China's Stock Buyback Special Re-lending Facility: Undervaluation Signal or Policy Mandate?

by

Yunhan Shi

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Professor Marti G. Subrahmanyam Professor Christina Wang Professor Wendy Jin	Professor Jeffrey Wurgler
Faculty Advisers	Thesis Adviser

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Abstract

In late 2024, the People's Bank of China (PBOC) introduced a targeted stock buyback re-lending facility to provide liquidity support to the A-share equity market. This study empirically investigates the market pricing dynamics, cross-sectional heterogeneity, and corporate motives associated with this monetary intervention. Utilizing an event study methodology alongside post-policy capital deployment data, we document a statistically significant, positive mean wealth effect. However, the aggregate market reaction exhibits pronounced right-skewness; while the mean Cumulative Abnormal Return (CAR) is positive, the median firm actually contracted its repurchase expenditure, indicating that the policy facilitated concentrated capital deployments rather than a uniform market expansion. Cross-sectional analysis reveals profound geographic heterogeneity in the policy's transmission. Firms headquartered in historically less-financialized inland provinces (such as Anhui, Henan, and Xinjiang) exhibited highly significant positive revaluations. Conversely, the policy yielded starkly divergent effects among highly developed financial hubs; while regions such as Guangdong and Beijing registered positive market reactions, firms in specific tier-1 ecosystems—notably Shanghai and Jiangsu—registered completely negligible reactions despite massive sample sizes. This localized divergence suggests that the policy's efficacy is closely linked to pre-existing regional credit frictions and capital saturation, highlighting the nuanced role of financial geography. Cross-sectional regressions confirm that the most robust predictor of announcement returns is firm ownership: state-owned enterprises earn approximately 1.9 percentage points lower CARs than private firms ($p < 0.01$), an effect that deepens at longer horizons and survives all controls including industry fixed effects. Furthermore, an evaluation of corporate dividend yields relative to the loan cost of capital indicates that a majority of participating firms executed net-costly repurchases. Under the policy ceiling of 2.25%, 76.99% of buyback events involve firms whose dividend yield falls below the borrowing cost; using the empirical mean loan rate of 2.05% observed from disclosed contracts, this proportion narrows to 55.7% among Main Board firms. Both estimates confirm that the facility primarily functioned as a separating equilibrium, facilitating credible undervaluation signaling rather than risk-free financial arbitrage. We conclude that uniform liquidity interventions exhibit diminishing marginal utility in fragmented financial ecosystems, and we propose transitioning toward regionally targeted macro-prudential frameworks to optimize central bank resource allocation.

Keywords: Event Study; Stock Repurchases; Monetary Policy; Credit Frictions; Corporate Signaling; China A-Share Market

1 Introduction

1.1 Background and the Evolution of Market Stabilization

Stock repurchases have increasingly become a primary mechanism for corporate payout and undervaluation signaling in global financial markets. In the context of the China A-share market, these corporate actions carry unique systemic importance due to the market's distinct microstructure. Unlike highly institutionalized Western markets, the A-share market is fundamentally characterized by a disproportionately high rate of retail participation. Academic literature estimates that retail investors account for over 80% of the daily trading volume in China (Carpenter & Whitelaw, 2017). This retail dominance subjects the market to amplified behavioral biases and herd mentalities, frequently driving equity prices significantly below their fundamental intrinsic values (Allen et al., 2017).

To counteract this inherent volatility and safeguard systemic financial stability, Chinese regulatory authorities have historically intervened to actively manage equity valuations. During the severe market contraction of 2015, regulatory bodies relied on heavily centralized interventions. Huang, Miao, and Wang (2019) analyzed this crash, noting a systemic reliance on the "National Team"—a consortium of state-owned financial institutions and sovereign wealth funds that executed direct equity purchases to establish a rigid liquidity floor. While effective in halting immediate panic, this highly centralized model frequently resulted in capital misallocation and crowded out private price discovery.

Recognizing the limitations of centralized purchasing, the state began cultivating a decentralized stabilization framework. A pivotal regulatory shift occurred in October 2018, when the Standing Committee of the National People's Congress amended the *Company Law* to relax restrictions on share repurchases. Following this amendment, the China Securities Regulatory Commission (CSRC) issued official guidelines actively encouraging listed firms to utilize buybacks to "safeguard company value and shareholders' rights," formally establishing repurchases as a state-sanctioned tool for market self-correction (CSRC, 2018).

The market reflation efforts initiated in late 2024 represent the culmination of this evolution, signaling a paradigm shift toward a **Hybrid Stabilization Model**. Under this framework, the National Team continues to support mega-caps via direct benchmark ETF purchases, while new macroprudential monetary tools decentralize broader market stabilization by incentivizing individual firms to engage in valuation self-correction. In certain illiquid or credit-constrained regions, such localized state support acts as a critical signal of solvency, effectively providing a "government seal of safety" that alleviates localized credit frictions.

1.2 The 2024 Stock Buyback Special Re-lending Facility

In September 2024, the People's Bank of China (PBOC) introduced a novel structural monetary policy tool, injecting CNY 300 billion in targeted re-lending funds. The official directive stated that the facility aimed to "guide financial institutions to provide loans to listed companies and their major shareholders to support the repurchase and holding of shares" (PBOC, 2024). This is a completely novel measure and a huge policy turning point-regulators used to implement strict restrictions on loan from commercial banks flowing to the stock market.

The operational mechanics of this facility utilize a tiered pricing structure that highlights the unique role of commercial banks in policy transmission. While the PBOC established a maximum interest rate ceiling of 2.25% for the broader market, some commercial banks operate with little to zero spread from the 1.75% rate they get from PBOC. A prominent example is **Hengyi Petrochemical (000703)**, which secured a loan from the **Agricultural Bank of China (ABC)** at this 1.75% floor (Jiemian News, 2024).

To maximize the facility's reach, the PBOC further expanded the parameters: increasing financing leverage to **90% of the actual buyback funds**, extending loan maturities to **three years**, and encouraging the issuance of **unsecured credit loans** (信用贷款). However, the 2.25% cap for subsequent participants, combined with the mandate that commercial banks bear 100% of the default risk remains unchanged.

1.3 Theoretical Framework: Signaling vs. Agency Costs

The primary theoretical lens for interpreting market reactions to these share repurchases is the **Information Signaling Hypothesis**. Rooted in the foundational work of Bhattacharya (1979), signaling theory posits that corporate managers possess asymmetric information regarding their firm's intrinsic value. As articulated by Ikenberry, Lakonishok, and Vermaelen (1995), a buyback announcement serves as a credible signal of managerial optimism because "managers, acting on behalf of current shareholders, will repurchase shares when they believe they are undervalued."

However, the introduction of subsidized debt complicates the credibility of this signal. A critical area of academic inquiry concerns whether debt-funded buybacks incentivize genuine value creation or merely facilitate Earnings Per Share (EPS) management and alleviate the agency costs of free cash flow (Jensen, 1986). Hribar, Jenkins, and Johnson (2006) demonstrate that firms frequently utilize repurchases as a financial engineering device to "beat" analyst EPS forecasts, a tactic the market historically discounts as a low-quality signal. Furthermore, Almeida, Fos, and Kronlund (2016) provide empirical evidence that EPS-motivated repurchases lead to adverse "Real Effects," causing managers to systematically sacrifice R&D expenditure and capital investment

(Capex) to fund the repurchases.

1.4 Problem Statement and Research Questions

The availability of subsidized corporate debt capped at 2.25% introduces a complex behavioral dichotomy for listed firms, bifurcating corporate motives into two distinct paths:

- **The Arbitrage Path (Positive Carry):** For firms with a dividend yield strictly greater than 2.25%, the cost of debt is mathematically lower than the cash flow saved by retiring shares, creating a purely mechanical financial arbitrage incentive.
- **The Signaling Path (Negative Carry):** For firms with a dividend yield below 2.25%, taking on debt to repurchase shares results in a negative carry. In this scenario, executing the buyback is net-costly, thereby serving as a credible, unforgeable signal of intrinsic undervaluation.

This thesis investigates the market efficacy of this novel facility by examining the cross-sectional data surrounding the late-2024 policy implementation. Specifically, this study seeks to answer the following core research questions:

1. **Aggregate Market Efficacy:** Does the decentralized re-lending facility effectively support equity valuations, and do participating firms exhibit statistically significant Cumulative Abnormal Returns (CAR) following debt-funded buyback announcements?
2. **Cross-Sectional Heterogeneity and Credit Rationing:** How do structural factors—specifically regional capital saturation in tier-1 financial hubs versus historical credit frictions in inland provinces—amplify or mute the efficacy of the buyback signal?
3. **Motive Decomposition:** Does the market interpret these highly leveraged repurchases as a credible signal of long-term undervaluation, or are corporate participants merely exploiting the subsidized 2.25% interest rate for mechanical arbitrage?

1.5 Organization of the Study

The remainder of this thesis is structured as follows. Chapter 2 provides a comprehensive literature review, synthesizing theories of information asymmetry, agency costs of free cash flow, and financial geography. Chapter 3 outlines the event study methodology and the data partitioning framework utilized to analyze the A-share buyback events. Chapter 4 presents the empirical results,

detailing the aggregate wealth effects, robustness across multiple event windows, cross-sectional geographic and ownership disparities, and formal regression analysis. Chapter 5 discusses the theoretical implications of these findings, assessing how localized credit rationing and tax clientele effects distort the transmission of monetary policy. Finally, Chapter 6 concludes the thesis and outlines targeted macro-prudential policy recommendations for regulatory authorities.

2 Literature Review

This section synthesizes the foundational academic frameworks and recent policy directives that underpin corporate share repurchases and state-led market stabilization. By examining the intersections of information asymmetry, agency costs, and institutional credit frictions, this review establishes the theoretical grounding necessary to evaluate the market efficacy of China's 2024 Stock Buyback Special Re-lending Facility.

2.1 Foundations of Corporate Payout and the Signaling Hypothesis

Corporate payout policy represents a central pillar of modern finance. While Modigliani and Miller (1961) argued for payout irrelevance in frictionless markets, the presence of information asymmetry necessitates a strategic choice between dividends and repurchases. Rooted in the canonical work of Spence (1973) on signaling, Vermaelen (1981) and Ikenberry, Lakonishok, and Vermaelen (1995) posited the **Information Signaling Hypothesis**: managers utilize buybacks to signal undervaluation. Grullon and Michaely (2004) further examine the information content of repurchase programs, finding that open market share repurchases convey information about reductions in systematic risk and cost of capital rather than increases in future cash flows.

In the China A-share market, this signal is particularly vital due to the high rate of retail participation, which historically accounts for over 80% of trading volume (Carpenter & Whitelaw, 2017). This retail dominance often drives prices significantly below fundamental values due to behavioral biases (Allen et al., 2017), making a credible, "costly" signal like a debt-funded buyback essential for market anchoring.

2.2 Institutional Credit Frictions and the Theory of Credit Rationing

The efficacy of the 2024 PBOC facility is theoretically constrained by the mechanics of **Credit Rationing**. As modeled by Stiglitz and Weiss (1981), when interest rates are artificially capped below the market-clearing rate for risk, banks will rationally refuse to lend to riskier entities entirely.

This theoretical friction is exacerbated by the specific mandates of the PBOC (2024) directive, which encourages **unsecured credit loans (**信用贷款**)** with leverage up to 90% and three-year maturities. Because the facility imposes a rigid **2.25% interest rate ceiling**, commercial banks—who must bear 100% of the default risk—are legally prohibited from pricing in the risk of volatile private enterprises. Consequently, banks engage in **adverse selection**, preferentially directing liquidity toward mega-cap State-Owned Enterprises (SOEs) where implicit government backing serves as "phantom collateral."

2.3 Agency Costs, EPS Management, and Real Effects

While signaling theory suggests optimism, the **Free Cash Flow Hypothesis** (Jensen, 1986) warns that managers may use subsidized debt to resolve agency conflicts rather than signal value. Hribar, Jenkins, and Johnson (2006) demonstrate that repurchases are frequently used as an **Earnings Per Share (EPS) management device** to beat analyst forecasts.

Furthermore, Almeida, Fos, and Kronlund (2016) provide evidence that EPS-motivated repurchases lead to adverse "Real Effects," causing firms to systematically reduce R&D and capital expenditure (Capex). In the context of the PBOC's 2.25% cap, there is a risk of "Signaling Arbitrage," where mature firms utilize cheap credit for short-term valuation stability at the expense of long-term innovation, particularly in saturated coastal hubs.

2.4 Regional Divergence and the Financial Geography of China

The interaction between decentralized monetary policy and China's heterogeneous regional economies is explained by the theory of **Financing Constraints** (Fazzari, Hubbard, and Petersen, 1988). In inland, historically credit-constrained provinces, firms face high external financing premiums. In these environments, the acquisition of a state-sanctioned, low-interest loan may serve as a meaningful fundamental catalyst.

Conversely, in hyper-efficient coastal hubs like Shanghai, capital access is largely frictionless, and state support is already ubiquitous via the "National Team's" ETF interventions (Huang, Miao, & Wang, 2019). This contrast suggests that the marginal utility of a decentralized buyback signal is inversely proportional to the pre-existing level of regional financial development.

2.5 Synthesis and Research Gap

While existing literature robustly documents buybacks in developed markets (Ikenberry et al., 1995; Almeida et al., 2016) and centralized state interventions in China (Huang et al., 2019), a distinct gap exists regarding state-subsidized, uncollateralized corporate signaling. This thesis seeks to fill that gap by analyzing whether the 2024 Hybrid Stabilization Model effectively bridges the divide between macroeconomic mandates and microeconomic value creation.

3 Data and Methodology

3.1 Data Sources and Event Definition

This study evaluates the market reaction to the implementation of China's stock buyback loan policies. The empirical analysis utilizes a synthesized dataset from three primary sources:

- **Market Data:** Daily trading data and corresponding benchmark index prices are extracted via the **Tushare API**. All historical prices are forward-adjusted to account for corporate actions such as stock splits and dividends. Industry classification follows the **Wind Level-1 sector taxonomy**; geographic and ownership classifications are sourced from the **Wind Financial Terminal**.
- **Event Data:** Share repurchase announcements and participation in the PBOC's special loan facility are sourced from the **Wind Financial Terminal** and validated against **CNINFO**, the official regulatory disclosure platform.
- **Loan Rate Data:** To refine the motive decomposition analysis, we supplement the event data with actual loan interest rates extracted from firm-level CNINFO disclosure documents. Using the CNINFO announcement search API, we identify and parse PDF announcements containing loan contract details for participating firms, extracting the disclosed interest rate via pattern matching. This yields 13 Main Board observations with verified loan rates, independently corroborated by official news reports.

The event day ($t = 0$) is defined as the exact date a firm formally announces its stock repurchase plan.

3.1.1 Summary Statistics

Table 1 presents the distributional characteristics of the key variables for the Main Board buyback loan sample.

Variable	N	Mean	Median	P25	P75
Loan Amount (RMB 10k)	511	25,057	14,400	7,200	28,000
Loan Term (months)	435	28.52	36	12	36
Dividend Yield (%)	433	2.26	1.81	0.97	3.18
Observed Loan Rate (%)	13	2.05	2.00	1.95	2.25

Note: Main Board buyback loan sample. Loan amount and term are event-level statistics. Dividend yield is the trailing 12-month yield at the announcement date, sourced from the Wind Financial Terminal. Observed loan rate is from the subsample of firms with publicly disclosed contract terms on CNINFO.

Table 1: Summary Statistics for Main Board Buyback Loan Events

3.2 Cumulative Abnormal Return (CAR) Calculation

To measure the policy's wealth effect, this study employs the **Market-Adjusted Return Model**. Because A-share equities can exhibit varying sensitivities to different market representations, the analysis calculates abnormal returns against a comprehensive suite of selected benchmark indices.

For a given stock i and benchmark m, the **Abnormal Return (AR)** on day t is the difference between the stock's actual return and the benchmark's return:

$$AR_{i,t} = R_{i,t} - R_{m,t}$$

The **Cumulative Abnormal Return (CAR)** is then computed by aggregating these daily excess returns over the designated event window $[T_1, T_2]$:

$$CAR_i(T_1, T_2) = \sum_{t=T_1}^{T_2} AR_{i,t}$$

To ensure that the observed wealth effects are robust across all tiers of the Chinese equity market and to eliminate potential estimation bias from index-specific weighting, this study utilizes eight distinct benchmark indices.

English Name	Chinese Name	Abbreviation	Market Segment
SSE Composite Index	上证指数	SHCOMP	Main Board (Shanghai)
SZSE Composite Index	深证综指	SZCOMP	Main Board (Shenzhen)
SSE 50 Index	上证50	SSE 50	Mega-cap Blue-chip
CSI 300 Index	沪深300	CSI 300	Broad Large-cap
CSI 500 Index	中证500	CSI 500	Mid-cap
CSI 1000 Index	中证1000	CSI 1000	Small-cap
CSI 2000 Index	中证2000	CSI 2000	Micro-cap
CSI All Shares Index	中证全指	CSI All	Total Market Proxy

Table 2: Benchmark Indices Used for Abnormal Return Estimation

3.3 Market-Wide Aggregate Analysis

The first phase of the empirical strategy examines the A-share market as a whole to determine if the buyback loan policy generated a strictly positive aggregate wealth effect ($CAR > 0$) across all selected benchmarks.

To ensure the robustness of the findings, a dual-testing framework is applied to the aggregate sample:

1. **Parametric Average Test:** A standard **One-Sample T-Test** is conducted to evaluate whether the mean CAR of the market is statistically greater than zero. The test statistic is calculated as:
$$t = \frac{\overline{CAR}}{S/\sqrt{N}}$$
where $\overline{CAR}$ is the sample mean, S is the sample standard deviation, and N is the number of observations.

2. **Non-Parametric Median Test:** Financial return data frequently violates the normality assumption due to excess kurtosis and skewness. To rigorously validate the mean test results, the **Wilcoxon Signed-Rank Test** is employed to determine if the true median of the CAR distribution is significantly greater than zero. This rank-based test is highly resilient to extreme outliers in the aggregate market data. The test statistic W is defined as:
$$W = \sum_{i=1}^{N_r} [\text{sgn}(CAR_i) \cdot R_i]$$

3.4 Cross-Sectional Heterogeneity: Sector and Region Analysis

After establishing the baseline market-wide reaction, the second phase of the analysis disaggregates the dataset to identify specific structural variations in how the policy was received.

Analytical Dimension	Rationale for Sub-Sample Testing
Sector / Industry	Industry classification follows the Wind Level-1 taxonomy. Different sectors exhibit varying degrees of capital intensity, cash flow stability, and growth prospects. Testing *CAR* across sectors isolates whether the buyback loan policy disproportionately benefits undervalued traditional industries versus high-growth technology sectors.
Geographic Region	Given the spatial variations in local government support and regional financial ecosystems across China, segmenting the sample by region tests whether local liquidity conditions or provincial economic policies amplified the central bank's initiative.

Table 3: Rationale for Cross-Sectional Sub-Sample Analysis

For each distinct sector and region, the identical dual-testing framework (Mean T-Test and Wilcoxon Median Test) is reapplied to ascertain if the subset's constituent stocks exhibit a statistically significant positive reaction against the benchmarks.

4 Empirical Results

4.1 Aggregate Buyback Dynamics and Corporate Participation

4.1.1 Changes in Firms Conducting Buybacks

Before evaluating market pricing effects via cumulative abnormal returns, this section establishes the behavioral baseline of participating firms around the policy window. The one-year post-policy period reflects structural reallocation rather than a uniform expansion in repurchase activity.

Despite the subsidized re-lending mechanism, the aggregate frequency of repurchases contracted. Within the Main Board, the number of executed buybacks declined from 1,147 in the year before the policy to 1,018 in the year after. During the first policy year, 743 loan-supported buyback events were recorded across the A-share market, of which 517 were linked to Main Board firms. Because some firms executed multiple buybacks, event counts exceed unique-firm counts. In total, 682 firms participated in the loan plan, including 476 Main Board firms.

This shift also reflects churn in participation. In the post-policy year, 406 prior repurchasing firms stopped buybacks, while 277 new firms initiated repurchase programs. This pattern suggests composition change rather than broad uniform stimulation: the facility appears to attract a specific subset of firms while others exit under changing macro-financial conditions.

4.1.2 Volume and Capital Expenditure Shifts

To quantify the magnitude of this behavioral shift, Table 4 details year-over-year changes in buyback execution metrics, expressed as a percentage of the pre-policy baseline (*Post*/*Pre*).

Statistic	**Repurchased Shares** *(% of Prior Year)*	**Capital Expended** *(% of Prior Year)*
Sum	89.64%	95.61%
Maximum	71.20%	163.04%
Minimum	0.29%	0.00%
Median	78.49%	74.76%
Mean	101.00%	107.73%

Note: Values represent the ratio of post-policy execution relative to the 1-year pre-policy window.

Table 4: Year-Over-Year Dynamics in Corporate Buyback Execution

The volume and expenditure profile remains highly right-skewed. Aggregate capital expended declined by 4.39% (Sum = 95.61%), and the median firm reduced buyback expenditure by more than 25% (Median = 74.76%). Yet mean capital expended increased by 7.73% (Mean = 107.73%), indicating concentration among a minority of large deployments.

4.1.3 Loan Participants

For loan characteristics, the event-level sample shows that the average loan amount is RMB 205,648,400, the median loan amount is RMB 100,000,000, and the average loan maturity is 28.59054 months. These values further support a concentrated-participation pattern: typical loans are moderate in size, while the mean is lifted by larger transactions in the upper tail.

4.1.4 Policy Timeline

Figure 1 illustrates the key milestones in the rollout of the buyback re-lending facility. The PBOC officially announced the facility on September 24, 2024. On October 18, 2024, the formal notice was issued to 21 designated commercial banks. The first batch of 23 firms publicly announced participation on October 20, 2024. Over the subsequent months, firm adoption steadily increased, reaching 682 unique firms (743 events) by the end of the observation period.

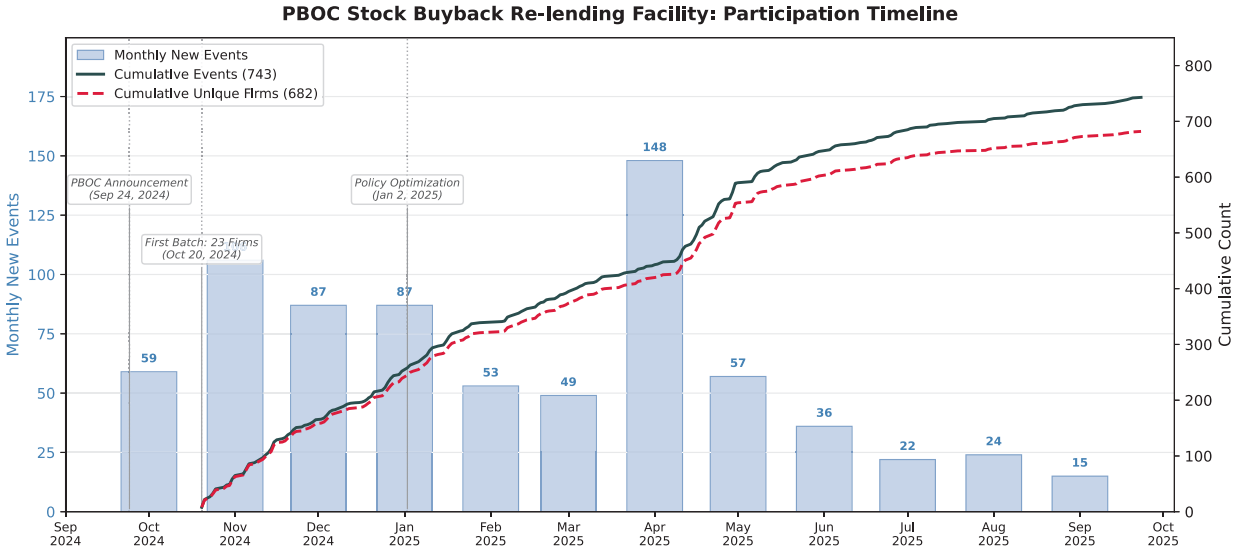

Figure 1: Timeline of the PBOC Stock Buyback Re-lending Facility and Cumulative Firm Participation

4.2 First Batch Buyback Loan Participants

This study begins with an event-study validation on the **first batch** of firms that announced participation in the buyback loan facility. On 20th October, 23 firms announced their participation in the stock buyback loan plan. Although this initial cohort is not limited to Main Board constituents, it provides a clean and policy-relevant starting point because it captures the earliest market reaction to the new lending mechanism before broader diffusion effects emerge.

For context, three overview facts characterize this first batch. First, the total disclosed scale of loan and buyback/increase plans across the 23 firms exceeds RMB 11.8 billion. Second, central state-owned enterprises (SOEs), including groups such as China Merchants Group and COSCO Shipping Group, moved quickly, reflecting a clear policy-response posture aimed at stabilizing capital markets. Third, financing support was mainly provided by major commercial banks, including the Big Four state-owned banks (ICBC, ABC, BOC, and CCB), alongside joint-stock banks such as

Stock Code	Company Name	Loan Purpose	Loan Amount / Limit
002714.SZ	Muyuan Foods	Buyback	2.4 Billion RMB
300498.SZ	Wens Foodstuff Group	Buyback	Aggregate not exceeding 2 Billion RMB
600028.SH	Sinopec	Increase / Buyback	Aggregate not exceeding 1.6 Billion RMB
600026.SH	COSCO SHIPPING Energy Transportation	Increase	Not exceeding 1.358 Billion RMB
001979.SZ	China Merchants Shekou	Buyback	Not exceeding 702 Million RMB
601872.SH	China Merchants Energy Shipping	Buyback	Not exceeding 443 Million RMB
300274.SZ	Sungrow Power Supply	Buyback	420 Million RMB
001872.SZ	China Merchants Port Group	Buyback	Not exceeding 389 Million RMB
601919.SH	COSCO SHIPPING Holdings	Buyback	Not exceeding 300 Million RMB
601598.SH	Sinotrans	Increase	Not exceeding 300 Million RMB
002967.SZ	GRG Test (Guangzhou)	Buyback	Not exceeding 299 Million RMB
600428.SH	COSCO SHIPPING Specialized Carriers	Increase	Not exceeding 288 Million RMB
601866.SH	COSCO SHIPPING Development	Buyback	Not exceeding 287.2 Million RMB
600567.SH	Shanying International	Buyback	200 Million RMB
601966.SH	Linglong Tire	Increase	Not exceeding 200 Million RMB
300185.SZ	Tongyu Heavy Industry	Buyback	Not exceeding 200 Million RMB
301188.SZ	Lino Special Glass	Increase	100 Million RMB
600273.SH	Jiahua Energy	Increase	100 Million RMB
300751.SZ	Maxwell Technologies	Buyback	Not exceeding 100 Million RMB
603986.SH	GigaDevice	Buyback	Not exceeding 100 Million RMB
301529.SZ	Fosar Technology	Buyback	Not exceeding 50 Million RMB
688110.SH	Dosilicon	Increase	/
688612.SH	VMAX New Energy	Buyback	/

Table 5: First Batch of Buyback Loan Participants

China Merchants Bank and CITIC Bank.

To evaluate robustness, both the parametric mean test (One-Sample T-Test) and the non-parametric median test (Wilcoxon Signed-Rank Test) are applied across multiple symmetric event windows. Table 6 reports the results.

Window	Mean Return (%)	Median Return (%)	T-p	T*	W-p	W*
±3	7.02	4.71	0.00001	***	0.00000	***
±5	6.48	3.82	0.00088	***	0.00024	***
±10	2.95	1.40	0.04987	**	0.11171	
±15	0.89	0.91	0.27307		0.52972	
±30	30.21	25.23	0.00001	***	0.00000	***

Note: This first-batch sample includes firms across different boards (not only Main Board firms). T* and W* denote significance levels (***, **, * for 1%, 5%, and 10%, respectively).

Table 6: Event-Window Tests for the First Batch of Buyback Loan Participants

The first-batch evidence supports a phased empirical strategy: it is methodologically reasonable to begin with this smaller, early-adopter cohort and then proceed to the larger full-sample analysis. In particular, the strong significance in short windows (±3, ±5) indicates an immediate positive pricing response, while the weaker evidence around ±10 to ±15 suggests time-varying attenuation before broader market dynamics dominate.

4.3 Market-Wide Aggregate Impact

This section presents the aggregate market reaction to the announcement of corporate participation in the stock buyback loan facility. To determine whether the policy generated a strictly positive wealth effect, the **Cumulative Abnormal Returns (CAR)** are analyzed across designated event windows.

Table 7 reports the cross-sectional mean and median *CAR* against selected key benchmark indices, alongside the results of the parametric One-Sample T-Test and the non-parametric Wilcoxon Signed-Rank Test.

The empirical findings yield distinct insights into the market's reception of the policy. The parametric tests reveal statistically significant positive mean abnormal returns across all evaluated benchmarks. Notably, against the large-cap SSE 50 index, the mean *CAR* over the $[-10, 10]$ window reaches 1.195% ($t = 6.035$, $p < 0.01$).

However, a divergence between the mean and median results indicates a pronounced right-skewness

Benchmark	Window	Mean CAR (%)	SE (%)	T-Stat	Median CAR (%)	Wilcoxon P
SSE 50	$[-10,10]$	1.195	0.198	6.035	0.230	<0.001***
	$[-5,5]$	0.666	0.142	4.675	0.119	0.001***
CSI 300	$[-10,10]$	0.781	0.192	4.059	−0.141	0.260
	$[-5,5]$	0.450	0.138	3.265	−0.100	0.252
CSI 1000	$[-10,10]$	0.319	0.182	1.752	−0.552	0.014**
	$[-5,5]$	0.246	0.132	1.870	−0.319	0.123
SSE Composite	$[-10,10]$	0.896	0.189	4.740	−0.065	0.138
	$[-5,5]$	0.502	0.135	3.706	−0.119	0.346

Note: Sample size is constant across all rows ($N = 4555$). SE denotes the cross-sectional standard error of the mean. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Aggregate Market Cumulative Abnormal Returns Across Key Benchmarks

in the wealth effect. While the mean reaction against the broad SSE Composite is positive and highly significant ($t = 4.740$), the median *CAR* is marginally negative (-0.065%) and statistically insignificant ($p = 0.138$). The fact that the non-parametric Wilcoxon test only consistently registers strict significance against the SSE 50 benchmark implies that the aggregate market positivity was largely driven by a subset of large-cap or heavily weighted firms, whereas the median firm experienced minimal abnormal performance relative to broader indices.

4.4 Cross-Sectional Heterogeneity

Given the distributional skewness observed in the aggregate sample, market frictions and structural imbalances necessitate a disaggregated approach. The analysis proceeds by dividing the sample across specific economic sectors and geographic regions to isolate concentrated policy effects.

4.4.1 Industry-Level Analysis

To identify industry-specific sensitivities to the liquidity injection, the loan-participant sample is partitioned by Wind Level-1 sector. Figure 2 presents a heatmap of mean CARs across five event windows for the 15 sectors with at least 10 loan participants.

Capital-intensive and cyclically sensitive sectors exhibit the strongest positive reactions. Autos & Parts leads with a mean CAR of +3.85% at $[-5,+5]$, followed by Non-Ferrous Metals (+3.23%) and Hardware (+2.51%). These sectors are highly reliant on external financing and bank

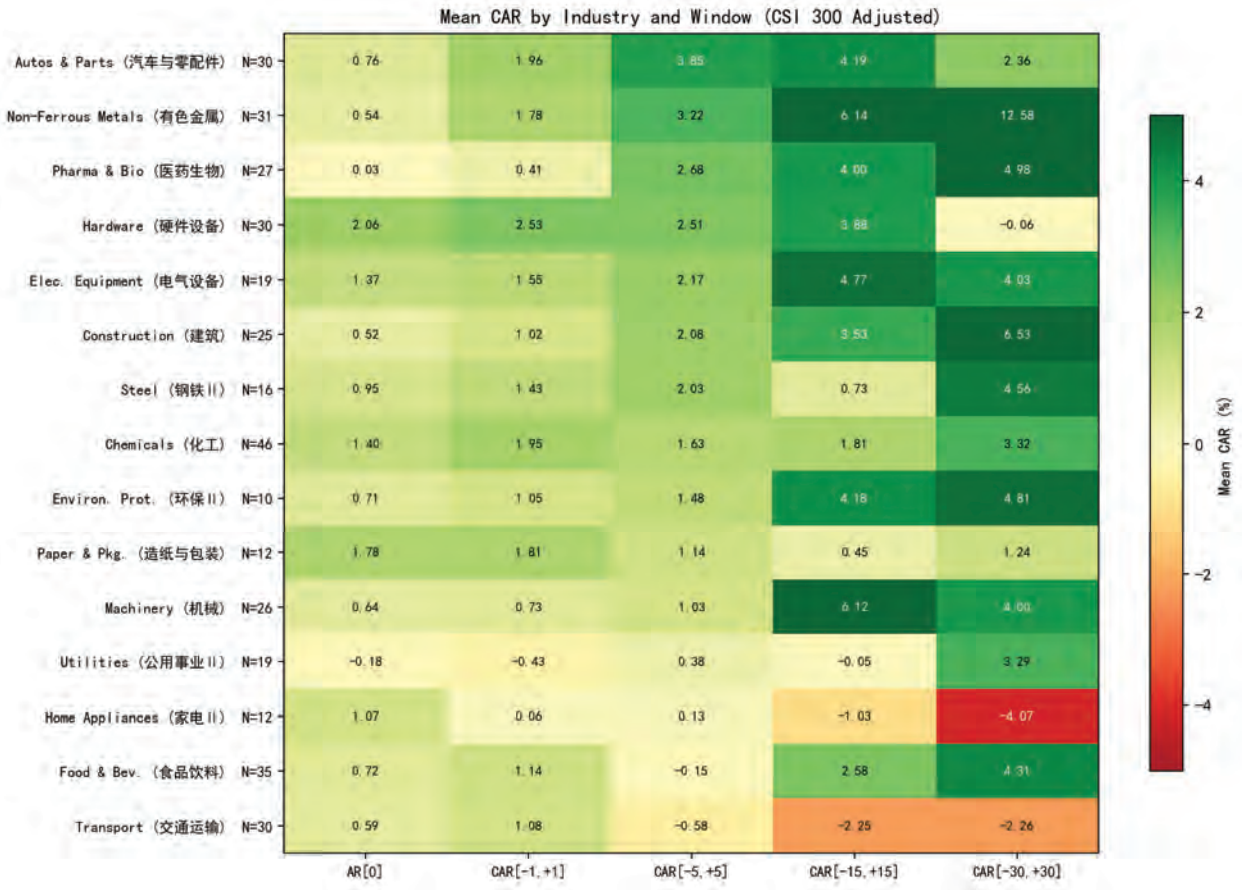

Figure 2: Mean CAR by Industry and Event Window (CSI 300 Adjusted, Loan Participants)

credit, making the subsidized loan facility a meaningful marginal catalyst. Conversely, Transport (-0.58%) and Food & Beverage (-0.15%) exhibit negligible or negative CARs, reflecting fundamentally distinct business models where the buyback signal carries less information content. A one-way ANOVA across the 15 sectors is not significant ($F = 0.81$, $p = 0.66$), confirming that industry-level heterogeneity is less pronounced than ownership or geographic effects in univariate tests. However, industry fixed effects become jointly significant ($F = 51.1$, $p < 0.001$) in the multivariate regression (Section 4.6), suggesting that industry effects emerge primarily after controlling for correlated firm characteristics.

4.4.2 Regional Disparities

Given the geographic fragmentation of China's financial resources, the efficacy of central banking policies can be heavily moderated by local economic conditions. Figure 3 presents the province-level mean CARs across event windows for the 13 provinces with at least 10 loan participants.

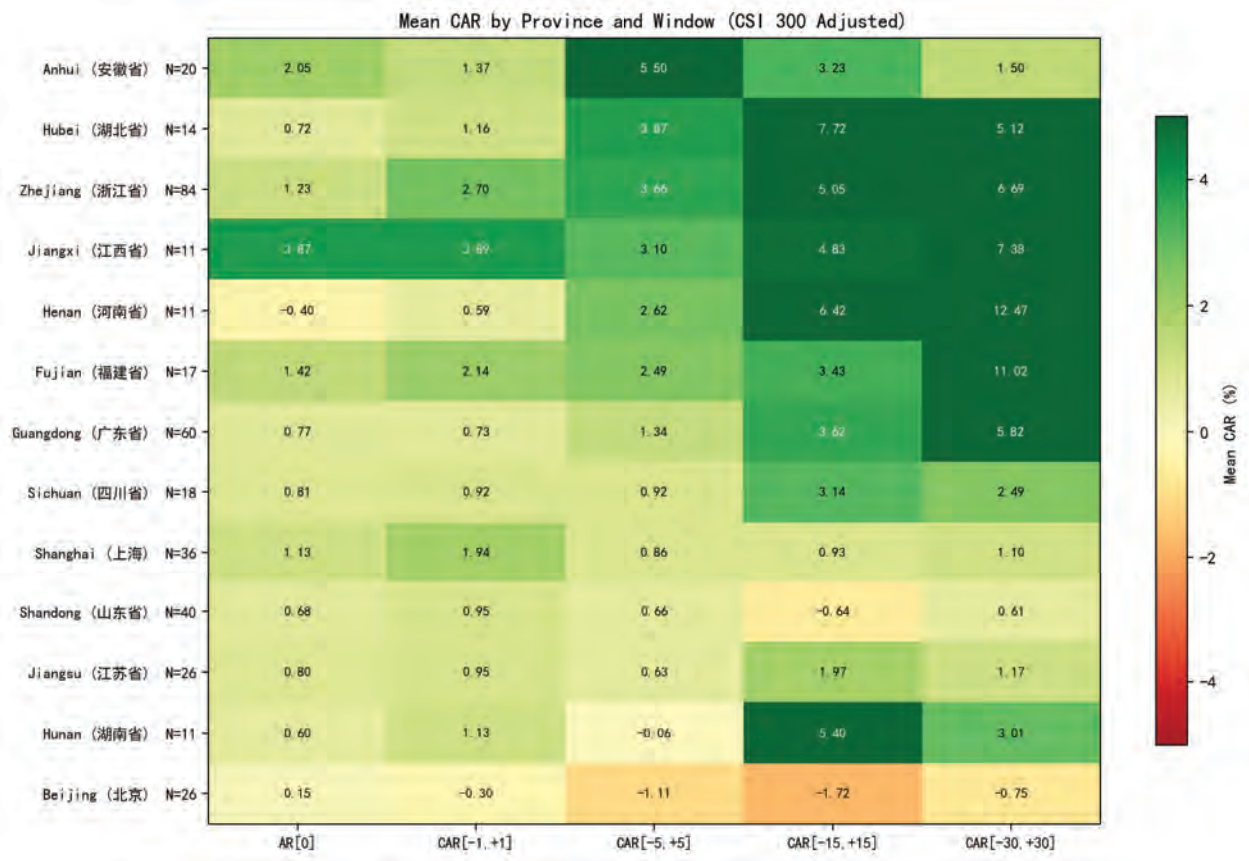

Figure 3: Mean CAR by Province and Event Window (CSI 300 Adjusted, Loan Participants)

The regional heatmap uncovers a counter-intuitive dynamic regarding liquidity distribution. Traditional tier-1 financial hubs—Shanghai (+0.86% at $[-5, +5]$) and Jiangsu (+0.63%)—exhibit eco-

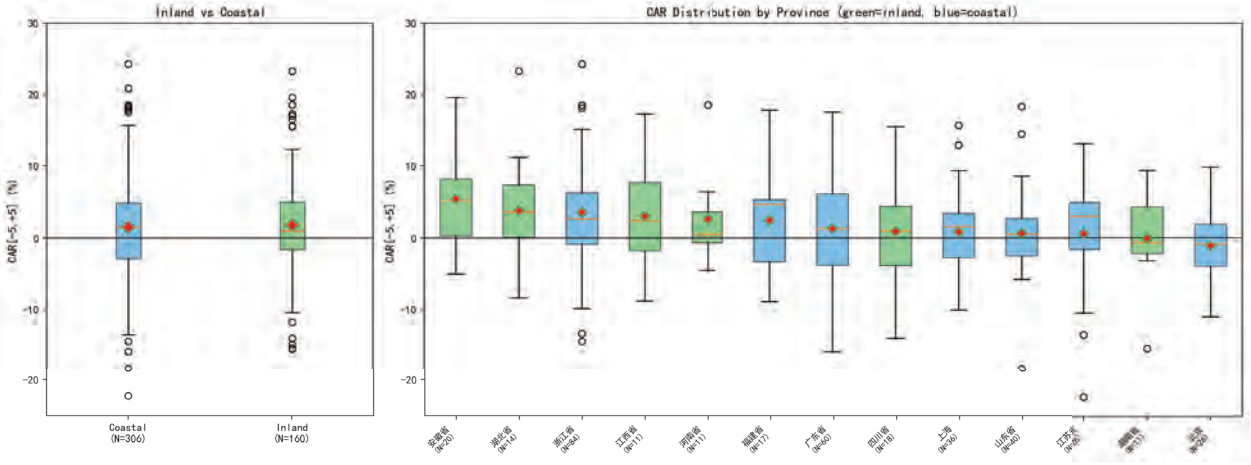

Figure 4: CAR[-5,+5] Distribution by Region (green = inland, blue = coastal)

nomically small reactions, while Beijing is the only major province with consistently negative CARs across all windows beyond AR[0]. In contrast, inland provinces such as Anhui (+5.50%, $p < 0.01$) and Zhejiang (+3.66%, $p < 0.01$) experience the strongest short-horizon effects. At the $[-30, +30]$ horizon, Henan (+12.47%) and Fujian (+11.02%) exhibit the largest cumulative wealth effects.

A plausible economic rationale is that firms in highly developed coastal hubs already possess abundant access to diverse financing channels; thus, the central bank's special buyback facility acts merely as a substitute rather than a catalyst. For firms in regions with tighter localized liquidity constraints, the policy represents a vital expansion of credit access, prompting a stronger valuation readjustment. A one-way ANOVA across the 13 provinces is marginally significant ($F = 1.56$, $p = 0.10$); a Kruskal–Wallis test yields $p = 0.068$, suggesting that the provincial heterogeneity is genuine but concentrated in a few provinces rather than uniformly distributed.

4.5 Robustness: Multi-Window Tests and Sub-Sample Analysis

4.5.1 Full-Sample Mean and Wilcoxon Tests Across Windows

To verify that the positive wealth effect is not an artifact of a particular window choice, Table 8 reports full-sample mean and Wilcoxon tests for the buyback loan subsample across five event windows using CSI 300 market-adjusted returns. The sample is restricted to Main Board loan participants (first event per firm, $N = 466$).

The positive wealth effect is statistically significant at the 1% level across all five windows for both parametric and non-parametric tests. The mean CAR increases monotonically from 0.94% on

Window	N	Mean (%)	Median (%)	t-stat	Wilcoxon p	% Positive
AR[0]	466	0.941	0.525	5.79^{***}	$<0.001^{***}$	62.9
CAR[-1,+1]	466	1.343	0.782	5.68^{***}	$<0.001^{***}$	63.9
CAR[-5,+5]	466	1.635	1.319	4.75^{***}	$<0.001^{***}$	59.9
CAR[-15,+15]	466	2.648	0.764	4.13^{***}	$<0.001^{***}$	53.9
CAR[-30,+30]	466	3.609	1.616	3.92^{***}	$<0.001^{***}$	56.2

Note: CSI 300 market-adjusted returns. Main Board loan participants, first event per firm. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table 8: Full-Sample Mean and Wilcoxon Tests Across Event Windows (Loan Participants)

the announcement day to 3.61% over the $[-30, +30]$ window, while the percentage of firms with positive CARs ranges from 54% to 64%. The right-skewness documented in the aggregate sample (Section 4.2) persists: the mean substantially exceeds the median at every horizon, confirming that a minority of large positive outliers drives the aggregate result.

Figure 5 displays the distributional characteristics of abnormal returns at each window.

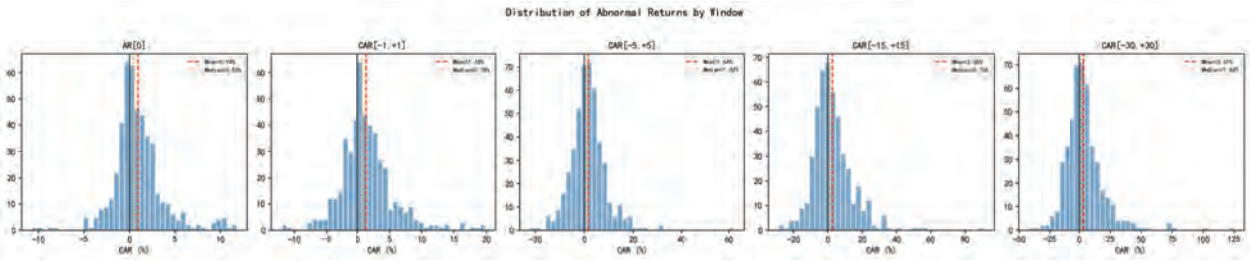

Figure 5: Distribution of Abnormal Returns by Event Window (CSI 300 Adjusted)

4.5.2 SOE vs. Private Enterprise

A central prediction of the credit rationing hypothesis is that the market should react differently to SOE and private firm participation. Table 9 reports the sub-sample comparison.

The ownership gap is the most robust cross-sectional finding in this study. Private firms earn significantly higher CARs than SOEs at every window beyond $[-1, +1]$, with the difference growing monotonically from 0.4pp on day zero to 5.8pp over $[-30, +30]$. The SOE mean CAR is essentially zero beyond the $[-5, +5]$ window, while private firm CARs remain economically large and statistically significant. This pattern is consistent with the credit rationing interpretation: for SOEs, the facility is largely redundant given pre-existing access to state-backed credit, whereas for private firms it represents a genuine expansion of credit access and a credible signal to the market.

Window	Private Mean (%)	SOE Mean (%)	Diff. (pp)	t-stat	MWU p	Sig.
AR[0]	1.097	0.698	0.400	1.555	0.441	
CAR[-1,+1]	1.674	0.827	0.848	2.341	0.224	**
CAR[-5,+5]	2.435	0.388	2.047	3.156	0.002	***
CAR[-15,+15]	4.329	0.024	4.305	4.154	<0.001	***
CAR[-30,+30]	5.871	0.079	5.793	4.009	<0.001	***

Note: Private ($N = 284$), SOE ($N = 182$). Welch t-test for difference in means; MWU = Mann–Whitney U test. $^{***}p < 0.01$, $^{**}p < 0.05$.

Table 9: Mean CAR by Ownership Type: SOE vs. Private Firms

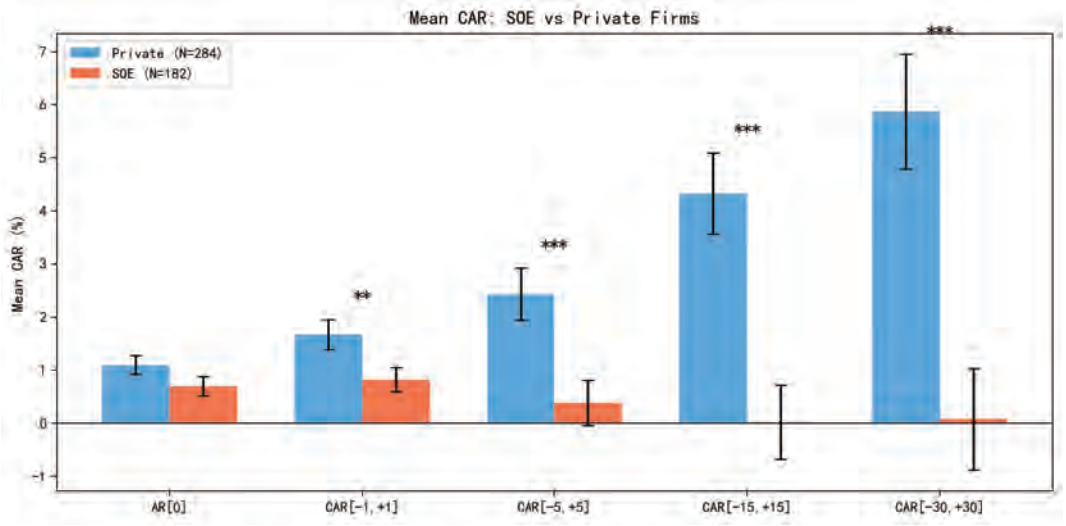

Figure 6: Mean CAR by Ownership Type Across Event Windows

4.6 Cross-Sectional Regression Analysis

4.6.1 Specification

To formally test whether the cross-sectional patterns documented in Sections 4.3–4.5 survive multivariate controls, we estimate the following OLS regression:

$$\text{CAR}_i = \alpha + \beta_1 \text{SOE}_i + \beta_2 \ln(\text{MktCap}_i) + \beta_3 \text{Inland}_i + \beta_4 \text{DivYield}_i + \beta_5 \ln(\text{Loan}_i) + \beta_6 \text{Leverage}_i + \varepsilon_i \tag{1}$$

where $\text{SOE}_i = 1$ if the firm is a state-owned enterprise (central or local); $\text{Inland}_i = 1$ if headquartered in a historically less-financialized province; MktCap_i is the total market capitalization at the announcement date (in RMB 100 million); DivYield_i is the trailing 12-month dividend yield (%); Loan_i is the upper-bound loan amount (in RMB 10,000); and Leverage_i is the most recent debt-to-assets ratio (%) from Tushare. All standard errors are heteroskedasticity-robust (HC1, White).

4.6.2 Results

Table 10 reports three nested specifications. Model 1 includes only the core structural variables (SOE, size, and inland). Model 2 adds dividend yield and loan amount. Model 3 adds leverage.

The SOE dummy is the only consistently significant predictor across all specifications. Holding other variables constant, state-owned enterprises experience CARs approximately 1.9 percentage points lower than private firms ($p < 0.01$). This effect is robust to the inclusion of size, dividend yield, loan amount, and leverage controls. Dividend yield enters with a negative sign and is marginally significant in Model 2 ($p = 0.095$), suggesting that higher-yield firms—which are closer to the arbitrage threshold—experience smaller announcement-day reactions, consistent with the market discounting the signal credibility when the carry is favorable. The inland dummy is positive but statistically insignificant after controlling for firm characteristics, indicating that the province-level effects documented in Section 4.3.2 are partially driven by the composition of firm types (ownership, size) across regions rather than a pure geographic effect.

4.6.3 Robustness: Window Sensitivity

To assess whether the regression coefficients are stable across horizons, we re-estimate Model 3 at each of the five event windows. Figure 7 plots the point estimates and 95% confidence intervals.

The SOE coefficient is negative and significant at every window, growing monotonically from -0.48 (AR[0]) to -4.78 (CAR[-30,+30]). This monotonic increase indicates that the owner-

Table 10: Cross-Sectional Regression of Loan-Announcement CAR[-5,+5]

	Model 1	Model 2	Model 3
Intercept	3.7151^{**}	7.6432^{*}	7.3003^{*}
	(1.6130)	(4.0270)	(4.0550)
SOE (=1)	-1.9686^{***}	-1.8803^{***}	-1.9366^{***}
	(0.6640)	(0.6620)	(0.6650)
ln(Market Cap)	-0.3159	0.3325	0.3490
	(0.3130)	(0.4750)	(0.4750)
Inland (=1)	0.5533	0.4802	0.5193
	(0.6990)	(0.7100)	(0.7170)
Div Yield (%)		-0.2467^{*}	-0.2347
		(0.1480)	(0.1490)
ln(Loan Amount)		-0.6881	-0.7473
		(0.5450)	(0.5490)
Leverage (%)			0.0168
			(0.0190)
N	466	386	386
R^2	0.0224	0.0337	0.0354
Adj. R^2	0.0160	0.0210	0.0201
F-stat	4.144	2.962	2.569

Robust (HC1) standard errors in parentheses. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.
Dependent variable: CAR[-5,+5] (%) using CSI 300 market-adjusted returns.

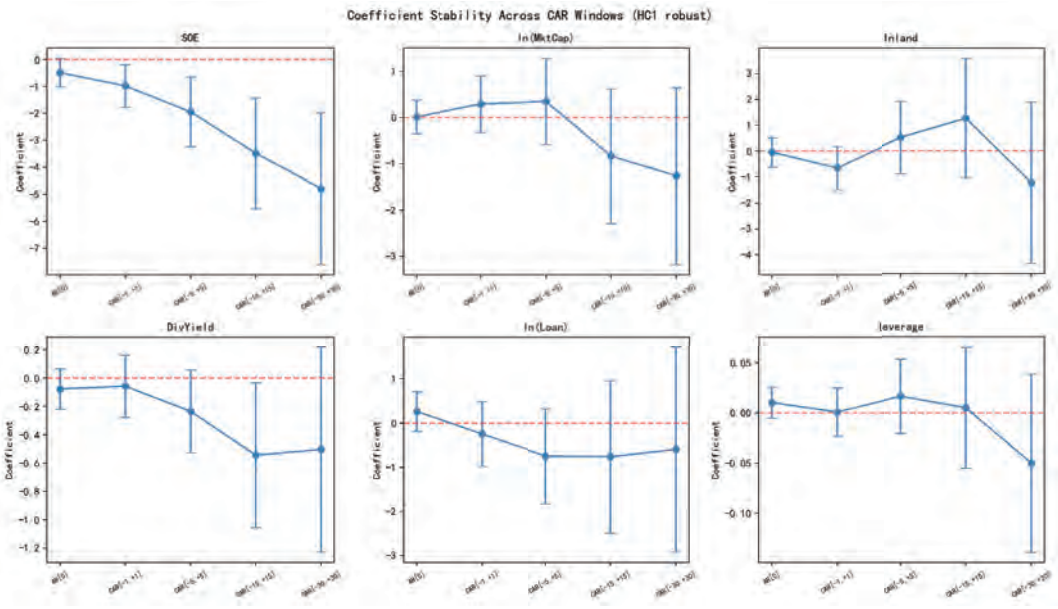

Figure 7: Regression Coefficient Stability Across Event Windows (HC1 Robust)

ship discount is not merely an announcement-day phenomenon but persists and deepens over the post-event period. Dividend yield becomes significant at the $[-15, +15]$ window ($\beta = -0.54$, $p = 0.037$), suggesting that the market's differentiation between signaling and arbitrage firms intensifies over longer horizons. Size, inland status, loan amount, and leverage remain insignificant across all windows.

4.6.4 Industry and Province Fixed Effects

When industry fixed effects (Wind Level-1 sectors) are added to Model 3, the R^2 increases from 3.5% to 11.9% and the joint F-test for industry dummies is significant ($F = 51.1$, $p < 0.001$). However, the SOE coefficient remains virtually unchanged (-1.94, $p < 0.01$), confirming that the ownership effect is not driven by industry composition. When province fixed effects replace the inland dummy (Model 5; top 10 provinces plus a residual category), Anhui stands out with a significant positive coefficient (+3.90pp, $p = 0.03$), while Beijing is marginally negative (-2.72pp, $p = 0.07$). These province-level results corroborate the geographic patterns documented in Section 4.3.2 and the heatmap evidence in Figure 3.

4.7 Economic Mechanism: Signaling vs. Arbitrage

While the aggregate and cross-sectional market reactions to the buyback loan facility are positive, the underlying corporate intent remains central to interpretation. Because some firms executed multiple buybacks, the updated analysis is conducted at the **event level** rather than the firm level: each buyback announcement is treated as one observation. This yields a total of **743 buyback events**.

A practical identification challenge is that the exact bank loan rate is not observed for every event. To address this, the analysis uses the policy corridor as approximation bounds: **1.75%** (lower bound, close to the PBOC re-lending rate) and **2.25%** (upper bound, policy ceiling for end borrowers). If a buyback event has a dividend yield above the assumed loan rate, it is mechanically consistent with an arbitrage incentive; otherwise, the event is more consistent with signaling (i.e., a potentially net-costly repurchase).

Table 11 reports the updated event-level decomposition under both rate assumptions.

The updated evidence continues to reject the view that buyback activity is primarily driven by mechanical carry-trade incentives. Under the more conservative upper-bound loan rate (2.25%), only **23.01%** of events have dividend yields high enough to support a pure arbitrage logic, while **76.99%** do not. Even under the lower-bound rate (1.75%), the majority of events (**69.85%**) still fall below the threshold. Taken together, the event-level results indicate that most buyback announce-

Rate Assumption	Dividend Yield $>$ Loan Rate	Dividend Yield $\leq$ Loan Rate
Lower-Bound Rate (1.75%)	224 (30.15%)	519 (69.85%)
Upper-Bound Rate (2.25%)	171 (23.01%)	572 (76.99%)

Note: Event-level sample ($N = 743$); repeated buybacks by the same firm are counted separately.

Table 11: Event-Level Motive Decomposition Under Loan-Rate Bounds

ments are not explainable by dividend-loan spread arbitrage alone, and remain more consistent with signaling-oriented corporate behavior.

4.7.1 Observed Loan Rate Distribution

The bounds-based decomposition above relies on approximations. To directly address this limitation, we extract actual interest rates from CNINFO public disclosure documents for a subset of participating firms. Table 12 reports the 13 Main Board firms for which loan contract terms are publicly available.

Code	Company	Rate (%)	Div. Yield (%)	Spread (pp)	Lending Bank	Motive
000703	Hengyi Petrochemical	1.75	1.45	−0.24	Agricultural Bank of China	Signaling
002928	China Express Airlines	1.80	—	—	CITIC Bank	—
000967	Infore Environment	1.95	2.16	+0.21	China Construction Bank	Arbitrage
002048	Ningbo Huaxiang	1.95	4.86	+2.91	Bank of China	Arbitrage
600076	Kangxin New Material	1.95	—	—	Hengfeng Bank	—
000528	LiuGong Machinery	1.96	1.68	−0.28	ICBC	Signaling
002840	Huatong Meat	2.00	—	—	China Construction Bank	—
603858	Buchang Pharma	2.00	0.75	−1.25	ICBC	Signaling
002506	GCL System Integration	2.25	—	—	China Construction Bank	—
002714	Muyuan Foods	2.25	2.22	−0.03	CITIC Bank	Signaling
002083	Furi Home Textiles	2.25	4.62	+2.37	Industrial Bank	Arbitrage
000623	Jilin Aodong	2.25	4.18	+1.93	Agricultural Bank of China	Arbitrage
000597	Northeast Pharma	2.25	1.74	−0.51	Industrial Bank	Signaling
Mean		**2.05**				
Median		**2.00**				

Note: Rates extracted from publicly disclosed loan agreements on CNINFO. Dividend yields are trailing 12-month values at the announcement date from the Wind Financial Terminal; "—" indicates unavailable data. Spread = Dividend Yield − Loan Rate. Motive is classified as Arbitrage if the dividend yield strictly exceeds the firm's actual loan rate, and Signaling otherwise. The empirical mean rate of 2.05% is independently corroborated by official news reports citing "average rate levels around 2%" (Caijing, 2025).

Table 12: Observed Loan Interest Rates and Firm-Level Motive Classification

Several patterns emerge from the observed rate data. First, the mean loan rate of 2.05% falls well below the 2.25% policy ceiling, confirming that commercial banks exercise pricing discretion

within the PBOC-mandated corridor. Second, only 5 of 13 firms (38.5%) pay the full ceiling rate; the remaining 61.5% receive preferential pricing. Third, the Big Four state-owned banks (ICBC, ABC, BOC, CCB) offer lower rates on average than joint-stock banks (CITIC, Industrial Bank), consistent with the credit rationing hypothesis: banks with lower cost of funds and implicit state backing can afford thinner spreads.

4.7.2 Firm-Level Motive Classification Using Actual Rates

For the 9 firms where both the actual loan rate and trailing dividend yield at announcement are observed, Table 12 directly classifies each firm's motive by comparing its dividend yield against its *actual* borrowing cost rather than an assumed threshold. Of these 9 firms, **5 (55.6%) are classified as signaling** and **4 (44.4%) as arbitrage**.

The four arbitrage firms—Infore Environment (000967), Ningbo Huaxiang (002048), Furi Home Textiles (002083), and Jilin Aodong (000623)—exhibit dividend yields ranging from 2.16% to 4.86%, each exceeding their respective loan rates. These firms earn an average positive carry of **+1.85 percentage points** per annum, representing a genuine financial arbitrage: the cost of retiring dividend-paying shares is substantially recovered through the reduced cash outflow. Notably, the three highest-yield arbitrage firms (002048, 002083, 000623) pay dividend yields roughly double their borrowing costs, indicating that the arbitrage incentive is economically significant for these firms. The fourth firm, Infore Environment, has a narrower margin (+0.21pp), representing a marginal arbitrage case where the firm's rate (1.95%) falls just below its yield (2.16%).

Conversely, the five signaling firms bear an average annual net cost of $-$**0.46 percentage points**. The costliest signal is Buchang Pharma (603858; -1.25pp), which has a dividend yield of only 0.75%. Even the narrowest signaling cost—Muyuan Foods (002714; -0.03pp)—remains strictly negative, confirming that the buyback is a net-costly corporate action for every firm in this cohort. Northeast Pharma (000597), previously excluded due to missing data, is now classified as signaling with its announced yield of 1.74% falling below its 2.25% loan rate.

Notably, one firm is reclassified relative to the 2.25% ceiling-based decomposition: Infore Environment (000967) was classified as signaling under the uniform 2.25% ceiling (yield 2.16% $<$ 2.25%), but its actual loan rate of 1.95% reveals an arbitrage motive (yield 2.16% $>$ 1.95%). This reclassification highlights the value of using actual contract terms: commercial banks' pricing discretion within the policy corridor can shift a firm's motive classification at the margin, even when the ceiling-based decomposition appears robust in aggregate.

4.7.3 Population-Level Decomposition Using the Empirical Mean Rate

Using the empirical mean rate of 2.05% as a point estimate for unobserved firms, we re-estimate the signaling decomposition for the full Main Board subsample. Table 13 reports the results alongside the original bounds for comparison.

Rate Assumption	Arbitrage (Div $>$ Rate)	Signaling (Div $\leq$ Rate)
PBOC Floor (1.75%)	223 (51.5%)	210 (48.5%)
Empirical Mean (2.05%)	192 (44.3%)	**241 (55.7%)**
Policy Ceiling (2.25%)	171 (39.5%)	262 (60.5%)

Note: Main Board events with non-missing dividend yield ($N = 433$).

Table 13: Revised Motive Decomposition Using Empirical Loan Rate (Main Board)

The empirical rate estimate yields a more moderate—but still majority—signaling interpretation. At the observed mean rate of 2.05%, 55.7% of Main Board events involve firms whose dividend yield falls below the cost of borrowing, classifying them as net-costly signaling transactions. Under the policy ceiling of 2.25%, this proportion rises to 60.5%. These results confirm the separating equilibrium interpretation: the majority of buyback loan events are inconsistent with pure arbitrage and are more parsimoniously explained by credible undervaluation signaling. However, the margin is more moderate than suggested by using the ceiling rate alone, indicating that the arbitrage cohort is non-trivial and warrants regulatory monitoring.

5 Discussions

5.1 Methodological Limitations in the A-Share Context

While the empirical results indicate a positive market reaction to the stock buyback re-lending facility, the underlying statistical methodologies carry inherent limitations that must contextualize the findings.

First, the event study framework relies on the **Semi-Strong Form Market Efficiency Hypothesis** (Fama, 1991), which assumes that equity prices instantaneously and accurately reflect all public policy announcements. However, the China A-share market is heavily retail-dominated, exhibiting distinct behavioral biases and delayed information assimilation compared to institutionalized western markets. Consequently, the chosen event windows ($[-5,5]$ and $[-10,10]$) may capture noise from speculative retail trading rather than pure fundamental repricing (Barber & Odean, 2000). Furthermore, isolating the exact policy effect is difficult due to **Confounding Events** (McWilliams

& Siegel, 1997); during the implementation period in late 2024, the PBOC simultaneously released reserve requirement ratio (RRR) cuts and mortgage rate reductions, potentially contaminating the baseline expected returns ($R_{m,t}$).

Second, the statistical significance testing faces distributional challenges. Financial return data inherently exhibits excess kurtosis (fat tails). While the **Cross-Sectional T-Test** is robust for large sample sizes, it remains highly sensitive to extreme outliers, which were visibly present given the divergence between the mean and median *CAR* in Chapter 4. To correct for this, the **Wilcoxon Signed-Rank Test** was applied, following the non-parametric event study methodology advocated by Corrado (1989). However, the Wilcoxon test converts absolute magnitudes into ordinal ranks:

$$W = \sum_{i=1}^{N_r} [\text{sgn}(CAR_i) \cdot R_i]$$

While this mitigates outlier distortion, it simultaneously discards the economic magnitude of the abnormal returns, testing only if the median distribution shifts positively (Brown & Warner, 1985). Thus, the non-parametric results confirm the *direction* of the wealth effect but not its *scale*.

5.2 Tax Clientele Effects: Dividends vs. Share Repurchases

The empirical decomposition of corporate motives into signaling versus arbitrage is further complicated by China's specific fiscal policies regarding capital distributions. The thesis initially defined the 2.25% interest rate as the critical cost-of-capital threshold for signaling. However, from the perspective of the shareholder, share repurchases and cash dividends are subject to drastically different tax treatments, creating a pronounced **Tax Clientele Effect** (Elton & Gruber, 1970).

In the A-share market, individual investors are subject to a duration-dependent differential tax rate on cash dividends to discourage short-term speculation. Specifically, dividends are taxed at 20% for holding periods under one month, 10% for periods between one month and one year, and are tax-exempt only if held for strictly longer than one year. Conversely, capital gains realized from equity price appreciation—the primary transmission mechanism of a stock buyback—are entirely tax-exempt for retail investors regardless of the holding period.

Because of this asymmetric tax code, a buyback is a **Tax-Advantaged Wealth Transfer**. When a firm borrows from the PBOC at 2.25% to execute a buyback, it forces equity appreciation that is inherently more valuable to retail investors on an after-tax basis than an equivalent cash dividend. Therefore, even if a firm's pre-tax dividend yield marginally exceeds the 2.25% threshold (classifying it into the "Arbitrage" cohort in Chapter 4), the transaction may still be fundamentally optimal for shareholder value maximization once the aggregate tax friction is accounted for.

5.3 Implementation Frictions and Eligibility Constraints

Beyond theoretical signaling, the practical implementation of the PBOC's 300 billion RMB facility introduced severe eligibility bottlenecks. The facility's operational architecture dictates that the PBOC issues funds to 21 designated commercial banks at an interest rate of 1.75%, stipulating that these banks lend to listed firms at a rate not exceeding 2.25%.

Critically, the **Credit Risk Retention** remains entirely with the commercial banks. The central bank does not guarantee the loans. Because commercial banks are operating on a razor-thin 50 basis point spread (0.50%), their risk tolerance for corporate default is exceptionally low. This structural friction leads to **Credit Rationing** (Stiglitz & Weiss, 1981).

In addition to bank-level risk constraints, China's credit regime historically forbids the use of bank loans for equity purchases. The *General Regulations on Lending* (贷款通则) state that loans cannot be used for equity investment unless explicitly permitted by the government, and that they cannot be used to engage in speculation in securities or futures. Likewise, the *Administrative Measures on Liquidity Loans* (流动性贷款管理办法) specify that working-capital loans cannot be used to invest in financial assets, fixed assets, or equity. The October 2024 policy shift is therefore legally consequential: the PBOC explicitly authorized a carve-out that allows banks to lend for share buybacks and equity increases, implemented through the Share Buy Back and Increase Re-loan (股票回购增持再贷款) and a pilot program with 21 nationwide financial institutions. This regulatory reversal is consistent with the broader macro backdrop of weak growth and soft domestic demand, and it clarifies why the facility represents a genuine regime change rather than a routine liquidity tool.

In practice, banks demand high-quality tangible collateral or pristine balance sheets before approving the 2.25% facility. Financial news reports during the initial rollout in late 2024 confirmed that the first wave of approved loans was heavily skewed toward massive, centrally controlled State-Owned Enterprises (SOEs) such as China Merchants Port and Sinopec (Reuters, 2024). This creates an adverse selection problem: the firms that most desperately need liquidity signaling to stabilize their plummeting valuations—often smaller, privately-owned enterprises in volatile sectors—are deemed too risky by commercial banks to qualify for the facility.

5.4 The Regional Paradox Revisited

When combining the eligibility constraints with the empirical data, the **Regional Liquidity Paradox** observed in Chapter 4 becomes a plausible hypothesis rather than a definitive causal claim. Coastal hubs like Shanghai possess highly diversified banking ecosystems where even private firms can access varied debt instruments; the PBOC facility may therefore be marginal relative to pre-

existing channels.

For inland regions (e.g., Anhui, Xinjiang), a more cautious interpretation is warranted. One possibility to investigate is that inland firms have more structural room to develop and thus respond more strongly to incremental credit availability, making the policy signal appear more potent. Another possibility is that localized financing constraints or relationship-based banking dynamics amplify the salience of a central-bank-endorsed facility. These competing mechanisms are testable and should be treated as hypotheses for future work rather than settled conclusions.

6 Conclusion and Policy Implications

6.1 Synthesis of Empirical Findings

This thesis rigorously investigated the market reaction, structural heterogeneity, and underlying economic mechanisms of the stock buyback re-lending facility introduced by the People's Bank of China (PBOC). Utilizing a comprehensive event study methodology alongside a granular analysis of corporate execution data, the empirical findings challenge the assumption that macroeconomic liquidity injections yield uniform market benefits. The study establishes five primary conclusions:

First, the aggregate market reaction was fundamentally characterized by **extreme right-skewness** and a corporate **substitution effect**. While the policy successfully generated a statistically significant, positive mean **Cumulative Abnormal Return (CAR)** across major benchmarks (e.g., $t = 6.035$ against the SSE 50), the median firm experienced statistically indistinguishable returns. This pricing divergence is broadly consistent with the underlying capital deployment dynamics: in the year following the policy, the total number of repurchased shares and the median corporate capital expenditure contracted. The positive market-wide effect was disproportionately driven by a select minority of "whale" firms deploying massive capital (with maximum expenditure surging to 163.04% of the pre-policy baseline), while the median listed firm actually reduced its buyback activity.

Second, the most robust cross-sectional finding is a pronounced **SOE discount**. Cross-sectional regressions with heteroskedasticity-robust standard errors reveal that state-owned enterprises experience CARs approximately 1.9 percentage points lower than private firms ($p < 0.01$), an effect that deepens to 4.8pp at the $[-30, +30]$ horizon. This ownership gap is robust to controls for firm size, dividend yield, loan amount, leverage, and industry fixed effects, and is consistent with credit rationing theory: SOEs have pre-existing access to state-backed credit, rendering the facility redundant, while private firms experience a genuine expansion of credit access.

Third, the data reveals a **Regional Liquidity Paradox**. Firms headquartered in traditional, highly

financialized coastal hubs such as Shanghai and Jiangsu did not register a statistically significant positive reaction despite massive sample sizes. In contrast, inland provinces like Anhui (+5.5% mean CAR, $p < 0.01$) experienced significant positive abnormal returns. However, after controlling for firm characteristics in the regression, the inland dummy is no longer significant, suggesting that the regional effect is partially compositional. Anhui retains a significant province fixed effect (+3.9pp, $p = 0.03$), indicating that some genuinely geographic credit friction persists.

Fourth, the policy's efficacy was moderated by **Sectoral Capital Intensity**. Capital-heavy and cyclical industries (e.g., Autos & Parts, Non-Ferrous Metals) demonstrated the strongest reactions, while defensive sectors (e.g., Transport, Food & Beverage) exhibited negligible or negative CARs. Industry fixed effects are jointly significant ($F = 51.1$, $p < 0.001$) in the regression framework, though the ANOVA on raw CARs is not, indicating that industry effects emerge primarily after controlling for firm-level characteristics.

Fifth, the corporate motive for utilizing the central bank facility is primarily rooted in genuine **undervaluation signaling** rather than pure financial arbitrage. Under the policy ceiling of 2.25%, 76.99% of buyback events involve firms whose dividend yield falls below the borrowing cost; using the empirical mean loan rate of 2.05% derived from disclosed contracts, the signaling proportion is 55.7% among Main Board firms. In both cases, executing a buyback is a net-costly action for the majority of participants, establishing a separating equilibrium that validates the credibility of the signal to external shareholders.

6.2 Theoretical Implications and Market Frictions

The empirical findings of this study contribute significantly to classical corporate finance literature by highlighting how institutional frictions distort policy transmission in the China A-share market.

6.2.1 Credit Rationing and the Regional Paradox

The regional liquidity paradox is a direct manifestation of **credit rationing** (Stiglitz & Weiss, 1981). Firms in saturated coastal hubs operate in frictionless environments with diverse capital access; thus, the PBOC facility acts merely as a redundant substitute for existing credit lines. However, the practical implementation of the PBOC facility requires commercial banks to retain 100% of the credit risk. Operating on a 50-basis-point spread, commercial banks naturally exhibit extreme risk aversion, heavily favoring state-owned enterprises (SOEs) with tangible collateral (Reuters, 2024).

The cross-sectional regression analysis (Section 4.4) provides formal multivariate evidence for these mechanisms. The SOE dummy is the only consistently significant predictor of announcement-

day CARs across all specifications, with state-owned firms earning approximately 1.9 percentage points less than private firms ($p < 0.01$). This effect deepens monotonically at longer horizons, reaching -4.8pp at the $[-30, +30]$ window, and is robust to the inclusion of size, dividend yield, leverage, loan amount, and industry fixed effects. After controlling for firm characteristics, the inland dummy becomes statistically insignificant, suggesting that the province-level effects are partially compositional—inland provinces have higher concentrations of private, smaller firms that benefit most from the facility. Nevertheless, Anhui retains a significant positive province fixed effect (+3.9pp, $p = 0.03$) even after controls, indicating that some genuinely geographic credit friction persists beyond firm composition.

When the PBOC injected targeted capital into tighter, inland credit environments, it provided a rare regulatory override to localized risk aversion. The market accurately priced this severe easing of financial constraints for inland firms, driving the localized *CAR* spikes, while ignoring the redundant liquidity offered to unconstrained coastal firms.

6.2.2 Tax Clientele Effects and Arbitrage Frictions

The signaling versus arbitrage dichotomy is further complicated by the **Tax Clientele Effect** (Elton & Gruber, 1970). In the A-share market, cash dividends are heavily taxed for retail investors (up to 20% for short-term holdings), whereas capital gains derived from equity appreciation are tax-exempt. Therefore, when a firm borrows at 2.25% to execute a buyback, it effectively converts taxable cash distributions into tax-advantaged capital appreciation. This implies that even for the 39.5%–44.3% of Main Board events categorized in the "Arbitrage" cohort (Dividend Yield $>$ loan rate), the transaction may still be fundamentally optimal for shareholder value maximization once the aggregate tax friction is accounted for, rather than a purely opportunistic corporate maneuver.

6.3 Policy Recommendations

Based on the structural limitations and extreme skewness observed in the empirical data, the current uniform application of the buyback loan facility is economically sub-optimal. To maximize the efficiency of the central bank's balance sheet, regulatory authorities should transition toward a targeted macro-prudential framework.

Table 14 outlines the recommended paradigm shift based directly on the empirical conclusions.

Policy Dimension	Current Uniform Framework	Proposed Targeted Framework
Interest Rate Structure	Flat 2.25% national rate across all provinces.	**Regionally Tiered Rates:** Implement subsidized rates (e.g., 1.75%) for credit-constrained inland provinces to maximize marginal utility, while raising rates for tier-1 coastal hubs.
Risk Sharing	Commercial banks retain 100% of corporate default risk.	**Partial Guarantee Mechanism:** The PBOC or Ministry of Finance should absorb a fractional percentage of default risk to incentivize commercial banks to lend to undervalued private enterprises, rather than exclusively to SOEs.
Regulatory Oversight	Standard corporate disclosure of buyback progress.	**Arbitrage Monitoring:** Implement strict CSRC auditing for the subset of firms where Dividend Yield $> 2.25\%$. Mandate blackout periods for insider stock sales during the loan duration to prevent wealth transfers.

Table 14: Strategic Optimization of the PBOC Stock Buyback Re-lending Facility

6.4 Limitations and Future Research

While this study provides robust evidence of the short-term pricing dynamics, the statistical methodology carries inherent limitations. The non-parametric Wilcoxon test confirms the *direction* of the median wealth effect but discards its economic *magnitude* (Brown & Warner, 1985). Furthermore, the A-share market's retail-dominated structure introduces behavioral noise that may contaminate the event windows with speculative trading rather than pure fundamental repricing (Fama, 1991).

Future research must bridge the gap between initial market expectations and realized corporate behavior. Longitudinal studies are required to track the **Completion Rates** of these debt-funded buyback programs over the subsequent 12 to 24 months. More importantly, future literature should transition from equity pricing metrics to fundamental accounting metrics—investigating whether firms participating in the loan facility demonstrate subsequent outperformance in **Return on Equity (ROE)** and **Earnings Per Share (EPS)**, thereby proving that the costly signal of undervaluation ultimately materialized into operational success.

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