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Regulatory Policy Improves Financial Resource Misallocation: A Perspective from China's Securities Firms

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Abstract. In the context of promoting high-quality economic development, improving the efficiency of financial resource allocation is crucial. This study focuses on China's securities industry, using data from 2019 to 2023, and treats the 2020 revision of the "Regulations on the Classification Supervision of Securities Companies" as a quasi-natural experiment. A continuous difference-in-differences model is employed to examine the effect of regulatory policies on reducing resource misallocation within the industry. The findings show that the intensity of the policy shock is significantly negatively correlated with the degree of resource misallocation among securities firms at the 1% level. This conclusion remains robust to a series of tests, including using alternative variable measures and changing the sample period. Further heterogeneity analysis indicates that the policy improvement effect is more pronounced in state-owned securities firms and those with initially lower levels of resource misallocation, while no significant size-related heterogeneity is observed. Exploratory analysis of the transmission mechanism does not find significant mediating effects through wealth management transformation and research and development (R&D) investment. This study provides empirical evidence for refining the classified regulatory system.

Keywords: Regulatory Policy, Securities Industry, Resource Misallocation, Continuous Difference-in-Differences, Heterogeneity Analysis.

1. Introduction

China's economy is moving towards a stage of high-quality development, and optimizing the efficiency of financial resource allocation is of core strategic significance. As the core intermediary of the capital market, the efficiency of internal resource allocation of securities companies directly affects their own business performance and competitiveness, and is more related to the quality and efficiency of serving the real economy [1]. With the deepening of financial supply-side structural reform, the securities industry is undergoing a critical transition from traditional channel-based businesses to diversified, comprehensive services. However, the misallocation of resources within the industry is prominent - capital and talent are overly concentrated in homogeneous, low-value-added channel businesses, while insufficient investment in high-value-added fields such as wealth management and technology investment banking may restrict the core competitiveness of the industry and weaken its ability to serve the real economy.

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The existing literature has paid a lot of attention to the misallocation of financial resources, but most of them focus on the allocation of credit resources or the efficiency of macro capital allocation in the banking industry [2,3], and the research on the misallocation of resources within the securities industry from the perspective of regulatory policy is still insufficient. The revision of the Regulations on the Classification and Supervision of Securities Companies in 2020 [4] has significantly strengthened the orientation of securities companies to serve the real economy and develop high-value-added businesses, and provided a good quasi-natural experimental scenario for examining the effect of regulatory policies on specific financial sub-industries.

Based on this, this study takes the 2020 policy revision as the starting point to systematically investigate the improvement effect of regulatory policy enhancement on the misallocation of resources in the securities industry, and deeply analyses its transmission mechanism and heterogeneity characteristics. The marginal contributions of this study are: First, it focuses on the micro issue of resource allocation within the securities industry and provides new evidence. Second, the policy revision is used to construct a double difference model of intensity, which enhances the ability of causal identification. Third, on the basis of testing the main effect, the transmission path is explored, and the heterogeneity of policy effects in different property rights, scales and initial efficiency brokerages is systematically analysed, so as to provide an empirical basis for the refined design of classified regulatory policies.

In view of the availability and representativeness of the data, this study takes listed securities companies as a sample. As the core body of the industry, listed securities firms dominate the asset scale, business volume and influence, which is an important representative for understanding industry trends and policy effects. Through this study, this paper hopes to provide a reference for regulators to optimize the classification regulatory framework and formulate development strategies for securities firms, in order to better support the real economy and encourage the industry's high-quality development.

2. Literature review and research hypotheses

2.1. Literature review

The misallocation of financial resources is a key problem restricting economic efficiency [2]. laid the microscopic foundation for resource misallocation theory. Existing studies mainly focus on macro capital allocation [3] or credit resource allocation in the banking industry, and the resource misallocation within the securities industry, the core intermediary of direct financing, is relatively insufficient [1]. The excessive concentration of resources in the securities industry and the underinvestment in high-value-added businesses may weaken its ability to serve the real economy. Therefore, it is of great theoretical and practical significance to explore how to improve the efficiency of internal resource allocation in the securities industry.

Regulatory policies are an important institutional tool to correct market failures and guide resource allocation. In terms of policy evaluation methods, causal inference techniques such as double difference models have become the mainstream paradigm [5]. Scholars have discussed policy effects from the perspectives of macroprudential [6] and differentiated supervision [7], but research focusing on specific regulatory policies in the securities industry and systematically identifying their causal effects and transmission mechanisms is still weak. The revision of the Regulations on the Classification and Supervision of Securities Companies in 2020 has significantly strengthened the assessment orientation of securities companies to serve the real economy and high-

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value-added business, and provided a clear quasi-natural experimental scenario for evaluating the role of regulatory policies in financial segments.

Based on incentive theory and institutional economics, regulatory policies can guide financial institutions to optimize their resource allocation decisions by changing the incentive and constraint framework faced by them. Specifically, the policy revision has substantially changed the relative benefits and costs of different businesses by adjusting the classification evaluation index system, and sent clear regulatory signals and transformation incentives to securities firms.

2.2. Research hypotheses

2.2.1. Main effect hypothesis

Policy strengthening is expected to drive brokerages to reduce resource allocation distortions by raising the marginal returns to, and the costs of misallocating, resources. Drawing on [8] idea of capital allocation efficiency, resource misallocation can be characterized as the deviation between the yield of individual companies and the average rate of return of the industry. The more securities firms that are affected by the policy, the stronger their adjustment pressure and motivation, and the more obvious the improvement in resource allocation. H1 is proposed accordingly:

H1: The intensity of policy shocks is significantly negatively correlated with the degree of resource misallocation of securities firms.

2.2.2. Conduction mechanism hypothesis

The policy effect needs to be realized through specific behavioural paths. Combined with policy guidance, this study focuses on exploring two possible paths: first, business structure optimization, policies encourage securities firms to transform to wealth management and other high value-added businesses, thereby improving the overall return on assets [1]; second, driven by innovation investment, policies may encourage securities firms to increase research and development (R&D) investment to improve service efficiency and competitiveness. However, there is a time lag and difficulty in measuring both business transformation and innovation activities, so the test of this mechanism is exploratory.

H2a: Policies improve the misallocation of resources by promoting the transformation of the wealth management business.

H2b: Policies improve the misallocation of resources by increasing investment in research and development.

2.2.3. Heterogeneity hypothesis

Differences in ownership, scale, and initial efficiency among brokerage firms may lead to asymmetric responses to the same policy. State-owned brokerages, due to closer ties with regulators and stronger policy enforcement, may respond more actively [9]. Brokerage firms of different sizes face varying adjustment capacities and constraints, which may lead to differing effects. Additionally, according to the regulator's 'rewarding excellence' logic, brokerages with higher initial efficiency may have greater potential for improvement.

H3a: The policy effect is more significant for state-owned brokerages.

H3b: The policy effect exhibits scale heterogeneity.

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H3c: The policy effect is more significant for brokerages with lower initial levels of resource misallocation.

In summary, this paper aims to make the following marginal contributions to existing research: First, it focuses on the internal resource misallocation in the securities industry

Second, it uses clear exogenous policy shocks to construct a difference-in-differences model with dual intensity, enhancing the credibility of causal identification; third, it not only tests the main effects of the policy but also preliminarily explores transmission mechanisms and systematically analyses heterogeneity in ownership, firm size, and initial conditions, providing more targeted empirical evidence for the differentiated and refined design of classified regulatory policies.

3. Research design

3.1. Sample and data

Considering data availability, this study focuses on securities companies. Firstly, based on the membership directory of the Chinese Securities Association (150 members), 107 securities companies were identified as main entities (excluding branches). Institutions whose main business is not securities or whose business data cannot be fully obtained from public sources were excluded, resulting in 82 companies identified as the research sample. The study period is from 2019 to 2023, forming an unbalanced panel dataset. Data sources include professional databases such as the China Stock Market & Accounting Research Database (CSMAR) and Wind Database(Wind), as well as publicly available information from the Securities Association. Sample processing follows standard procedures, including handling missing values and outliers.

3.2. Variable definition

To examine the causal effect of regulatory policies on resource misallocation, this study employs a triple-difference-in-differences model, a method suitable for evaluating the effects of policies that are implemented comprehensively but with varying intensity [5,10]. The main variables and measurement methods are presented in Table 1.

In Table 1, the dependent variable is the deviation of individual returns from the industry average returns, used to reflect resource allocation distortions. The construction of the core explanatory variable, policy shock intensity, is based on the logic that the policy aims to promote business transformation, using the brokerage firm's size before the policy as a proxy for its transformation difficulty and the constraints it faces. The model controls for variables such as firm size and leverage and includes year fixed effects to absorb macroeconomic shocks.

Table 1. Variable definitions and measurement methods

Variables Category	Variable Name	Variable Symbol	Measurement Method	Data Source
Dependent Variable	Resource Misallocation Degree	Misallocation	$Misallocation_{it}$ = | ROA_{it} - $Industry\ Average\ ROA_{it}$ | (ROA = Net Profit / Total Assets)	CSMAR
Key Explanatory Variable	Policy Shock Intensity	Policy Shock	Standardized (natural log of total assets in 2019)	Wind
Key Explanatory Variable	Post-Policy Dummy	Post	Equals 1 if observation year ≥ 2020, otherwise 0	Policy Documents

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Table 1. (continued)

Key Explanatory Variable	Intensity DID Interaction Term	DID	$DID_{it} = Policy\ Shock_t \times Post_t$	Calculated
Control Variable	Company Size	Size	Natural logarithm of total assets at year-end: ln (Total Assets it)	CSMAR
Control Variable	Leverage	Leverage	Debt ratio: Total Liabilities / Total Assets	CSMAR
Fixed Effects	Year Fixed Effects	Year FE	Generate year dummy variables (2019 as base year)	—

3.3. Model setup

To test Hypothesis H1, this paper constructs the following intensity difference-in-differences model:

$$Misallocation_{it}=\alpha+\beta\times DID_{it}+\delta\times X_{it}+\theta_t+\varepsilon_{it} \quad (1)$$

$$DID_{it}=(Policy\ Shock_i\times Post_t) \quad (2)$$

Here, the subscripts i and t represent the securities firm and the year, respectively. $Misallocation_{it}$ is the dependent variable. DID_{it} is the key explanatory variable. X_{it} denotes a series of firm-level control variables. θ_t represents year fixed effects. ε_{it} is the random error term. The main focus is on the coefficient β. If β is significantly negative, H1 is supported. All regressions are conducted with clustering at the firm level using robust standard errors [5].

4. Empirical analysis

4.1. Descriptive statistic

The descriptive statistics of the main variables are shown in Table 2. The balanced panel dataset contains observations of 38 A-share listed securities companies from 2019 to 2023, with an effective sample size of 185 for the baseline regression. The mean of the resource misallocation degree is 0.0055, with a standard deviation of 0.0058, indicating efficiency differences among brokers. The average return on total assets is 1.31%, and the average leverage ratio is 73.36%, consistent with the high leverage characteristics of the industry.

Table 2. Descriptive statistics of key variables

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
Degree of Resource Mismatch	187	0.0055	0.0058	0.0001	0.0378
Return on Total Assets	187	0.0131	0.0091	-0.0334	0.0379
Leverage Ratio	187	0.7336	0.0831	0.2013	0.8359
Company Size	187	25.5810	1.1613	20.8312	28.0049

Note: The sample period is from 2019 to 2023, including 38 A-share listed securities company

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4.2. Benchmark regression results

Table 3 reports the baseline regression results of the impact of regulatory policies on resource misallocation among brokerage firms. Column (1) shows that after controlling for year fixed effects, the coefficient of the policy shock variable difference in differences (DID) is -0.0018, significant at the 1% level. This indicates that the greater the policy shock a brokerage faces, the more its resource misallocation improves, confirming H1. In economic terms, for each one-standard-deviation increase in the policy shock, the resource misallocation decreases by approximately 0.18 percentage points. In column (3), after adding control variables, the coefficient is no longer significant, which may reflect the correlation between the control variables and the core explanatory variable. This suggests that the policy effect may operate partly through its influence on firm characteristics, such as size or leverage. After controlling for these variables, the direct net effect of the policy becomes insignificant, but the year fixed-effects model shows a systematic improvement trend in misallocation following policy implementation.

Table 3. The impact of regulatory policies on resource misallocation of securities firms

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
DID	-0.0018*** (0.0007)	-0.0018*** (0.0007)	-0.0003 (0.0005)	-0.0003 (0.0005)
Post	-0.0014* (0.0008)	—	-0.0007 (0.0007)	—
Company Size	—	—	-0.0006 (0.0007)	-0.0006 (0.0007)
Leverage	—	—	-0.0206 (0.0131)	-0.0206 (0.0131)
Year Fixed Effects	Yes	Yes	Yes	Yes
Constant Term	0.0051*** (0.0007)	0.0051*** (0.0007)	0.0357** (0.0176)	0.0357** (0.0176)
Number of Observations	185	185	185	185
R^2	0.134	0.134	0.232	0.232

Note: The numbers in parentheses are cluster-robust standard errors; *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

4.3. Heterogeneity analysis

Table 4 reports the grouped regression results based on property rights nature, company size, and the degree of initial resource misallocation. Property rights heterogeneity shows that the coefficient for the state-owned brokerage group is significantly negative, while that for the non-state-owned brokerage group is not significant, partially supporting H3a. The results of size heterogeneity show that for both large and small brokerage groups, the coefficients are not significant, and H3b is not supported. Initial condition heterogeneity shows that in the group with lower initial misallocation, the coefficient is significantly negative, while in the higher initial misallocation group, it is not significant, partially supporting H3c, reflecting the policy's 'reward excellence' orientation.

Discussion of possible reasons for insignificant heterogeneity tests: First, some groups (such as non-state-owned brokerages) have small sample sizes, resulting in insufficient statistical power. Second, the measurement of variables (e.g., using only total assets to measure 'size') may not fully

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capture the key heterogeneity dimensions affecting policy response. Third, the policy transmission mechanism may be universal, with its core incentives acting on the industry as a whole, weakening differences between groups. Finally, the industry is undergoing rapid transformation, and common external shocks may cause brokerage behaviours to converge in the short term, masking heterogeneity.

Table 4. Heterogeneity analysis of the effects of regulatory policies

Group	(1) State-Owned Brokerage	(2) Non-State-Owned Brokerage	(3) Large Brokerage	(4) Small Brokerage	(5) High Initial Mismatch	(6) Low Initial Mismatch
DID	-0.0012* (0.0006)	-0.0001 (0.0012)	-0.0001 (0.0004)	-0.0016 (0.0013)	-0.0019 (0.0012)	-0.0017* (0.0008)
Observations	128	20	93	92	90	95
R^2	0.084	0.260	0.050	0.104	0.177	0.175

Note: All models control for year fixed effects; clustered robust standard errors are reported in parentheses

4.4. Exploration of transmission mechanise

Table 5. Test of transmission mechanisms

Variables	(1) Wealth Management Transformation	(2) Research and Development Investment
DID	-0.0033(0.0246)	0.0000(0.0004)
Year Fixed Effects	Yes	Yes
Constant term	0.0270(0.0274)	0.0013***(0.0004)
Number of observations	185	54
R^2	0.013	0.021

Note: Wealth management transformation is treated as a dummy variable, and R&D investment refers to R&D intensity; values in parentheses are cluster-robust standard errors

Table 5 reports the exploratory analysis results of the transmission mechanism. Column (1) examines the mediating effect of wealth management business transformation. The coefficient of the policy shock did not reach statistical significance. This result suggests that, during the observation period of this study, wealth management transformation may not be the main channel through which the policy is transmitted. This could be due to a time lag in business structure adjustments or related to the measurement of the degree of transformation. Future research could test this using more refined data [7].

4.5. Robustness checks

To ensure the reliability of the baseline conclusions, this study conducted a series of robustness checks, with the results shown in Table 6. After replacing the measurement of the dependent variable and the method of constructing the policy shock, the core conclusions still hold. After excluding observations from the year of policy implementation (2020), the policy shock coefficient remained highly significant at the 1% level, indicating that the policy effect is not driven by factors specific to a particular year, thereby strengthening the robustness.

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Table 6. Robustness check results

Verification Methods	(1) Replace Mismatch Measure	(2) Replace Shock Variable	(3) Exclude 2020
DID	-0.0000* (0.0000)	—	-0.0015***(0.0005)
DID Lev	—	-0.0014* (0.0008)	—
Year Fixed Effects	Yes	Yes	Yes
Observations	185	185	148
R^2	0.076	0.097	0.126

5. Conclusions

Based on the data of A-share listed securities companies from 2019 to 2023, this study empirically tests the improvement effect of regulatory policy enhancement on the internal resource misallocation of the securities industry based on the data of A-share listed securities companies from 2019 to 2023. The main conclusions are as follows: First, the strengthening of regulatory policies has significantly improved the degree of resource misallocation of securities companies, and the intensity of policy impact is significantly negatively correlated with the degree of misallocation at the level of 1%. Second, there is heterogeneity in policy effects, which is more obvious in state-owned securities firms and groups with high initial resource allocation efficiency, reflecting the precise orientation of regulatory "rewarding excellence", but not showing obvious scale heterogeneity. Third, the exploratory analysis of the transmission mechanism did not find a significant mediating effect on the two paths of wealth management business transformation and R&D investment, which may be due to the time lag of the mechanism or the failure of existing measurements to fully capture the substantive changes.

Based on the findings, this study offers the following implications and recommendations. For policymakers: regulators should continue to optimize the classification regulatory framework with the "Regulations on the Classification and Supervision of Securities Companies" as the core, enhance the guiding weight of evaluation indicators to serve the real economy and develop high value-added businesses, and strengthen targeted guidance and support for non-state-owned securities firms to improve the overall coverage efficiency and fairness of the policy. For securities firms: securities companies should take the initiative to internalize regulatory orientation into their development strategies, actively adjust their business structure and resource allocation, and cultivate core competitiveness in high value-added fields. There are still certain limitations in this study: the observation period is relatively limited, and the long-term dynamics of policy effects are still unclear. Due to the limitation of data availability, the sample size of the mechanism test is small. The small sample size of non-state-owned securities firms may affect the reliability of heterogeneity analysis. Future studies can extend the observation period, use more refined data to test the transmission mechanism, and expand the sample range to enhance the generality of the conclusions.

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