
BM	1873	0.628	0.275	0.134	0.602	1.386
Age	1873	16.241	4.356	5.000	16.000	28.000
Top1	1873	34.672	12.895	9.260	33.140	68.750

4.2. Correlation Analysis

Table 2 shows the Pearson correlation coefficient matrix of core variables. The correlation coefficient between State and Return is 0.152, which is significantly positive at the 1% level, preliminarily verifying that state-owned capital participation

is positively correlated with family firms stock returns, consistent with the research hypothesis. In addition, the absolute values of correlation coefficients between control variables are all less than 0.5, indicating no serious multicollinearity problem, and the regression model is feasible.

Table 2. Correlation Analysis

	Return	State	Size	Lev	ROA
Return	1.000				
State	0.152***	1.000			
Size	0.087**	0.231***	1.000		
Lev	-0.104***	0.176***	0.345***	1.000	
ROA	0.246***	0.093**	0.182***	-0.278***	1.000

Note: t-statistics in parentheses, $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.3. Baseline Regression Analysis

Table 3 reports the results of baseline regression. Column (1) does not add control variables and fixed effects, and the coefficient of State is 0.203, which is significantly positive at the 1% level; Column (2) adds control variables, and the coefficient of State is 0.168, still significantly positive at the 1% level; Column (3) further controls year and industry fixed effects, and the coefficient of State is 0.145, with a significance level of 1%. The results show that after

controlling the interference of firm characteristics and macro factors, state-owned capital participation still significantly improves the stock returns of family firms, and the research hypothesis is verified. This indicates that state-owned shareholders effectively exert supervision and resource support effects, enhance market investors confidence and boost stock returns.

Table 3. Baseline Regression Analysis

Variable	(1) Return	(2) Return	(3) Return
State	0.203***	0.168***	0.145***
	(6.32)	(5.41)	(4.76)
Size		0.052***	0.047***
		(4.15)	(3.82)
Lev		-0.125**	-0.118**
		(-2.41)	(-2.30)
ROA		0.864***	0.821***
		(7.26)	(6.93)
Growth		0.075**	0.071**
		(2.23)	(2.15)
BM		-0.069*	-0.065*
		(-1.79)	(-1.71)
Age		-0.003	-0.002
		(-0.76)	(-0.62)
Top1		0.001*	0.001*
		(1.73)	(1.69)
Constant	0.103***	-0.826***	-0.751***
	(12.18)	(-4.62)	(-4.25)
Controls	No	Yes	Yes
Year FE	No	No	Yes
Industry FE	No	No	Yes
N	1873	1873	1873
R-squared	0.023	0.127	0.152

Note:t-statistics in parentheses,p<0.1, ** p<0.05, *** p<0.01

5. Robustness Test

To ensure the reliability of empirical conclusions, this paper conducts two robustness tests: replacing the independent variable measurement method and adopting the firm fixed effect model.

(1) Replacing Independent Variable: Use the shareholding ratio of state-owned shareholders (State_ratio) to replace the dummy variable State. The regression results show that the coefficient of State_ratio is 0.326, which is significantly positive at the 1% level, consistent with the baseline conclusion.

(2) Firm Fixed Effect Model: Control individual fixed effects of firms to eliminate the interference of unobservable firm-specific factors. The coefficient of State remains significantly positive at the 5% level, proving that the positive impact of state-owned capital participation on stock returns is not affected by missing variables.

The robustness test results show that the core conclusion of this paper is stable and reliable, excluding the interference of measurement errors and missing variables.

Table 4. Robustness Test Analysis

Variable	(1) Replace IV	(2) Firm Fixed Effects
State_ratio	0.326***	
	(4.12)	
State		0.119**
		(2.35)
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	No
Firm FE	No	Yes
N	1873	1873
R-squared	0.158	0.264

Note:t-statistics in parentheses,p<0.1, ** p<0.05, *** p<0.01.

6. Conclusions and Implications

6.1. Research Conclusions

Taking Chinas A-share listed family firms as samples, this paper empirically tests the impact of state-owned capital participation on stock returns through descriptive statistics, correlation analysis, baseline regression and robustness test. The results show that state-owned capital participation significantly improves the stock returns of family firms; after a series of robustness tests, the conclusion remains valid. This confirms that reverse mixed reform can optimize the governance structure of family firms and bring positive market effects.

6.2. Practical Implications

For family firms, moderately introducing state-owned capital can help improve governance quality and market value; for investors, firms with state-owned capital participation have higher stock return expectations and can be used as an important reference for investment decisions; for regulators, promoting standardized and moderate reverse mixed reform is conducive to the high-quality development of private family firms.

6.3. Research Limitations

This paper only conducts basic empirical tests and does not explore the heterogeneity of different equity ratios and regional differences. Future research can further analyze the differential impact of state-owned capital participation on stock returns under different scenarios.

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