https://doi.org/10.62836/emi.v5i4.0026

Global Science Publishing

EMI

Economics & Management Information

https://ojs.sgsci.org/journals/emi

Article

The Impact of China's ChiNext Registration-Based Reform on IPO Pricing Efficiency of Listed Companies

Aixi Liu

Beijing Wuzi University, Beijing 100072, China

Abstract: The registration-based system constitutes a core driver for the market-oriented reform of China's multi-level capital market. The formal implementation of the registration-based system on the ChiNext in 2020 thoroughly transformed the market landscape characterized by administratively interfered pricing and persistent severe IPO underpricing under the approval-based system. Nevertheless, regular new-share underperformance after the reform has triggered substantial market disagreement over whether the registration-based system has genuinely improved IPO pricing efficiency. During the approval-based era, ChiNext IPO pricing was heavily constrained by administrative price caps. Primary-market prices failed to reflect firms' intrinsic growth value, fueling speculative bubbles in the secondary market. By removing restrictions on market-oriented inquiry and strengthening a regulatory framework centered on information disclosure, the registration-based system can theoretically mitigate information asymmetry between investors and issuers. Still, persistent polarization prevails: over-inflated valuations for small-cap theme stocks coexist with undervaluation of high-quality sci-tech enterprises. Existing empirical studies suffer from limitations including single measurement indicators, insufficient long-run samples, and inadequate decomposition of transmission mechanisms. Using ChiNext-listed firms from 2015 to 2025 as research samples and concurrently listed main-board firms under the approval-based system as the control group, this paper constructs a difference-in-differences (DID) model to test the policy shock effect of the registration-based reform on IPO pricing efficiency. Information disclosure quality is introduced as a mediating variable to identify the underlying transmission path, and heterogeneous group regressions are performed by industry attributes and firm size. This paper provides empirical evidence on the micro-level effects of China's domestic registration-based reform, offering support for advancing full-scale registration-based reform on the Main Board and Beijing Stock Exchange, optimizing the inquiry system, and implementing differentiated regulatory policies.

Keywords: ChiNext; registration-based system; IPO pricing efficiency; difference-in-differences model; information disclosure

1. Introduction

Market-oriented pricing reform in the capital market represents a vital approach to perfecting China's direct-financing system and serving technological innovation in the real economy. Under the approval-based system for the ChiNext, IPO pricing was long subject to administrative price controls, creating prominent market frictions. Mandatorily suppressed P/E ratios decoupled primary-market pricing from firms' real profitability and

Received: 2 September 2026; Accepted: 17 September 2026.

Corresponding: Aixi Liu (18510501699@163.com)

growth attributes. With an average premium rate exceeding 34%, secondary-market stock prices soared after listing, resulting in persistently high IPO underpricing. Prices could not faithfully reflect the intrinsic value of listed firms, and the market pricing mechanism remained dysfunctional for an extended period [1]. To eliminate administrative intervention and establish a market-oriented issuance and trading system, China formally launched the registration-based reform on the ChiNext in 2020. It overhauled the full set of rules covering listing review, inquiry and allotment, information disclosure and delisting, relaxed listing thresholds for sci-tech enterprises, transferred pricing dominance to institutional investors, and built a new regulatory framework centered on information disclosure [2].

The launch of the registration-based system brought fundamental changes to market conditions. General consecutive daily limit-ups for new shares vanished, and first-day post-listing underperformance became commonplace. Market opinions diverged sharply. Some observers argued that underperformance signaled a mature market-oriented pricing mechanism and markedly improved pricing efficiency. Others contended that valuation bubbles for small-cap theme stocks coexisted with undervaluation of high-quality sci-tech enterprises, highlighting distorted price polarization, and questioned whether the registration-based system had fundamentally resolved pricing distortions. As full-scale registration-based reform on the Main Board and institutional optimization of the Beijing Stock Exchange move forward steadily, the ChiNext, as the first existing board to pilot the registration-based system, delivers highly referential reform outcomes. Empirical tests based on long-term continuous samples are urgently required to objectively evaluate the real impact of the reform on IPO pricing efficiency.

This paper focuses on the pricing-efficiency improvement effect of the ChiNext registration-based reform. Combining theoretical mechanisms and empirical models, it explores whether the reform can eradicate historical pricing distortion and whether new pricing biases persist over time, verifies the mechanism of information disclosure, and analyzes structural differences in reform effects across industries and firm sizes.

2. Literature Review

Baron proposed the underwriter agency theory. He argued that investment banks deliberately underprice new shares to avoid issuance failure and safeguard their reputations, thereby generating moderate IPO underpricing [3]. Rock developed the winner's curse theory and classified market investors into informed and uninformed investors. Uninformed investors face adverse-selection risks due to information disadvantages, and IPO underpricing serves as risk compensation for uninformed investors [4]. Benveniste and Sprindt put forward the information-gathering theory, stating that market-oriented inquiry can fully extract private investor information, aggregate market expectations, and effectively reduce IPO pricing bias [5].

Since the ChiNext adopted the registration-based system in 2020, scholars have conducted extensive empirical research on its reform outcomes. Based on short-term samples, Guo Xuan and Jiang Dafu found that the registration-based reform improves IPO pricing efficiency by enhancing information disclosure quality, yet their sample period was relatively short, leaving medium- and long-term reform effects untested [6]. Huangfu Yubin pointed out that pricing distortion persists for small-cap theme stocks after the registration-based reform, and institutional speculation exacerbates their inflated valuations [7]. Comparing reform outcomes between the STAR Market and the ChiNext, Dong Xiuliang noted insufficient constraints on intermediaries and irrational retail trading further amplified valuation polarization under the registration-based system [8]. Li Xiang and Chen Lianghua added that market sentiment distorts new-share valuations under the registration-based regime and triggers IPO pricing bias, confirming that administrative regulation gives rise to substantial pricing distortions [9]. Existing studies have preliminarily documented the dual-sided market effects of the registration-based reform, but they commonly suffer from insufficient long-horizon empirical evidence, inadequate quantitative decomposition of transmission mechanisms, and superficial heterogeneity analysis [10]. Earlier domestic studies compared IPO pricing under the approval and verification systems and confirmed significant pricing distortions caused by administrative regulation [11]. Scholars have also discussed pricing efficiency under the traditional approval-based system on the ChiNext [12].

Based on the above literature, this paper puts forward the following hypotheses:

H1: *By relaxing market-oriented pricing constraints and mitigating pricing distortions stemming from administrative intervention, the ChiNext registration-based reform significantly reduces first-day IPO underpricing and improves IPO pricing efficiency.*

H2: *The registration-based reform enhances information disclosure quality and alleviates market information asymmetry. This acts as a transmission channel to indirectly improve new-share IPO pricing efficiency.*

H3: *The efficiency-enhancing effect of the registration-based reform exhibits structural heterogeneity. Compared with traditional-industry and large-sized enterprises, high-tech small- and medium-sized enterprises achieve more prominent reform gains.*

3. Research Design

3.1. Data Source and Sample Screening

This paper uses A-share IPO panel data spanning 2015 – 2025 retrieved from the Wind Terminal. Preprocessing steps exclude financial firms and samples with anomalies or missing values before empirical regression analysis.

3.2. Model Specification

3.2.1. Difference-in-Differences (DID) Model

Firms listed on the ChiNext constitute the treatment group, while contemporaneous Main-Board firms listed under the approval-based system serve as the control group. The launch of the registration-based system in 2020 is set as the policy shock. The policy interaction term captures the net reform effect, mitigating empirical concerns such as omitted-variable bias and endogeneity to accurately identify policy impacts. To test Hypothesis H1 and isolate the net effect of the registration-based reform on IPO pricing efficiency, a two-way fixed-effect DID model is constructed:

$$\text{Underprice}_{it} = \beta_0 + \beta_1 \text{Treat}_i \times \text{Post}_t + \sum \gamma \text{Control}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where Underpriceit is the explained variable, representing the first-day IPO underpricing rate of firm i in year t. Treati is the group dummy variable (assigned 1 for ChiNext firms and 0 for Main-Board firms). Postt is the policy-time dummy variable (assigned 1 for 2020 and later, and 0 for years before 2020). Treati × Postt denotes the core policy interaction term, and its coefficient β_1 measures the net reform effect. Controlit stands for a set of control variables. I represents firm-level fixed effects; λ_t represents year fixed effects; ε_{it} is the random disturbance term. Hypothesis H1 holds if β_1 is significantly negative.

3.2.2. Mediating-Effect Model

A stepwise regression approach is adopted for mediation testing to quantitatively verify whether information disclosure quality mediates the relationship between the reform and IPO pricing efficiency and clarify the underlying mechanism. To test Hypothesis H2, the three-step mediating-effect model is specified as follows:

Step 1: Baseline regression to estimate the total effect of the reform on IPO pricing efficiency.

Step 2: Take information-disclosure quality Disclosureit as the explained variable and estimate the policy effect on the mediating variable:

$$\text{Disclosureit} = \alpha_0 + \alpha_1 \text{Treati} \times \text{Postt} + \sum \gamma \text{ Controlit} + \mu_i + \lambda_t + \varepsilon_{it}$$

Step 3: Include both the mediating variable and the core interaction term to estimate direct and indirect effects:

$$\text{Underpriceit} = \delta_0 + \delta_1 \text{Treati} \times \text{Postt} + \delta_2 \text{Disclosureit} + \sum \gamma \text{ Controlit} + \mu_i + \lambda_t + \varepsilon_{it}$$

Partial mediation exists and Hypothesis H2 is supported if all key coefficients across the three regressions are significant and the absolute value of the interaction-term coefficient in Step 3 is smaller than that in Step 1.

3.2.3. Robustness and Heterogeneity Tests

Grouped heterogeneous regressions, propensity-score-matching difference-in-differences (PSM-DID), and

placebo tests are implemented to rule out sample bias, time-driven interference and random noise and ensure robust empirical outcomes.

3.3. Variable Definitions

The explained variable is IPO first-day underpricing rate (Underprice), which measures IPO pricing efficiency and is calculated using the formula (First-day closing price − Issue price)/Issue price, where lower values represent smaller pricing bias and higher pricing efficiency. The core explanatory variable is the policy interaction term (Treat × Post), the key variable within the DID model that captures the net policy shock brought by the registration-based reform. The mediating variable is information-disclosure quality (Disclosure). Constructed from annual exchange-level information-disclosure evaluation outcomes, this variable numerically converts grades A, B, C and D, such that higher values correspond to superior corporate information-disclosure quality. Drawing on mainstream prior literature, we select total asset size, asset-liability ratio, return on equity (ROE), issue P/E ratio, underwriter reputation, and industry dummy variables as control variables to account for firm-specific characteristics and industry-driven IPO pricing variations.

4. Empirical Results and Mechanism Analysis

4.1. Baseline Regression Results

Two-way fixed-effect baseline regression results show that the coefficient of the core interaction term Treat× Post is significantly negative at the 1% statistical level. After stripping out firm-specific heterogeneity, macro-year shocks, corporate financial traits and other confounding factors, the ChiNext registration-based reform significantly reduces first-day IPO underpricing.

From an institutional perspective, core problems stemming from administrative price caps under the approval-based regime—artificially suppressed offer prices, rampant secondary-market speculation and systematic pricing distortion—have been effectively mitigated. The price-discovery function of the market-oriented pricing mechanism has been substantially strengthened. Despite new-share underperformance and valuation divergence after the reform, the registration-based reform has corrected long-standing institutional pricing distortions and lifted overall IPO pricing efficiency on the ChiNext. Hypothesis H1 is verified.

4.2. Mediating-Effect Test Results

Results from the three-step mediation regression are presented below. The total effect estimated in the baseline Step-1 regression is significantly negative. In Step-2 regression, the coefficient of the core interaction term is significantly positive, demonstrating that the registration-based reform substantially improves information-disclosure quality for ChiNext-listed firms. In Step 3, after adding the mediating variable, the coefficient of information-disclosure quality is significantly negative; the core interaction term remains significantly negative yet with a noticeably smaller absolute coefficient magnitude.

The empirical evidence confirms significant partial mediation exerted by information-disclosure quality. Centered on information-disclosure reform, the registration-based system tightens disclosure rules and expands disclosure requirements, lowering information asymmetry between issuers and investors, mitigating irrational valuation biases, and driving new-share offer prices toward firms' intrinsic value, thereby optimizing pricing efficiency. The findings validate the institutional logic of the registration-based system that "information disclosure lies at the core". Hypothesis H2 is supported.

4.3. Heterogeneity Test Results

Industry-stratified regression shows that the core interaction term yields a larger negative coefficient with higher statistical significance within the high-tech-industry subsample. For traditional-industry firms, the interaction-term coefficient is smaller and less significant. High-tech firms derive core value from intangibles including R&D technologies, patents and talent pools. Administrative pricing under the approval-based system failed to identify their growth value and led to severe pricing distortion. Market-oriented inquiry under the

registration-based system adequately captures the intrinsic value of sci-tech firms and greatly improves pricing efficiency. By contrast, traditional-industry firms feature mature business models, transparent financial information and stable valuations, leaving limited marginal room for institutional reform to deliver improvements.

Firm-size subsample results indicate that the pricing-efficiency gains brought by the reform are far more pronounced for small- and medium-sized ChiNext firms than for large mature firms. Large firms attract extensive market attention, maintain sound information disclosure and possess stable valuation frameworks; their pricing bias was already limited under the approval-based system, so the reform generates only marginal effects. Small- and medium-sized firms suffer from low information transparency and high growth uncertainty, resulting in severe pricing distortion under the approval-based regime. Market-oriented pricing and information-disclosure reforms under the registration-based system effectively correct such pricing bias and produce stronger improvement effects. Hypothesis H3 is validated.

4.4. Robustness Tests

Multiple robustness checks are performed to guarantee the accuracy and reliability of empirical conclusions. First, regressions are re-run using market-adjusted underpricing as an alternative explained variable, and core conclusions hold. Second, PSM-DID eliminates sample-selection bias through propensity-score matching, and regression outputs remain robust. Third, placebo tests assign fictitious policy-shock years; the artificial interaction term yields insignificant coefficients. This confirms that the findings are not driven by random factors or pre-existing time trends, testifying to the reliability of the research conclusions.

5. Conclusions

Based on ten-year A-share panel data from 2015 to 2025, this paper applies DID and mediating-effect models to systematically investigate the impacts, transmission mechanisms and heterogeneous outcomes of the ChiNext registration-based reform on IPO pricing efficiency. The main conclusions are summarized below.

First, the ChiNext registration-based reform significantly enhances IPO pricing efficiency and effectively eliminates systematic severe underpricing induced by administrative price caps under the approval-based system. Replacing administrative pricing intervention with market-oriented pricing narrows persistent arbitrage space between primary and secondary markets, brings new-share offer prices closer to firms' intrinsic value, and greatly strengthens the capital market's price-discovery function. Overall, the reform delivers positive outcomes.

Second, information-disclosure quality serves as a core transmission channel through which the registration-based reform improves IPO pricing efficiency. By tightening information-disclosure regulation, standardizing corporate disclosure practices and reducing market information asymmetry, the registration-based system curbs irrational pricing bias and promotes market-oriented and rational pricing, affirming the foundational role of the information-disclosure regime.

Third, reform dividends under the registration-based system display prominent structural divergence. High-tech small- and medium-sized enterprises benefit most with marked improvements in pricing efficiency. Due to inherent valuation characteristics, traditional-industry firms and large mature enterprises see limited marginal gains from the reform, leaving room to enhance the even distribution of reform benefits across the market. Valuation divergence and partial thematic speculation observed after the reform represent transitional phenomena amid market-oriented transformation and cannot negate the overall positive value of the reform.

This study has two limitations. First, this paper mainly adopts first-day IPO underpricing to measure short-run pricing efficiency, yet it does not thoroughly explore medium- and long-term post-IPO stock-price volatility and value convergence, lacking analysis on the long-run stability of pricing efficiency. Second, only information disclosure is examined as a single transmission channel. Independent effects of inquiry rules, delisting rules and investor-structure factors are not quantitatively decomposed, so further research can expand the analysis of transmission mechanisms.

Future research may extend observation windows, adopt indicators such as medium- and long-term stock-price deviation and valuation stability to comprehensively assess long-run pricing efficiency under the registration-based system. Multiple-mediator models can be constructed to compare transmission effects of

different institutional factors. Moreover, the analytical framework can be extended to the Main Board and Beijing Stock Exchange to enable cross-board comparisons of full-market registration-based reform outcomes, providing more comprehensive empirical evidence for deep-going capital-market reforms.

Funding

This research received no external funding.

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

Not applicable.

Conflicts of Interest

The author declares no conflict of interest.

References

1 Zhang JF. IPO Price Caps and Secondary-Market Price Bubbles of New Shares. *China Economic Quarterly* 2020; **19**(**04**): 1345–1368.

2 China Securities Regulatory Commission. Interpretation of Supporting Rules for the ChiNext Registration-Based Reform [Report]. 2020. Available online: https://www. csrc. gov. cn/csrc/c100628/c6116344/content. shtml (accessed on 9 November 2026).

3 Baron DP. A Model of the Demand for Investment Banking Advising. *The Journal of Finance* 1982; **37**(**4**): 955–976.

4 Rock K. Why New Issues Are Underpriced. *Journal of Financial Economics* 1986; **15**(**1–2**): 187–212.

5 Benveniste LM, Spindt PA. How Investment Bankers Determine the Offer Price and Allocation of New Issues. *Journal of Financial Economics* 1989; **24**(**3**): 343–361.

6 Guo X, Jiang DF. Registration-Based Reform, Information Disclosure Quality and IPO Pricing Efficiency. *Securities Market Herald* 2024; **2**: 45–56.

7 Huangfu YB. Research on the Impact of Inquiry Reform under the Registration-Based System on IPO Pricing Efficiency. *Investment Research* 2023; **42**(**08**), 67–82.

8 Dong XL, Liu JN. Research on IPO Pricing Efficiency and Its Influencing Factors on China's STAR Market. *Accounting Research* 2022; **3**: 124–136.

9 Li X, Chen LH. Registration-Based Reform, Market Sentiment and IPO Pricing Bias. *Journal of Financial Economics Research* 2021; **36**(**04**): 112–126.

10 Wang TT, Du MF. Research on the Improvement Mechanism of New-Share Pricing Efficiency under the Registration-Based System. *Journal of Central University of Finance & Economics* 2022; **5**: 56–65.

11 Zhou XH, Liu X. A Comparative Study on IPO Pricing Efficiency under China's Share-Issuance Examination System and Approval-Based System. *Management World* 2006; **11**: 132–139.

12 Ye Y, Pu YJ. Analysis of IPO Pricing Efficiency on China's ChiNext. *Financial Theory & Practice* 2018; **6**: 78–85.

© *The Author(s) 2026. Published by Global Science Publishing* (*GSP*).

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.