

Investor sentiment, registration reform, and post-IPO performance in China's ChiNext market

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ABSTRACT

This study examines how investor sentiment and China's registration-based IPO reform jointly shape IPO pricing and post-listing performance in the ChiNext market. Using a sample of 704 IPOs from 2016 to 2022, this study constructs a composite sentiment index by combining market-based indicators with textual sentiment extracted from online investor comments using a machine learning approach. The results show that stronger pre-IPO sentiment is associated with higher initial returns, indicating sentiment-driven overpricing prior to listing. In contrast, the registration-based reform is linked to lower initial underpricing, suggesting improved price discovery under a more market-oriented issuance system. Over longer horizons, higher sentiment predicts significantly negative abnormal returns, consistent with the correction of initial overvaluation. In addition, elevated sentiment is associated with higher post-listing volatility, particularly in the early aftermarket period. Overall, the findings suggest that investor sentiment and registration-based reform jointly influence IPO outcomes, with institutional reform mitigating mispricing and enhancing market efficiency. This study contributes to the literature by providing evidence on the interaction between behavioral factors and institutional change, and by demonstrating the value of machine learning-based sentiment measures in the analysis of IPO performance.

1. Introduction

Post-listing performance reflects the efficiency of IPO price discovery. In China's IPO market, persistent underpricing and weak long-run performance indicate that prices do not fully incorporate available information at issuance (Deng et al., 2023). Existing explanations emphasize either informational frictions or investor sentiment, yet the interaction between behavioral forces and institutional design remains underexplored.

This study addresses this gap by examining how investor sentiment and the registration-based IPO reform jointly shape IPO outcomes in China's ChiNext market. While investor sentiment can inflate demand and induce temporary mispricing (Guo et al., 2022; Wu & Bu, 2024), regulatory frameworks

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determine how information is disclosed and priced, thereby influencing the extent to which sentiment affects market outcomes (Chang et al., 2017). The transition to a registration-based system provides a quasi-experimental setting to assess whether improved disclosure and market discipline mitigate sentiment-driven distortions (Deng et al., 2024).

This study makes three contributions. First, it develops a unified framework that jointly examines investor sentiment and registration reform, showing how behavioral and institutional forces interact in shaping IPO pricing, long-run performance, and post-listing volatility. Second, it constructs a composite sentiment index that combines market-based proxies with large-scale textual sentiment from online investor discussions, providing a more comprehensive measure of pre-IPO expectations than either approach alone. Third, by using recent ChiNext data through 2022 and observing post-listing outcomes over a three-year horizon, the study offers updated evidence on IPO outcomes in an evolving emerging market setting.

The results show that higher pre-IPO sentiment is associated with greater initial returns, weaker long-run performance, and higher post-listing volatility, consistent with sentiment-driven overvaluation and subsequent correction. In contrast, the registration-based reform is associated with improved price discovery and a reduced impact of sentiment on mispricing. These findings underscore the joint role of behavioral factors and institutional reform in shaping IPO outcomes.

This study is organized as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 describes the data and methodology. Section 4 presents the model fine-tuning procedure, model selection, and construction of the composite sentiment index. Section 5 reports the empirical results. Section 6 presents the robustness tests. Section 7 concludes.

2. Literature review

2.1 Theoretical Foundations

The IPO literature traditionally builds on the notion that prices should reflect available information and adjust efficiently after listing, yet persistent underpricing and long-run underperformance suggest systematic deviations from this benchmark (Lowry et al., 2017; Ritter, 1991). Rational explanations rooted in information asymmetry, including winner's curse (Che Yahya et al., 2025) and signaling models, provide partial explanations for IPO pricing patterns but struggle to account for the magnitude and persistence of observed anomalies, particularly in emerging markets (Su, 2003; Teti & Montefusco, 2021).

A growing stream of research therefore incorporates behavioral perspectives, emphasizing investor sentiment as a key driver of IPO mispricing. Prior studies generally agree that optimistic sentiment increases demand for new issues and leads to higher initial returns, yet they diverge on the persistence and mechanism of this effect. Some studies document rapid post-IPO correction consistent with temporary overvaluation (Vakrman & Krištoufek, 2015), whereas others suggest that limits to arbitrage and retail dominance can prolong mispricing and amplify volatility (Brown & Cliff, 2005). These inconsistencies indicate that sentiment effects are context-dependent and likely interact with market structure and institutional constraints.

Institutional design represents another critical but less integrated dimension. Regulatory frameworks shape disclosure quality, pricing mechanisms, and investor participation (Che Yahya et al., 2014), thereby influencing how sentiment is incorporated into IPO prices. The transition from approval-based to registration-based systems is widely viewed as enhancing transparency and market discipline (Deng et al., 2024), yet the extent to which such reforms mitigate or reshape sentiment-driven mispricing remains theoretically ambiguous. In particular, existing frameworks do not clearly establish whether improved disclosure reduces behavioral biases or simply alters their transmission channels.

2.2 Empirical Evidence on Investor Sentiment, Registration Reform, and IPO Performance

Empirical evidence consistently shows that investor sentiment is positively associated with IPO initial returns, reflecting increased demand and speculative trading during optimistic periods (Ljungqvist et al., 2006; Song & Tang, 2015; Deng et al., 2023). However, findings on long-run performance are less uniform. While many studies report subsequent negative abnormal returns consistent with the correction of initial overvaluation, others find that post-IPO performance depends on market conditions, investor composition, and information environments, suggesting that sentiment effects are neither homogeneous nor universally transitory.

Recent research has also extended sentiment effects to post-listing volatility, highlighting the role of disagreement and trading frictions in amplifying price fluctuations (Dong & Huang, 2022). Nevertheless, most empirical studies examine IPO outcomes in isolation, focusing either on returns or volatility, thereby providing a fragmented view of how sentiment shapes overall IPO performance.

Parallel to the behavioral literature, studies on registration-based reform generally document improvements in price discovery, reduced administrative intervention, and enhanced information disclosure (Deng et al., 2023, 2024). However, this strand of literature largely treats institutional reform as an independent determinant of IPO outcomes, without explicitly considering its interaction with investor sentiment. As a result, it remains unclear whether regulatory improvements attenuate behavioral biases or whether sentiment continues to play a dominant role even under more market-oriented regimes.

More importantly, the existing literature is characterized by two notable limitations. First, behavioral and institutional explanations are typically examined separately, despite their potential joint influence on IPO pricing dynamics. Second, empirical evidence is often based on earlier samples or limited post-listing horizons, which restricts the ability to assess the persistence of sentiment effects in evolving market environments.

This study addresses these gaps by integrating investor sentiment and registration-based reform within a unified empirical framework and by employing recent ChiNext IPO data through 2022, allowing for a three-year post-listing evaluation of both return and volatility dynamics.

2.3 Investor Sentiment Measurement Methods

The measurement of investor sentiment remains a central challenge in empirical finance, as sentiment is inherently unobservable and must be proxied using indirect indicators (Baker & Wurgler, 2007a, 2007b). Existing approaches fall into four main categories: survey-based measures, market-based proxies, composite indices, and text-based sentiment indicators.

Survey-based measures provide direct insights into investor expectations but suffer from limited frequency and coverage, reducing their applicability in high-frequency IPO settings. Market-based proxies, such as turnover and subscription demand, offer timely signals but may conflate sentiment with liquidity or market conditions (Pham et al., 2025). Composite indices improve robustness by aggregating multiple proxies, yet they still rely primarily on trading behavior and may fail to capture investors' underlying beliefs (Nguyen et al., 2024).

Recent advances in textual analysis have enabled the extraction of sentiment from financial news and online discussions, offering a more direct representation of investor expectations (Tetlock, 2007). Empirical studies show that text-based sentiment is positively associated with IPO underpricing and trading activity, suggesting that narrative-driven expectations play an important role in shaping market outcomes (Wang, 2026). However, existing studies typically rely on a single textual source or a limited set of models, raising concerns about measurement error and model dependence (Malo et al., 2013).

Overall, the existing literature suggests that market-based proxies capture observable trading behavior, while textual measures better reflect underlying investor beliefs and narratives, although each approach has limitations when used alone. In IPO settings, where expectations, speculation, and trading pressure interact closely, a composite measure that integrates both market and textual information is therefore more appropriate. Building on this logic, the present study combines market proxies with large-scale textual sentiment extracted from online investor comments and compares multiple natural language processing models to improve measurement accuracy and robustness.

3. Data and Methodology

3.1 Data and Sources

This study examines IPO firms listed on the ChiNext board between February 2016 and September 2022. The sample period is selected to cover IPOs issued under both the approval-based and registration-based regimes, enabling a comparative analysis across distinct institutional settings.

The sample begins in 2016 to ensure a stable pre-reform baseline while avoiding structural breaks and market distortions associated with earlier periods, particularly the 2015 stock market turbulence, which introduced extreme volatility and abnormal investor behavior (Deng et al., 2024). This starting point provides a relatively homogeneous regulatory environment prior to the 2020 reform (Liu et al., 2025). The endpoint of September 2022 ensures sufficient post-listing observations to construct consistent three-year performance and volatility measures (Gompers & Lerner, 2003). Extending the sample to more recent IPOs would result in incomplete horizons and reduce comparability across firms.

The ChiNext market provides a suitable quasi-experimental setting for two reasons. First, the introduction of the registration-based IPO system in 2020 constitutes a discrete institutional shock that fundamentally altered IPO pricing mechanisms, shifting from administrative approval to a disclosure-based and market-oriented regime. This transition improves transparency and allows investors to play a more central role in valuation, thereby generating exogenous variation in the pricing environment. Second, the ChiNext market is characterized by a high proportion of retail investors, making it particularly sensitive to investor sentiment. This feature amplifies behavioral effects and enables clearer identification of how sentiment interacts with institutional change.

IPO and financial data are obtained from the CSMAR database. Financial firms, incomplete observations, and early delisting are excluded to ensure data reliability. Firm characteristics, issuance conditions, and industry fixed effects are included as control variables.

3.2 Cross Sectional Regression Models for Joint Effect of Investor Sentiment and Registration Reform

To disentangle the simultaneous contributions of market psychology and institutional change, this study incorporates both investor sentiment and the registration reform indicator into a unified regression framework.

The underpricing model is specified as:

$$IR_i = \alpha + \beta_1 SENT_i + \beta_2 Reform_i + \Gamma Controls_i + \epsilon_i \quad (1)$$

Here, β_1 captures the behavioral influence of sentiment, while β_2 identifies the average shift in pricing outcomes attributable to the reform.

Medium term performance is estimated analogously, controlling for both sentiment and reform effects:

$$CAAR_i = \alpha + \beta_1 SENT_i + \beta_2 Reform_i + \delta IR_i + \Gamma Controls_i + \epsilon_i \quad (2)$$

$$BHAR_i = \alpha + \beta_1 SENT_i + \beta_2 Reform_i + \delta IR_i + \Gamma Controls_i + \epsilon_i \quad (3)$$

For volatility measures, both short- term and long-term risks are modelled as follows:

$$\sigma_{i,T} = \alpha + \beta_1 \text{SENT}_i + \beta_2 \text{Reform}_i + \Gamma \text{Controls}_i + \epsilon_i, \quad T \in 5 - 252 \quad (4)$$

$$\text{Volatility}_i = \alpha + \beta_1 \text{SENT}_i + \beta_2 \text{Reform}_i + \Gamma \text{Controls}_i + \epsilon_i \quad (5)$$

By estimating these model specifications jointly, the framework captures how sentiment driven demand and structural reforms shape IPO pricing, medium term returns, and risk in China's ChiNext market.

3.3 Measurement of IPO Performance and volatility

IPO performance is assessed from three complementary dimensions: initial return, long run abnormal performance, and post listing volatility. These indicators reflect immediate market pricing at listing, subsequent valuation adjustments over longer horizons, and the evolution of price risk after trading begins. Together, they provide a comprehensive evaluation of IPO outcomes. Detailed variable definitions and summary statistics are reported in Table 1.

Table 1: Measurement of IPO Performance and volatility.

Variable	Notation	Measurement
Initial Return	IR	$IR_{i1} = \frac{P_{i,1} - P_{i,0}}{P_{i,0}}$
Initial Return (First Non-Limit Up Day)	IR	$IR_{i2} = \frac{P_{i,T_i}^c - P_i^o}{P_i^o}$
Long term Performance CAAR	CAAR	$CAAR_{[t_1,t_2]} = \frac{1}{N} \sum_{i=1}^N \sum_{t=t_1}^{t_2} (R_{i,t} - R_{m,t})$
Long term Performance BHAR	BHAR	$BHAR_{i,t} = \left[\prod_{s=\bar{T}_1}^{T_2} (1 + R_{i,s}) - 1 \right] - \left[\prod_{s=\bar{T}_1}^{T_2} (1 + MR_{i,s}) - 1 \right]$
Volatility	VOL	$\sigma_i = \sqrt{\frac{1}{T-1} \sum_{t=1}^T (r_{i,t} - \bar{r}_i)^2}$

3.4 Assessing Investor Sentiment in the ChiNext IPO Market

Investor sentiment is measured through textual analysis of investor discussions on major Chinese online forums using transformer-based language models. Firm level sentiment scores are aggregated around the IPO window and incorporated into the empirical analysis.

A composite sentiment index is further constructed by combining textual signals with market-based indicators (Table 2), including oversubscription ratios and first day turnover. Each proxy is adjusted for macroeconomic conditions using MCI, CPI and PPI, and then the residual components are interpreted as sentiment related deviations. Principal Component Analysis (PCA) is then applied to extract a latent sentiment factor, capturing both narrative tone and trading intensity while reducing multicollinearity.

Table 2: Investor Sentiment Composite Index.

Variable	Notation	Measurement
IPO online Subscription Rate	OSMONL	Number of subscriptions / Shares offered
First day Turnover Rate	MKTTR	Turnover = Volume / Float
Consumer Confidence Index (Lagged, Log)	CCILn	Official index value
Advance Decline Index	ADL	$NUMACC = AD_Line_{t-1} + (Adv_t - Dec_t)$
Arms Index (TRIN)	ARMS	$ARMS_t = \frac{(V_{advancing,t}/V_{declining,t})}{(N_{advancing,t}/N_{declining,t})}$
Text based Sentiment Score	STOCKCMT/ SZCMT/ SZCCMT/ CYCMT	Sentiment score computed using a NLP model applied to investor comments

* MCI: Macroeconomic Climate Index, PPI: Producer Price Index, CPI : Consumer Price Index.

3.5 Multidimensional Control Variables

To isolate the independent effects of investor sentiment on post IPO outcomes, control variables are included that encompass firm characteristics, external certification, governance attributes, and market conditions (Butler et al., 2014). Table 3 details these factors. Firm size and age capture organizational scale, maturity, and information asymmetry (Çolak et al., 2018). Leverage and pre-IPO return on equity reflect financial structure and profitability (Geng & Tan, 2021). Reputable underwriter and Big Four auditor indicators proxy external intermediary credibility (Engelen et al., 2018).

Venture capital backing and ownership concentration address internal monitoring and governance (Su & Bangassa, 2011). IPO lottery winning rate and prelisting market condition control for demand dynamics and timing (Deng et al., 2023). Industry fixed effects account for sectoral differences. This framework mitigates omitted variable bias and bolsters identification of sentiment impacts (Dong & Huang, 2022).

Table 3: Multicollinearity Test Result for Independent Variables and Control Variables.

Variable	Notation	Measurement
Registration System	REGSY	1 if IPO is under RBS, else 0
Firm Size	SIZE	$SIZE_i = \ln(NOS_i \times OFFER_i)$
Firm Age	AGE	$AGE_i = \ln(Year_{IPO,i} - Year_{Estab,i})$
IPO Lottery Winning Rate	WinLR	$WinLR_i = \frac{N_{allocated,i}}{N_{subscribed,i}}$
Underwriter Reputation	UW_DUMM _Y	1 if underwriter is 三 中 一 华, else 0
Private Equity / Venture Capital Backing	PFUND	1 If IPO firm <i>i</i> is backed by PE/VC investors; 0 otherwise
Debt to Asset Ratio	DEBTTOASS ET	$DTA_i = \frac{Total\ Liabilities_i}{Asset_i}$
Return on Equity	ROE	$ROE_i = \frac{Net\ income_i}{Equity_i}$
Major Shareholder Ownership	OWN	$OWN_i = \frac{SHARE1_i}{TOTAL\ SHARES_i}$
Auditor Quality	AUDIT	1 if the IPO firm is audited by a Big 4 or a Top 10 domestic accounting firm; 0 otherwise
Market Conditions	MKTCOND	1 if Bull, 0 if Bear

4. Model Fine Tune, Model Selection, and Investor Sentiment Composite Index

4.1 Model Fine Tune, Model Selection

Investor sentiment classification is implemented by fine tuning transformer-based language models to categorize textual opinions into three ordered states: pessimistic (0), neutral (1), and optimistic (2). Investor comments are collected from the EastMoney Guba within the 30 days preceding each IPO to ensure temporal proximity to the issuance event. Standard preprocessing is applied, including normalization, deduplication, tokenization, stop word removal, and data screening. A finance specific lexicon preserving financial terminology and negation patterns is incorporated to reduce sentiment distortion. After cleaning, the corpus contains approximately 7.76 million comments.

For model construction, 23,000 comments are manually annotated by finance trained reviewers and divided into training, validation, and testing sets using 80, 10, 10 splits. Class imbalance is addressed through weighted cross entropy loss. All candidate models employ a pretrained encoder with a SoftMax classification layer. Hyperparameters are tuned through grid search and early stopping is applied to mitigate overfitting. Several Chinese pretrained language models are evaluated using accuracy and macro F1 metrics, with transformer architectures consistently outperforming baseline methods.

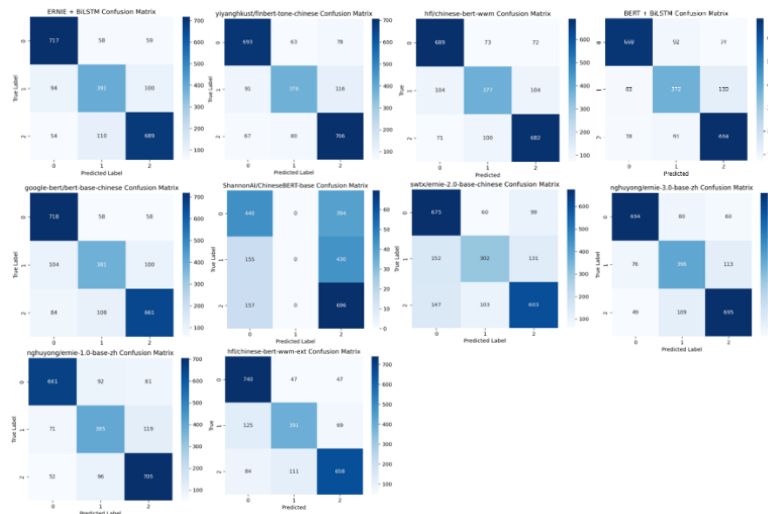


Figure 1: Confusion matrices of Ten natural language processing model.

Among the evaluated models, ERNIE_BiLSTM achieved the best performance, with an accuracy of 0.79 and a macro F1 score of 0.77. The model was therefore selected for large scale sentiment extraction due to its superior ability to capture financial text semantics.

4.2 Investor Sentiment Composite Index construction

Dataset suitability for dimensionality reduction was verified. The Kaiser Meyer Olkin statistic is 0.6514, and Bartlett's test of sphericity is significant ($\chi^2=1445.59, p<0.0001$), confirming sufficient shared variance for principal component analysis (PCA).

PCA is applied to nine standardized indicators. The first five principal components (PC1–PC5) jointly explain 79.74% of the total variance, with a clear decline in marginal contribution thereafter. These components are retained to construct the sentiment index.

The Composite Sentiment Index (CSI) is computed as a weighted sum of the retained components:

$$\text{Composite Sentiment Index} = \sum_{i=1}^5 (W_i \times \text{PC}_i) \quad (6)$$

Weights are defined as:

$$W_i = \frac{\text{Explained Variance of PC}_i}{\sum_{k=1}^5 (\text{Explained Variance of PC}_k)} \quad (7)$$

The resulting CSI captures nearly 80% of the shared variation among sentiment proxies, providing a concise measure of overall market sentiment. The final linear representation is:

$$\text{CSI}_t = 0.199 \text{ OSMONL}_t + 0.263 \text{ MKTTR}_t + 0.180 \text{ CCILn}_t + 0.032 \text{ ADL}_t + 0.175 \text{ ARMS}_t \\ - 0.054 \text{ STOCKCMT}_t + 0.192 \text{ SZCMT}_t + 0.159 \text{ SZCCMT}_t + 0.094 \text{ CYCMT}_t$$

This specification condenses multiple sentiment dimensions into a single interpretable metric while preserving the dominant variation captured by the principal components, facilitating its use in subsequent IPO performance analysis.

5. Presentation And Analysis

5.1 Theoretical Foundations

Table 4: Descriptive Statistics of Main Independent and Control Variables.

	mean	Standard deviation	min	25%	50%	75%	max	skewness	kurtosis
REGSY	0.533	0.499	0	0	1	1	1	-0.131	1.017
CSI	0	0.723	-1.643	-0.629	0.064	0.582	1.565	-0.023	2.053
WinLR	-8.533	0.388	-9.311	-8.808	-8.625	-8.269	-6.777	0.813	3.664
OWN	0.457	0.178	0	0.322	0.441	0.567	1	0.473	3.004
ROE	0.108	0.088	-0.068	0.05	0.091	0.145	1.036	2.781	22.375
DEBTOASSET	0.358	0.154	0.049	0.237	0.35	0.472	0.854	0.223	2.474
SIZE	20.505	0.75	18.969	20.004	20.404	20.853	25.93	1.544	8.785
AGE	15.711	5.43	4.504	11.912	15.025	19.115	40.728	0.621	3.688
MKTCOND	0.008	0.045	-0.289	-0.016	0.009	0.036	0.172	-0.4	7.22
PFUND	0.737	0.44	0	0	1	1	1	-1.078	2.162
UWREP	0.196	0.397	0	0	0	0	1	1.531	3.345
CPAFIRM	0.624	0.485	0	0	1	1	1	-0.51	1.26

Tables 4 and Table 5 present the descriptive statistics and correlation patterns for the main explanatory variables and controls. The Investors sentiment exhibits substantial variation across IPOs and low correlations with firm fundamentals, including profitability, leverage, size, and age, suggesting that it captures behavioral sentiment rather than intrinsic firm value. The registration-based reform indicator (REGSY) is positively associated with CSI, indicating some co-movement between sentiment and institutional conditions.

Both CSI and REGSY show negative correlations with the lottery winning rate (WinLR), reflecting partial overlap between investor demand pressures and regulatory effects. Other governance and certification variables, including ownership concentration, underwriter reputation, and auditor quality, display generally weak pairwise correlations, supporting the identification of independent effects in subsequent regressions.

Table 5: Correlation Result for Independent Variables and Control Variables.

Variables	REGSY	CSI	WinLR	OWN	ROE	DEBTT	ASSET	SIZE	AGE	MKTCOND	PFUND	UWREP	CPAFIRM
REGSY	1.000												
CSI	0.327	1.000											
WinLR	-0.446	-0.469	1.000										
OWN	0.150	0.103	0.007	1.000									
ROE	-0.143	0.013	0.041	0.092	1.000								
DEBTT	0.045	-0.047	0.086	0.047	-0.041	1.000							
ASSET							1.000						
SIZE	0.235	-0.034	0.419	0.127	0.038	0.453		1.000					
AGE	0.167	0.036	-0.017	0.090	-0.105	-0.016	0.041		1.000				
MKTCOND	-0.092	0.235	0.048	-0.016	-0.013	-0.073	-0.052	-0.037		1.000			
PFUND	-0.061	-0.061	0.084	-0.199	-0.077	-0.020	0.021	-0.045	0.103		1.000		
UWREP	0.097	-0.032	0.073	0.068	0.017	0.033	0.237	-0.049	0.023	-0.039		1.000	
CPAFIRM	0.054	0.000	0.013	0.055	-0.033	0.005	0.060	-0.020	0.021	-0.031	0.044		1.000

Clusters of moderate correlations, such as REGSY, CSI, WinLR and SIZE, DEBTT, ASSET, highlight the need for diagnostic checks for multicollinearity, though overall the correlation structure suggests no pervasive collinearity concerns. These descriptive patterns provide initial support for the empirical strategy, indicating sufficient variability to isolate the marginal effects of investor sentiment and the registration reform on IPO outcomes while accounting for firm and market characteristics.

5.2 Multicollinearity Test

Variance Inflation Factor (VIF) analysis was conducted to assess linear dependence among the explanatory variables, including the Investors sentiment (CSI), the registration reform indicator (REGSY), and controls. All VIF values remain well below conventional concern thresholds, with CSI at 1.53 and REGSY at 1.93, while corresponding tolerance values exceed 0.5. These diagnostics indicate that multicollinearity is minimal, ensuring stable coefficient estimation and allowing the marginal effects of investor sentiment and the registration reform to be interpreted reliably.

Table 1: Multicollinearity Test Result for Independent Variables and Control Variables.

Variable	VIF	Tolerance
CSI	1.533318	0.65218043
REGSY	1.931426	0.51775213
WinLR	2.565751	0.38974945
OWN	1.103239	0.90642205
ROE	1.075317	0.92995801

Variable	VIF	Tolerance
DEBTTOASSET	1.372913	0.72837827
SIZE	2.409187	0.41507777
AGE	1.056545	0.94648079
MKTCOND	1.146454	0.87225442
PFUND	1.070931	0.93376698
UWREP	1.086109	0.92071794
CPAFIRM	1.012666	0.98749277

5.3 Relationship between Investor Sentiment, registration-based reforms, and IPO Short term Performance

Table 7 presents the regression results on IPO initial returns. The coefficient on investor sentiment (CSI) is positive and statistically significant, indicating that a one-unit increase in pre-IPO sentiment is associated with a meaningful increase in first-day returns. From an economic perspective, this magnitude suggests that sentiment is not merely a marginal factor but a primary driver of IPO pricing deviations in the ChiNext market. This finding is consistent with prior evidence that optimistic investor sentiment amplifies demand for new issues and leads to higher initial returns, particularly in environments characterized by speculative trading and limited arbitrage (Derrien, 2005; Ljungqvist et al., 2006). In the ChiNext context, where retail participation is dominant, such sentiment-driven demand is more likely to translate into substantial price pressure, thereby increasing the degree of underpricing beyond what would be predicted by information-based explanations alone.

By contrast, the coefficient on the registration-based reform (REGSY) is negative and highly significant, indicating that the reform reduces IPO initial returns by a considerable margin. This effect is economically meaningful, as it implies a substantial improvement in pricing efficiency following the transition to a disclosure-based regime. Compared with the pre-reform period, the reduction in underpricing reflects enhanced transparency, stricter information disclosure requirements, and a diminished role of administrative intervention. This finding aligns with emerging evidence that institutional reforms can improve IPO pricing efficiency by reducing information asymmetry and constraining excessive valuation dispersion (Deng et al., 2024; Tang & Luo, 2024). Importantly, the magnitude of the REGSY coefficient suggests that institutional changes can offset a non-trivial portion of sentiment-driven mispricing, rather than merely exerting a marginal corrective effect.

The results highlight a nuanced interaction between behavioral and institutional forces. While investor sentiment continues to exert a strong positive influence on IPO initial returns, the registration-based reform significantly weakens the extent of underpricing. This suggests that institutional improvements do not eliminate behavioral biases but instead constrain their impact by improving the information environment and pricing discipline. Compared with prior studies that examine sentiment or institutional reform in isolation, this study demonstrates that both factors jointly determine IPO outcomes, and that their relative importance depends on the regulatory context. The results contribute to the literature by showing that even under a more market-oriented issuance regime, sentiment-driven mispricing remains economically significant, although its magnitude is partially mitigated by regulatory reform.

Table 7: Regression result of initial return.

Variables	IR (Initial Return)
Intercept	24.567***
CSI	0.206**
REGSY	-1.121***
WinLR	0.953***
OWN	-0.106
ROE	-2.942***
DEBTTOASSET	0.893*
SIZE	-0.668***
AGE	-0.01
MKTCOND	1.922
PFUND	0.226
UWREP	0.095
CPAFIRM	0.043
Industry Fixed Effects	Yes
R squared	0.251
Adjusted R squared	0.208

5.4 Relationship between Investor Sentiment, registration-based reforms and Long term IPO Performance

Table 8 reports the effects of investor sentiment and the registration-based reform on long-term IPO performance. The coefficients on CSI are consistently negative and statistically significant across one-, two-, and three-year horizons, indicating that higher pre-IPO sentiment leads to economically meaningful long-run underperformance. The magnitude of these coefficients suggests that sentiment-driven overvaluation at issuance is not transitory but results in substantial value correction over time. This finding aligns with the established evidence that IPOs issued during high sentiment periods tend to experience post-listing reversals as prices adjust toward fundamentals (Saade, 2015). In the ChiNext market, where retail investors dominate and speculative trading is prevalent, such overvaluation is likely to be more pronounced, thereby amplifying the extent of long-run return reversals compared with more mature markets (Chan, 2013).

The coefficients on REGSY are also negative and highly significant, suggesting that the registration-based reform is associated with lower long-term abnormal returns. This effect carries important economic implications. Rather than reflecting deteriorating firm performance, the reduction in long-run returns indicates improved pricing efficiency at the IPO stage, whereby initial valuations more closely reflect fundamentals and leave less room for subsequent correction (Tang & Luo, 2024). This interpretation is consistent with recent evidence that enhanced disclosure and market-oriented pricing mechanisms reduce mispricing persistence (Deng et al., 2024). The magnitude of the reform effect further suggests that institutional improvements can materially compress the extent of post-IPO return reversals, highlighting the role of regulatory design in shaping long-term market outcomes.

Taken together, the results provide evidence that long-term IPO performance reflects the interaction between behavioral overvaluation and institutional constraints. While investor sentiment generates systematic overpricing that is gradually corrected over time, the registration-based reform reduces the degree of initial mispricing and, consequently, the scale of subsequent reversals. Compared with prior

studies that primarily attribute long-run underperformance to sentiment or timing behavior alone, this study shows that the persistence and magnitude of return reversals depend critically on the regulatory environment. This highlights the importance of jointly considering behavioral factors and institutional settings when evaluating long-horizon IPO performance in emerging markets.

Table 8: Regression result of Long-term IPO Performance.

Variables	BHAR_1Y	BHAR_2Y	BHAR_3Y
Intercept	-3.005***	-2.074**	-3.096**
CSI (Sentiment)	-0.185***	-0.083***	-0.163***
REGSY	-0.276***	-0.265***	-0.387***
WinLR	-0.236***	-0.169***	-0.291***
OWN	0.114	0.129	0.148
ROE	-0.183	-0.302*	-0.417*
DEBTOASSET	0.011	0.006	0
SIZE	0.038	0.031	0.028
AGE	-0.002	-0.004	-0.003
MKTCOND	0.589*	0.565	1.206***
PFUND	-0.023	-0.044	-0.072*
UWREP	0.02	0.021	-0.024
CPAFIRM	0	-0.001	0.018
IR (Initial Return)	0.073***	0.044***	0.028***
Industry Fixed Effects	Yes	Yes	Yes
R squared	0.263	0.132	0.164
Adj. R squared	0.219	0.081	0.115

5.5 Relationship between Investor Sentiment, registration-based reforms, and Post IPO Volatility

Table 9 presents the relationship between investor sentiment, registration-based reform, and post-IPO realized volatility across different horizons. The coefficients on CSI are positive and statistically significant throughout, with notably larger magnitudes in the early trading windows. This pattern indicates that elevated pre-IPO sentiment generates economically meaningful increases in short-term volatility, reflecting intensified disagreement and speculative trading immediately after listing. In the ChiNext market, where retail investors dominate and short-selling constraints limit arbitrage, optimistic sentiment is more likely to translate into heterogeneous beliefs and aggressive trading, thereby amplifying price fluctuations. This finding is consistent with prior studies showing that sentiment-driven trading increases volatility by widening the dispersion of investor expectations (Lowry et al., 2010). The gradual decline in the magnitude of the coefficients over longer horizons further suggests that such disagreement is progressively resolved as more firm-specific information becomes available (Liu et al., 2025).

The effect of the registration-based reform exhibits a distinct time-varying structure. In the immediate post-listing period, the positive coefficient indicates a temporary increase in volatility, which can be interpreted as heightened uncertainty under a more market-oriented pricing regime. Compared with the approval-based system, the registration-based framework relies more heavily on investor-driven valuation, which may initially lead to greater dispersion in price expectations. However, this effect reverses over longer horizons, with significantly negative coefficients indicating a reduction in volatility (Liu et al., 2025). This reversal is economically meaningful, as it suggests that improved disclosure quality and more

efficient price discovery mechanisms gradually stabilize trading dynamics. This pattern aligns with the view that institutional reforms may initially increase uncertainty but ultimately enhance market efficiency by reducing information asymmetry and improving the incorporation of fundamentals into prices (Deng et al., 2024).

Table 9: Regression result of volatility.

Variables	V5	V10	V15	V20	V25	V30	V60	V90	V180	V252
CSI	0.006***	0.008***	0.005***	0.004***	0.004***	0.004***	0.002**	0.002***	0.003***	0.002***
REGSY	0.032***	0.005	-0.007***	-0.009***	-0.009***	-0.008***	-0.006***	-0.005***	-0.006***	-0.006***
WinLR	0.018*	0.008*	0.008*	0.008*	0.007*	0.007*	0.006*	0.005*	0	-0.002
OWN	0	0.003	0.002	0.001	0.001	0	-0.001	0	0.001	-0.002
ROE	0.002	-0.002	-0.011	-0.016**	-0.015**	-0.015**	-0.014**	-0.014***	-0.009**	-0.010**
DEBTTOASSET	0.013	0.006	0.006	0.006	0.005	0.005	0.003	0.003	0.001	0
SIZE	-0.003	0	-0.003*	-0.004***	-0.003***	-0.004***	-0.002**	-0.002**	-0.001	-0.001*
AGE	0	0	0.000**	0.000**	0.000***	0.000*	0.000*	0	0	0
MKTCOND	-0.059**	-0.042	-0.024	-0.013	-0.011	-0.008	-0.006	-0.013	-0.013	0.002
PFUND	0.003	0.003	0.002	0.002	0.002	0.002*	0.003**	0.003***	0.002*	0.001
UWREP	0.002	-0.003	-0.003*	-0.002	-0.002	-0.001	-0.001	-0.001	0	0.001
CPAFIRM	0.001	-0.001	-0.002	-0.001	-0.001	-0.001	0.001	0	-0.001	0
Intercept	0.226***	0.084	0.154***	0.172***	0.169***	0.165***	0.133***	0.119***	0.056**	0.061***
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.253	0.097	0.092	0.135	0.156	0.15	0.138	0.137	0.135	0.162
Adj. R2	0.21	0.045	0.04	0.085	0.108	0.102	0.089	0.088	0.085	0.114

The results highlight that post-IPO volatility is jointly shaped by behavioral and institutional forces, with distinct temporal dynamics. Investor sentiment primarily drives excess volatility in the early aftermarket stage, whereas the registration-based reform alters the evolution of volatility over time by initially allowing greater price discovery but subsequently reducing persistent fluctuations. Compared with prior studies that focus primarily on sentiment or volatility in isolation, this study shows that the impact of sentiment on risk is conditional on the regulatory environment and evolves systematically over different horizons. This provides new evidence that institutional design not only affects pricing efficiency but also influences the stability of post-listing trading in emerging markets.

6. Robustness Test

6.1 Alternative Measures of IPO Performance And volatility

Robustness To verify the stability of the empirical results, robustness tests are conducted by replacing the baseline dependent variables with alternative measures of IPO outcomes while maintaining the same regression framework including the Investors sentiment (CSI) and the registration system dummy (REGSY).

For short-term performance, two alternative indicators of initial return are employed. The first captures the opening auction reaction:

$$IR_1 = \frac{P_{10} - P_0}{P_0} \quad (8)$$

where P_{10} denotes the first day's opening price and P_0 the offer price. The second measure isolates firm specific abnormal returns by adjusting for contemporaneous market movements:

$$IR_2 = \frac{P_{1c} - P_0}{P_0} - R_m \quad (9)$$

where P_{1c} represents the first day closing price and R_m the market return on the listing day. Across both specifications, CSI remains positively and significantly associated with short term IPO returns, indicating that stronger pre issue sentiment continues to amplify initial pricing pressure. In contrast, REGSY exhibits heterogeneous effects across the two measures, suggesting that registration-based reforms influence the early price formation process in a nuanced manner.

For long-term performance, buy and hold abnormal returns are replaced with cumulative average abnormal returns (CAAR) to reduce potential compounding distortions:

$$CAAR_t = f(\text{CSI}, \text{REGSY}, \text{Controls}) \quad (10)$$

The CSI coefficient remains negative and statistically significant across one-, two-, and three-year horizons, confirming that elevated pre-IPO sentiment predicts subsequent abnormal underperformance. REGSY also shows negative and significant associations with long term returns, indicating that the institutional changes accompanying the registration-based regime are systematically related to post listing return dynamics.

Finally, volatility robustness is assessed by replacing the standard deviation measure with the median absolute deviation (MAD) estimator:

$$MADV_t = 1.4826 \times \text{median}(r_{i,t} - \text{median}(r_{i,t})) \quad (11)$$

where $r_{i,t}$ denotes the logarithmic return of IPO i over horizon t . Under this robust volatility metric, CSI maintains a positive and statistically significant association with post listing volatility across all horizons. REGSY, by contrast, exhibits a moderating influence on longer horizons, suggesting that institutional reforms contribute to greater stability as trading progresses.

Overall, the use of alternative outcome measures does not alter the core empirical relationships. Investor sentiment consistently amplifies initial returns and post listing volatility while predicting long term return reversals, whereas registration-based reforms exert systematic effects on IPO pricing and subsequent market dynamics. These results confirm that the main findings are not sensitive to the specific measurement of IPO performance indicators.

6.2 Alternative Measurement of Investor Sentiment

As an additional robustness test, investor sentiment is remeasured using an alternative composite indicator derived through Principal Component Analysis (PCA). The robust sentiment index (CSI2) is constructed from eight observable proxies reflecting market demand, trading activity, and investor expectations, including IPO online subscription intensity, newly opened trading accounts, market turnover, the logarithm of the consumer confidence index, average market IPO initial returns, and textual sentiment extracted from major investor discussion platforms. PCA is applied to these correlated variables to extract common latent components, and the leading factors are aggregated to form CSI2, which captures prevailing behavioral optimism in the IPO market.

Regression results based on this alternative sentiment measure remain consistent with the baseline findings. CSI2 exhibits a positive and statistically significant association with IPO initial returns, indicating

that stronger pre-IPO sentiment continues to amplify short term underpricing. In contrast, the registration system dummy (REGSY) shows a negative and significant relationship with initial returns, suggesting that the institutional changes introduced by the registration-based regime moderate first day price surges.

For long term performance, CSI2 coefficients remain negative and statistically significant across both buy and hold abnormal returns (BHAR) and cumulative average abnormal returns (CAAR) over one, two, and three year horizons. This pattern indicates that heightened optimism before issuance is associated with subsequent return reversals after listing. REGSY likewise exhibits consistently negative coefficients across these specifications, implying that the registration-based framework is associated with lower abnormal returns over longer horizons.

A similar pattern emerges in the volatility regressions. CSI2 maintains a positive and significant relationship with realized volatility across multiple post listing windows, indicating that elevated sentiment is associated with greater dispersion in returns following listing. By contrast, REGSY displays a declining effect over longer horizons, suggesting that institutional reforms gradually contribute to more stable trading conditions.

Overall, replacing the baseline sentiment measure with the PCA based CSI2 does not alter the core empirical relationships. The robustness results confirm that investor sentiment and registration-based reforms remain significant determinants of IPO initial returns, long term performance, and post listing volatility, indicating that the main findings are not sensitive to the specific construction of the sentiment index.

6.3 Expanded Control Variables

To further test robustness, the regression model is extended by incorporating additional macroeconomic and valuation controls, including the IPO price earnings ratio, the Producer Price Index (PPI), the Consumer Price Index (CPI), and the Macroeconomic Climate Index (MCI). These variables capture valuation conditions and macroeconomic fluctuations that may affect IPO pricing and aftermarket dynamics.

After introducing these controls, the core results remain unchanged. Investor sentiment (CSI) continues to exhibit a positive and significant relationship with IPO initial returns and post listing volatility, while showing a negative association with long term abnormal returns. This pattern indicates that stronger pre-IPO optimism intensifies short term pricing pressure and volatility but leads to subsequent return reversals.

In contrast, the registration system dummy (REGSY) remains negatively associated with initial returns and long-term abnormal performance, while exerting a stabilizing influence on post listing volatility. Overall, the inclusion of additional controls does not alter the main findings, confirming that the effects of investor sentiment and the registration-based reform are robust to alternative model specifications.

6.4 Heterogeneity Analysis

Heterogeneity tests are conducted to examine whether the effects of investor sentiment (CSI) and the registration-based reform (REGSY) vary across different informational and market environments. Subsample regressions are performed according to underwriter quality, auditor reputation, and market conditions.

The sponsor quality analysis reveals that the influence of investor sentiment is more pronounced among IPOs underwritten by non-top tier sponsors. In this group, CSI exhibits a stronger negative association with long term abnormal returns and a positive relationship with post listing volatility, indicating that weaker certification allows sentiment driven mispricing to persist at issuance and subsequently reverse. REGSY remains significantly negative for both initial and long-term returns, suggesting that the registration-based system reduces underpricing and mitigates long run overvaluation even when intermediary certification is limited. In contrast, the marginal effects of both CSI and REGSY are weaker among IPOs sponsored by

top tier underwriters, consistent with the certification hypothesis that reputable intermediaries restrain sentiment driven pricing distortions.

A similar pattern emerges in the auditor quality subsample. When IPOs are audited by high reputation accounting firms, CSI shows clearer effects on initial pricing, long term reversals, and volatility, implying that stronger information environments facilitate the transmission of sentiment into market prices. REGSY also demonstrates more pronounced effects within this group, indicating that regulatory reforms operate more effectively when credible information verification is present. By contrast, the influence of CSI becomes less stable for IPOs audited by lower reputation firms, while the reform effect remains weaker.

The market condition heterogeneity further indicates that sentiment effects are state dependent. Under weaker market conditions, CSI has a stronger positive association with initial returns and a more pronounced negative relationship with long run performance, suggesting that sentiment induced mispricing is amplified when valuation benchmarks are uncertain. REGSY remains significantly negative for initial returns across both market states and displays stronger stabilizing effects under unfavorable market conditions.

Overall, the heterogeneity results indicate that the impacts of investor sentiment and the registration-based reform depend on the quality of information intermediaries and prevailing market conditions. Sentiment effects are strongest in environments characterized by weaker certification or adverse market states, while the institutional reform consistently moderates mispricing and volatility across subsamples.

7. Conclusion

This study examines the influence of investor sentiment and the registration-based IPO reform on ChiNext IPO outcomes, focusing on short-term returns, long-term performance, and post-listing volatility. By integrating textual sentiment from online financial forums with structured market indicators, a composite sentiment index is constructed, providing a comprehensive and behaviorally grounded measure of pre-IPO expectations.

Empirical results show that elevated pre-IPO sentiment significantly increases initial returns, reflecting sentiment-driven price inflation and heightened subscription demand in a retail-dominated market with limited arbitrage. In contrast, the registration-based reform reduces initial underpricing, indicating enhanced price discovery and a stronger role of market discipline under a disclosure-oriented regime. Over medium-term and long-term horizons, high pre-issue optimism predicts negative abnormal returns, consistent with the gradual correction of initial overvaluation as market expectations converge toward fundamentals. Post-listing volatility is also higher for IPOs issued under strong sentiment, suggesting that optimistic expectations amplify risk through increased disagreement and trading intensity.

This study makes several contributions to literature. First, it advances research on investor sentiment by developing a composite sentiment measure that combines large-scale textual analysis with market-based indicators, thereby capturing both narrative expectations and observable trading behavior. Compared with conventional single-proxy approaches, this method provides a more comprehensive and empirically robust representation of sentiment in IPO settings. Second, the study contributes to the institutional literature by incorporating the registration-based reform into the analysis as a quasi-experimental setting, demonstrating how regulatory change alters the transmission and magnitude of sentiment-driven mispricing. Third, by jointly examining short-term returns, long-term performance, and volatility, the study provides a more integrated view of IPO outcomes, showing that behavioral and institutional factors jointly shape both return dynamics and risk in emerging markets.

Despite these contributions, several limitations should be acknowledged. The joint identification of investor sentiment and regulatory reform remains subject to potential endogeneity concerns, as both variables may be influenced by underlying market conditions. In addition, the reliance on cross-sectional models limits the ability to fully capture dynamic feedback effects between sentiment, prices, and trading

behavior over time. The sentiment measure, while enhanced through textual analysis, may still be affected by selection bias in online investor participation.

Future research may extend this study in several directions. First, stronger causal identification strategies, such as difference-in-differences designs or instrumental variable approaches, could be employed to better isolate the effects of sentiment and institutional reform. Second, alternative sentiment measures incorporating multi-source textual data or higher-frequency indicators may further improve measurement accuracy. Third, expanding the analysis to other IPO markets or regulatory environments would help assess the generalizability of the findings and provide comparative insights into how institutional settings shape sentiment-driven market behavior.

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Conflict of interest statement

The authors declare that this research was conducted in the absence of any self-benefits, commercial or financial interests that could influence the work reported in this paper.

Ethics statement

This study does not involve human participants, animal subjects, or experimental interventions. The research is based entirely on secondary financial data and publicly accessible online textual information. The financial data were obtained from the CSMAR Database, a widely recognized academic database. The textual data were collected from publicly available content on Eastmoney through automated data collection techniques for academic research purposes. All data collection and processing procedures were conducted in compliance with applicable regulations and academic ethical standards. No personal identifiable information was collected or used. Therefore, ethical approval and informed consent were not required for this study.

Declaration of Generative AI

During the preparation of this work, the authors used ChatGPT and Gemini in order to improve the readability and language of the manuscript, including grammar checking and sentence polishing. After using these tools/services, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Data availability/supplementary materials

The data that support the findings of this study are available from the corresponding author upon reasonable request. The financial dataset is sourced from the CSMAR Database, which is subject to licensing restrictions. The textual dataset was constructed by the authors using publicly available information from Eastmoney. Due to data usage agreements and platform policies, the raw data cannot be fully shared publicly. However, the authors are willing to provide processed data and detailed descriptions of data collection procedures, variable construction, and empirical methods to ensure the reproducibility of the study.

No supplementary materials are associated with this article.

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Zhao Zhong Qin was responsible for the research design, data collection, empirical analysis, interpretation of results, and manuscript drafting. Norliza Che-Yahya provided supervision, theoretical guidance, and critical revision of the manuscript. Both authors reviewed and approved the final version of the manuscript.



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