A Study on the Pricing Mechanism of Private Placements

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Abstract

This paper analyzes the impact of the 2017 CSRC regulatory amendments to private placement rules. Based on a sample of private placement events from 2013 to 2020, we document three key findings: First, the policy reform attenuated listed firms'ability to "time"their private placements, with the phenomenon of excessive pre-issue stock price run-ups followed by sharp post-issue declines being significantly mitigated. Second, the new regulatory policy facilitated the functioning of market-oriented pricing mechanisms in private placements, resulting in reduced issuance discounts and improved issuer quality. Third, investor sentiment constitutes an important consideration for listed firms in "timing"their offerings; the policy amendments curbed firms' ability to exploit investor sentiment to issue shares at inflated prices, thereby dampening stock price volatility. These findings elucidate the reasons for the suboptimal returns experienced by participants in domestic share placements and provide an evaluation of the policy reform' s effectiveness.

Full Text

A Study on the Pricing Mechanism of Private Equity Placement

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Abstract: This paper analyzes the impact of the 2017 revision to the China Securities Regulatory Commission' s private equity placement rules. Based on private placement events from 2013 to 2020, we find that: First, the policy reform weakened listed companies' ability to "time" their private placements, significantly reducing the phenomenon of excessive stock price increases before issuance and sharp declines afterward. Second, the new regulatory policies promoted the functioning of market-oriented pricing mechanisms in private placements, reducing issuance discounts and improving issuer quality. Third, investor

sentiment is an important consideration for listed companies when "timing" their offerings. The policy revision curbed the ability of listed companies to exploit investor sentiment to issue stocks at high prices, thereby reducing stock price volatility. These findings explain the unsatisfactory returns of domestic stock issuance participants and evaluate the effectiveness of the policy reform.

Keywords: Private equity placement, Market timing, Investor sentiment

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Private equity placement refers to the method by which listed companies issue stocks to specific investors in a non-public manner to raise funds. Since 2006, when private placements came under the regulatory scope of the CSRC, this financing model has developed rapidly, accounting for 70% of all equity refinancing in China by 2021. A key feature of private placements is that stocks need not be issued at market price, giving companies considerable autonomy in timing, pricing, and participant selection. While this enhances financing flexibility, it also creates opportunities for listed companies to use private placements for interest transfer. Some studies indicate that major shareholders engage in "tunneling" through equity financing, harming the interests of small and medium investors (Zhang Xiangjian and Xu Jin [1]; Zhang Weidong and Li Haichuan [2]; Zhao Yufang et al. [3]; Wu Yuhui et al. [4]). Since the 18th National Congress of the Communist Party of China, the CSRC has accelerated the construction of a high-level capital market with Chinese characteristics, comprehensively deepening reforms and continuously exploring effective regulation of private placements. The Commission revised the *Implementation Rules for Non-public Issuance of Stocks by Listed Companies* twice in 2017 and 2020. The 2017 revision, in particular, made significant amendments to the placement process based on a comprehensive summary of experiences from the previous decade of implementing the 2007 rules. This paper specifically analyzes the reform of February 14, 2017, systematically investigating and evaluating the actual impact of this policy adjustment on the private placement market and participating enterprises.

China's private placement system features a unique regulatory approval process, with specific issuance procedures shown in [Figure 1: see original paper]. To conduct a private placement, a listed company must first obtain approval from its board of directors and shareholders' meeting. The board prepares the placement plan and puts it to a vote, after which relevant materials are submitted to the shareholders' meeting for approval. In addition to internal authorization, China implements a pre-approval system for private placements. Beyond board and shareholder approval, listed companies must also obtain CSRC approval before proceeding. After receiving shareholder authorization, the company submits its placement plan to the CSRC for review. During the review process, the CSRC first conducts a preliminary examination of the application materials, then delegates substantive review to the Issuance Review Committee (IRC), composed primarily of external experts. The IRC votes on the company' s stock issuance

application through meetings, commonly known as "passing the review." After IRC approval, the CSRC conducts procedural reviews of the entire application process and makes a final decision to approve or reject the issuance, issuing approval documents to successful applicants. Upon receiving CSRC approval, the company can determine the issuance period within a six-month validity window and send subscription invitations to eligible specific investors one day before the issuance period begins. Interested investors can participate through non-public centralized bidding, with final participants determined by price priority. After completing capital verification, equity registration, and other procedures, the company announces the placement results, including subscribers, quantities, and prices, and the newly issued stocks complete the listing process.

This unique regulatory approval process results in a lengthy implementation period for private placements, taking approximately one year from the initial announcement of the placement plan to completion. Additionally, domestic private placements limit the number of subscribers to no more than 10 (5 for ChiNext companies) but impose no restrictions on subscriber identity. The lock-up period for new shares is generally 12 months, but 36 months for controlling shareholders, actual controllers, or strategic investors.

Before the 2017 reform, listed companies could autonomously choose the reference date for determining the minimum issuance price: either the board resolution announcement date, shareholders' meeting resolution announcement date, or the first day of the issuance period. The minimum price was set at 90% of the average trading price over the 20 trading days preceding the reference date (the "10% discount rule"). Since companies had discretion over the pricing period, particularly by choosing the controllable board resolution date as the reference point, they possessed significant autonomy in pricing timing. This allowed companies to lock in higher issuance base prices when their stock was overvalued. To successfully issue new shares at high prices, listed companies might employ manipulation tactics to maintain elevated stock prices during the placement period. When investors anticipated such "timing" behavior, they would demand large issuance discounts to ensure returns. Consequently, market-oriented pricing mechanisms could not function effectively in private placements, leading to increased stock price volatility and harm to small and medium investors.

The most important change in the 2017 CSRC revision specifically addressed this situation by eliminating companies' choice of reference date, mandating that the issuance period' s first day be used uniformly to determine the base price. As shown in [Figure 1: see original paper], nearly a year elapses between the board meeting announcing the placement plan and final determination of the issuance period. Therefore, the reform of the pricing reference date significantly weakened companies' ability to "time" their offerings. Unlike before, even when current stock prices were overvalued and investor sentiment was high, companies could no longer immediately lock in higher base prices by convening a board meeting and announcing the plan. Instead, they had to wait until receiving CSRC approval to determine the pricing reference date, substantially reducing

their "timing" capability. Moreover, postponing the reference date to the first day of the issuance period ensured that relevant placement information was disclosed before determining the base price, giving the market adequate time to digest this information and respond. Sufficient information and trading time reduced investors' irrational behavior and weakened issuers' ability to manipulate stock prices. Consequently, the policy reform strengthened the dominant role of market mechanisms in private placement pricing, making prices more equitable and reducing investors' demands for large discounts.

Our findings primarily cover three aspects. First, we document clear "timing" behavior in domestic private placements, with companies intentionally issuing when stock prices are high, while the 2017 reform weakened this ability. Specifically, before the reform, issuers' stocks showed significant excess gains relative to the market: returns exceeded market returns by 19% in the 12 months before announcement and 48% over 24 months, demonstrating clear high-price issuance behavior. In contrast, after the reform, this pre-announcement excess return disappeared, with issuer returns nearly matching market returns. Reduced high-price selling behavior ensured investor returns. Before the reform, excessively rising pre-issuance prices were unsustainable after completion. Following placement, issuers' stocks persistently underperformed the market, with excess returns of -20% over 36 months post-listing, indicating poor investor returns. The reform suppressed high-price selling, significantly improving post-issuance performance. After the reform, issuers' stocks delivered approximately 15% excess returns over the market in the 36 months following listing. Overall, the 2017 policy adjustment effectively reduced "timing" behavior, virtually eliminating high-price selling and significantly improving the pattern of excessive pre-issuance rises and post-issuance declines.

Second, the new policy substantially postponed the pricing reference date, enabling market-oriented pricing mechanisms to function effectively and reducing issuance discounts. Before the reform, the issuance base price was approximately 35% below the market price at listing, indicating a large gap and high discount rate. Most companies chose the board resolution announcement date as the reference date, with the pricing period being the 20 trading days before this announcement—the date when the market first learned of the placement. Therefore, the base price reflected no information about the placement. Market reactions to the placement information were entirely reflected in the discount. Additionally, before reform announcements, issuers' stock prices had already experienced significant increases. To maintain high prices and successfully issue new shares, companies engaged in manipulation. Analysis of revenue quality shows that in the placement year, the ratio of accounts receivable to operating revenue for issuers jumped significantly compared to similar non-issuing companies in the same industry, while differences were minimal before the placement year. This suggests issuers may have used aggressive accounting methods to drive up stock prices for high-price issuance, further increasing discounts.

The reform postponed the reference date to the first day of the issuance period,

meaning that before determining the base price, market participants knew the placement plan, internal authorization, and regulatory review results. With most placement information already incorporated, the base price naturally approached market price. The gap between base price and listing market price narrowed to approximately 11%, close to the 10% discount allowed by the rule. After the reform, no significant differences in revenue quality existed between issuers and comparable non-issuers around placement events, indicating reduced manipulation. Post-reform issuers didn' t experience large pre-issuance price increases, eliminating the need to maintain artificially high prices and weakening manipulation motives. More importantly, increased pre-issuance information disclosure and longer reaction time reduced short-term irrational investor behavior and mispricing, weakening price manipulation ability. While issuance discounts represent direct risk compensation for investors, suppressing them might dampen participation enthusiasm. We find multiple factors support placements at lower discount levels. First, post-reform issuers faced lower financing constraints with stronger external financing ability. Their stronger bargaining power compressed investors' discount compensation demands. Second, pre-issuance excess gains disappeared, so investors no longer needed large discounts to compensate for overvaluation risk. Finally, post-reform issuers showed more significant improvements in operational efficiency and profitability around placements. Fundamental improvements directly compensated for reduced discounts. Thus, even though the reform limited companies' ability to attract investors through discounts, high-quality companies could still raise funds through private placements.

Third, we find investor sentiment is an important consideration for "timing" placements. When companies could exploit market timing, they could announce placements during high sentiment windows to lock in high prices. While high investor sentiment helped complete high-price issuance, it also exacerbated short-term price volatility. The policy reform deprived companies of absolute control over market timing, preventing them from using investor sentiment for high-price issuance and reducing resulting price fluctuations. We find that before the reform, private placement announcements often followed periods when many companies in the same industry experienced extremely high returns. On average, approximately 18 companies in the issuer' s industry had doubled in value over the past year before pre-reform announcements, compared to about 2.3 companies post-reform. This change in investor sentiment levels demonstrates that companies considered these factors when "timing" placements. Before the reform, companies could exploit investor optimism about their industry anytime by announcing placement plans to lock in high base prices. After the reform, the six-month to one-year gap between announcement and pricing reference date prevented real-time exploitation of sentiment-driven market timing, making it unnecessary to choose high-sentiment moments for announcements. Furthermore, investor sentiment significantly exacerbated stock price volatility. Before the reform, high sentiment levels during announcement periods increased issuance discounts and abnormal stock returns. The poor long-term post-issuance per-

formance indicated that short-term positive returns merely reflected sentiment-driven mispricing, with high sentiment helping companies successfully sell overvalued stocks to investors. After the reform, announcement-period sentiment levels were lower and no longer significantly increased short-term volatility.

This paper contributes to existing literature in several ways. First, it enriches research on "timing" behavior in private placements. Unlike earlier studies, we find that despite over a decade of institutional development, obvious "timing" phenomena persist in domestic private placements. Companies exploit market timing for high-price issuance, with large pre-issuance price increases and poor long-term post-issuance performance, leaving investment returns unprotected. Second, we find that reasonable regulatory policies can alleviate "timing" problems in stock issuance and protect investor interests. Existing literature focuses on the existence of interest transfer through market timing in private placements, while we demonstrate that under China' s special regulatory system, proper policy design can enable effective market pricing mechanisms and reduce behavior harming investor interests. Third, we provide evidence on how companies conduct "timing." Our results show investor sentiment is an important consideration. When possessing autonomous choice over issuance timing, companies tend to exploit high-sentiment windows for high-price issuance, exacerbating price volatility. Effective regulatory policy can weaken companies' ability to exploit investor misbehavior for high-price issuance.

The remainder of this paper is organized as follows: Section 2 reviews literature and proposes hypotheses, Section 3 introduces data sources, key variables, and descriptive statistics, Section 4 presents empirical results, Section 5 briefly discusses robustness checks, and Section 6 concludes.

2.1 Literature Review

The "new issues puzzle" is a widely documented market phenomenon in domestic and international literature, characterized by poor long-term returns after seasoned equity offerings. Factors such as firm fundamentals and risk-return factors (e.g., size effect, book-to-market ratio, return reversal) cannot adequately explain the long-term underperformance after new share issuance (Ritter [5]; Loughran and Ritter [6]; Spiess and Affleck-Graves [7]; Hertzel et al. [8]). Research shows that listed companies can indeed capture market timing, issuing new shares when their stock price is high or repurchasing when it is low (Baker and Wurgler [9]), representing the widespread "timing" phenomenon in stock issuance. Information asymmetry between corporate management and external investors provides conditions for high-price issuance, as management is willing to sell stock when it is overvalued (Myers and Majluf [10]). Beyond directly exploiting information advantages, companies may also actively boost their stock valuation through earnings management to facilitate high-price issuance (Rangan [11]). In summary, existing literature documents "timing" behavior in seasoned equity offerings, indicating a tendency for high-price issuance.

The pricing of new shares is a core issue in private placements. Subscription prices are often below market price, giving placement investors direct returns. Existing literature explains issuance discounts through information acquisition costs, monitoring costs, management entrenchment effects, and liquidity compensation (Hertzel and Smith [12]; Barclay et al. [13]; Wruck [14]; Longstaff [15]). Domestic private placements also commonly use discounts, with even higher discount rates than developed markets like the U.S. (Xu Shoufu [16]; Huang Yeni et al. [17]). High-discount private placements may become a means for major shareholders and related parties to transfer benefits (Zheng Qi [18]; Zhang Ming and Guo Siyong [19]; Wang Zhiqiang et al. [20]), though some scholars argue that appropriate discount levels benefit the development of the private placement system (Ma Wenjie and Hu Yue [21]), and excessive suppression of issuance discounts may leave investors without adequate risk compensation, dampening investment enthusiasm and shrinking the private placement market.

The announcement of private placement plans releases new information, causing market participants to re-evaluate company value and triggering stock price fluctuations. Private placements are often interpreted as positive signals about companies, with domestic and international research generally documenting positive abnormal returns on announcement days (Wruck [14]; Hertzel and Smith [12]; Zhang Weidong [22]; Xu Shoufu [23]). Issuer characteristics and placement plan content affect announcement-period stock prices. For example, domestic research finds that announcement-period abnormal returns increase further when private placements achieve overall group listing (Zhang Weidong [22]); issuance pricing also affects announcement effects, with discount rates negatively correlated with announcement effects (Zhang Weidong and Li Dezhong [24]); higher major shareholder subscription ratios and bull market environments also increase announcement-period abnormal returns (Xu Shoufu [23]). Additionally, information leakage exists in China' s capital market, with abnormal returns appearing before private placement announcements (Wang Jiaxin and Liu Xi [25]).

China's private placements share characteristics with developed markets, such as discount issuance and positive announcement effects. However, China' s capital market remains immature, with institutional development still ongoing, making private placements a potential vehicle for interest transfer and exploitation of small and medium investors. Listed companies may exploit minority and new investors through pre-placement earnings management, high-discount issuance, injection of poor-quality assets, and cash dividends (Zhang Weidong [26]; Zhang Ming and Guo Siyong [19]; Zhang Xiangjian and Guo Lan [27]; Zhao Yufang et al. [3]). These phenomena indicate that China' s private placement system requires improvement in regulating corporate financing behavior and protecting small and medium investors. Furthermore, unique institutional designs affect domestic placements. China' s pre-approval system requires CSRC approval beyond internal authorization. Fonseka et al. [28] find that market participants react positively to placement announcements and approvals but not negatively to rejections. Huang et al. [29] find that the CSRC screens placement compa-

nies based on market stability motives. To promote private placements as an effective direct financing tool, the CSRC has revised relevant regulations multiple times to reduce manipulation, promote reasonable pricing, and maintain market stability. Xu Shoufu [16] argues that introducing non-public centralized quotation mechanisms and price priority principles effectively reduced placement discount rates while curbing major shareholders' ability to use discounts for interest transfer. Huang Yeni et al. [17] and Ma Wenjie et al. [30] find that eliminating companies' choice of pricing reference date effectively reduces issuance discount rates and promotes market-price issuance.

2.2 Research Hypotheses

Before the 2017 reform, over 98% of listed companies chose the board resolution announcement date shown in [Figure 1: see original paper] as the pricing reference date (Ma Wenjie et al., 2018, Table 1 [30]). With absolute control over this date, companies could "ambush" the market by immediately locking in high base prices when their stock was overvalued, then selling at high prices to investors. The 2017 new rules required companies to determine the pricing reference date after receiving CSRC approval. Since applying for placement to obtaining approval takes six months to a year with considerable uncertainty, even when stock prices were overvalued, companies could no longer use board resolutions and announcement to lock in high base prices as before. Their ability to exploit market timing was greatly reduced, as was their motive to manipulate stock prices upward. The policy reform deprived companies of absolute control over the pricing period, making it difficult to lock in high prices during overvaluation windows. Consequently, companies no longer deliberately chose to announce placements after significant stock price increases. Since their ability and motive to "time" placements using overvaluation windows were weakened, high-price issuance after large price increases decreased, reducing the likelihood that investors would "overpay." Post-reform investment returns in private placements could thus be protected. Accordingly, we propose:

Hypothesis 1: The reform weakened issuers' "timing" ability, preventing companies from placing shares at price peaks, thus reducing stock price increases before the board resolution announcement date (placement plan announcement date).

Hypothesis 2: The phenomenon of low long-term returns for private placement companies' stocks significantly changed after the reform.

Before the reform, most companies chose the trading period before the board resolution announcement date to determine the issuance base price. Throughout this pricing period, market participants were unaware of the upcoming placement, let alone specific plans and regulatory approval status. Therefore, the base price contained no information about the placement. Only after the board announcement did the market begin re-evaluating company value based on the placement event, inevitably causing stock prices to deviate from the base price

level. Furthermore, if Hypothesis 1 holds, issuers' stocks had already experienced significant increases at the pre-reform announcement. To successfully issue new shares at high base prices, issuers likely manipulated prices to maintain or increase them during the placement period, further increasing discounts. The regulatory reform required companies to postpone the pricing reference date until after CSRC approval. For post-reform placements, before the pricing reference date, market investors already knew the specific placement plan, internal authorization, and could observe the results of substantive and procedural CSRC reviews. Throughout the internal authorization and regulatory pre-approval process, the market could adjust company valuation accordingly, forming a reasonable stock price before the pricing reference date. The placement base price determined based on this price already reflected comprehensive information about the placement and should be very close to the market price after issuance[1]. The regulatory reform limited companies' "timing" space and substantially postponed the pricing reference date. Compared with pre-reform, companies disclosed more information to the market when determining placement base prices and gave market participants sufficient time to react, all conducive to converging placement pricing with market prices. Additionally, following Hypothesis 1' s logic, if post-reform companies no longer deliberately chose to "time" placements after their stock prices rose, they had no need to manipulate prices to maintain artificially high levels, also reducing issuance discounts. Accordingly, we expect:

Hypothesis 3: Post-reform private placement prices are closer to market prices on the new shares' listing date.

Existing research shows that despite the "new issues puzzle," listed companies can still sell overvalued stocks to investors. Companies are generally successful in exploiting market timing, always selling stocks when investors are willing to pay premiums and repurchasing when undervalued (Baker and Wurgler [9]). This indicates investor sentiment is an important factor in stock issuance decisions (Chen et al. [31]), and sentiment often significantly affects mispricing and market volatility (Baker and Wurgler [32]; Stambaugh et al. [33]). If companies can promptly exploit high investor sentiment, they can issue stocks at high prices when the market is most optimistic. We expect that pre-reform, companies used their autonomy over placement timing to deliberately choose high-sentiment periods for "timing" placements, with high sentiment exacerbating short-term price fluctuations and helping achieve high-price issuance. Post-reform, companies' "timing" ability was weakened, preventing them from using placement announcements to lock in high prices through sentiment. Accordingly, we propose:

Hypothesis 4: Before the reform, listed companies used investors' optimistic sentiment for high-price private placements; after the reform, their "timing" ability was deprived, and investor sentiment was no longer a decisive factor in initiating placements.

Hypothesis 5: High investor sentiment increased short-term stock price volatil-

ity, while post-reform, sentiment-induced price fluctuations were reduced.

3.1 Sample Construction

Our private placement data comes from the WIND database, while stock trading data, market index returns, and corporate financial data come from CSMAR and WIND databases. The sample period for private placement events is from January 1, 2013, to February 14, 2020. The sample ends on February 14, 2020, because the CSRC issued new placement rules that day, further adjusting the number of placement targets, base price, lock-up period, and approval validity. To prevent overlapping policy effects, the sample period ends before the subsequent reform. We screen raw data as follows: exclude financial companies due to their different business scope and financial structure; exclude placements for asset acquisition, retaining only those raising funds to ensure comparability between placement pricing and market prices; further exclude placements with missing stock returns due to suspension. After screening, 848 private placement events remain, with 655 observations before the February 14, 2017 reform and 193 after. The annual distribution of the sample is shown in [Figure 2: see original paper].

[Figure 2: see original paper] shows that 77% of placements occurred before the reform, with both the number of events and total financing scale decreasing significantly after the policy change. The policy adjustment required at least 18 months between two private placement financings and limited new share scale to 20% of outstanding shares. Restrictions on financing frequency and scale may have caused some capital-intensive companies to abandon private placements, reducing post-reform events. This decrease is consistent with Ma Wenjie and Hu Yue [21], who argue that the 2017 policy changes overly restricted new share issuance prices, dampening investor enthusiasm and shrinking the private placement market.

3.2 Key Variables and Descriptive Statistics

We introduce a policy reform dummy variable *Post*, which equals 1 if the private placement occurred after the February 14, 2017 policy reform and 0 otherwise. In regression analysis, we use the following control variables: major shareholder subscription ratio *Top1Buy*, new shares as a fraction of outstanding shares *PPFraction*, firm size *Asset*, leverage *Leverage*, firm age *FirmAge*, return on assets *ROA*, state-owned enterprise dummy *StateOwn*, book-to-market ratio *BM*, largest shareholder ownership ratio *Top1Hold*, and CEO-chairman duality dummy *DualRole*. All firm-level control variables use data from the year-end before placement. All continuous variables are winsorized at the 1% and 99% levels to prevent outliers from affecting results. Descriptive statistics for key variables are shown in Table 1.

Table 1: Descriptive Statistics for Selected Key Variables

Variable	75th Percentile	Mean	Std. Dev.	N
Top1Buy	15.05%	31.24%		
PPFraction				
Asset				
Leverage				
FirmAge				
StateOwn				
Top1Hold				
DualRole				

4.1 Long-term Stock Returns Around Private Placements

When companies "time" new share issuance, stock prices experience large increases before issuance and often perform poorly afterward. In the year before placement, Hovakimian and Hu [34] find issuers' stocks rose over 90%; Loughran and Ritter [6] record increases of about 72%, roughly double the market return. Spiess and Affleck-Graves [7] and Loughran and Ritter [6] find that after placement, issuers' stocks underperform over the next 3-5 years. For example, to achieve the same investment value five years after a placement, investors in issuing companies would need to invest 44% more initial capital than investors in comparable non-issuing companies. Risk factors such as issuer size, book-to-market ratio, market beta, and industry effects cannot explain this long-term underperformance, suggesting issuers likely exploited market timing to sell overvalued stocks.

This section focuses on stock price increases before placement announcements and after issuance. Following Teoh et al. [35] and DeAngelo et al. [36][2], we construct excess returns around issuance. Specifically, excess returns measure the difference between individual stock returns and market returns over a period. Our reported results use the WIND All-A Index as the market return; results using the CSI 300 Index or sub-market indices are similar (unreported). For intervals, we calculate pre-announcement excess returns using the periods [-36, -1], [-30, -1], [-24, -1], [-18, -1], and [-12, -1] months before the board resolution announcement; post-issuance excess returns are calculated for periods [1, 12], [1, 18], [1, 24], [1, 30], and [1, 36] months after new share listing.

Table 2: Pre-announcement Stock Excess Returns (T-test)

Interval	Post=0	Post=1	Diff
[-36, -1]	56.16%***	-1.26% (-0.259)	57.41%***
	(11.401)		(6.070)
[-30, -1]	52.95%***	-9.86%***	62.81%***
	(11.730)	(-2.644)	(7.185)
[-24, -1]	48.03%***	-7.63%***	55.66%***
	(12.596)	(-2.532)	(7.562)

Interval	Post=0	Post=1	Diff
[-18, -1]	31.76%*** (11.343)	-2.70% (-1.056)	34.46%*** (6.473)
[-12, -1]	18.88%*** (9.267)	-2.34% (-1.078)	21.22%*** (5.447)

Note: Numbers in parentheses are t-statistics. One-tailed tests are used for univariate tests and two-tailed tests for regression analysis. , , * represent significance at 10%, 5%, and 1% levels, respectively.*

Before the reform (Post=0), stocks generally experienced large increases before private placement announcements, particularly within two years before placement. The 12-month cumulative average excess return was nearly 19%, reaching 48% over 24 months. After the reform (Post=1), pre-announcement excess returns decreased significantly in absolute value, with the 12-month excess return falling to -2.34% (statistically insignificant), indicating returns roughly matched the market. The difference in pre-placement excess returns between pre- and post-reform periods is significant across all intervals, showing that the pricing interval reform significantly weakened companies' "timing" ability and reduced high-price issuance behavior. These results provide preliminary support for Hypothesis 1.

Another indicator of "timing" behavior is long-term post-issuance stock performance. If companies "timed" placements by selling overvalued stocks, long-term post-issuance performance would be poor. Table 2 shows the new policy effectively suppressed pre-issuance "timing" and reduced pre-issuance stock increases. If companies abandoned "timing" and no longer chose high-price issuance, we would expect improved long-term holding returns after issuance. We calculated post-issuance excess returns for different intervals as shown in **Table 3**.

Table 3: Post-issuance Stock Excess Returns (T-test)

Interval	Post=0	Post=1	Diff
[1, 12]	2.15% (1.165)	4.04% (1.136)	-1.89% (-0.487)
[1, 18]	-0.73% (-0.339)	10.37%** (2.108)	-11.11%*** (-2.334)
[1, 24]	-6.86%*** (-2.920)	14.42%*** (2.562)	-21.28%*** (-4.047)
[1, 30]	-13.27%*** (-5.511)	15.95%** (2.103)	-29.22%*** (-4.698)
[1, 36]	-19.88%*** (-8.231)	15.23%* (1.472)	-35.11%*** (-4.792)

In the 12 months after issuance, stock performance was basically in line with the

market in both periods, not significantly underperforming. Before the reform (Post=0), stocks began underperforming the market when the holding period exceeded one year, with this weakness persisting—three years after listing, returns were about 20% below market returns. After the reform (Post=1), stocks began outperforming the market when the holding period exceeded one year, delivering approximately 15% excess returns three years after listing. The t-test results comparing pre- and post-reform periods show that poor long-term post-issuance returns were significantly improved, consistent with Hypothesis 2.

In Tables 2 and 3, market returns serve as the benchmark. However, single market returns may not fully capture individual stock return determinants, potentially omitting important risk factors. To verify robustness, we further confirm stock return changes after the reform through Fama-MacBeth (Fama and MacBeth [37]) regressions. The sample construction method retains monthly returns for 36 months before the placement announcement as the pre- "timing" sample and 36 months after new share listing as the post-issuance sample. To investigate changes after the reform, we include the dummy variable *Post*, defined as in the descriptive statistics section. Conventional stock return factors include: market return *Market*, firm size *Size*, book-to-market ratio *BM*, and three-month cumulative momentum factor *Momentum*. Standard errors in regressions use Newey-West adjustment with 12 lags to account for autocorrelation. Results are shown in **Table 4**.

Table 4: Fama-MacBeth Regressions of Stock Returns Around Private Placements

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable: Monthly Individual Stock Excess Return (%)	Pre-announcement			Post-issuance		
Post	-3.530***	-3.422***	-4.216***	1.174**	1.617***	1.868***
	(-3.778)	(-3.936)	(-3.822)	(2.419)	(3.731)	(3.259)
Market	-0.923***	-0.930***	-0.831***	-0.890***	-0.896***	-0.810***
	(-16.299)	(-16.895)	(-10.431)	(-19.111)	(-19.460)	(-11.595)
Momentum	1.775***	1.879***	2.240***	1.632***	1.652***	1.948***
	(10.069)	(9.706)	(10.120)	(12.523)	(11.589)	(8.601)

	(1)	(2)	(3)	(4)	(5)	(6)
Size		-1.331***	-1.627***		-0.926***	-1.124***
		(-12.437)	(-12.955)		(-6.100)	(-5.068)
BM			-9.724***			-7.701***
			(-6.502)			(-3.790)
Constant	-36.434***	-37.650***	-44.756***	-37.647***	-37.445***	-44.019***
	(-9.543)	(-8.931)	(-9.521)	(-14.521)	(-13.057)	(-9.458)
Observations	22,535	22,535	22,535	25,193	25,193	25,193

Columns (1)-(3) show pre-announcement sample regression results: the *Post* coefficient is significantly negative, indicating significantly reduced pre-announcement stock price increases after the policy change, consistent with Table 2. Columns (4)-(6) show post-issuance sample results: the *Post* coefficient is significantly positive, indicating improved long-term performance after the reform, consistent with Table 3. The Fama-MacBeth regressions further confirm our stock excess return analysis, providing additional evidence for Hypotheses 1 and 2. The policy reform effectively limited companies' "timing" ability in private placements, reducing pre-announcement price increases and improving post-issuance returns.

Since our policy reform occurred in early 2017, the pre-reform sample includes the bull market starting in the second half of 2014, during which individual stocks were more likely to experience irrational increases. To verify that the bull market period does not dominate the results in Tables 2-4, we delete all placement announcements between June 2014 and May 2015 and re-run all tests, with results shown in Appendix Tables A1-A3. Since the bull market only appeared before the policy reform, deleting these observations only affects pre-reform results (Post=0). The results show that after removing bull market samples, our main findings remain unchanged, indicating the bull market is not the dominant factor. For example, Table A1 shows that after deleting bull market samples, pre-reform (Post=0) excess returns for the -12, -24, and -36 month intervals are 20.88%, 38.29%, and 68.45%, respectively. Compared with Table 2, the -12 and -36 month excess returns increased while the -24 month return decreased. This demonstrates that even after excluding bull market effects, obvious pre-announcement excess returns existed before the reform, and the reform' s impact (diff) on pre-announcement excess returns remains largely unchanged. Tables A2 and A3 show similar robustness for post-issuance excess returns and Fama-MacBeth regressions, confirming that the bull market period does not drive our results.

4.2 Private Placement Discount Rates

The previous section examined the medium- to long-term impact of the reform on stock returns around placements. This section further investigates the reform' s impact on short-term price fluctuations. Issuance discount represents direct returns to investors from purchasing new shares below market price. Existing research shows high discount rates in domestic private placements. Xu Shoufu [16] finds discount rates of about 34% relative to market price on issuance day for early samples, with higher discounts when major shareholders subscribe more or have higher existing ownership. Huang Yeni et al. [17] find discounts of about 30% relative to market price on issuance day, with lower discounts when companies choose the first day of the issuance period as the pricing reference date.

Following Wruck and Wu [38], we calculate the discount rate *PPDiscount* as: [(closing price on the trading day before new share listing - placement price) / closing price on the trading day before new share listing]. This reflects price drift from announcement to listing date. Under this calculation, the variable is positive for discount issuance. **Table 5** shows issuance discounts. Before the reform (Post=0), the discount rate was about 35%. Even considering the 10% discount allowed below the base price, the issuance price still differed substantially from market price. From announcement to completion, stock prices experienced significant upward drift[3]. This price drift explains why investors would participate in seemingly overpriced placements—the stocks appeared much cheaper than market price when they purchased them. After the reform (Post=1), the discount rate significantly decreased to about 11%. Our documented discount rates and policy impact are consistent with previous research. The post-reform discount rate is close to the 10% discount allowed by the rule, indicating the base price was nearly equal to the market benchmark price, achieving the intended effect. Post-reform market reactions to placements became more rational, with excessive volatility greatly reduced, providing preliminary support for Hypothesis 3.

[3] Assuming the base price determined by the reference date is 100 yuan, the minimum issuance price is 90 yuan. In practice, most placements anchor at the 10% discount rate. Using our documented discount rate, the stock price must rise to at least $90 \times (1 + 35\%) = 121.5$ yuan before listing. Whether calculated from base price (100 yuan) or minimum price (90 yuan), stock prices experienced significant increases from announcement to completion.

In pre-reform placements, since companies chose the announcement date as the pricing reference date, the base price reflected no placement information. The market could only react after the announcement, causing deviation between issuance price and market price. Simultaneously, to ensure investors would accept high issuance prices, companies had strong incentives to manipulate prices upward after the board announcement confirmed the base price. The policy change postponed the pricing period, requiring companies to disclose sufficient informa-

tion before determining the base price and giving the market adequate time to digest it, making issuance pricing closer to fair market value and substantially reducing placement discounts.

We provide suggestive evidence that listed companies may engage in "manipulation" to maintain stable high stock prices to complete private placements. To reduce equity dilution, companies raising funds through new share issuance prefer high-price issuance. Our results so far describe pre-issuance price increases and post-announcement price drift in pre-reform placements. To ensure successful new share issuance, issuers have incentives to maintain or push stock prices higher between announcement and completion. Otherwise, if prices fall significantly before completion, even a locked-in high base price cannot attract investors. Therefore, issuers have motives to maintain stock prices through various means during the placement period. Using the placement year as the base period (T=0), we match each placement company at each time point (T=-3, -2, -1, 0, 1, 2) with three listed companies in the same industry with the closest sales revenue as a control group (results are robust to matching 1 or 5 companies, unreported). Control group companies exclude those with any placement plans or ongoing placements in that year, though the same non-issuing company can be matched to multiple issuers. We require sales revenue deviations between control and issuing companies within 25% (robust to 50%, 100% thresholds, unreported). We then calculate the difference between the issuer' s accounts receivable-to-operating revenue ratio and the control group' s mean ratio, comparing how this difference changes over time. **Table 6** shows the results.

Table 6: Revenue Quality Around Private Placement Issuance

	T=-3	T=-2	T=-1	T=0	T=1	T=2
Post=0	0.129%	1.364%	-0.743%	**7.543%***	**5.228%***	**7.974%***
	(0.105)	(1.164)	(-0.241)	(6.089)	(3.158)	(5.957)
Post=1	0.618%	-4.327%**	0.881%	-1.433%	2.024%	1.612%
	(0.244)	(-1.732)	(0.319)	(-0.450)	(0.778)	(0.766)
Diff	-0.489%	**5.690%**	-1.624%	**8.976%***	3.204%	**6.362%***
	(-0.185)	(2.256)	(-0.276)	(3.155)	(0.960)	(2.331)

In pre-reform samples (Post=0), the accounts receivable-to-revenue ratio difference between issuers and similar non-issuers was small in the three years before placement. However, in the placement year, issuers'ratio was significantly higher than the control group mean by about 7.54 percentage points, with this abnormal ratio persisting after issuance. In post-reform samples (Post=1), the difference remained small and statistically insignificant. The significant improvement in revenue quality in the placement year between pre- and post-reform periods indicates reduced revenue manipulation. Two points merit attention. First, before pre-reform placements, issuers did not experience significantly different

collection difficulties from peers, as the difference was statistically insignificant or small at T<0. This rules out issuer-specific negative shocks (e.g., customers' long-term inability to pay cash) forcing placements to relieve financial pressure. Second, the accounts receivable-to-revenue ratio increased noticeably in the placement year for pre-reform placements, suggesting possible manipulation to maintain high stock prices during the placement period.

We briefly discuss these results. First, our use of "manipulation" does not imply these accruals are fraudulent, as some earnings smoothing or aggressive accounting methods are permitted under accounting standards. Second, simple manipulation tactics can induce investor misbehavior and raise stock prices. Titman et al. [39] find that suspicious stock splits induce retail investors to buy, with suspicious manipulation including splits after price declines or outside earnings announcement periods. Identifying these manipulations is simple, requiring no financial knowledge or financial statement reading, yet they significantly boost stock prices and attract investors. Therefore, revenue quality manipulation suffices to maintain high stock prices. Additionally, manipulation-driven price increases are often unsustainable, with prices reversing as investors correct mispricing. Thus, issuers should manipulate close to issuance timing rather than long before, consistent with Rangan [11].

Analysis of discount rates and placement event counts aligns with Ma Wenjie and Hu Yue [21]: the 2017 reform significantly reduced new share issuance discounts, and investor enthusiasm may have declined due to insufficient compensation, reducing placement events. We calculate selected firm characteristics to provide evidence for the reasonableness of reduced discounts, with results shown in **Table 7**.

Table 7: Characteristic Changes of Private Placement Companies Before and After Reform

Variable	Post=0	Post=1	Diff
SAindex	0.137*** (7.257)	-0.293*** (-4.886)	-0.104*** (-4.305)
AssetTurn	-1.207** (-1.750)		
NetProfit			

Following Ju Xiaosheng et al. [40], we calculate financing constraints *SAindex*. This measure is negative for Chinese firms, with larger absolute values indicating lower financing constraints and easier external financing access. Comparing pre- and post-reform financing constraints (Diff) shows that post-reform issuers faced even lower financing constraints, indicating stronger external financing ability. We also calculate the book-to-market ratio *BM* before placement and compare differences between periods. Results show post-reform issuers had significantly higher pre-placement book-to-market ratios, consistent with Tables 2 and 4: pre-placement stock price increases narrowed substantially. Financing

constraints and pre-placement book-to-market ratios support the discount reduction. First, post-reform issuers could more easily obtain external financing, and their stronger bargaining power compressed investors' discount compensation demands. Second, book-to-market ratios and pre-placement price increase results show that post-reform companies did not place shares after large price increases, so investors no longer needed large discounts to offset overvaluation.

Table 3 shows that policy changes significantly improved post-placement stock returns, even generating positive excess returns. This suggests post-placement fundamentals may have improved after the reform, delivering market-beating returns. We measure operational efficiency using total asset turnover and profitability using net profit to examine fundamental changes. Following Liao et al. [41], we calculate the difference between average total asset turnover in the three years after and before placement as *AssetTurn*, and the difference between average net profit in the three years after and before placement, standardized by the pre-placement three-year average, as *NetProfit*. Results show significant differences (Diff) in fundamental changes between pre- and post-reform periods. Post-reform issuers showed significantly greater improvements in operational efficiency and profitability than pre-reform companies. These fundamental improvements generated long-term excess returns, consistent with the differences in long-term returns documented in Table 3. Moreover, pre-reform (Post=0) companies experienced declining total asset turnover after issuance, with reduced operational efficiency potentially contributing to poor long-term stock performance.

In summary, analysis of issuer characteristics shows that the 2017 reform effectively screened issuers. Although the placement market shrank, the reform promoted financing by higher-quality companies. Post-reform issuers had stronger financing ability, reduced pre-issuance overvaluation, and investors no longer required large discounts. Fundamental analysis shows post-reform issuers' fundamentals improved significantly after placement, enabling investors to earn long-term excess returns.

4.3 Investor Sentiment and Market Timing

Loughran and Ritter [6] note that investors always overestimate the probability that their purchased stocks will be the next "Microsoft," leading to overpayment. Investors need to wait for the market to reveal more information to correct their mistaken beliefs, which often takes considerable time. Investor over-optimism may also cause them to overestimate corporate prospects, creating the contradiction between short-term positive returns and long-term poor performance (Hertzel et al. [8]). In short, whether from irrational expectations or behavioral biases, investor optimism can cause short-term rises and long-term underperformance after stock issuance, consistent with our findings (Table 3 shows poor post-issuance performance for pre-reform placements; Table 5 shows short-term positive price movements). We therefore hypothesize that companies'"timing"placements likely exploited mispricing caused by investor sen-

timent. Before the reform, companies could immediately determine placement base prices when first announcing placement plans, enabling real-time exploitation of high investor sentiment to raise issuance prices. Since mispricing from behavioral biases persists for extended periods, companies could sell stocks at overvalued prices. However, the policy reform postponed the pricing period by over six months, preventing companies from locking in and exploiting market timing through announcement even when sentiment was high. We therefore predict that pre-reform, companies tended to choose high-sentiment periods for placement to complete high-price sales, with sentiment exacerbating short-term volatility. Post-reform, companies could not "time" placements and thus would not deliberately choose high-sentiment periods for announcements, while lower sentiment levels also reduced market volatility.

Scholars have conducted extensive work measuring investor sentiment. Baker and Wurgler [32] construct sentiment indicators using fund premiums, market turnover, and other macro factors, while Yi Zhigao and Mao Ning [42] improve these macro indicators for China' s market characteristics. Ritter [5] argues that companies exploit industry peak windows to issue stocks to investors, with industry optimism causing overpayment. China' s market exhibits clear sector rotation effects, consistent with Ritter's industry window logic, making industry-level sentiment measurement more appropriate. To investigate sentiment' s impact on private placements, following Marciukaityte et al. [43], we measure investor sentiment using the number of extreme winner stocks in the market before placement announcements. For our research purpose, we specifically count the number of same-industry companies that gained over 100%/150%/200% in the 12 months before each placement announcement, using different thresholds to verify robustness. **Table 8** shows t-test results for our sentiment indicator before and after the reform.

Table 8: Number of Extreme Winner Stocks Around Announcements (T-test)

Threshold	Post=0	Post=1	Diff
12m_{100}%	18.362*** (8.340)	2.337*** (5.290)	16.025*** (7.162)
12m_{150}%	8.230*** (6.678)	0.337*** (5.943)	7.893*** (5.928)
12m_{200}%	4.735*** (5.943)	0.398*** (5.290)	4.398*** (5.631)

Before the reform, placement announcements often followed periods with many extreme winner stocks in the same industry. Using the 100% gain threshold, about 18 same-industry companies had doubled without price reversal in the year before pre-reform announcements, compared to about 2.3 companies post-reform. The number of extreme winner stocks in the same industry decreased

significantly. Investor sentiment levels around announcement dates changed dramatically (Diff), dropping by over 80% (1 - 2.337/18.362 87%). Higher thresholds reduce extreme winner counts, but the change pattern (Diff) remains similar.

The change in investor sentiment levels provides preliminary support for Hypothesis 4, showing sentiment is an important "timing" consideration. Before the reform, companies with great timing autonomy could immediately announce placement plans during high-sentiment periods to lock in high base prices. The reform postponed the pricing period until after CSRC approval, making real-time market sentiment at announcement ineffective for pricing, so companies lost motivation to choose announcement timing, and sentiment levels declined.

A natural concern is that extreme winner stocks may concentrate in bull market periods, potentially confounding our sentiment measure. To exclude bull market effects, we again delete all bull market observations and re-measure sentiment levels, with results in Table A4. If our sentiment measure were completely dominated by the bull market, extreme winner counts should drop substantially after deletion. However, after removing all bull market announcements, the number of stocks doubling in value decreased slightly, while those gaining over 200% increased. Extreme winner counts did not drop significantly and even increased at some thresholds, indicating our sentiment measure is not dominated by the bull market. Since the bull market occurred before the reform, post-reform (Post=1) sentiment levels were unchanged. Therefore, the magnitude and direction of sentiment level changes (Diff) around announcements remain almost unchanged. Additionally, our extreme winner measurement criteria are arbitrary—using 18-month or 24-month horizons or 125% or 175% thresholds yields consistent conclusions (unreported due to space limitations).

After confirming changes in announcement-period sentiment levels, we examine the relationship between sentiment and short-term returns to test Hypothesis 5. Pre-reform companies deliberately chose high-sentiment periods for placement announcements, with high sentiment driving further price increases, amplifying mispricing and causing volatility. Post-reform, companies no longer considered sentiment when announcing placements, so sentiment should be unrelated to short-term price fluctuations. We establish the relationship between sentiment and price volatility through regression model (1):

$$PPDiscount = \beta_0 + \beta_1 \log(1 + \#ExtremeWinner) + {}_2\mathbf{Control} + IndustryFE + \varepsilon$$

The dependent variable is issuance discount, the key independent variable is the log of (1 + number of extreme winner stocks) before placement, and other control variables are as defined in the descriptive statistics section. We include industry fixed effects *IndustryFE* and cluster standard errors at the firm level. To verify the reform' s impact on the sentiment-price volatility relationship, we split the sample into pre-reform (Post=0) and post-reform (Post=1) subsamples.

Table 9 shows that sentiment significantly increased pre-reform placement discounts, while post-reform sentiment is unrelated to discounts, even showing negative signs. Combined with Table 8' s sentiment level analysis, pre-reform companies tended to announce during high-sentiment periods to lock in high prices, with high sentiment further driving price volatility and large discounts. Post-reform, companies no longer chose announcement timing based on sentiment, and lower sentiment levels no longer increased discounts. The negative correlation between post-reform sentiment and discounts may reflect that the long interval between announcement and issuance gave investors time to correct sentiment effects and demand reasonable prices. The discount analysis supports Hypotheses 4 and 5: investor sentiment is indeed a placement timing consideration, exacerbating stock volatility and increasing discounts. Regulatory policy postponed the pricing period, substantially weakening companies' "timing" ability, making sentiment no longer a determinant of announcement timing and reducing short-term price volatility.

Table 9: Contribution of Investor Sentiment to Issuance Discounts (Regression)

	PPDiscount (Issuance Discount)				
	Post=0			**Post=1**	
log_{12m100}	0.033*** (3.153)			-0.018 (-1.602)	
log_{12m150}		0.030*** (2.969)			-0.0
log_{12m200}			0.020* (1.922)		
Controls	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

4.4 Stock Excess Returns on Announcement Date

Besides issuance discounts, announcement effects are another important manifestation of price volatility caused by placement events. Placement plan announcements cause market participants to re-evaluate company value, triggering stock price fluctuations. Domestic private placement announcement effects are generally positive, with various factors such as placement purpose, targets, scale, and price potentially affecting announcement-period price volatility (Zhang Weidong [22]; Xu Shoufu [23]; Zhang Weidong and Li Dezhong [24]; Wang Jiaxin and Liu Xi [25]).

Our previous discussion of issuance discounts roughly reflects price volatility from announcement to completion (since the policy allows 10% discounts below base price, discounts do not fully equal market price changes). To further verify whether short-term market volatility caused by placement events decreased, we use event study methodology to analyze announcement-period price changes. Using the announcement date as the event day (t=0), we calculate the cumulative difference between actual and expected returns (CAR) as a proxy for announcement effects, with the estimation period being [-190, -10] days before

the event day. For robustness, we use CAPM, Fama-French three-factor, and Fama-French five-factor models (Fama and French [44]) to calculate expected returns, or change the estimation period, with conclusions remaining robust. Due to space limitations, we only report three-factor model results in subsequent analysis. **Table 10** reports announcement effects before and after the reform. Results show that placement companies' stocks had significant excess returns at announcement, consistent with existing literature, but post-reform announcement-period excess returns were significantly lower.

Table 10: Cumulative Abnormal Returns on Announcement Date (T-test)

Interval	Post=0	Post=1	Diff
[-1, 1]	11.56%*** (23.743)	5.08%*** (5.843)	6.48%*** (6.491)
[-3, 1]	12.02%*** (23.661)	5.72%*** (6.192)	6.30%*** (6.021)
[-1, 3]	17.59%*** (21.789)	5.51%*** (4.646)	14.72%*** (7.600)
[-3, 3]	18.05%*** (22.072)	6.15%*** (4.992)	11.90%*** (7.357)

Announcement effects and issuance discounts both reflect short-term price volatility from placement events. Following the same logic, we establish a regression model linking investor sentiment to short-term price volatility. We continue using model (1) but change the dependent variable to CAR around the announcement date. Investor sentiment indicators and control variables remain unchanged. Reported results use the Fama-French three-factor model to calculate expected returns, with CAR[-3, 3] as the dependent variable, but results are robust to different event windows and expected return models. As with discount analysis, we split the event study sample into pre- and post-reform subsamples, with results in **Table 11**.

Table 11: Contribution of Investor Sentiment to Announcement Effects (Regression)

	CAR[-3, 3]					
	Post=0			**Post=1**		
log_{12m100}	0.054*** (6.516)			0.007 (0.603)		
log_{12m150}		0.050*** (6.004)			0.009 (0.749)	
log_{12m200}			0.043*** (4.552)			0.00
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Announcement effect analysis yields similar results to the discount analysis: pre-reform, high investor sentiment caused higher announcement effects; post-reform, sentiment no longer significantly increased announcement-period excess returns. The discount and announcement effect analyses support Hypotheses 4

and 5. Pre-reform, companies used investor sentiment for "timing" placements, with high sentiment raising base prices and increasing price volatility. Post-reform, the postponed pricing reference date deprived companies of the ability and motive to "time" based on sentiment. Companies no longer deliberately chose high-sentiment periods for announcements, reducing price volatility during placements. Combined with Table 3' s results, we believe pre-reform investor sentiment reflected mispricing. Pre-reform, poor long-term performance after listing shows that short-term positive returns from announcement effects and discounts were unrelated to fundamentals; the pattern of large pre-issuance increases followed by reversals also provides mispricing evidence. In contrast, post-reform positive announcement effects align with long-term excess returns, with short-term market returns reflecting rational expectations about company fundamentals and indicating improved quality of companies conducting equity refinancing.

5 Robustness Checks

To further verify robustness, we re-run the grouped regressions in Tables 9 and 11 after deleting all bull market observations. Since the bull market only occurred in the Post=0 period, robustness checks only report pre-reform subsample results, shown in Table A5. The promoting effect of investor sentiment on short-term price volatility still appears in the pre-reform sample, further verifying our results. Other robustness checks include: when calculating financing constraints, to avoid *SAindex* decreases dominating results due to natural firm aging, we alternatively construct *WWindex* following Whited and Wu [45] to measure financing constraints. Both indicators show highly similar trends and significance levels before and after the reform (unreported). Regulatory policies for ChiNext companies differ slightly; we include a ChiNext dummy variable *Chuangyeban* in control variables to verify robustness, with main findings remaining unchanged (unreported due to space limitations).

6 Conclusion

This paper analyzes the impact of the CSRC' s 2017 revision to the *Implementation Rules for Non-public Issuance of Stocks by Listed Companies* on corporate private placement behavior. Results show that reasonable regulatory policies can effectively regulate listed companies' equity refinancing behavior and protect investor interests.

The most important change in this revision was establishing the pricing reference date as the first day of the issuance period. This not only eliminated companies' choice of reference date but also substantially postponed the pricing period. Before the reform, companies strongly preferred the board resolution date as the pricing reference date. During the base price calculation period, the market knew nothing about the placement. If companies found favorable market timing, they could immediately announce placement plans and "ambush" the market to lock in high base prices. Autonomy in pricing timing provided opportunities for

"timing" placements. The reform deprived companies of this ability, forcing them to reduce manipulation and promoting market-oriented pricing mechanisms.

We find that postponing the pricing reference date weakened companies' "timing" ability. First, the "new issues puzzle" significantly improved after the reform, with reduced excessive pre-issuance price increases and virtually eliminated poor long-term post-issuance performance. Second, the new regulatory policy forced companies to disclose more information before determining base prices, making new share prices closer to fair market value and reducing discounts. Companies' strong financing ability, good fundamentals, and reduced pre-issuance overvaluation all support lower discounts. Third, we find investor sentiment is an important consideration for "timing" placements, exacerbating short-term volatility and mispricing. Pre-reform, companies with great timing autonomy could immediately announce placement plans during high-sentiment periods to lock in high base prices and manipulate prices to exploit investor misbehavior for high-price issuance. The reform substantially postponed the pricing period, preventing companies from using announcements to lock in real-time sentiment for higher prices. Consequently, post-reform, sentiment is no longer a reference standard for placement timing, and short-term price volatility from sentiment is reduced.

References

[1] Zhang Xiangjian, Xu Jin. Equity refinancing and the "tunnel effect" of major shareholder control —A further explanation of listed companies' equity refinancing preference[J]. *Journal of Management World*, 2005, (11): 127-136+151.

[2] Zhang Weidong, Li Haichuan. The private placements of equity (PPE), types of asset-injecting and performance of the listed companies —The evidence from the China' s security market[J]. *Accounting Research*, 2010, (03): 58-64+97.

[3] Zhao Yufang, Yu Zhiyong, Xia Xinping, et al. Private equity placement, cash dividends, and benefit transmission —Empirical evidence from listed companies in China[J]. *Journal of Financial Research*, 2011, (11): 153-166.

[4] Wu Yuhui, Wei Zhihua, Wu Shinong. Timing, listing suspension manipulation and tunneling: A study based on evidence from equity private placement by listed firms in China[J]. *Journal of Xiamen University (Arts & Social Sciences)*, 2013, (01): 46-55.

[5] Ritter J R. The long-run performance of initial public offerings[J]. *The Journal of Finance*, 1991, 46(1): 3-27.

[6] Loughran T, Ritter J R. The new issues puzzle[J]. *The Journal of Finance*, 1995, 50(1): 23-51.

[7] Spiess D K, Affleck-Graves J. Underperformance in long-run stock returns following seasoned equity offerings[J]. *Journal of Financial Economics*, 1995, 38(3): 243-267.

[8] Hertzel M, Lemmon M, Linck J S, et al. Long-run performance following private placements of equity[J]. *The Journal of Finance*, 2002, 57(6): 2595-2617.

[9] Baker M, Wurgler J. Market timing and capital structure[J]. *The Journal of Finance*, 2002, 57(1): 1-32.

[10] Myers S C, Majluf N S. Corporate financing and investment decisions when firms have information that investors do not have[J]. *Journal of Financial Economics*, 1984, 13(2): 187-221.

[11] Rangan S. Earnings management and the performance of seasoned equity offerings[J]. *Journal of Financial Economics*, 1998, 50(1): 101-122.

[12] Hertzel M, Smith R L. Market discounts and shareholder gains for placing equity privately[J]. *The Journal of Finance*, 1993, 48(2): 459-485.

[13] Barclay M J, Holderness C G, Sheehan D P. Private placements and managerial entrenchment[J]. *Journal of Corporate Finance*, 2007, 13(4): 461-484.

[14] Wruck K H. Equity ownership concentration and firm value: Evidence from private equity financings[J]. *Journal of Financial Economics*, 1989, 23(1): 3-28.

[15] Longstaff F A. Optimal portfolio choice and the valuation of illiquid securities[J]. *The Review of Financial Studies*, 2001, 14(2): 407-431.

[16] Xu Shoufu. Subscription behavior of large shareholders and price discount of private placement: Evidence from Chinese stock market[J]. *Business Management Journal*, 2009, 31(09): 129-135.

[17] Huang Yeni, Zhao Yuanrong, Liu Liya. Pricing base date, market timing and the tunneling behavior in Chinese private placements[J]. *Business Management Journal*, 2017, 39(08): 177-193.

[18] Zheng Qi. An empirical study on the impact of private placement objects on issuance pricing[J]. *Securities Market Herald*, 2008, (04): 33-36.

[19] Zhang Ming, Guo Siyong. Private placement under the control of major shareholder and wealth tunneling[J]. *Accounting Research*, 2009, (05): 78-86+97.

[20] Wang Zhiqiang, Zhang Weiting, Lin Lifang. A study on the tunneling of private placement in Chinese market[J]. *Nankai Business Review*, 2010, 13(03): 109-116+149.

[21] Ma Wenjie, Hu Yue. Research on the effectiveness of regulating discount rates for private placement[J]. *Statistical Research*, 2022, 39(01): 59-74.

[22] Zhang Weidong. The short-run performance of private investment in public equity and complete listing[J]. *Accounting Research*, 2007, (12): 63-68+97.

[23] Xu Shoufu. Research on the announcement effect and influencing factors of private placement of listed companies[J]. *Securities Market Herald*, 2010, (05): 65-72.

[24] Zhang Weidong, Li Dezhong. The influencial factors of private equity' s (PE) discount rate and the empirical study of the relationship between them and the short-term stock price —from the China' s listed companies' empirical evidence[J]. *Accounting Research*, 2008, (09): 73-80+96.

[25] Wang Jiaxin, Liu Xi. The analysis of share-price-effect of seasoned equity offering in domestic stock market[J]. *Statistical Research*, 2008, (04): 61-65.

[26] Zhang Weidong. Private issuance of new shares and earnings management —Empirical evidence from China' s securities market[J]. *Journal of Management World*, 2010, (01): 54-63+73.

[27] Zhang Xiangjian, Guo Lan. Asset injection, rent-seeking behavior of major shareholders, and capital allocation efficiency[J]. *Journal of Financial Research*, 2008, (02): 98-112.

[28] Fonseka M M, Colombage S R N, Tian G L. Effects of regulator' s announcements, information asymmetry and ownership changes on private equity placements: Evidence from China[J]. *Journal of International Financial Markets, Institutions and Money*, 2014, 29: 126-149.

[29] Huang Y, Uchida K, Zha D. Market timing of seasoned equity offerings with long regulative process[J]. *Journal of Corporate Finance*, 2016, 39: 278-294.

[30] Ma Wenjie, Cao Xiao, Yin Cheng. The option characteristics of discount rate in private placements and its information contents[J]. *China Economic Quarterly*, 2018, 17(02): 693-728.

[31] Chen Y W, Chou R K, Lin C B. Investor sentiment, SEO market timing, and stock price performance[J]. *Journal of Empirical Finance*, 2019, 51: 28-43.

[32] Baker M, Wurgler J. Investor sentiment and the cross-section of stock returns[J]. *The Journal of Finance*, 2006, 61(4): 1645-1680.

[33] Stambaugh R F, Yu J, Yuan Y. The short of it: Investor sentiment and anomalies[J]. *Journal of Financial Economics*, 2012, 104(2): 288-302.

[34] Hovakimian A, Hu H. Institutional shareholders and SEO market timing[J]. *Journal of Corporate Finance*, 2016, 36: 1-14.

[35] Teoh S H, Welch I, Wong T J. Earnings management and the underperformance of seasoned equity offerings[J]. *Journal of Financial Economics*, 1998, 50(1): 63-99.

[36] DeAngelo H, DeAngelo L, Stulz R M. Seasoned equity offerings, market timing, and the corporate lifecycle[J]. *Journal of Financial Economics*, 2010, 95(3): 275-295.

[37] Fama E F, MacBeth J D. Risk, return, and equilibrium: Empirical tests[J]. *Journal of Political Economy*, 1973, 81(3): 607-636.

[38] Wruck K H, Wu Y L. Relationships, corporate governance, and performance: Evidence from private placements of common stock[J]. *Journal of Corporate*

Finance, 2009, 15(1): 30-47.

[39] Titman S, Wei C, Zhao B. Corporate actions and the manipulation of retail investors in China: An analysis of stock splits[J]. *Journal of Financial Economics*, 2022, 145(3): 762-787.

[40] Ju Xiaosheng, Dic Lo, Yu Yihua. Financing constraints, working capital management and the persistence of firm innovation[J]. *Economic Research Journal*, 2013, 48(01): 4-16.

[41] Liao L, Liu B, Wang H. China s secondary privatization: Perspectives from the split-share structure reform[J]. *Journal of Financial Economics*, 2014, 113(3): 500-518.

[42] Yi Zhigao, Mao Ning. Research on measuring investor sentiment in the Chinese stock market: The construction of CICSI[J]. *Journal of Financial Research*, 2009, (11): 174-184.

[43] Marciukaityte D, Szewczyk S H, Varma R. Investor overoptimism and private equity placements[J]. *Journal of Financial Research*, 2005, 28(4): 591-608.

[44] Fama E F, French K R. A five-factor asset pricing model[J]. *Journal of Financial Economics*, 2015, 116(1): 1-22.

[45] Whited T M, Wu G. Financial constraints risk[J]. *The Review of Financial Studies*, 2006, 19(2): 531-559.

Appendix Tables

Table A1: Pre-announcement Stock Excess Returns (Bull Market Excluded)

Interval	Post=0	Post=1	Diff
[-36, -1]	68.45%***	-1.26% (-0.259)	69.71%***
	(9.192)		(6.325)
[-30, -1]	52.85%***	-9.86%***	62.71%***
	(8.121)	(-2.644)	(6.522)
[-24, -1]	38.29%***	-7.63%***	45.92%***
	(7.542)	(-2.532)	(6.121)
[-18, -1]	23.57%***	-2.70% (-1.056)	26.27%***
	(6.599)		(4.970)
[-12, -1]	20.88%***	-2.34% (-1.078)	23.22%***
	(7.509)		(5.581)

Table A2: Post-issuance Stock Excess Returns (Bull Market Excluded)

Interval	Post=0	Post=1	Diff
[1, 12]	-4.14%** (-1.695)	4.04% (1.136)	-8.18%** (-1.926)
[1, 18]	-4.14%* (-1.359)	10.37%** (2.108)	-14.51%*** (-2.631)
[1, 24]	-8.30%*** (-2.532)	14.42%*** (2.562)	-22.72%*** (-3.730)
[1, 30]	-13.64%*** (-4.028)	15.95%** (2.103)	-29.59%*** (-4.104)
[1, 36]	-21.63%*** (-6.181)	15.23%* (1.472)	-36.86%*** (-4.276)

Table A3: Fama-MacBeth Regressions (Bull Market Excluded)

	Pre-announcement			Post-issuance		
Post	-3.479*** (-4.699)	-3.276*** (-5.047)	-4.201*** (-4.466)	0.796* (1.861)	1.141** (2.429)	1.420** (2.446)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,046	15,046	15,046	17,024	17,024	17,024

Table A4: Number of Extreme Winner Stocks (Bull Market Excluded)

Threshold	Post=0	Post=1	Diff
12m_{100}%	14.566*** (7.162)	2.337*** (5.290)	12.229*** (6.325)
12m_{150}%	7.891*** (5.928)	0.337*** (5.943)	7.554*** (5.928)
12m_{200}%	4.842*** (5.631)	0.398*** (5.290)	4.444*** (5.631)

Table A5: Robustness Tests for Discounts and Announcement Effects (Bull Market Excluded)

	PPDiscount		CAR[-3, 3]	
	Post=0		**Post=0**	
log_{12m100}	0.029** (2.128)		0.035*** (2.657)	
log_{12m150}		0.028** (2.241)		0.036*** (2.631)

	PPDiscount		CAR[-3, 3]			
log_{12m200}			0.026* (1.959)			0.
Controls	Yes	Yes	Yes	Yes	Yes	Y
Industry FE	Yes	Yes	Yes	Yes	Yes	Y

[1] On the first day of the issuance period, specific issuance targets and actual issuance prices may not yet be determined. This information is disclosed to the market before the new shares' listing date, so stock prices may still fluctuate. Additionally, in practice, companies generally anchor placements at the minimum base price allowed by the "10% discount rule," so issuance prices still deviate somewhat from market prices.

Note: Figure translations are in progress. See original paper for figures.